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January 30, 2026

Mr. Brian Rath
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Iowa Department of Natural Resources
6200 Park Avenue, Suite 200
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2025 IDNR Template Tables
Louisa Generating Station East Monofill
Muscatine, Iowa
Permit 70-SDP-16-04P

Dear Brian:

GHD Services Inc. (GHD) has prepared Table 7 and Table 9 using the general format provided in the Iowa Department of Natural Resources' (IDNR's) *Annual Water Quality Report Template for Non-Municipal Landfills*. Table 7 and Table 9, provided in Attachment 1, are modified as approved during our January 23, 2025 telephone conversation with Geoffrey Spain (IDNR) and Josh Love of MidAmerican Energy Company. A comparison of the IDNR Action Levels from 567 Iowa Administrative Code (IAC) Chapter 103 to the criteria specified in the federal CCR rule (40 CFR §257) is provided in Attachment 2.

In Attachment 3, the 2025 groundwater monitoring results are compared to the Maximum Contaminant Level (MCL) or Health Advisory Lifetime (HAL) as described in 567 IAC Chapter 103, paragraph 103.1(4)d.

Attachment 4 provides a crosswalk table to reference the items provided in the Annual Groundwater Monitoring and Corrective Action Report prepared under the Federal CCR rule with the IDNR's *Annual Water Quality Report Template for Non-Municipal Landfills*.

If you have any questions regarding these tables, please contact Kevin Armstrong.

Regards,

A handwritten signature in black ink that reads "Kevin G. Armstrong".

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KA/mss/10/S3

Encl. Attachment 1 - IDNR Template Table 7 and Table 9
Attachment 2 - Iowa CCR Rule and Federal CCR Rule Criteria Summary
Attachment 3 - MCL/HAL Comparison Table
Attachment 4 - IDNR Template to AGWMCAR Cross Reference Table

Copy to: Jamie Murphy, MidAmerican Energy Company
Josh Love, MidAmerican Energy Company

Attachments

Attachment 1

IDNR Template Table 7 and Table 9

Summary of Ongoing and Newly Identified Control Limit Exceedances
2025 Annual Water Quality Report
Louisa Generating Station - East Monofill
Permit No. 70-SDP-16-04P

Well	Constituent	Units	Most recent result	Background Standard	Groundwater Protection Standard 40 CFR §257.95(h)
MW-213A (Background)	Radium-226 & 228	pCi/L	1.12	1.026	5
MW-221A (Background)	Chloride	mg/L	14.9	5.21	None
	Sulfate	mg/L	29.5	14.8	None
	Radium-226 & 228	pCi/L	1.43	1.026	5
MW-230	Total Dissolved Solids (TDS)	mg/L	272	74.0 - 198	None
	Barium	mg/L	0.0452	0.0396	2.0
	Radium-226 & 228	pCi/L	1.03	1.026	5
MW-231	Calcium	mg/L	82.4 / 72.7	64.6	None
	pH, lab	s.u.	7.6 J / 7.7 J	7.89 - 8.49	None
	Total Dissolved Solids (TDS)	mg/L	318 / 316	276	None
	Barium	mg/L	0.0738 / 0.0656	0.0396	2.0
	Radium-226 & 228	pCi/L	0.547 / 1.77	1.026	5
MW-232	pH, lab	s.u.	7.8 J	8.04 - 8.48	None
	Sulfate	mg/L	46.1	3.99 - 5.80	None
	Total Dissolved Solids (TDS)	mg/L	278	193	None
	Barium	mg/L	0.0511	0.0396	2.0
	Radium-226 & 228	pCi/L	1.25	1.026	5
MW-233	Calcium	mg/L	73.0	64.6	None
	Chloride	mg/L	6.30	< 5.0	None
	pH, lab	s.u.	7.6 J	7.88 - 8.42	None
	Sulfate	mg/L	37.4	5.6	None
	Total Dissolved Solids (TDS)	mg/L	336	217	None
	Barium	mg/L	0.0651	0.0396	2.0
	Sulfate	mg/L	20.1	16.5	None
MW-234	Radium-226 & 228	pCi/L	1.17	1.026	5

Comments:

Statistics are based on the baseline concentration (upper prediction limit) developed in accordance with the Federal CCR rule.

Table 4.6 of the Annual Groundwater Monitoring and Corrective Action Report compares the MCL, GWPS, and background concentrations for the Appendix IV Parameters. The MCL or GWPS is used as the basis for comparison as specified in 40 CFR §257.95(h).

Table 4.5 of the Annual Groundwater Monitoring and Corrective Action Report provides the prediction limits established for the Appendix III and IV analytes.

The following Appendix III/IV analyte(s) are compared to the background concentration (inter-well prediction limit), no IDNR Action Level has been established: calcium.

The following Appendix III analyte(s) are compared to the intra-well prediction limits, which differ from the IDNR Action Level: pH, lab.

The following Appendix IV analyte(s) are compared to the background concentration, which is higher than the IDNR action level: None.

Table 9

Historical Control Limit & GWPS Exceedances
2025 Annual Water Quality Report
Louisa Generating Station - East Monofill
Permit No. 70-SDP-16-04P

Key: gray =CL; black =GWPS		March 2020	June 2020	September 2020	December 2020	March 2021	May 2021	September 2021	November 2021	March 2022	September 2022	March 2023	September 2023	March 2024	August 2024	March 2025	September 2025
Well	Constituent																
MW-213A (Background)	Chloride		ns		ns				ns								
	pH, lab		ns		ns				ns								
	Sulfate		ns		ns				ns								
	Radium-226 & 228	na	ns	na	ns				ns								
MW-221A (Background)	Chloride		ns		ns				ns								
	pH, lab		ns		ns				ns								
	Sulfate		ns		ns				ns								
	Radium-226 & 228		ns		ns				ns								
MW-230	Calcium		na						ns								
	pH, lab		na		na				ns								
	Sulfate								ns								
	Total Dissolved Solids (TDS)		na						ns								
	Barium	na	na	na	na				ns								
	Radium-226 & 228	na	na	na	na		na		ns								
MW-231	Calcium								ns								
	pH, lab		na		na				ns								
	Sulfate								ns								
	Total Dissolved Solids (TDS)		na		na				ns								
	Arsenic	na	na	na	na		na		ns								
	Barium	na	na	na	na		na		ns								
	Cobalt	na	na	na	na		na		ns								
	Lead	na	na	na	na		na		ns								
MW-232	Radium-226 & 228	na	na	na	na		na		ns								
	Calcium								na	ns							
	Chloride		na		na				na	ns							
	pH, lab		na		na				na	ns							
	Sulfate		na						na	ns							
	Total Dissolved Solids (TDS)		na		na				na	ns							
	Barium	na	na	na	na				na	ns							
MW-233	Radium-226 & 228	na	na	na	na		na		na	ns							
	Calcium								na								
	Chloride		na		na				na								
	pH, lab		na		na				na								
	Sulfate		na		na				na								
	Total Dissolved Solids (TDS)		na		na				na								
	Barium	na	na	na	na				na								
MW-234	Radium-226 & 228	na	na	na	na		na		na								
	pH, lab		na		na				ns								
	Sulfate		na		na				ns								
	Total Dissolved Solids (TDS)				na				ns								
	Radium-226 & 228	na	na	na	na		na		ns								

Historical Control Limit & GWPS Exceedances
2025 Annual Water Quality Report
Louisa Generating Station - East Monofill
Permit No. 70-SDP-16-04P

Comments:

ns - No sample collected during this sampling event.

na - Constituent not analyzed.

Statistics are based on the baseline concentration (upper prediction limit) developed in accordance with the Federal CCR rule.

Table 4.6 of the Annual Groundwater Monitoring and Corrective Action Report compares the MCL, GWPS, and background concentrations for the Appendix IV Parameters. The MCL or GWPS is used as the basis for comparison as specified in 40 CFR §257.95(h).

Table 4.5 of the Annual Groundwater Monitoring and Corrective Action Report provides the prediction limits established for the Appendix III and IV analytes.

The following Appendix III/IV analyte(s) is compared to the background concentration (inter-well prediction limit), no IDNR Action Level has been established: calcium.

The following Appendix III analyte(s) are compared to the intra-well prediction limits, which differ from the IDNR Action Level: pH, lab.

The following Appendix IV analyte(s) are compared to the background concentration, which is higher than the IDNR action level: None.

 Grey shading indicates exceedance of the prediction limit.

 Black shading indicates exceedance of the site-specific Groundwater Protection Standard (GWPS).

Attachment 2

Iowa CCR Rule and Federal CCR Rule Criteria Summary

Iowa CCR Rule and Federal CCR Rule Criteria Summary for Louisa Generating Station East Monofill Groundwater
MidAmerican Energy Company
East Monofill
Muscatine, Iowa

		IDNR CCR Rule			Federal CCR Rule				Basis for Comparison on IDNR Template Tables
		567 IAC Chapter 103, paragraph 103.1(4)d			40 CFR 257.95(h)(1) - 40 CFR 257.95(h)(3)				
Analytes	Units	MCL ^a	HAL ^b	SDWR ^c	MCL ^a	CCR Rule GWPS ^d	Site-Specific Background ^e	Site-Specific GWPS	
Appendix III									
Boron	mg/L	--	6	--	--	--	0.200 U	none	Use HAL.
Calcium	mg/L	--	--	--	--	--	64.6	none	No MCL or HAL, so use background for comparison.
Chloride	mg/L	--	--	250	--	--	5.0 U - 9.60	none	Use secondary MCL.
pH, lab	s.u.	--	--	6.5-8.5	--	--	7.41 - 8.86	none	Use baseline for comparison (differs from secondary MCL)
Sulfate	mg/L	--	--	250	--	--	3.99 - 45.2	none	Use secondary MCL.
TDS	mg/L	--	--	500	--	--	74.0 - 292	none	Use secondary MCL.
Appendix IV									
Antimony	mg/L	0.006	0.006	--	0.006	--	0.00100 U	0.006 ^a	Federal site-specific GWPS equal to the MCL and HAL.
Arsenic	mg/L	0.01	--	--	0.01	--	0.00200 U	0.0100	Federal site-specific GWPS equal to the MCL.
Barium	mg/L	2.0	--	--	2.0	--	0.0396	2.0 ^a	Federal site-specific GWPS equal to the MCL.
Beryllium	mg/L	0.004	--	--	0.004	--	0.00100 U	0.004 ^a	Federal site-specific GWPS equal to the MCL.
Cadmium	mg/L	0.005	0.005	--	0.005	--	0.000500 U	0.005 ^a	Federal site-specific GWPS equal to the MCL and HAL.
Chromium	mg/L	0.1	--	--	0.1	--	0.0423	0.1 ^a	Federal site-specific GWPS equal to the MCL.
Cobalt	mg/L	--	--	--	--	0.006	0.000500 U	0.006 ^d	Federal GWPS (no MCL or HAL).
Fluoride	mg/L	4.0	--	--	4.0	--	0.588	4.0 ^a	Federal site-specific GWPS equal to the MCL.
Lead	mg/L	0.015 ^f	--	2.0	--	0.015	0.000862	0.015 ^d	Federal site-specific GWPS equal to the MCL.
Lithium	mg/L	--	--	--	--	0.040	0.01 U	0.04 ^d	Federal GWPS (no MCL or HAL).
Mercury	mg/L	0.002	0.002	--	0.002	--	0.0002 U	0.002 ^a	Federal site-specific GWPS equal to the MCL and HAL.
Molybdenum	mg/L	--	0.04	--	--	0.100	0.002 U	0.100 ^d	Federal GWPS (higher than the HAL).
Radium-226 & 228	pCi/L	5	--	--	5	--	1.026	5 ^a	Federal site-specific GWPS equal to the MCL.
Selenium	mg/L	0.05	0.05	--	0.05	--	0.0238 U	0.05 ^a	Federal site-specific GWPS equal to the MCL.
Thallium	mg/L	0.002	--	--	0.002	--	0.00100 U	0.002 ^a	Federal site-specific GWPS equal to the MCL.

Notes:

-- - Not applicable.

U - Not detected at the associated reporting limit.

^a Maximum contaminant level (MCL) - used in both IDNR and Federal CCR rules.

^b Drink Water Health Advisory - Lifetime (HAL).

^c Secondary Drinking Water Regulation (SDWR).

^d Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

^e Background concentration (inter-well prediction limit) developed in accordance with the Federal CCR rule, determined from baseline data set for MW-213A and MW-221A (40 CFR 257.95(h)(3)).

^f Action level for lead (treatment technique).

409 Federal site-specific GWPS varies from state action levels (MCL, HAL, SDWR).

Attachment 3

MCL/HAL Comparison Table

2025 Monitoring Analytical Results Summary
MidAmerican Energy Company
Louisa Generating Station East Monofill - Muscatine, Iowa
Permit No. 70-SDP-16-04P

Sample Location:					MW-213A	MW-213A	MW-221A	MW-221A	MW-230	MW-230	MW-231	MW-231
Sample ID:					MW-213A_25_03	MW-213A_25_09	MW-221A_25_03	MW-221A_25_09	MW-230_25_03	MW-230_25_09	MW-231_25_03	FD-1_25_03
Sample Date:					3/24/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	3/24/2025 (Duplicate)
Parameters	Units	MCL ^a	HAL ^b	SDWR ^c								
Appendix III												
Boron	mg/L	--	6	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	--	--	--	39.2	39.3	38.1	46.6	58.6	59.5	76.0	71.2
Chloride	mg/L	--	--	250	7.04	5.77	5.07	14.9	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4.0	--	2.0	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	--	--	6.5 - 8.5	7.9 J	8.0 J	8.0 J	8.0 J	7.8 J	7.8 J	7.6 J	7.7 J
Sulfate	mg/L	--	--	250	13.3	9.01	12.8	29.5	17.5	29.8	12.1	7.57
Total dissolved solids (TDS)	mg/L	--	--	500	164	188	160	200	240	272	294	306
Appendix IV												
Antimony	mg/L	0.006	0.006	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.01	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	2.0	--	--	0.0297	0.0292	0.0299	0.0338	0.0498	0.0452	0.0705	0.0665
Beryllium	mg/L	0.004	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.005	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.1	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	--	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.015 ^d	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	--	--	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	0.002	0.002	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	--	0.04	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	--	--	0.0303	1.12	0.519	1.43	0.600	1.03	0.228	0.439
Selenium	mg/L	0.05	0.05	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.002	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Field												
Conductivity, field	mS/cm	--	--	--	0.31	0.307	0.27	0.36	0.46	0.442	0.57	--
Dissolved oxygen (DO), field	mg/L	--	--	--	6.65	7.733	10.54	8.34	9.86	9.233	7.26	--
Oxidation reduction potential (ORP), field	millivolts	--	--	--	-41.2	179.5	-28.3	157.9	-15.2	154.3	0.4	--
pH, field	s.u.	--	--	--	7.7	7.68	7.83	7.914	7.55	7.646	7.3	--
Temperature, sample	Deg C	--	--	--	13.88	13.66	12.89	14.36	14.08	15.51	12.96	--
Turbidity, field	NTU	--	--	--	0	0	0	0	2.17	0	0	--

2025 Monitoring Analytical Results Summary
MidAmerican Energy Company
Louisa Generating Station East Monofill - Muscatine, Iowa
Permit No. 70-SDP-16-04P

Sample Location:	MW-231	MW-231	MW-232	MW-232	MW-233	MW-233	MW-234	MW-234
Sample ID:	MW-231_25_09	FD-1_25_09	MW-232_25_03	MW-232_25_09	MW-233_25_03	MW-233_25_09	MW-234_25_03	MW-234_25_09
Sample Date:	9/9/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	9/9/2025

Parameters **Units**

Appendix III

Boron	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	82.4	72.7	66.9	56.5	81.0	73.0	27.5
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.76	6.30	5.00 U
Fluoride	mg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	7.6 J	7.7 J	7.7 J	7.8 J	7.7 J	7.6 J	8.3 J
Sulfate	mg/L	8.98	9.04	77.9	46.1	39.4	37.4	25.6
Total dissolved solids (TDS)	mg/L	318	316	342	278	348	336	144

Appendix IV

Antimony	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.0738	0.0656	0.0622	0.0511	0.0708	0.0651	0.0204
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	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
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	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	0.547	1.77	0.436	1.25	0.211	0.282	1.17
Selenium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Field

Conductivity, field	mS/cm	0.568	--	0.49	0.469	0.5	0.576	0.28	0.243
Dissolved oxygen (DO), field	mg/L	6.65	--	9.84	9.572	8.45	5.804	11.03	10.02
Oxidation reduction potential (ORP), field	millivolts	149	--	4.7	150.9	24.3	133.2	14.9	183.6
pH, field	s.u.	7.376	--	7.43	7.578	7.14	7.477	7.62	8.19
Temperature, sample	Deg C	15.77	--	13.61	15.17	13.33	15	12.76	14.8
Turbidity, field	NTU	0	--	0	0	0	0	0	0

Notes:

^a Maximum contaminant level (MCL) established under 40 CFR 257.95(h)(1).

^b Drink Water Health Advisories - Life-time established in the 2018 Edition of the Drinking Water Standards and Health Advisories (EPA 822-F-18-001).

^c Secondary Drinking Water Regulation.

^d Action level for lead (treatment technique).

1.00 Value exceeds the MCL, or HAL where MCL not established.

J - Estimated concentration.

U - Not detected at the associated reporting limit.

Attachment 4

**IDNR Template to AGWMCAR Cross
Reference Table**

Louisa Generating Station - East Monofill
Permit No. 70-SDP-16-04P

Annual Water Quality Report Template for Non-Municipal Landfills	Annual Groundwater Monitoring and Corrective Action Report	Notes
Table 1 Monitoring Program Summary	Table 2.1 Groundwater Monitoring Well Network	Lists all wells in monitoring network.
	Table 2.6 Summary of Groundwater Monitoring Events	Lists total number of samples from monitoring programs since March 2018.
	Table 4.5 Comparison of Monitoring Results to Intra-well Prediction Limits for Constituents in Groundwater	Compares current reporting period's groundwater data to the prediction limit value (control limit).
	Section 1 Introduction	States the current monitoring program.
	Section 2.1 Groundwater Monitoring Network	Describes the aquifer characteristics.
	Section 6.3 Recommendations	Provides recommended changes, if any, to the monitoring network.
Table 2 Monitoring Program Implementation Schedule	Table 2.6 Summary of Groundwater Monitoring Events	Provides summary of sampling events since March 2018.
Table 3 Monitoring Well Maintenance and Performance Revaluation Schedule	Section 2.2 Monitoring Well Inspection	States the frequency of total depth measurements (annually).
Table 4 Monitoring Well Maintenance and Performance Summary	Table 2.2 Well Construction Details	Provides well coordinates and elevations for TOC, original total depth, ground surface, top of screen, and bottom of screen.
	Table 2.3 Monitoring Well Screen Occlusion Evaluation	Provides TOC elevation, original total depth below TOC, screen length, annual total depth measurements, and percent of screen occluded.
	Table 3.1 Groundwater Elevation Summary	Provides groundwater elevation data, past elevations through elevations during the current reporting period.
Table 5 Background Summary	Table 4.4 Revised Baseline Monitoring Inter-well and Intra-well Prediction Limits for Constituents in Groundwater	Summary of inter-well evaluation from pooled background well data. Provides the prediction limit value (background level).
Table 6 Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances	Table 4.5 Comparison of Monitoring Results to Intra-well Prediction Limits for Constituents in Groundwater	Compares current reporting period's groundwater data to the prediction limit value (control limit).
Table 7 Summary of Ongoing and Newly Identified Control Limit Exceedances	--	Table 7 is provided to IDNR.
Table 8 Analytical Data Summary	Table 4.1 Revised Baseline Period Groundwater Monitoring Data	Provides groundwater analytical data from the baseline period at the CCR Monofill.
	Table 4.2 Monitoring Data	Provides groundwater analytical data for the current reporting period at the CCR Monofill.
Table 9 Historic Control Limit & GWPS Exceedances	--	Table 9 is provided to IDNR.
Table 10 Groundwater Quality Assessment Plan Trend Analysis	Section 4 Groundwater Monitoring	Section 4 discusses trends in groundwater data, during baseline monitoring and current reporting period.
Table 11 Leachate Management Summary	Annual Leachate Report	The Annual Leachate Report documents the leachate management activities for the current reporting period. Provides analytical data, leachate head, and leachate volume measurements.
Table 12 Gas Monitoring Summary	NA	Not applicable since the CCR Monofill holds CCR and does not generate gas.



Annual Groundwater Monitoring and Corrective Action Report for the East Monofill

**Permit 70-SDP-16-04P
Louisa Generating Station
Muscatine, Iowa**

MidAmerican Energy Company

January 30, 2026

Certification

Annual Groundwater Monitoring and Corrective Action Report for the East Monofill
Permit 70-SDP-16-04P
Louisa Generating Station
Muscatine, Iowa
MidAmerican Energy Company

I certify this Annual Groundwater Monitoring and Corrective Action Report meets the requirements of 40 CFR §257.90(e).

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.	
	 Michael J. Alowitz, P.E.	 Date
	License Number: 18160	
	My license renewal date is: December 31, 2026	
	Pages or sheets covered by this seal: Entire Document	

Executive summary

In compliance with 40 CFR §257.90(e)(6), this executive summary provides an overview of the current status of groundwater monitoring and corrective action programs for the Louisa Generating Station coal combustion residual (CCR) East Monofill located near Muscatine, Iowa.

Item	Current Status
(e)(6)(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	At the start of the current annual reporting period, this CCR unit was operating under the assessment monitoring program (40 CFR §257.95).
(e)(6)(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	At the end of the current annual reporting period, this CCR unit was operating under the assessment monitoring program (40 CFR §257.95).
(e)(6)(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to §257.94(e):	
Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and	Verified statistically significant increases were detected for the following Appendix III constituents during the calendar year 2025 reporting period: – Calcium at MW-231, and MW-233 – Chloride at MW-233 – pH at MW-231, MW-232, and MW-233 (decrease) – Sulfate at MW-232, MW-233, and MW-234 – TDS at MW-230, MW-231, MW-232, and MW-233.
Provide the date when the assessment monitoring program was initiated for the CCR unit.	Assessment monitoring for this CCR unit was initiated in March 2021.
(e)(6)(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to §257.95(g) include all of the following:	
Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;	No Appendix IV constituents were detected at a statistically significant level above the corresponding groundwater protection standard.
Provide the date when the assessment of corrective measures was initiated for the CCR unit;	A corrective measures assessment is not required for this CCR unit.
Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	A public meeting for assessment of corrective measures is not required for this CCR unit.
Provide the date when the assessment of corrective measures was completed for the CCR unit.	A corrective measures assessment is not required for this CCR unit.
(e)(6)(v) Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection; and	A remedy selection is not required for this CCR unit.
(e)(6)(vi) Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.	No remedial activities pursuant to §257.98 occurred during the current annual reporting period for this CCR unit.

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1. Introduction

This Annual Groundwater Monitoring and Corrective Action Report was prepared by GHD on behalf of MidAmerican Energy Company (MidAmerican) in compliance with the Federal Coal Combustion Residual (CCR) rule (40 CFR Part 257) for the Louisa Generating Station (LGS) East Monofill located near Muscatine, Iowa. The East Monofill is located approximately 4 miles south of the city of Muscatine, Iowa in Section 4, Township 75N, Range 2W in Louisa County, Iowa. The Site Location Map (Figure 1.1) shows the location of the East Monofill and MidAmerican's LGS facilities. The West Monofill at the LGS facility is closed and its groundwater monitoring is reported separately from the East Monofill. The East Monofill extent, including cell layout, associated facilities, and monitoring well locations, are shown on Figure 1.2.

Construction of the East Monofill Cell 1 was completed in 2018, with the initial CCR placed in the East Monofill on October 15, 2018. Cells 2 and 3 at the East Monofill were constructed in 2019. 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, but no changes to the monitoring network were required.

MidAmerican initiated baseline groundwater monitoring in accordance with the Federal CCR rule in March 2018. The initial eight rounds of baseline sampling and analysis were completed for each monitoring well during the first six months of sampling, as required in the CCR rule for new monofills (40 CFR §257.94). The initial six month baseline period occurred prior to placement of CCR in the East Monofill. Subsequent monitoring at upgradient background wells demonstrated increases in parameter concentrations unrelated to the East Monofill, suggesting that the short baseline period did not represent the full extent of temporal variation occurring naturally in local groundwater. Therefore, the baseline period was modified (extended) to include samples collected through March 2020. In 2021, the East Monofill entered into assessment monitoring. Two assessment monitoring events were completed in 2025 (March 24-26 and September 3-9, 2025) and the data from these two events are included in this report.

The uppermost aquifer in the vicinity is the Mississippi River alluvial aquifer. The surficial deposits in this area consist of poorly graded, medium-grained alluvial sands and gravelly sands with isolated sand and silt deposits, and extend to depths ranging from 160 to 200 feet below ground surface (bgs) (Foth, 2016). The uppermost bedrock in the area is Cedar Valley limestones and dolomites of the Middle Devonian Period (Hansen and Steinhilber, 1977).

2. Groundwater Monitoring Activities

2.1 Groundwater Monitoring Network

The groundwater monitoring network consists of fifteen monitoring points (monitoring wells MW-202A, MW-202B, MW-210A, MW-210B, MW-213A, MW-213B, MW-221A, MW-221B, and MW-230 through MW-234, and piezometers PZ-203 and PZ-214). No changes to the groundwater monitoring network were made during this reporting period. Groundwater elevation data were collected from the fifteen wells and piezometers, and groundwater samples were collected from seven of the monitoring wells (MW-213A, MW-221A, and MW-230 through MW-234). The seven sampled monitoring wells are screened near the water table (with screened intervals from approximately 38 to 64 feet bgs), four of the remaining eight monitoring wells and piezometers are also screened near the water table, while the remaining four are screened in a deeper portion of the alluvial aquifer (approximately 70 to 80 feet bgs). Horizontal spacing between the downgradient shallow alluvial aquifer monitoring wells is approximately 200 feet. Groundwater samples are used to assess potential impacts of the East Monofill on surrounding groundwater. Groundwater elevation data are used to identify upgradient and downgradient monitoring points at the East Monofill. The monitoring well network and monitoring well details are provided in Tables 2.1 and 2.2, respectively. Table 2.2

includes monitoring wells associated with the West Monofill which are used to support groundwater elevation mapping but are not a part of the East Monofill monitoring network.

2.2 Monitoring Well Inspection

During each sampling event, the monitoring wells were visually inspected and deficient conditions of the monitoring wells were noted on the sampling forms (when applicable). Wells are maintained with a well cap and a lockable protective casing. Observations include the condition of the protective casing/vault and surrounding ground surface.

All monitoring wells in the groundwater monitoring system consist of 2-inch nominal inner-diameter polyvinyl chloride (PVC) casing and screen. Monitoring well surface completions consist of a lockable stick-up surface casing set in a concrete pad and placement of protective bollards in locations where traffic may be of concern. All wells were found to be in generally good condition, with no issues affecting well or sample integrity. Due to the surrounding topography, sediment periodically accumulates on top of some of the monitoring well pads. The sediment is removed as necessary to allow inspection of the well pads.

On a periodic basis, the total depth of each well in the monitoring network is measured to evaluate the well condition and potential sediment accumulation in the well. Total well depth measurements and screen occlusion calculations from the total depth measurements are presented in Table 2.3. If screen occlusion greater than 10 percent is determined to be present, the well will be redeveloped prior to the next sampling event. Total depth measurements collected in 2025 indicated no well screens of sampled monitoring wells were occluded at or above the 10 percent criterion.

2.3 Sample Collection

Sampling was conducted using dedicated bladder pumps to purge water and collect samples using low-flow sampling techniques.

Prior to sample collection, the temperature, conductivity, pH, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity of the purge water were measured using a calibrated multiparameter water quality instrument and flow cell. The readings were recorded on electronic well sampling records. Following stabilization, unfiltered samples were collected in laboratory-supplied containers. Copies of the groundwater sampling records for the two assessment monitoring events are included in Appendix A. During each of the assessment monitoring events, a field duplicate sample was collected from MW-231 for quality assurance/quality control (QA/QC) purposes.

2.4 Analytical Parameters

Groundwater samples were analyzed for the parameters specified in 40 CFR Part 257 Appendix III and IV (Tables 2.4 and 2.5) for the March and September 2025 assessment monitoring events. The majority of the laboratory analyses were conducted by Eurofins Environment Testing North Central, LLC (Eurofins) in Cedar Falls, Iowa; the radium 226 and 228 (combined) analyses were conducted by Eurofins in St. Louis, Missouri. Analyses were conducted by the laboratory in accordance with the procedures and methods described in the United States Environmental Protection Agency (USEPA) Manual SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (August 1986)," as updated and/or in accordance with other approved testing procedures. Eurofins provided prepared sample containers for each monitoring event. Analytical reports from each sampling event report total (i.e., unfiltered) sample results in accordance with the Federal CCR rule.

Table 2.6 summarizes the number of groundwater samples collected for analysis from each monitoring well, the dates the samples were collected, and whether the sample was required by the baseline, detection monitoring, or assessment monitoring programs.

Following receipt of the final laboratory analytical reports from each round of sampling, an analytical data quality assessment and validation was completed for the groundwater and field quality assurance samples. Based on these assessments, the data are acceptable with qualifications for use as reported by the laboratories.

3. Groundwater Flow Conditions

3.1 Horizontal Groundwater Flow

Groundwater levels were measured at each of the monitoring wells included in the monitoring network during each monitoring event. Four of the East Monofill groundwater monitoring wells are in a nested pair with one shallow and one deep well, as illustrated on Figure 1.2 and in Table 3.1. Table 3.1 presents groundwater elevations measured in wells during the March and September 2025 sampling events. A groundwater flow map was prepared using water level measurements from each monitoring event for the alluvial aquifer (Figures 3.1 and 3.2). The groundwater flow direction at the East Monofill during the March 2025 monitoring event was inferred to be to the northwest and to the west during the September 2025 monitoring event. The variations in groundwater elevation and flow direction observed during the monitoring events are likely a result of normal seasonal variability in the amount and rate of infiltration of precipitation and are within the range of previously inferred groundwater flow directions.

3.2 Horizontal Hydraulic Gradient and Groundwater Flow Velocity

Hydraulic conductivity estimates for the alluvial aquifer at the East Monofill were derived from single well-specific capacity tests and ranged from 0.044 centimeters per second (cm/sec) to 0.162 cm/sec, for an average hydraulic conductivity of 0.1 cm/sec (86.4 meters per day [m/day]) (Foth, 2016).

The average linear groundwater flow velocity at the water table was estimated based on the hydraulic conductivity, horizontal gradient, and the estimated porosity of the formation using the following equation:

$$V = Ki/n$$

Where V equals the average linear velocity; K equals the average hydraulic conductivity (86.4 m/day); i equals the average horizontal hydraulic gradient; and n equals the effective porosity (estimated at 0.3). During the 2025 sampling events at the East Monofill, the average linear groundwater velocity at the water table (shallow alluvial aquifer) was estimated to range between 0.10 m/day (approximately 120 feet per year), calculated for the March monitoring event, and 0.17 m/day (approximately 200 feet per year), calculated for the September 2025 monitoring event. The average linear groundwater velocity was calculated based on measurements collected from MW-213A and MW-231. The estimated horizontal gradients and average linear groundwater flow velocities for each of the monitoring events are summarized in Table 3.2.

3.3 Vertical Hydraulic Gradient

Water levels measured in monitoring well pairs MW-202A/MW-202B, MW-210A/MW-210B, MW-213A/MW-213B, and MW-221A/MW-221B during the two 2025 gauging events, where both wells in each nest were gauged, were used to calculate vertical hydraulic gradients. The vertical hydraulic gradients were calculated by the following equation:

$$\text{Water Elevation in Deep Well} - \text{Water Elevation in Shallow Well}$$

$$\text{Elevation of Middle of Saturated Zone of Shallow Well Screen} - \text{Elevation of Middle of Saturated Zone of Deep Well Screen}$$

The difference in groundwater elevations between nested pairs of wells is slight, ranging from -0.05 feet at the MW-210A/MW-210B monitoring well pair during the March 2025 gauging event to a maximum difference of 0.11 feet at the MW-213A/MW-213B monitoring well pair during the September 2025 gauging event.

The vertical hydraulic gradients ranged from -0.002 (downward-directed flow) in well cluster MW-210A/MW-210B (March 2025) to 0.003 (upward-directed flow) in well clusters MW-213A/MW-213B (March and September 2025).

Vertical gradients were in the upward direction during both 2025 gauging events at well clusters MW-202A/MW-202B, MW-213A/MW-213B, and MW-221A/MW-221B. The vertical gradient was in the downward direction during the 2025 monitoring events at well cluster MW-210A/MW-210B.

3.4 Monitoring Well Network Assessment

The East Monofill groundwater monitoring network meets the Federal CCR rule requirements of having at least one upgradient monitoring well and three downgradient monitoring wells, and the groundwater monitoring network meets the design and construction requirements of 40 CFR Part 257, Section 91. Monitoring wells MW-213A and MW-221A have been identified as background sampling locations (GHD, 2019a).

4. Groundwater Monitoring

Groundwater sample collection records for the 2025 monitoring events are provided in Appendix A and the associated laboratory analytical reports are provided in Appendix B. Appendix C includes time series graphs of concentration versus time for each analyte in the monitoring program. The cumulative groundwater analytical data from March 2018 through 2025 for the East Monofill is provided in Appendix D.

Originally, baseline monitoring under the Federal CCR rule occurred at the East Monofill during eight monitoring events conducted between March and June of 2018. These first eight events represented the selected baseline period required for both inter-well and intra-well comparisons, and the original baseline data evaluation was presented in the 2018 annual report (GHD, 2019b). A change in regional conditions was observed following that time, with parameter concentrations significantly increasing compared to baseline values in upgradient wells (i.e., not a site-related effect). Therefore, the baseline data sets were extended to update the comparison values in the 2021 Annual Report (GHD, 2022). For Appendix III analytes, which have been included in laboratory analysis during all sampling events to date, in order to avoid over-weighting the initial four months of sampling in the baseline calculations only the first sample each month (i.e., one sample from March, April, May and June of 2018) was retained in the extended baseline period, and the excluded samples are flagged as “historical” in the Appendix C time series graphs. The Appendix IV analytes were not required during Detection Monitoring sampling events and therefore have fewer historical results, and thus all initial bi-monthly 2018 data were retained for these parameters. The updated baseline values reported in the 2021 report (GHD, 2022) are used in the present evaluation.

Analytical results for groundwater samples collected from each well during their respective baseline periods (through September 2019 or March 2020, see the 2021 Annual Report for details) and the 2025 monitoring events are summarized in Tables 4.1 and 4.2, respectively.

As part of assessment and reporting requirements under the Federal CCR rule, the groundwater monitoring data are subjected to statistical evaluation to demonstrate compliance with monitoring goals.

Evaluation components include:

- Statistical summaries for the data sets obtained (on a per-well, per-parameter basis)
- Preparation of trend plots (concentration versus time)
- Inter-well (upgradient) or intra-well (baseline) comparisons
- For parameters not detected above reporting limits during the baseline period, application of a double-quantification rule (DQR), to identify new parameter detections
- Per direction received from Iowa Department of Natural Resources (IDNR) (IDNR, 2022), each data set is evaluated using either inter-well or intra-well comparisons, and not both. Generally, inter-well comparisons (vs. upgradient conditions) are used for most of the data sets, with intra-well comparisons (vs. baseline conditions at the given well) are used when either significant spatial variation in upgradient groundwater is noted for a given

analyte, or an alternate source determination has demonstrated that conditions for the analyte at a given well do not signify a CCR impact.

The statistical methods used in these evaluation steps for the East Monofill during routine assessment monitoring are presented the Groundwater Statistical Methods Certification for the East Monofill (Statistical Certification, GHD 2019c). The procedures in the Statistical Certification were selected in accordance with the Federal CCR rule, utilizing methodology presented in the USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities-Unified Guidance* (Unified Guidance) (USEPA, 2009). The present evaluation utilizes the statistical methods presented therein to evaluate monitoring data from groundwater samples collected during the 2025 monitoring events.

4.1 Statistical Analysis Approach

Due to observation of prior statistically significant increases, groundwater monitoring at the East Monofill is currently conducted under Assessment Monitoring status per the Federal CCR rule. As such, the seven Appendix III and fourteen additional Appendix IV constituents (Table 2.4 and 2.5, respectively) were analyzed in the monitoring event samples conducted in March and September 2025.

No single method of statistical analysis is appropriate for each groundwater constituent dataset; instead, the statistical methods selected for use are dependent upon data characteristics and distributions and should consider the specific constituents and the nature of local hydrogeologic conditions. Depending on characteristics of the site and the groundwater monitoring data, a mix of inter-well (comparison versus upgradient conditions) and intra-well (comparison versus baseline at individual locations) tests may be warranted. As noted above, per direction from IDNR either inter-well or intra-well comparison, not both, are applied for each data set (i.e., a given analyte at a given monitoring well (IDNR, 2022)).

The statistical methods used are selected based on data characteristics as well as consideration of natural temporal or spatial variability of the concentrations of the groundwater constituents. Substantial natural spatial variability may necessitate intra-well methods. This current evaluation mainly considered inter-well comparisons, unless significant spatial variability in an analyte concentration was observed in the upgradient wells or an alternate source demonstration found that analyte concentrations in a given well are not CCR-related, in which cases intra-well comparisons are used. For each data set (analyte by well) the inter-well or intra-well comparison is used to determine if a statistically significant increase (SSI) has occurred at the East Monofill.

4.1.1 Inter-well Comparisons – Upgradient Background Values

The Federal CCR rule provides a list of alternate statistical procedures applicable to inter-well and intra-well comparisons (see 40 CFR 257.93(f)). In the Methods Certification, consistent with the Hydrologic Monitoring System Plan (HMSP) (Foth, 2017), the use of upper prediction limits (UPLs) was selected as being appropriate for assessment of groundwater monitoring data for the East Monofill. A UPL is a statistically-based limit above which a given sample measurement is unlikely to occur if conditions remain consistent with the reference population.

For inter-well comparisons, the reference population is the data set of constituent concentrations in upgradient background well(s), sampled during the revised baseline period. Since there are two upgradient background wells at the site (MW-213A and MW-221A), the data from these two wells are pooled to calculate the upgradient background UPLs for each constituent.

4.1.2 Intra-well Comparisons – Well-Specific Baseline Values

As noted in the Methods Certification, the statistical methods (i.e., UPLs) for intra-well comparisons are analogous to those for inter-well comparisons. In this case, the reference population is the data set of constituent concentrations in a given well observed during the (revised) baseline period.

Statistical analyses of baseline data were previously conducted to assess the constituent concentrations and determine the most appropriate statistical approach(es) for the data (GHD, 2019b; 2021). The data were examined for

outliers, the percentage of non-detect values, and to determine the statistical distribution. Time series plots, box plots of upgradient data, and maps were used to evaluate the potential presence of temporal or spatial variations in constituent concentrations.

As specified in the HMSP (Foth, 2017) and the Groundwater Statistical Methods Certification for the East Monofill (Methods Certification) (GHD, 2019c), estimated concentrations below the laboratory reporting limit (i.e., J-qualified data) are considered as non-detects in the statistical evaluation where needed.

All of the Appendix III and IV constituents occur naturally in the environment. For constituents that occur naturally and vary substantially in concentration across the monitoring network due to natural hydrogeologic or geochemical factors (i.e., exhibiting spatial variability), an effective inter-well analysis may be prevented. Constituent concentrations greater than upgradient conditions might be incorrectly attributed to impact from the East Monofill, when the differences are actually natural and unrelated to the East Monofill due to locally varying distributions of groundwater constituents. In such cases, an intra-well approach is appropriate. Nonetheless, it is important to monitor upgradient groundwater quality to be able to detect regional changes that could affect groundwater in the downgradient wells unrelated to the East Monofill.

4.1.3 Spatial Variability

The concentrations of naturally occurring constituents such as the Appendix III and IV constituents can be affected by the presence of differing aquifer material or geochemistry between monitoring well locations. At the East Monofill, the uppermost groundwater occurs in alluvial deposits primarily consisting of poorly graded, medium-grained alluvial sands and gravelly sands, and isolated sand and silt deposits (Foth, 2016). In the case of the East Monofill, these differing geological materials are intersected by the screened zones of the monitoring wells and may result in spatial variability for some constituents. The shallow alluvial aquifer and the Devonian bedrock aquifers exist under unconfined conditions and are hydraulically connected (Foth, 2016). The natural geochemistry of groundwater can vary between these deposits and affect the detected concentrations of natural constituents.

Previous evaluation of revised baseline data sets (GHD, 2022) identified spatial variability between the East Monofill upgradient wells (MW-213A and MW-221A), which continues to be evident for detected constituents. Analytes with strong evidence of spatial variability are:

- Chloride
- pH
- Sulfate
- TDS

This spatial variability affects inter-well comparisons for downgradient wells, since observed differences between downgradient and upgradient conditions could be due to natural variability or could be due to effects of the East Monofill. Inter-well comparisons could not distinguish between these two possibilities. Therefore, intra-well comparisons were selected for these constituents.

4.1.4 Temporal Variability

The CCR rule considers the occurrence of temporal trends in groundwater monitoring data. Where trends are observed, the statistical method selected must take these into account.

For inter-well UPLs, where data from upgradient wells (MW-213A and MW-221A) were combined, trends were assessed using the Regional Kendall test. This test is a modified Seasonal Kendall test described in detail in USEPA, 2009, Section 14.3.4, substituting the individual wells in the place of the separate seasons. In the test, individual Mann-Kendall statistics are calculated for each analyte at each well separately, and then summed to perform the overall test.

A statistically significant increasing trend during the baseline period was detected for total dissolved solids (TDS) at MW-213A and regionally considering the pooled MW-213A and MW-221A data set.

For this data set, the statistically significant trends impact or invalidate inter-well comparisons using statistical prediction limits, since the statistical methods presented in the CCR rule (40 CFR §257.93(f)) assume no trends are present in the upgradient data. As such, the range of baseline observations and evident trend are considered in future data assessment.

4.1.5 Comparison Values – Upper Prediction Limits (UPLs)

The selected statistical UPLs are based on a “1-of-2” retesting plan and cumulative annual site-wide false positive rate (SWFPR) of 0.10, as described in Chapter 19 of USEPA’s Unified Guidance (USEPA, 2009 – see page 19-11). This means there is 90 percent confidence site-wide (considering the 7 wells, and average of 7.4 detected constituents out of the 21 Appendix III and Appendix IV constituents, and semiannual sampling) that constituent concentrations above the baseline UPL in both original and verification resampling samples indicate a true SSI. Note that in cases where a non-parametric (rank-based) UPL is required (due to high proportions of non-detects, the presence of statistical outlier(s) in baseline, and/or non-normal data distributions), the level of statistical confidence is lower than the target 90 percent site-wide.

Similarly, for constituents that are not detected during the baseline period, the double-quantification rule (DQR) identifies an SSI when both regular monitoring and subsequent resampling event samples have constituent concentrations above the reporting limit where the corresponding baseline data set consists entirely of non-detect results (including estimated J-qualified results below the reporting limit).

Comparisons against these Baseline Values are to be interpreted as follows:

- a. If a given future observation exceeds baseline UPL or the reporting limit for a constituent not detected in baseline, then a verification sample will be collected and analyzed (within 90 days).
- b. If the verification resample is also above the baseline UPL or the baseline reporting limit, then an SSI is identified and reported.
- c. If the verification resample is not above the baseline UPL or the baseline reporting limit, then the initial observation is concluded to represent natural variation and there is no SSI. In this case, the regular monitoring frequency and schedule for this constituent at the given well is resumed.

Calculations of baseline values (UPLs) were completed using the methodology and reference tables presented in USEPA’s Unified Guidance (USEPA, 2009).

Where temporal trends were identified over the baseline period, prediction limits are not calculated (due to violation of the statistical assumptions of the UPL calculations) and a baseline range is provided as a reference. For affected data sets, future sample results are to be compared both against the baseline range and what would be expected based on the observed trend over the baseline period.

4.1.6 Summary of Statistical Analysis Approach

The statistical analysis included either intra-well or inter-well approaches for the purpose of determining if SSIs in constituent concentrations have occurred at the East Monofill. This approach could change as additional data are collected during future monitoring. If new information warrants such a change, a modification of the statistical approach will be recommended for one or more constituents and/or monitoring wells.

4.2 Assessment of Baseline Data

Assessment of the baseline data for the East Monofill was initially presented in the 2018 annual report (GHD, 2019b) and updated in the 2021 annual report (GHD, 2022). If changes (i.e., trends) in regional conditions continue in the future, the baseline assessment may be revised accordingly. For convenience, the following items provide summary information from the updated baseline evaluation originally provided in the 2021 annual report (GHD, 2022).

- Baseline data trend test results are reported in Table 4.3 and included on trend plots presented in Appendix C, Figures 1 through 7 (note that in the trend plots, field duplicate results are included as discrete points, but in the trend analyses, these were averaged prior to trend calculations).
- Several statistically significant trends over time were identified during the revised baseline period evaluation. Trends were found for the following wells/constituents:
 - Increasing TDS at MW-213A (upgradient) and in the pooled upgradient background data (MW-231A and MW-221A)
 - Increasing TDS and barium at MW-230
 - Decreasing pH, increasing calcium and barium at MW-231
 - Decreasing sulfate and increasing barium at MW-232
 - Increasing calcium and barium at MW-233
 - Increasing pH and radium 226 and 228 (combined) at MW-234

Where trends were identified in a baseline data set, the methods for baseline comparisons are adjusted to account for non-stationarity during the baseline period. In particular, the baseline range and observed trend direction are to be used to evaluate future data.

- The calculated inter-well and intra-well baseline values (UPLs) for each constituent/well pair are presented in Table 4.4.
- The calculated intra-well baseline values (UPLs) for each constituent/monitoring well pair are presented in Table 4.4.
- The selected assessment method (inter-well or intra-well) for each data set (analyte x well) is listed with the data comparisons in Table 4.5.

4.3 Assessment of 2025 Assessment Monitoring Data

4.3.1 Comparisons to UPLs (Inter-Well or Intra-Well)

Comparisons of the 2025 monitoring data to the applicable inter-well or intra-well UPLs are presented in Table 4.5. The basis for comparisons at each constituent (inter-well or intra-well) are shown in Table 4.5. Inter-well comparisons are conducted unless there is strong evidence of spatial variability in upgradient groundwater, or an alternate source demonstration has found that conditions at a given well are not associated with CCR residue. The analytes with strong spatial variability in upgradient groundwater presently are chloride, pH, sulfate, and TDS.

The UPL comparisons indicate observations where one or both of the current-year's monitoring events has a constituent concentration or measurement outside of reference conditions. Note that for pH both LPL (Lower Prediction Limit) and UPL comparisons are included in the evaluation.

In a letter dated August 4, 2023, the IDNR noted changes in reporting limits for some parameters. Currently, those changes do not result in an impact on the statistical evaluation. A case-by-case description is included below:

- Boron: the reporting limit was 0.200 mg/L in 2020 at upgradient well MW-213A. The reporting limit is now 0.100 U at all wells. If a future detected concentration above 0.100 mg/L but below 0.200 mg/L occurs, this ambiguous comparison to baseline would need to be further evaluated (trend analysis) to determine if a persistent increase compared to post-baseline conditions of non-detect results with a reporting limit of 0.100 mg/L exists.
- Antimony: the reporting limit was 0.001 mg/L during baseline but changed to 0.002 mg/L during post-baseline. Antimony has not been detected in any wells except upgradient well MW-213A (one low J-estimated result during baseline). If a future detected concentration occurs (above the original reporting limit of 0.001 mg/L or the new reporting limit of 0.002 mg/L), there is no ambiguity, the concentration will be considered exceeding baseline.
- Cadmium: the reporting limit was 0.0005 mg/L during baseline but changed to 0.0001 mg/L during post-baseline, and in 2024 to 0.0002 mg/L. Cadmium has not been detected in any wells. If a future detected concentration

above 0.0005 mg/L occurs, it will be considered exceeding baseline. If a future detected concentration above 0.0001 mg/L but below 0.0005 mg/L occurs, this ambiguous comparison to baseline would need to be further evaluated (trend analysis) to determine if a persistent increase compared to post-baseline conditions of non-detect results with reporting limit of 0.0001 mg/L exists.

In the following cases, the most recent 2025 sample results exceeded the applicable inter-well or intra-well UPL (or were below the LPL for pH):

- Calcium at MW-231 and MW-233 (confirmed SSIs)
- Calcium at MW-232 (unconfirmed increase)
- Chloride at upgradient well MW-221A (unconfirmed increase)
- Chloride at MW-233 (confirmed SSI)
- pH at MW-231, MW-232 and MW-233 (below the LPL – confirmed decreases)
- Sulfate at MW-232, MW-233, and MW-234 (confirmed SSIs)
- Sulfate at upgradient wells MW-213A and MW-221A (unconfirmed increase)
- TDS at MW-230, MW-231, MW-232, and MW-233 (confirmed SSIs)
- TDS at MW-234 (unconfirmed increase)
- Barium at MW-230, MW-231, MW-232, and MW-233 (confirmed SSIs)
- Radium 226 and 228 (combined) at, MW-231 (confirmed SSI)
- Radium 226 and 228 (combined) at upgradient wells MW-213A and MW-221A and downgradient wells MW-230, MW-232 and MW-234 (unconfirmed increase)

For samples collected from the two upgradient wells in 2025, all observed Appendix IV constituent concentrations were consistent with the respective inter-well UPLs, except for radium 226 and 228 (combined) in September 2025. However, chloride and sulfate concentrations were above their intra-well UPLs (chloride in September 2025 at well MW-221A; and sulfate in September 2025 at wells MW-213A and MW-221A).

The results flagged as increases, or a decrease for pH, are further discussed below:

- Calcium in groundwater at wells MW-231 and MW-233 was detected at concentrations above the corresponding baseline UPL values in March and September 2025, indicating confirmed increases in both wells. The March 2025 calcium result at MW-232 is an unconfirmed increase, the value in September 2025 is below the UPL. In all four wells (MW-230, MW-231, MW-232, and MW-233) calcium concentrations indicate a potential change in conditions that will be further evaluated by future sampling results.
- Chloride concentrations at upgradient well MW-221A was detected above its respective intra-well UPL in 2025. Chloride concentrations at downgradient well MW-233 were detected above the reporting limit of 5.00 mg/L in March and September 2025. Chloride was not detected at MW-233 from 2020 through March 2022, and was not detected in September 2023, therefore, the detected values in March and September 2025 constitute a confirmed SSI. Detected values in 2024 were also above the UPL indicating a potential change in conditions for chloride at MW-233.
- At well MW-231 pH values have consistently been above 8.0 standard units (s.u.) since baseline data collection and ranged from 8.1-8.4 s.u. across 5 events with duplicate measurements between September 2020 and March 2022. The March and September 2025 measurements were below baseline LPL of 7.89 s.u., indicating a statistically significant decrease, and confirming the August 2024 measurement also as a decrease. At wells MW-232 and MW-233, both March and September 2025 measurements were below their respective LPLs, which constitutes statistically significant decreases.
- Sulfate concentrations at upgradient wells MW-213A and MW-221A were detected above their respective intra-well UPLs in 2025. Sulfate was not detected previously above the reporting limit of 5.00 mg/L in 2020 - 2022 at MW-213A and was below the baseline UPL previously at MW-221A. Sulfate at MW-213A was an unconfirmed increase as the September 2025 result was below the UPL. Sulfate at MW-221A result will be confirmed in the next monitoring event. At MW-232, sulfate was identified as an SSI in 2021 and has been above the UPL since

2020. The March and September 2025 results are also above the UPL, which indicates an SSI. Sulfate at MW-233 was also identified as an SSI in 2021 and has remained above the UPL since that time, confirming an SSI at this well. At MW-234 an initial increase for sulfate was observed in September 2022, and it was confirmed an SSI in 2023, 2024, and 2025 as both current results (March and September) are above the UPL. The identification of SSIs for sulfate triggered assessment monitoring.

- TDS concentrations in March and September 2025 at MW-230, MW-231, MW-232, and MW-233 were above their UPLs, resulting in SSIs in all four wells. The TDS concentration in March 2025 was above the UPL at MW-234; the September 2025 concentration did not exceed the UPL, so the exceedance at MW-234 is not an SSI.
- Barium concentrations at MW-230, MW-231, MW-232, and MW-233 were detected above the baseline UPL in March and September 2025 and are confirmed SSIs.
- Radium 226 and 228 (combined) concentrations were detected above the baseline UPL in September 2025 at upgradient wells MW-213A and MW-221A, and downgradient wells MW-230, MW-231, MW-232, and MW-234. Radium 226 and 228 (combined) concentrations were also above the inter-well baseline UPL in 2021 and 2022, but they were all unconfirmed. The September 2025 event was the first time radium was above the UPL at wells MW-213A, MW-221A, and MW-230. The next monitoring event will be used to evaluate potential radium 226 and 228 (combined) SSIs at these locations.

4.3.2 Comparisons to Maximum Contaminant Levels (MCLs)

Sample results are compared to the USEPA MCL for constituents with an MCL. During the revised baseline sampling period, no constituents were above the MCL at any of the wells. A detailed summary of the currently observed concentrations is provided in the following subsections and are summarized further in Table 4.6.

4.3.2.1 Summary of Appendix III Results

- Boron. No MCL has been established for boron. Boron concentrations were below the method reporting limit of (0.1 mg/L) in all samples in 2025.
- Calcium. No MCL has been established for calcium. The maximum calcium concentration detected during 2025 was 82.4 mg/L in the primary September sample from downgradient well MW-233.
- Chloride. No MCL has been established for chloride. The maximum chloride concentration detected during 2025 was 14.9 mg/L at upgradient monitoring well MW-221A.
- Fluoride. The MCL for fluoride is 4.0 mg/L. Fluoride concentrations were below the method reporting limit of (1.00 mg/L) in all samples from all monitoring wells during the 2025 monitoring events. The reporting limit was changed from 0.05 mg/L to 1.00 U prior to the September 2023 monitoring event and maintained during the 2025 sampling events.
- pH. No MCL has been established for pH. The highest downgradient pH recorded during the 2025 monitoring events was 8.3 J (at MW-234) and the highest upgradient result was 8.0 J (MW-213A and MW-221A in September and March 2025, respectively). The lowest pH from all wells was 7.6 J at downgradient wells MW-231 (March and September 2025) and Mw-233 (September 2025).
- Sulfate. No MCL has been established for sulfate. The maximum sulfate concentration detected during 2025 was 77.9 mg/L at monitoring well MW-232 (March 2025).
- TDS. No MCL has been established for TDS. The maximum TDS concentration detected was 348 mg/L at downgradient monitoring well MW-233 (March 2025).

4.3.2.2 Summary of Appendix IV Results

- Antimony. Antimony concentrations were below the method reporting limit (0.00200 mg/L) and the established MCL (0.006 mg/L) in all samples from all monitoring wells during the 2025 monitoring events.

- Arsenic. Arsenic concentrations were below the established MCL (0.01 mg/L) and below the method reporting limit (0.00200 mg/L) for arsenic in all monitoring wells during the 2025 events.
- Barium. Barium was detected in all sampled wells during the 2025 monitoring events; however, the detected levels were all below the MCL for barium (2.0 mg/L), with a maximum detected concentration in the 2025 samples of 0.0738 mg/L at monitoring well MW-231.
- Beryllium. Beryllium concentrations were below the method reporting limit (0.00100 mg/L) and the established MCL (0.004 mg/L) in all samples from all monitoring wells during the 2025 monitoring events.
- Cadmium. Cadmium concentrations were below the method reporting limit (0.000200 mg/L) and the established MCL (0.005 mg/L) in all samples from all monitoring wells during the 2025 monitoring events.
- Chromium. Chromium concentrations were below the method reporting limit (0.00500 mg/L) in all monitoring wells during the 2025 monitoring events. All 2025 results were below the MCL of 0.1 mg/L.
- Cobalt. No MCL has been established for cobalt; the Groundwater Protection Standard (GWPS) established under 40 CFR §257.95(h)(2) for cobalt is 0.006 mg/L. All cobalt concentrations were below the method reporting limit (0.000500 mg/L) in all monitoring wells during the 2025 monitoring events.
- Lead. No MCL has been established for lead; the GWPS established under 40 CFR §257.95(h)(2) for lead is 0.015 mg/L. Lead concentrations were below the GWPS (0.015 mg/L) in all samples from all wells during the 2025 monitoring events. Lead was not detected above the reporting limit at any well.
- Lithium. No MCL has been established for lithium; the GWPS established under 40 CFR §257.95(h)(2) for lithium is 0.040 mg/L. Lithium concentrations were below the method reporting limit (0.0100 mg/L) at all wells during the 2025 monitoring events.
- Mercury. Mercury concentrations were below the method reporting limit (0.000200 mg/L) and the established MCL (0.002 mg/L) in all samples from all monitoring wells during the 2025 monitoring events.
- Molybdenum. No MCL has been established for molybdenum; the GWPS established under 40 CFR §257.95(h)(2) for molybdenum is 0.100 mg/L. Molybdenum was not detected at concentrations exceeding the method reporting limit (0.00200 mg/L) or GWPS in all samples from all monitoring wells during the 2025 monitoring events.
- Radium 226 and 228 (combined). The MCL for radium 226 and 228 (combined) is 5 picocuries per liter (pCi/L). Radium 226 and 228 (combined) was detected above the method reporting limit at all monitoring wells during the 2025 sampling events. The maximum concentration detected was 1.77pCi/L at upgradient well MW-231, which is below the MCL.
- Selenium. The MCL for selenium is 0.05 mg/L and method reporting limit is 0.00500 mg/L. All samples from all wells tested below the method reporting limit during all sampling events in 2025.
- Thallium. Thallium concentrations were below the method reporting limit (0.00100 mg/L) and the established MCL (0.002 mg/L) in all samples from all monitoring wells during the 2025 monitoring events.

5. Alternate Source Determination

As described in 40 CFR §257.94(e)(2), statistically significant differences from background levels for a constituent may be evaluated to demonstrate that a source other than the CCR unit has caused the statistically significant difference from background or resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. An alternate source determination (GHD, 2019d) was completed for the East Monofill which was included as Appendix E of the 2018 annual report and is summarized below.

5.1 Description of Alternate Source Determination

As described in the 2018 Annual Groundwater Monitoring and Corrective Action Report, four SSIs were addressed in the alternate source determination:

- TDS at MW-213A (upgradient) (above the baseline range)
- Sulfate at MW-231 (downgradient)
- Calcium at MW-233 (downgradient)
- Fluoride at MW-234 (downgradient)

Inter-well comparisons of initial detection monitoring event data were conducted by comparing monitoring data to the upgradient background UPLs derived from the original baseline period data at the upgradient wells (MW-213A and MW-221A). The results of the inter-well comparisons indicated three observations where the initial detection monitoring event had a constituent concentration outside of baseline conditions in the upgradient wells. These included TDS in upgradient well MW-213A (above the baseline range); sulfate in downgradient well MW-231; and fluoride in downgradient well MW-234, which were also identified above in the discussion of intra-well comparisons.

The Alternate Source Determination Report (GHD, 2019d) addressed groundwater SSIs. Since the SSIs were initially detected prior to placement of CCR in the East Monofill, the observed SSIs cannot be related to CCR disposal in the East Monofill; the observed SSIs are due to natural variability or regional effects unrelated to the East Monofill.

Of these four cases above, calcium at MW-231 is currently an SSI based on the updated baseline periods. Sulfate at MW-232 and MW-233 led the site to transition to assessment monitoring.

5.2 Alternate Source Determination Conclusion

As demonstrated in the alternate source determination evaluation, the East Monofill is not the source of the SSIs described above.

6. Conclusions and Recommendations

6.1 Groundwater Flow and Evaluation of the Monitoring Network

Groundwater flow in the vicinity of the East Monofill is generally to the west and northwest. The groundwater flow evaluation (see Figures 3.1 through 3.2) indicates the monitoring network is sufficient and has appropriately located upgradient and downgradient well locations.

6.2 Groundwater Quality

A statistical evaluation of groundwater monitoring data collected during the revised baseline period (March 2018 to March 2020) has been conducted in accordance with the Federal CCR rule and Unified Guidance for assessing groundwater data (USEPA, 2009). This evaluation was successful in characterizing the baseline data sets, assessing the baseline data for trends, and generating intra-well baseline values and inter-well upgradient background reference values against which future monitoring data may be evaluated. An assessment of monitoring data from samples collected during the two 2025 assessment monitoring events was conducted. Key results of the evaluation include:

- Some constituent concentrations continue to vary between the two upgradient background wells, prompting the use of intra-well comparisons. These constituents include chloride, pH, sulfate and TDS.

- Assessment of the data generated from 2025 assessment monitoring events indicates the majority of the 2025 observations are consistent with their corresponding inter-well upgradient background conditions and intra-well baseline values, with the following exceptions:
 - Calcium at MW-231 and MW-233 (confirmed SSIs)
 - Calcium at MW-232 (unconfirmed increase)
 - Chloride at MW-221A (unconfirmed increase)
 - Chloride at MW-233 (confirmed SSI)
 - pH at MW-231, MW-232, and MW-233 (below the LPL – confirmed decreases)
 - Sulfate at MW-232, MW-233, and MW-234 (confirmed SSIs)
 - Sulfate at upgradient wells MW-213A and MW-221A (unconfirmed increase)
 - TDS at MW-230, MW-231, MW-232, and MW-233 (confirmed SSIs)
 - TDS at MW-234 (unconfirmed increase)
 - Barium at MW-230, MW-231, MW-232, and MW-233 (confirmed SSIs)
 - Radium 226 and 228 (combined) at upgradient wells MW-213A and MW-221A, and downgradient wells MW-230, MW-232, and MW-234 (unconfirmed SSIs)
 - Radium 226 and 228 (combined) at MW-231 (confirmed increase)

The only Appendix III constituent with an MCL is fluoride. Fluoride was not detected in any of the 2025 groundwater samples from the East Monofill.

None of the Appendix IV constituents concentrations were above their MCL/GWPS during the 2025 monitoring events at the East Monofill.

6.3 Recommendations

Based on the evaluation findings, the East Monofill remains in assessment monitoring. No changes to the monitoring network or sampling procedures are necessary.

7. References

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- GHD, 2019b. Annual Groundwater Monitoring and Corrective Action Report for the East Monofill, Permit No. 70-SDP-16-04P, Muscatine, Iowa, MidAmerican Energy Company. January 31, 2019.
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- GHD, 2019d. Alternate Source Determination for the East Monofill, Louisa Generating Station, Permit No. 70-SDP-16-04P, Muscatine, Iowa, MidAmerican Energy Company. January 31, 2019.
- GHD, 2022. Annual Groundwater Monitoring and Corrective Action Report for the East Monofill, Permit No. 70-SDP-16-04P, Muscatine, Iowa, MidAmerican Energy Company. January 31, 2022.
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- USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. Office of Resource Conservation and Recovery, Program Implementation and Information Division, United States Environmental Protection Agency, Washington DC. EPA/530/R-09/007. March 2009.
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Tables

Table 2.1

**Groundwater Monitoring Well Network
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Monitoring Well	Use in Monitoring Network	Role in Monitoring Network
MW-202A	Gauged Only	Gauging Location
MW-202B ^a	Gauged Only	Gauging Location
MW-210A	Gauged Only	Gauging Location
MW-210B ^a	Gauged Only	Gauging Location
MW-213A	Gauged and Sampled	Background Location
MW-213B ^a	Gauged Only	Gauging Location
MW-221A	Gauged and Sampled	Background Location
MW-221B ^a	Gauged Only	Gauging Location
MW-230	Gauged and Sampled	Downgradient Location
MW-231	Gauged and Sampled	Downgradient Location
MW-232	Gauged and Sampled	Downgradient Location
MW-233	Gauged and Sampled	Downgradient Location
MW-234	Gauged and Sampled	Downgradient Location
PZ-203	Gauged Only	Gauging Location
PZ-214	Gauged Only	Gauging Location

Note:

^a Well is screened in deep portion of the alluvial aquifer.

Table 2.2

Well Construction Details
Louisa Generating Station - East Monofill
Muscatine, Iowa

Monitoring Well Constuction

Well Identification	Northing	Easting	Monitoring Well Constuction					
			Ground Surface Elevation (NAVD88)	Top of Casing (NAVD88)	Total Depth (feet BTOC)	Screen Length (feet)	Top of Screen (NAVD88)	Bottom of Screen (NAVD88)
MW-02	494018.3	2299709.5	544.12	547.03	15.48	10	541.6	531.6
MW-03	495123.7	2301386.2	578.35	580.39	58.20	10	532.2	522.2
MW-04	493249.9	2300239.6	574.49	577.00	50.29	10	536.7	526.7
MW-17R	493977.2	2300719.5	577.11	579.90	52.67	10	537.2	527.2
MW-18A	494803.6	2300036.6	546.52	549.32	22.25	10	537.1	527.1
MW-20A	495744.3	2300862.7	544.47	547.21	22.45	10	534.8	524.8
MW-21	495665.4	2301575.2	574.00	575.55	50.88	10	534.7	524.7
MW-22	493964.6	2300209.2	572.77	574.56	50.34	10	534.2	524.2
MW-202A	494993.0	2302214.5	576.41	579.05	53.00	10	536.1	526.1
MW-202B ^a	494980.9	2302218.6	575.99	578.78	82.60	10	506.2	496.2
MW-210A	493306.4	2301215.7	575.14	578.23	50.88	10	537.4	527.4
MW-210B ^a	493310.9	2301213.7	575.24	578.23	80.78	10	507.5	497.5
MW-213A ^b	493355.0	2302959.0	575.34	578.27	48.49	10	539.8	529.8
MW-213B ^a	493363.4	2302960.6	575.16	578.20	82.59	10	505.6	495.6
MW-221A	492175.1	2302315.8	576.96	579.81	53.37	10	536.4	526.4
MW-221B ^a	492178.2	2302314.3	576.88	579.50	83.52	10	506.0	496.0
MW-230	492769.3	2301796.8	573.88	579.25	54.47	10	534.8	524.8
MW-231	492968.5	2301795.2	574.76	580.10	54.90	10	535.2	525.2
MW-232	493168.6	2301794.4	573.13	578.23	54.34	10	533.9	523.9
MW-233 ^b	493368.1	2301794.6	574.27	577.62	52.67	10	535.0	525.0
MW-234 ^b	493568.2	2301795.1	575.90	579.03	53.40	10	535.6	525.6
PZ-203	494993.3	2302697.1	589.44	592.66	64.19	10	538.5	528.5
PZ-214	492786.8	2300939.7	576.02	579.22	53.26	10	536.0	526.0

Notes

^a Well is screened in deep portion of the alluvial aquifer.

^b Top of casing (TOC) at MW-213A, MW-233, and MW-234 was cut down on April 16, 2018 to accommodate dedicated pump installation, resulting in change of TOC reference elevation. MW-213A TOC elevation changed from 578.36 to 578.27; MW-233 from 577.77 to 577.62; MW-234 from 579.25 to 579.03.

Table 2.3

**Monitoring Well Screen Occlusion Evaluation
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Top of Casing Elevation (NAVD88)	Total Well Depth Below Top of Casing (feet BTOC)	Screen Length (feet)	13-Mar-2018		3-Mar-2020		13-Sep-2021		25-Sep-2023		11-Mar-2024		24-Mar-2025	
				Measured Well Depth (feet)	Screen Occlusion (%)	Measured Well Depth (feet)	Screen Occlusion (%)	Measured Well Depth (feet)	Screen Occlusion (%)	Measured Well Depth (feet)	Screen Occlusion (%)	Measured Well Depth (feet)	Screen Occlusion (%)	Measured Well Depth (feet)	Screen Occlusion (%)
MW-202A	579.05	53.00	10	52.98	0.2%	53.04	-0.4%	53.03	-0.3%	53.04	-0.4%	52.83	1.7%	52.96	0.4%
MW-202B ^a	578.78	82.60	10	81.91	6.9%	82.74	-1.4%	82.74	-1.4%	81.92	6.8%	82.70	-1.0%	82.60	0.0%
MW-210A	578.23	50.88	10	50.87	0.1%	50.89	-0.1%	50.88	0.0%	50.9	-0.2%	50.88	0.0%	50.69	1.9%
MW-210B ^a	578.23	80.78	10	80.79	-0.1%	80.78	0.0%	80.75	0.3%	80.88	-1.0%	80.76	0.2%	80.25	5.3%
MW-213A ^b	578.27	48.49	10	48.45	0.4%	48.48	0.1%	48.56	-0.7%	48.65	-1.6%	48.45	0.4%	48.41	0.8%
MW-213B ^a	578.20	82.59	10	82.58	0.1%	82.58	0.1%	82.57	0.2%	82.59	0.0%	82.56	0.3%	82.60	-0.1%
MW-221A	579.81	53.37	10	NA	NA	53.33	0.4%	53.36 ^c	0.1%	53.39	-0.2%	53.43	-0.6%	53.39	-0.2%
MW-221B ^a	579.50	83.52	10	83.51	0.1%	83.52	0.0%	83.49	0.3%	83.52	0.0%	83.49	0.3%	83.51	0.1%
MW-230	579.25	54.47	10	NA	NA	54.51	-0.4%	54.60	-1.3%	54.52	-0.5%	54.51	-0.4%	54.40	0.7%
MW-231	580.10	54.90	10	NA	NA	54.90	0.0%	54.98 ^c	-0.8%	54.90	0.0%	55.02	-1.2%	54.81	0.9%
MW-232	578.23	54.34	10	NA	NA	54.32	0.2%	54.39	-0.5%	54.34	0.0%	54.45	-1.1%	54.33	0.1%
MW-233 ^b	577.62	52.67	10	NA	NA	52.66	0.1%	52.70	-0.3%	52.65	0.2%	52.60	0.7%	52.65	0.2%
MW-234 ^b	579.03	53.40	10	NA	NA	53.46	-0.6%	53.52	-1.2%	53.62	-2.2%	53.59	-1.9%	53.40	0.0%
PZ-203	592.66	64.19	10	64.04	1.5%	64.09	1.0%	64.07	1.2%	64.09	1.0%	64.09	1.0%	63.98	2.1%
PZ-214	579.22	53.26	10	53.24	0.2%	53.22	0.4%	53.22	0.4%	53.34	-0.8%	53.25	0.1%	53.07	1.9%

Notes:

NA - No data available.

% - Percent.

^a Well is screened in deep portion of the alluvial aquifer.^b Top of casing (TOC) at MW-213A, MW-233, and MW-234 was cut down on April 16, 2018 to accommodate dedicated pump installation, resulting in change of TOC reference elevation. MW-213A TOC elevation changed from 578.36 to 578.27; MW-233 from 577.77 to 577.62; MW-234 from 579.25 to 579.03.^c Measured November 1, 2021.

Appendix III Parameters (Detection Monitoring)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Analyte	Analytical Method
Boron	EPA 6020A
Calcium	EPA 6020A
Chloride	EPA 9056A
Fluoride	EPA 9056A
pH	SM 4500 H+B
Sulfate	EPA 9056A
Total Dissolved Solids (TDS)	SM 2540C

Appendix IV Parameters (Assessment Monitoring)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Analyte	Analytical Method
Antimony	EPA 6020A
Arsenic	EPA 6020A
Barium	EPA 6020A
Beryllium	EPA 6020A
Cadmium	EPA 6020A
Chromium	EPA 6020A
Cobalt	EPA 6020A
Fluoride	EPA 9056A
Lead	EPA 6020A
Lithium	EPA 6020A
Mercury	EPA 7470A
Molybdenum	EPA 6020A
Selenium	EPA 6020A
Thallium	EPA 6020A
Radium 226 and 228 combined	EPA 9315/9320

Table 2.6

**Summary of Groundwater Monitoring Events
Louisa Generating Station - East Monofill
Muscatine, Iowa**

	MW-213A (Upgradient)	MW-221A (Upgradient)	MW-230	MW-231	MW-232	MW-233	MW-234
Sampling Dates							
March 14 -16, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	-
March 27-28, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
April 10-11, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
April 25-26, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
May 8-9, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
May 23, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
June 11, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
June 27, 2018	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
July 10, 2018	-	-	-	-	-	-	Baseline
September 5-6, 2018	Detection	Detection	Detection	Detection	Detection	Detection	Detection
November 6, 2018	Verification	-	-	Verification	-	Verification	-
March 19-20, 2019	Detection	Detection	Detection	Detection	Detection	Detection	Detection
June 11, 2019	Verification	-	Verification	-	Verification	Verification	Verification
September 4-5, 2019	Detection	Detection	Detection	Detection	Detection	Detection	Detection
March 3-4, 2020	Detection	Detection	Detection	Detection	Detection	Detection	Detection
June 2-3, 2020	-	-	Verification	Verification	Verification	Verification	Verification
September 8-10, 2020	Detection	Detection	Detection	Detection	Detection	Detection	Detection
December 2, 2020	-	-	Verification	Verification	Verification	Verification	Verification
March 24, 2021	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
May 25-26, 2021	Verification	Verification	Verification	Verification	Verification	Verification	Verification
September 14-15, 2021	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
November 2, 2021	-	-	-	-	Verification	Verification	-
March 21-23, 2022	Assessment	Assessment	Assessment	Assessment	NS	Assessment	Assessment
September 26-29, 2022	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
March 6-9, 2023	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
September 25-28, 2023	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
March 11-12, 2024	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
August 26-27, 2024	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment

Table 2.6

**Summary of Groundwater Monitoring Events
Louisa Generating Station - East Monofill
Muscatine, Iowa**

	MW-213A (Upgradient)	MW-221A (Upgradient)	MW-230	MW-231	MW-232	MW-233	MW-234
Sampling Dates							
March 24-26, 2025	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
September 3-9, 2025	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
Number of Samples							
Appendix III Analytes	22	22	22	22	21	22	22
Appendix IV Analytes	17	17	17	17	16	17	17

Notes:

1. Baseline monitoring events included analysis of both Appendix III (Detection Monitoring) and Appendix IV (Assessment Monitoring) analytes.
2. Detection monitoring events include the analysis of Appendix III (Detection Monitoring) analytes only.
3. Assessment monitoring events include analysis of Appendix III (Detection Monitoring) and Appendix IV (Assessment Monitoring) analytes.
4. Verification monitoring events include analysis of select Appendix III and Appendix IV analytes and are not included in total number of samples per well.
5. NS = Not Sampled, well contained insufficient water to allow sampling during the monitoring event.

Table 3.1

Groundwater Elevation Summary
Louisa Generating Station - East Monofill
Muscatine, Iowa

Well	Top of Casing Elevation (NAVD88)	Total Well Depth Below Top of Casing (feet BTOC)	13-Mar-2018 (NAVD88)	26-Apr-2018 (NAVD88)	8-May-2018 (NAVD88)	23-May-2018 (NAVD88)	11-Jun-2018 (NAVD88)	27-Jun-2018 (NAVD88)	10-Jul-2018 (NAVD88)	4-Sep-2018 (NAVD88)	6-Nov-2018 (NAVD88)	19-Mar-2019 (NAVD88)	21-May-2019 (NAVD88)	11-Jun-2019 (NAVD88)	3-Sep-2019 (NAVD88)
MW-02	547.03	15.48	533.92		533.86				534.54	534.39		537.66	542.73	542.54	539.46
MW-03	580.39	58.20	534.02		534.19				535.81	534.92		537.96	543.46	544.03	540.41
MW-04	577.00	50.29	534.04		534.10				535.06	534.56		537.76	542.39	543.06	539.86
MW-17R	579.90	52.67	533.96		534.13				535.32	534.65		537.79	542.81	543.49	540.10
MW-18A	549.32	22.25	534.37							534.96		538.15	543.76	543.61	540.24
MW-20A	547.21	22.45	532.35		533.73				535.17	534.51		534.91	534.21	534.70	539.99
MW-21	575.55	50.88	533.84		534.06				535.78	534.79		537.82	543.43	543.87	540.27
MW-22	574.56	50.34	533.96		534.05				535.02	534.52		537.76	542.74	543.07	539.87
MW-202A	579.05	53.00	534.51		534.57				536.34	535.21	539.28	538.12	543.50	544.45	540.53
MW-202B ^a	578.78	82.60	533.96		534.57				536.36	535.23	539.27	538.14	543.52	544.49	540.54
MW-210A	578.23	50.88	534.28		534.48				535.80	535.02	537.98	537.95	542.75	544.00	540.39
MW-210B ^a	578.23	80.78	534.24		534.43				535.73	534.96	537.92	538.00	542.72	543.98	540.39
MW-213A ^b	578.27	48.49	535.16	535.33	535.86	536.87	536.91	537.24	537.73	536.06	539.60	538.59	543.38	544.94	540.36
MW-213B ^a	578.20	82.59	535.30		536.03				537.82	536.16	539.78	538.74	543.55	545.06	540.48
MW-221A	579.81	53.37	534.95	534.92	535.40	536.23	536.41	536.63	537.04	535.56	538.81	538.18	542.92	544.51	540.18
MW-221B ^a	579.50	83.52	534.02		535.44				537.07	535.61	538.95	538.31	543.04	544.59	540.26
MW-230	579.25	54.47	534.47	534.61	534.80	535.38	535.87	536.07	536.29	535.28	538.27	538.04	542.66	544.19	540.40
MW-231	580.10	54.90	534.65	534.76	534.96	535.52	536.03	536.23	536.47	535.48	538.48	538.21	542.89	545.39	540.60
MW-232	578.23	54.34	534.45	534.57	534.73	535.31	535.85	536.05	536.25	535.30	538.33	538.06	542.79	544.25	540.46
MW-233 ^b	577.62	52.67	534.41	534.53	534.69	535.24	535.82	536.01	536.22	535.26	538.36	538.06	542.86	544.34	540.47
MW-234 ^b	579.03	53.40	534.39	534.55	534.69	535.26	535.86	536.02	536.24	535.27	538.47	538.09	542.97	544.36	540.45
PZ-203	592.66	64.19	534.47		534.98				536.88	535.52	539.63	538.31	543.61	544.77	540.59
PZ-214	579.22	53.26	534.76		534.93				536.11	535.40	538.16	538.46	542.97	544.32	540.77

Table 3.1

Groundwater Elevation Summary
Louisa Generating Station - East Monofill
Muscatine, Iowa

Well	3-Mar-2020 (NAVD88)	2-Jun-2020 (NAVD88)	8-Sep-2020 (NAVD88)	2-Dec-2020 (NAVD88)	22-Mar-2021 (NAVD88)	25-May-2021 (NAVD88)	13-Sep-2021 (NAVD88)	2-Nov-2021 (NAVD88)	21-Mar-2022 (NAVD88)	26-Sep-2022 (NAVD88)	6-Mar-2023 (NAVD88)	25-Sep-2023 (NAVD88)	11-Mar-2024 (NAVD88)	26-Aug-2024 (NAVD88)	24-Mar-2025 (NAVD88)	3-Sep-2025 (NAVD88)
MW-02	537.77	538.64	536.66		534.91		533.43	532.89	532.09	531.71	534.67	531.99	532.09	536.41	533.01	534.41
MW-03	538.20	539.60	537.34		535.09		533.75	532.98	532.22	532.13	532.18	532.38	532.20	537.97	532.98	534.89
MW-04	537.96	539.04	536.98		535.01		533.59	532.91	532.25	531.95	532.21	532.74	532.28	536.79	533.13	534.57
MW-17R	538.02	539.20	537.10		534.97		533.67	532.91	532.26	531.92	532.14	532.31	532.22	537.24	533.06	534.69
MW-18A	538.32	539.30	537.26		535.41		533.96	533.34	532.54	532.20	532.53	532.55	532.52	537.32	533.42	534.98
MW-20A	537.89	539.18	535.01		534.78		533.34	532.64	531.90	531.61	531.83	531.94	531.80	537.49	532.66	534.49
MW-21	538.08	539.58	537.20		534.87		533.53	532.77	532.11	531.93	531.96	532.18	531.98	538.06	532.80	534.77
MW-22	537.91	538.99	536.92		534.97		533.56	532.90	532.20	531.90	532.13	532.19	532.19	536.89	533.06	534.57
MW-202A	538.33	539.91	537.50	535.73	535.22	536.13	533.98	533.15	532.53	532.45	532.41	532.68	532.41	538.41	533.20	535.27
MW-202B ^a	538.33	539.94	537.50	535.78	535.14	536.13	533.97	533.13	532.53	532.45	532.42	532.69	532.43	538.42	533.24	535.26
MW-210A	538.35	539.65	536.23	535.76	535.22	536.18	533.94	533.13	532.57	532.42	532.49	532.65	532.59	537.66	533.34	535.00
MW-210B ^a	538.32	539.60	537.43	535.85	535.15	536.12	533.91	533.10	532.53	532.39	532.43	532.61	532.54	537.62	533.29	534.96
MW-213A ^b	538.53	540.41	537.72	536.34	535.96	536.67	534.57	533.79	533.44	533.42	533.65	533.35	533.41	538.65	534.07	536.05
MW-213B ^a	538.63	540.50	537.82	536.45	536.07	536.77	534.68	533.88	533.55	533.52	533.75	533.50	533.55	538.78	534.17	536.16
MW-221A	538.50	540.38	537.53	536.30	535.56	536.31	534.03	533.38	533.10	532.96	533.24	532.92	533.34	538.25	533.83	535.42
MW-221B ^a	538.56	540.46	537.60	536.36	535.62	536.39	534.09	533.44	533.14	533.01	533.37	533.00	533.40	538.30	533.88	535.47
MW-230	538.44	539.95	537.59	536.11	535.31	536.26	534.01	533.22	532.75	532.67	532.79	532.77	532.85	537.90	533.44	535.13
MW-231	538.60	540.09	537.76	536.23	535.47	536.42	534.20	533.38	532.92	532.84	532.92	532.90	533.00	538.14	533.66	535.35
MW-232	538.42	539.91	537.60	536.03	535.29	536.27	534.06	533.58			532.64	532.75	532.72	537.99	533.64	535.21
MW-233 ^b	538.41	540.46	537.59	536.00	535.27	536.26	534.06	533.22	532.70	532.62	532.63	533.39	532.64	537.94	533.41	535.20
MW-234 ^b	538.42	539.86	537.62	535.96	535.31	536.29	534.12	533.26	532.72	532.63	532.64	532.80	532.68	538.07	533.44	535.25
PZ-203	538.41	540.13	537.61	535.92	535.40	536.29	534.18	533.36	532.80	532.76	532.73	532.93	532.66	538.75	533.44	535.55
PZ-214	538.82	540.13	537.90	536.41	535.65	536.62	534.32	533.56	533.02	532.84	532.99	533.06	533.11	537.95	533.84	535.32

Notes:

^a Well is screened in deep portion of the alluvial aquifer.

^b Top of casing (TOC) at MW-213A, MW-233, and MW-234 was cut down on April 16, 2018 to accommodate dedicated pump installation, resulting in change of TOC reference elevation. MW-213A TOC elevation changed from 578.36 to 578.27; MW-233 from 577.77 to 577.62; MW-234 from 579.25 to 579.03.

**Horizontal Gradients and Average Groundwater Flow Velocities
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Date	Horizontal Hydraulic Gradient (unitless)	Average Linear Groundwater Flow Velocity (meters/day)	Average Linear Groundwater Flow Velocity (feet/year)
13-Mar-2018	0.0005	0.14	173
27-Mar-2018	0.0005	0.16	188
11-Apr-2018	0.0003	0.08	102
26-Apr-2018	0.0006	0.16	197
8-May-2018	0.0006	0.18	213
23-May-2018	0.0014	0.41	492
11-Jun-2018	0.0009	0.25	296
27-Jun-2018	0.0010	0.30	358
10-Jul-2018	0.0010	0.30	355
4-Sep-2018	0.0006	0.18	216
6-Nov-2018	0.0011	0.31	370
19-Mar-2019	0.0004	0.13	153
21-May-2019	0.0004	0.12	138
11-Jun-2019	0.0005	0.16	188
3-Sep-2019	0.0002	0.07	80
3-Mar-2020	0.0001	0.03	34
2-Jun-2020	0.0005	0.14	169
8-Sep-2020	0.0001	0.03	31
2-Dec-2020	0.0003	0.10	116
24-Mar-2021	0.0006	0.16	190
25-May-2021	0.0003	0.08	101
13-Sep-2021	0.0004	0.11	136
2-Nov-2021	0.0004	0.11	129
21-Mar-2022	0.0006	0.18	221
26-Sep-2022	0.0007	0.20	242
6-Mar-2023	0.0009	0.25	300
25-Sep-2023	0.0005	0.14	169
11-Mar-2024	0.0010	0.28	330
26-Aug-2024	0.0004	0.12	140
24-Mar-2025	0.0003	0.10	120
3-Sep-2025	0.0006	0.17	200

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-213A (Upgradient)								
Parameters	Units	Sample Date								
		3/14/2018	4/10/2018	5/8/2018	6/11/2018	9/6/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020
Appendix III										
Boron	mg/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200 U
Calcium	mg/L	38.9	35.4	38.1	44.2	42	49.5	58.4	42.3	--
Chloride	mg/L	5.22	5.00 U	3.4 J	5.58	5.51	6.95	--	5.00 U	5.00 U
Fluoride	mg/L	0.588	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U
pH, lab	s.u.	7.7	7.8	8	8	8	7.9	--	7.9	7.9
Sulfate	mg/L	7.56	8.02	7.74	10.3	10.3	7.05	--	6.99	5.00 U
Total dissolved solids (TDS)	mg/L	152	164	162	166	232	212	292	186	--
		Sample Date								
		3/14/2018	3/28/2018	4/10/2018	4/26/2018	5/8/2018	5/23/2018	6/11/2018	6/27/2018	9/4/2019
Appendix IV										
Antimony	mg/L	0.001 U	--	0.001 U	0.001 U	0.001 U	0.000446 J	0.001 U	0.001 U	0.00100 U
Arsenic	mg/L	0.002 U	--	0.002 U	0.002 U	0.002 U	0.002 U	0.000574 J	0.002 U	0.00200 U
Barium	mg/L	0.0306	--	0.0238	0.0289	0.0299	0.0262	0.0312	0.0304	0.0325
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--
Chromium	mg/L	0.005 U	--	0.005 U	0.005 U	0.005 U	0.0042 J	0.000815 J	0.005 U	0.00500 U
Cobalt	mg/L	0.000232 J	--	0.0005 U	0.00021 J	0.000084 J	0.000134 J	0.000067 J	0.000063 J	0.000500 U
Lead	mg/L	0.0005 U	--	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500 U
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--
Radium-226 & 228	pCi/L	0.524	--	0.245 U	0.291 U	0.565	0.424	0.405	0.38 U	0.0604 U
Selenium	mg/L	0.005 U	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-221A (Upgradient)								
Parameters	Units	Sample Date								
		3/15/2018	4/11/2018	5/9/2018	6/11/2018	9/6/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020
Appendix III										
Boron	mg/L	0.200U/0.200U	0.200 U	0.200 U	0.200U/0.200U	0.200 U	0.200 U	--	0.200 U	0.200 U
Calcium	mg/L	45.2/42.9	39.7	42.6	43.9/41.7	36.3	50.8	53.3	34.4	--
Chloride	mg/L	4.21/3.24	5.00 U	4.89 J	3.77 J/3.93	5.00 U	5.21	--	5.00 U	5.00 U
Fluoride	mg/L	0.500U/0.500U	0.500 U	0.500 U	0.500U/0.500U	0.500 U	0.500 U	--	0.500 U	0.500 U
pH, lab	s.u.	7.7/7.7	8	8	8.1/8	8	8	--	7.9	7.9
Sulfate	mg/L	11.7/10.9	12	11	9.18/9.37	8.41	10.6	--	12.7	8.93
Total dissolved solids (TDS)	mg/L	168/174	180	166	164/212	156	182	--	172	174
		Sample Date								
		3/14/2018	3/27/2018	4/11/2018	4/26/2018	5/9/2018	5/23/2018	6/11/2018	6/27/2018	9/4/2019
Appendix IV										
Antimony	mg/L	0.001U/0.00100U	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001U/0.001U	0.001U/0.001U	0.00100 U
Arsenic	mg/L	0.002U/0.00200U	--	0.002 U	0.002 U	0.002 U	0.002 U	0.002U/0.002U	0.002U/0.002U	0.00200 U
Barium	mg/L	0.032/0.0301	--	0.0277	0.031	0.0325	0.031	0.0312/0.0297	0.0298/0.0298	0.0202
Beryllium	mg/L	0.001U/0.00100U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001U/0.001U	0.001U/0.001U	--
Cadmium	mg/L	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005U/0.0005U	0.0005U/0.0005U	--
Chromium	mg/L	0.005U/0.005U	--	0.005 U	0.000793 J	0.005 U	0.000774 J	0.000905J/0.000790J	0.005U/0.005U	0.0423
Cobalt	mg/L	0.0005U/0.0005U	--	0.000168 J	0.000155 J	0.000062 J	0.000067 J	0.0005U/0.0005U	0.0005U/0.0005U	0.000500 U
Lead	mg/L	0.0005U/0.0005U	--	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005U/0.0005U	0.0005U/0.0005U	0.000862
Lithium	mg/L	0.01U/0.01U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01U/0.01U	0.01U/0.01U	--
Mercury	mg/L	0.0002U/0.0002U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002U/0.0002U	0.0002U/0.0002U	--
Molybdenum	mg/L	0.002U/0.002U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002U/0.002U	0.002U/0.002U	--
Radium-226 & 228	pCi/L	0.0832U	--	0.509	0.139 U	0.144 U	0.301 U	0.158U/0.0652U	0.595/0.703	-0.0360 U
Selenium	mg/L	0.005U/0.005U	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005U/0.005U	0.005U/0.005U	0.0238 U
Thallium	mg/L	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001U/0.001U	0.001U/0.001U	--

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-230								
Parameters	Units	Sample Date								
		3/15/2018	4/11/2018	5/9/2018	6/11/2018	9/6/2018	3/20/2019	6/11/2019	9/4/2019	3/4/2020
Appendix III										
Boron	mg/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U / 0.200 U	--	0.200 U	0.200 U
Calcium	mg/L	24.4	22.3	22.4	25.8	21.8	31.6 / 31.2	22.3	37.3	--
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U / 5.00 U	--	5.00 U	5.00 U
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U / 0.500 U	--	0.500 U	0.500 U
pH, lab	s.u.	8.3	8.3	7.6	8.3	8.3	8.1 / 8.1	--	8	8.2
Sulfate	mg/L	5.28	7.01	4.93 J	4.6 J	5.00 U	20.0 / 20.3	5.74	31.4	--
Total dissolved solids (TDS)	mg/L	102	108	104	112	74	132 / 128	142	198	--
		Sample Date								
		3/15/2018	3/28/2018	4/11/2018	4/26/2018	5/9/2018	5/23/2018	6/11/2018	6/27/2018	9/4/2019
Appendix IV										
Antimony	mg/L	0.001 U	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00100 U
Arsenic	mg/L	0.002 U	--	0.002 U	0.002 U	0.002 U	0.000651 J	0.0006 J	0.000688 J	0.00200 U
Barium	mg/L	0.0145	--	0.0124	0.0126	0.0135	0.0145	0.015	0.0148	0.0220
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--
Chromium	mg/L	0.000758 J	--	0.005 U	0.00101 J	0.005 U	0.000847 J	0.00104 J	0.000833 J	0.00500 U
Cobalt	mg/L	0.000101 J	--	0.000103 J	0.000097 J	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500 U
Lead	mg/L	0.0005 U	--	0.0005 U	0.000273 J	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000579
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--
Radium-226 & 228	pCi/L	0.344	--	0.0563 U	0.177 U	0.343 U	0.218 U	0.182 U	0.218 U	0.151 U
Selenium	mg/L	0.005 U	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-231								
Parameters	Units	Sample Date								
		3/15/2018	4/11/2018	5/9/2018	6/11/2018	9/6/2018	11/6/2018	3/20/2019	9/4/2019	3/4/2020
Appendix III										
Boron	mg/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200U/0.200 U	0.200U/0.200 U
Calcium	mg/L	22	20.4	23.5	26.4	21.1	--	29.6	37.6 / 40.6	47.1 / 46.8
Chloride	mg/L	2.83 J	5.00 U	5.00 U	5.00 U	5.00 U	--	5.00 U	5.00U/5.00 U	5.00U/5.00 U
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500U/0.500 U	0.500U/0.500 U
pH, lab	s.u.	8.3	8.2	8.3	8.2	8.3	--	8.1	8.1 / 8.1	8.0 / 8.1
Sulfate	mg/L	5.00 U	5.3	4.15 J	4.17 J	34.6	9	5.00 U	44.9 / 45.2	--
Total dissolved solids (TDS)	mg/L	128	66	92	168	82	--	114	212 / 202	190 / 194
		Sample Date								
		3/15/2018	3/28/2018	4/11/2018	4/25/2018	5/9/2018	5/23/2018	6/11/2018	6/27/2018	9/4/2019
Appendix IV										
Antimony	mg/L	0.001 U	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00100U/0.00100U
Arsenic	mg/L	0.002 U	--	0.000661 J	0.000763 J	0.000801 J	0.000793 J	0.000737 J	0.00066 J	0.00200U/0.00200U
Barium	mg/L	0.0143	--	0.0124	0.0148	0.0178	0.0167	0.0182	0.0168	0.0246/0.0283
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--
Chromium	mg/L	0.000774 J	--	0.005 U	0.000835 J	0.00086 J	0.000844 J	0.000877 J	0.000934 J	0.00500U/0.00500U
Cobalt	mg/L	0.000105 J	--	0.0005 U	0.000283 J	0.000166 J	0.000152 J	0.000084 J	0.000066 J	0.000500U/0.000500U
Lead	mg/L	0.0005 U	--	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500U/0.000500U
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--
Radium-226 & 228	pCi/L	0.163 U	--	0.385	0.204 U	0.391	0.18 U	-0.0138 U	0.237 U	0.113U/0.170U
Selenium	mg/L	0.005 U	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00500U/0.00500U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-232								
Parameters	Units	Sample Date								
		3/15/2018	4/11/2018	5/8/2018	6/11/2018	9/6/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020
Appendix III										
Boron	mg/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200 U
Calcium	mg/L	19.5	19.4	17.5	21	18.7	24.8	27.1	24.9	--
Chloride	mg/L	5.71	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	--	5.00 U	5.00 U
Fluoride	mg/L	1.26	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U
pH, lab	s.u.	8.3	8.2	8.4	8.3	8.3	8.2	8.2	8.2	--
Sulfate	mg/L	5.8	5.48	4.1 J	3.99 J	5.00 U	5.00 U	--	5.00 U	5.00 U
Total dissolved solids (TDS)	mg/L	70	72	112	76	62	138	--	132	140
		Sample Date								
		3/15/2018	3/28/2018	4/11/2018	4/25/2018	5/8/2018	5/23/2018	6/11/2018	6/27/2018	9/4/2019
Appendix IV										
Antimony	mg/L	0.001 U	--	0.001 U	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	0.00100 U
Arsenic	mg/L	0.002 U	--	0.000908 J	0.00094J/0.000988J	0.00112 J	0.00106 J	0.000894 J	0.00103 J	0.00200 U
Barium	mg/L	0.012	--	0.0121	0.0128/0.0119	0.0139	0.0125	0.0137	0.0135	0.0184
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	--
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--
Chromium	mg/L	0.000783 J	--	0.005 U	0.000829J/0.000786J	0.005 U	0.005 U	0.000891 J	0.00107 J	0.00500 U
Cobalt	mg/L	0.00008 J	--	0.0005 U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500 U
Lead	mg/L	0.0005 U	--	0.0005 U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500 U
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01U/0.01U	0.01 U	0.01 U	0.01 U	0.01 U	--
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002U/0.0002U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002U/0.002U	0.002 U	0.002 U	0.002 U	0.002 U	--
Radium-226 & 228	pCi/L	0.0143 U	--	0.281 U	0.167U/0.120U	0.152 U	0.252 U	-0.0431 U	0.00512 U	0.151 U
Selenium	mg/L	0.005 U	--	0.005 U	0.005U/0.005U	0.005 U	0.005 U	0.005 U	0.005 U	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	--

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-233								
Parameters	Units	Sample Date								
		3/16/2018	4/10/2018	5/8/2018	6/11/2018	9/5/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020
Appendix III										
Boron	mg/L	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200 U
Calcium	mg/L	24.6	25.1	25.3	26.1	28.6	31.6	28.1	31.8	--
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	--	5.00 U	5.00 U
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U
pH, lab	s.u.	8.1	8.1	8.3	8.2	8.2	8.2	8.1	8	--
Sulfate	mg/L	4.43 J	5.26	4.3 J	4.46 J	5.00 U	5.00 U	--	5.00 U	5.15
Total dissolved solids (TDS)	mg/L	116	100	112	112	116	150	--	190	166
		Sample Date								
		3/16/2018	3/27/2018	4/10/2018	4/25/2018	5/8/2018	5/23/2018	6/11/2018	6/27/2018	9/4/2019
Appendix IV										
Antimony	mg/L	0.001 U	--	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00100 U
Arsenic	mg/L	0.002 U	--	0.000725J/0.000693J	0.00072 J	0.000817 J	0.000848 J	0.000803 J	0.000875 J	0.00200 U
Barium	mg/L	0.0161	--	0.0142/0.0134	0.0153	0.0174	0.0164	0.0183	0.0178	0.0190
Beryllium	mg/L	0.001 U	0.001 U	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--
Chromium	mg/L	0.000871 J	--	0.005U/0.005U	0.000806 J	0.000833 J	0.000777 J	0.000937 J	0.005 U	0.00500 U
Cobalt	mg/L	0.000119 J	--	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500 U
Lead	mg/L	0.0005 U	--	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000500 U
Lithium	mg/L	0.01 U	0.01 U	0.01U/0.01U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--
Mercury	mg/L	0.0002 U	0.0002 U	0.0002U/0.0002U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--
Molybdenum	mg/L	0.002 U	0.002 U	0.002U/0.002U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--
Radium-226 & 228	pCi/L	0.163 U	--	0.365/1.08	0.288 U	0.122 U	0.152 U	-0.0805 U	0.191 U	0.176 U
Selenium	mg/L	0.005 U	--	0.005U/0.005U	0.005 U	0.00103 J	0.005 U	0.005 U	0.005 U	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	0.001U/0.001U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--

Table 4.1

Revised Baseline Period Groundwater Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa

Location:		MW-234								
Parameters	Units	Sample Date								
		3/27/2018	4/10/2018	5/8/2018	6/11/2018	7/10/2018	9/5/2018	3/19/2019	6/11/2019	9/4/2019
Appendix III										
Boron	mg/L	0.200U/0.200U	0.200 U	0.200U/0.200U	0.200 U	0.2 U / 0.2 U	0.200U/0.200U	0.200 U	--	0.200 U
Calcium	mg/L	18.7 / 18.2	18.7	20 / 19.6	20	20 / 19.6	21.7 / 20.8	20.3	--	14.4
Chloride	mg/L	5.00U/5.00U	5.00 U	5.00U/5.00U	5.00 U	85.8 J / 1.6 U	9.60 / 5.00 U	5.00 U	--	5.00 U
Fluoride	mg/L	0.500U/0.500U	0.500 U	0.500U/0.500U	0.491 J	0.836 / 0.462 U	2.28 / 0.500 U	0.500 U	--	0.500 U
pH, lab	s.u.	--	8.2	8.4	8.2	8.2 J / 8.3 J	8.4 / 8.4	8.3	8.4	8.5
Sulfate	mg/L	4.6J / 3.82J	11.8	4.96 J / 6.51 J	4.78 J	16.2 J / 3.57 J	5.00 U / 5.00 U	5.00 U	--	11.5
Total dissolved solids (TDS)	mg/L	106 / 96	66	66 / 54	94	80 / 96.0	82 / 68	106	--	100
		Sample Date								
		3/27/2018	4/10/2018	4/25/2018	5/8/2018	5/23/2018	6/11/2018	6/27/2018	7/10/2018	9/4/2019
Appendix IV										
Antimony	mg/L	--	0.001 U	0.001 U	0.001U/0.001U	0.001U/0.001U	0.001 U	0.001 U	0.001U/0.001U	0.00100 U
Arsenic	mg/L	--	0.002 U	0.002 U	0.002U/0.000589J	0.002U/0.002U	0.000667 J	0.002 U	0.002U/0.002U	0.00200 U
Barium	mg/L	--	0.00942	0.0116	0.0129/0.0126	0.0125/0.0128	0.0129	0.0126	0.0107/0.0107	0.0104
Beryllium	mg/L	0.001U/0.001U	0.001 U	0.001 U	0.001U/0.001U	0.001U/0.001U	0.001 U	0.001 U	0.001U/0.001U	--
Cadmium	mg/L	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005U/0.0005U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005U/0.0005U	--
Chromium	mg/L	--	0.005 U	0.000782 J	0.005U/0.000826J	0.005U/0.005U	0.000859 J	0.005 U	0.005U/0.005U	0.00500 U
Cobalt	mg/L	--	0.000061 J	0.000152 J	0.0005U/0.0005U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005U/0.0005U	0.000500 U
Lead	mg/L	--	0.0005 U	0.0005 U	0.0005U/0.0005U	0.0005U/0.0005U	0.0005 U	0.0005 U	0.0005U/0.0005U	0.000500 U
Lithium	mg/L	0.01U/0.01U	0.01 U	0.01 U	0.01U/0.01U	0.01U/0.01U	0.01 U	0.01 U	0.01U/0.01U	--
Mercury	mg/L	0.0002U/0.0002U	0.0002 U	0.0002 U	0.0002U/0.0002U	0.0002U/0.0002U	0.0002 U	0.0002 U	0.0002U/0.0002U	--
Molybdenum	mg/L	0.002U/0.002U	0.002 U	0.002 U	0.002U/0.002U	0.002U/0.002U	0.002 U	0.002 U	0.002U/0.002U	--
Radium-226 & 228	pCi/L	0.127 U	0.0121 U	-0.0492 U	0.291U/0.395U	0.395U/0.0430U	0.428	0.585	0.214J/0.759	0.515
Selenium	mg/L	--	0.005 U	0.005 U	0.00135J/0.00143J	0.005U/0.000967J	0.001 J	0.005 U	0.005U/0.005U	0.00500 U
Thallium	mg/L	0.001U/0.001U	0.001 U	0.001 U	0.001U/0.001U	0.001U/0.001U	0.001 U	0.001 U	0.001U/0.001U	--

Notes:
U - Not detected above reporting limit listed
J - Estimated value
UJ - Not detected; associated reporting limit is estimated.

Table 4.2

2025 Monitoring Data
Louisa Generating Station - East Monofill
Muscataine, Iowa

Sample Location:			MW-213A	MW-213A	MW-221A	MW-221A	MW-230	MW-230	MW-231	MW-231
Sample ID:			MW-213A_25_03	MW-213A_25_09	MW-221A_25_03	MW-221A_25_09	MW-230_25_03	MW-230_25_09	MW-231_25_03	FD-1_25_03
Sample Date:			3/24/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	3/24/2025
Site-Specific GWPS										(Duplicate)
Parameters	Units									
Appendix III										
Boron	mg/L	NA	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	NA	39.2	39.3	38.1	46.6	58.6	59.5	76.0	71.2
Chloride	mg/L	NA	7.04	5.77	5.07	14.9	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	NA	7.9 J	8.0 J	8.0 J	8.0 J	7.8 J	7.8 J	7.6 J	7.7 J
Sulfate	mg/L	NA	13.3	9.01	12.8	29.5	17.5	29.8	12.1	7.57
Total dissolved solids (TDS)	mg/L	NA	164	188	160	200	240	272	294	306
Appendix IV										
Antimony	mg/L	0.006	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.01	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	2	0.0297	0.0292	0.0299	0.0338	0.0498	0.0452	0.0705	0.0665
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.006	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.015	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.04	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	0.002	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.1	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.0303	1.12	0.519	1.43	0.600	1.03	0.228	0.439
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.002	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Field										
Conductivity, field	mS/cm	NA	0.31	0.307	0.27	0.36	0.46	0.442	0.57	--
Dissolved oxygen (DO), field	mg/L	NA	6.65	7.733	10.54	8.34	9.86	9.233	7.26	--
Oxidation reduction potential (ORP), field millivolts		NA	-41.2	179.5	-28.3	157.9	-15.2	154.3	0.4	--
pH, field	s.u.	NA	7.7	7.68	7.83	7.914	7.55	7.646	7.3	--
Temperature, sample	Deg C	NA	13.88	13.66	12.89	14.36	14.08	15.51	12.96	--
Turbidity, field	NTU	NA	0	0	0	0	2.17	0	0	--

Notes:

- J - Estimated concentration.
- U - Not detected at the associated reporting limit.
- UJ - Not detected; associated reporting limit is estimated.
- mg/L - Milligrams per liter.
- pCi/L - Picocuries per liter.
- s.u. - Standard Units.

Table 4.2

**2025 Monitoring Data
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Sample Location:			MW-231	MW-231	MW-232	MW-232	MW-233	MW-233	MW-234	MW-234
Sample ID:			MW-231_25_09	FD-1_25_09	MW-232_25_03	MW-232_25_09	MW-233_25_03	MW-233_25_09	MW-234_25_03	MW-234_25_09
Sample Date:			9/9/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	9/9/2025	3/24/2025	9/9/2025
Site-Specific GWPS			(Duplicate)							
Parameters	Units									
Appendix III										
Boron	mg/L	NA	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	NA	82.4	72.7	66.9	56.5	81.0	73.0	35.3	27.5
Chloride	mg/L	NA	5.00 U	5.00 U	5.00 U	5.00 U	5.76	6.30	5.00 U	5.00 U
Fluoride	mg/L	4	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	NA	7.6 J	7.7 J	7.7 J	7.8 J	7.7 J	7.6 J	8.3 J	8.2 J
Sulfate	mg/L	NA	8.98	9.04	77.9	46.1	39.4	37.4	25.6	20.1
Total dissolved solids (TDS)	mg/L	NA	318	316	342	278	348	336	174	144
Appendix IV										
Antimony	mg/L	0.006	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.01	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	2	0.0738	0.0656	0.0622	0.0511	0.0708	0.0651	0.0270	0.0204
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.006	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.015	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.00137 U	0.000500 U
Lithium	mg/L	0.04	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	0.002	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.1	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.547	1.77	0.436	1.25	0.211	0.282	0.621	1.17
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.002	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Field										
Conductivity, field	mS/cm	NA	0.568	--	0.49	0.469	0.5	0.576	0.28	0.243
Dissolved oxygen (DO), field	mg/L	NA	6.65	--	9.84	9.572	8.45	5.804	11.03	10.02
Oxidation reduction potential (ORP), field millivolts	NA	NA	149	--	4.7	150.9	24.3	133.2	14.9	183.6
pH, field	s.u.	NA	7.376	--	7.43	7.578	7.14	7.477	7.62	8.19
Temperature, sample	Deg C	NA	15.77	--	13.61	15.17	13.33	15	12.76	14.8
Turbidity, field	NTU	NA	0	--	0	0	0	0	0	0

Notes:

J - Estimated concentration.

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

mg/L - Milligrams per liter.

pCi/L - Picocuries per liter.

s.u. - Standard Units.

Table 4.3

**Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
Inter-well Trends (based on pooled upgradient wells MW-213A and MW-221A)										
Appendix III										
	Boron (total)	16	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	16	2018-03 - 2019-09	0%	34.4	58.4	1.31	0.095	No trend identified	--
	Chloride	16	2018-03 - 2020-03	44%	3.24 J	6.95	--	--	No test performed ¹	--
	Fluoride (total)	16	2018-03 - 2020-03	94%	0.500 U	0.588	--	--	>50% ND	--
	pH, lab	16	2018-03 - 2020-03	0%	7.7	8.1	0	0.500	No trend identified	--
	Sulfate	16	2018-03 - 2020-03	6%	5.00 U	12.7	-1.75	0.960	No trend identified	--
	Total Dissolved Solids	16	2018-03 - 2019-09	0%	152	292	1.66	0.048	Increasing trend	--
Appendix IV										
	Antimony	16	2018-03 - 2019-09	94%	0.000446 J	0.001 U	--	--	>50% ND	--
	Arsenic	16	2018-03 - 2019-09	94%	0.000574 J	0.002 U	--	--	>50% ND	--
	Barium	16	2018-03 - 2019-09	0%	0.0202	0.0325	-1.00	0.570	No trend identified	--
	Beryllium	16	2018-03 - 2018-06	100%	0.001 U	0.001 U	--	--	100% ND	--
	Cadmium	16	2018-03 - 2018-06	100%	0.0005 U	0.0005 U	--	--	100% ND	--
	Chromium	16	2018-03 - 2019-09	63%	0.000774 J	0.0423	--	--	>50% ND	--
	Cobalt	16	2018-03 - 2019-09	38%	0.000062 J	0.0005 U	-17.00	0.998	No trend identified	--
	Lead	16	2018-03 - 2019-09	94%	0.0005 U	0.000862	--	--	>50% ND	--
	Lithium	16	2018-03 - 2018-06	100%	0.01 U	0.01 U	--	--	100% ND	--
	Mercury	16	2018-03 - 2018-06	100%	0.0002 U	0.0002 U	--	--	100% ND	--
	Molybdenum	16	2018-03 - 2018-06	100%	0.002 U	0.002 U	--	--	100% ND	--
	Radium-226 & 228	16	2018-03 - 2019-09	63%	-0.0360 U	0.703	--	--	>50% ND	--
	Selenium	16	2018-03 - 2019-09	100%	0.005 U	0.0238 U	--	--	100% ND	--
	Thallium	16	2018-03 - 2018-06	100%	0.001 U	0.001 U	--	--	100% ND	--

Table 4.3

**Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
Intra-well Trends										
MW-213A	Appendix III									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2019-09	0%	35.4	58.4	16	0.062	No trend identified	--
	Chloride	8	2018-03 - 2020-03	38%	3.4 J	6.95	0	1	No trend identified	--
	Fluoride (total)	8	2018-03 - 2020-03	88%	0.500 U	0.588	--	--	>50% ND	--
	pH, lab	8	2018-03 - 2020-03	0%	7.7	8	4	0.72	No trend identified	--
	Sulfate	8	2018-03 - 2020-03	13%	5.00 U	10.3	-11	0.227	No trend identified	--
	Total Dissolved Solids	8	2018-03 - 2019-09	0%	152	292	18	0.032	Increasing Trend	0.16
	Appendix IV									
	Antimony	8	2018-03 - 2019-09	88%	0.000446 J	< 0.001	--	--	>50% ND	--
	Arsenic	8	2018-03 - 2019-09	88%	0.000574 J	< 0.002	--	--	>50% ND	--
	Barium	8	2018-03 - 2019-09	0%	0.0238	0.0325	12	0.178	No trend identified	--
	Beryllium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	75%	0.000815 J	< 0.005	--	--	>50% ND	--
	Cobalt	8	2018-03 - 2019-09	25%	0.000063 J	< 0.0005	-15	0.085	No trend identified	--
	Lead	8	2018-03 - 2019-09	100%	0.0005 U	0.0005 U	--	--	100% ND	--
	Lithium	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	50%	0.0604 U	0.565	-8	0.398	No trend identified	--
	Selenium	8	2018-03 - 2019-09	100%	< 0.005	< 0.005	--	--	100% ND	--
	Thallium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--

Table 4.3

Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscataine, Iowa

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
MW-221A	<i>Appendix III</i>									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2019-09	0%	34.4	53.3	0	1	No trend identified	--
	Chloride	8	2018-03 - 2020-03	50%	3.73	5.21	-4	0.72	No trend identified	--
	Fluoride (total)	8	2018-03 - 2020-03	100%	0.500 U	0.500 U	--	--	100% ND	--
	pH, lab	8	2018-03 - 2020-03	0%	7.7	8.05	-3	0.812	No trend identified	--
	Sulfate	8	2018-03 - 2020-03	0%	8.41	12.7	-8	0.398	No trend identified	--
	Total Dissolved Solids	8	2018-03 - 2020-03	0%	156	188	2	0.904	No trend identified	--
	<i>Appendix IV</i>									
	Antimony	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	--	--	100% ND	--
	Arsenic	8	2018-03 - 2019-09	100%	< 0.002	< 0.002	--	--	100% ND	--
	Barium	8	2018-03 - 2018-06	0%	0.0277	0.0325	-1	1.000	No trend identified	--
	Beryllium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	50%	0.000774 J	0.0423	12	0.178	No trend identified	--
	Cobalt	8	2018-03 - 2019-09	50%	0.000062 J	< 0.0005	-12	0.178	No trend identified	--
	Lead	8	2018-03 - 2019-09	88%	0.0005U / 0.0005U	0.000862	--	--	>50% ND	--
	Lithium	8	2018-03 - 2018-06	100%	0.01U / 0.01U	0.01U / 0.01U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	75%	-0.0360 U	0.595	--	--	>50% ND	--
	Selenium	8	2018-03 - 2019-09	100%	< 0.005	0.0238 U	--	--	100% ND	--
	Thallium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--

Table 4.3

Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscataine, Iowa

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
MW-230	Appendix III									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2019-09	0%	21.8	37.3	7	0.473	No trend identified	--
	Chloride	8	2018-03 - 2020-03	100%	< 5	< 5	--	--	100% ND	--
	Fluoride (total)	8	2018-03 - 2020-03	100%	0.500 U	0.500 U	--	--	100% ND	--
	pH, lab	8	2018-03 - 2020-03	0%	7.6	8.3	-8	0.398	No trend identified	--
	Sulfate	8	2018-03 - 2019-09	13%	4.6 J	31.4	7	0.382	No trend identified	--
	Total Dissolved Solids	8	2018-03 - 2019-09	0%	74	198	18	0.032	Increasing Trend	0.09
	Appendix IV									
	Antimony	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	--	--	100% ND	--
	Arsenic	8	2018-03 - 2019-09	63%	0.0006 J	< 0.002	--	--	>50% ND	--
	Barium	8	2018-03 - 2019-09	0%	0.0124	0.0220	19	0.023	Increasing Trend	1.8E-05
	Beryllium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	38%	0.000758 J	< 0.005	1	1.000	No trend identified	--
	Cobalt	8	2018-03 - 2019-09	63%	0.000097 J	< 0.0005	--	--	>50% ND	--
	Lead	8	2018-03 - 2019-09	75%	0.000273 J	0.000579	--	--	>50% ND	--
	Lithium	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	88%	0.0563 U	0.344	--	--	>50% ND	--
	Selenium	8	2018-03 - 2019-09	100%	< 0.005	< 0.005	--	--	100% ND	--
	Thallium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--

Table 4.3

Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscataine, Iowa

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
MW-231	Appendix III									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2020-03	0%	20.4	47.0	20	0.014	Increasing Trend	0.03
	Chloride	8	2018-03 - 2020-03	88%	2.83 J	5.00 U	--	--	>50% ND	--
	Fluoride (total)	8	2018-03 - 2020-03	100%	0.500 U	0.500 U	--	--	100% ND	--
	pH, lab	8	2018-03 - 2020-03	0%	8.05	8.3	-17	0.047	Decreasing Trend	-0.0003
	Sulfate	8	2018-03 - 2019-09	25%	1.61	3.56	9	0.136	No trend identified	--
	Total Dissolved Solids	8	2018-03 - 2020-03	0%	66	207	12	0.178	No trend identified	--
	Appendix IV									
	Antimony	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	--	--	100% ND	--
	Arsenic	8	2018-03 - 2019-09	25%	0.00066 J	< 0.002	-3	0.812	No trend identified	--
	Barium	8	2018-03 - 2019-09	0%	0.0124	0.0246/0.0283	20	0.014	Increasing Trend	2.5E-05
	Beryllium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	25%	0.000774 J	< 0.005	11	0.227	No trend identified	--
	Cobalt	8	2018-03 - 2019-09	25%	0.000066 J	< 0.0005	-11	0.227	No trend identified	--
	Lead	8	2018-03 - 2019-09	100%	0.0005 U	0.0005 U	--	--	100% ND	--
	Lithium	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	75%	-0.0138 U	0.391	--	--	>50% ND	--
	Selenium	8	2018-03 - 2019-09	100%	< 0.005	< 0.005	--	--	100% ND	--
	Thallium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--

Table 4.3

Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
MW-232	Appendix III									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2019-09	0%	17.5	27.1	14	0.108	No trend identified	--
	Chloride	8	2018-03 - 2020-03	88%	5.00 U	5.71	--	--	>50% ND	--
	Fluoride (total)	8	2018-03 - 2020-03	88%	0.500 U	1.26	--	--	>50% ND	--
	pH, lab	8	2018-03 - 2019-09	0%	8.2	8.4	-11	0.227	No trend identified	--
	Sulfate	8	2018-03 - 2020-03	50%	3.99 J	5.8	-22	0.006	Decreasing Trend	-0.0003
	Total Dissolved Solids	8	2018-03 - 2020-03	0%	62	140	16	0.062	No trend identified	--
	Appendix IV									
	Antimony	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	--	--	100% ND	--
	Arsenic	8	2018-03 - 2019-09	25%	0.000894 J	< 0.002	1	1.000	No trend identified	--
	Barium	8	2018-03 - 2019-09	0%	0.012	0.0184	18	0.032	Increasing Trend	1.2E-05
	Beryllium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	50%	0.000783 J	< 0.005	4	0.720	No trend identified	--
	Cobalt	8	2018-03 - 2019-09	88%	0.00008 J	< 0.0005	--	--	>50% ND	--
	Lead	8	2018-03 - 2019-09	100%	0.0005 U	0.0005 U	--	--	100% ND	--
	Lithium	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	100%	-0.0431 U	0.281 U	--	--	100% ND	--
	Selenium	8	2018-03 - 2019-09	100%	< 0.005	< 0.005	--	--	100% ND	--
	Thallium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--

Table 4.3

Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscataine, Iowa

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
MW-233	Appendix III									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2019-09	0%	24.6	31.8	24	0.002	Increasing Trend	0.01
	Chloride	8	2018-03 - 2020-03	100%	5.00 U	5.00 U	--	--	100% ND	--
	Fluoride (total)	8	2018-03 - 2020-03	100%	0.500 U	0.500 U	--	--	100% ND	--
	pH, lab	8	2018-03 - 2019-09	0%	8	8.3	-6	0.548	No trend identified	--
	Sulfate	8	2018-03 - 2020-03	38%	4.30 J	5.19	-7	0.473	No trend identified	--
	Total Dissolved Solids	8	2018-03 - 2020-03	0%	112	190	14	0.108	No trend identified	--
	Appendix IV									
	Antimony	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	--	--	100% ND	--
	Arsenic	8	2018-03 - 2019-09	25%	0.00072 J	< 0.002	9	0.337	No trend identified	--
	Barium	8	2018-03 - 2019-09	0%	0.0142	0.0190	20	0.014	Increasing Trend	1.9E-05
	Beryllium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	38%	0.000777 J	< 0.005	-7	0.473	No trend identified	--
	Cobalt	8	2018-03 - 2019-09	88%	0.000119 J	< 0.0005	--	--	>50% ND	--
	Lead	8	2018-03 - 2019-09	100%	0.0005 U	0.0005 U	--	--	100% ND	--
	Lithium	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	88%	-0.0805 U	0.365	--	--	>50% ND	--
	Selenium	8	2018-03 - 2019-09	88%	0.00103 J	< 0.005	--	--	>50% ND	--
	Thallium	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	--	--	100% ND	--

Table 4.3

Revised Baseline Monitoring Statistical Trend Tests Results for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscataine, Iowa

Well	Constituent	N	Baseline Period Statistics				Mann-Kendall Trend Test			Sen's Slope
			Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Statistic	Probability	Conclusion	
MW-234	Appendix III									
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	--	--	100% ND	--
	Calcium (total)	8	2018-03 - 2020-03	0%	14.4	27.7	14	0.108	No trend identified	--
	Chloride	8	2018-03 - 2020-03	88%	5.00 U	9.60	--	--	>50% ND	--
	Fluoride (total)	8	2018-03 - 2020-03	75%	0.491 J	2.28	--	--	>50% ND	--
	pH, lab	8	2018-03 - 2019-09	0%	8.1	8.5	20	0.0142	Increasing Trend	0.0006
	Sulfate	8	2018-03 - 2020-03	25%	4.21	11.8	3	0.72	No trend identified	--
	Total Dissolved Solids	8	2018-03 - 2020-03	0%	60	128	12	0.178	No trend identified	--
	Appendix IV									
	Antimony	8	2018-03 - 2019-09	100%	0.001 U	0.001 U	--	--	100% ND	--
	Arsenic	8	2018-03 - 2019-09	75%	0.000667 J	0.002 U	--	--	>50% ND	--
	Barium	8	2018-03 - 2019-09	0%	0.00942	0.0129	-2	0.904	No trend identified	--
	Beryllium	8	2018-03 - 2018-07	100%	0.001U/0.001U	0.001U/0.001U	--	--	100% ND	--
	Cadmium	8	2018-03 - 2018-07	100%	0.0005U/0.0005U	0.0005U/0.0005U	--	--	100% ND	--
	Chromium	8	2018-03 - 2019-09	63%	0.000782 J	0.005 U	--	--	>50% ND	--
	Cobalt	8	2018-03 - 2019-09	75%	0.000061 J	0.0005U/0.0005U	--	--	>50% ND	--
	Lead	8	2018-03 - 2019-09	100%	0.0005 U	0.0005 U	--	--	100% ND	--
	Lithium	8	2018-03 - 2018-07	100%	0.01U/0.01U	0.01U/0.01U	--	--	100% ND	--
	Mercury	8	2018-03 - 2018-07	100%	0.0002U/0.0002U	0.0002U/0.0002U	--	--	100% ND	--
	Molybdenum	8	2018-03 - 2018-07	100%	0.002U/0.002U	0.002U/0.002U	--	--	100% ND	--
	Radium-226 & 228	8	2018-03 - 2019-09	50%	-0.0492 U	0.585	18	0.032	Increasing Trend	0.005
	Selenium	8	2018-03 - 2019-09	63%	0.001 J	0.005 U	--	--	>50% ND	--
	Thallium	8	2018-03 - 2018-07	100%	0.001U/0.001U	0.001U/0.001U	--	--	100% ND	--

Notes:

N = Number of samples

% ND = Percentage of non-detect results

¹ Due to a large proportion of low-concentration estimated value (causing ambiguous comparisons to non-detects), no appropriate trend test could be performed.

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
Inter-well Comparison Values (based on pooled upgradient wells MW-213A and MW-221A)								
MW-213A and MW-221A								
Appendix III								
	Boron (total)	16	2018-03 - 2020-03	100%	0.200 U	0.200 U	DQR	< 0.200
	Calcium (total)	16	2018-03 - 2019-09	0%	34.4	58.4	Normal UPL	64.6
	Chloride	16	2018-03 - 2020-03	44%	3.4 J	6.95	Normal UPL	7.65
	Fluoride (total)	16	2018-03 - 2020-03	94%	0.500 U	0.588	Non-parametric UPL	0.588
	pH, lab	16	2018-03 - 2020-03	0%	7.7	8.1 / 8.0	Normal UPL	8.05
	- lower limit							7.70
	Sulfate	16	2018-03 - 2020-03	6%	5.00 U	12.7	KM Normal UPL	15.3
	Total Dissolved Solids (TDS)	16	2018-03 - 2019-09	0%	152	292	<< Increasing trend in baseline -- UPL not calculated >>	152 - 292
Appendix IV								
	Antimony (total)	16	2018-03 - 2020-03	93.8%	0.000446 J	0.001 U	DQR	< 0.001
	Arsenic (total)	16	2018-03 - 2020-03	93.8%	0.000574 J	0.002 U	DQR	< 0.002
	Barium (total)	16	2018-03 - 2020-03	0.0%	0.0202	0.0325	Normal UPL	0.0396
	Beryllium (total)	16	2018-03 - 2019-09	100.0%	0.001 U	0.001 U	DQR	< 0.001
	Cadmium (total)	16	2018-03 - 2019-09	100.0%	0.0005 U	0.0005 U	DQR	< 0.0005
	Chromium (total)	16	2018-03 - 2020-03	62.5%	0.000774 J	0.0423	Non-parametric UPL	0.0423
	Cobalt (total)	16	2018-03 - 2020-03	37.5%	0.000062 J	0.0005 U	DQR	< 0.0005
	Lead (total)	16	2018-03 - 2020-03	93.8%	0.0005 U	0.000862	Non-parametric UPL	0.000862
	Lithium (total)	16	2018-03 - 2019-09	100.0%	0.01 U	0.01 U	DQR	< 0.01
	Mercury (total)	16	2018-03 - 2019-09	100.0%	0.0002 U	0.0002 U	DQR	< 0.0002
	Molybdenum (total)	16	2018-03 - 2019-09	100.0%	0.0002 U	0.002U/0.002U	DQR	< 0.002
	Radium 226+228	16	2018-03 - 2020-03	62.5%	-0.0360 U	0.59/0.703	Normal UPL	1.03
	Selenium (total)	16	2018-03 - 2020-03	100.0%	0.005 U	0.0238 U	DQR	< 0.0238
	Thallium (total)	16	2018-03 - 2019-09	100.0%	0.001 U	0.001 U	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
Intra-well Comparison Values								
MW-213A (Upgradient)	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	DQR	< 0.200
	Calcium (total)	8	2018-03 - 2019-09	0%	35.4	58.4	Normal UPL	63.9
	Chloride	8	2018-03 - 2020-03	38%	3.4 J	6.95	Normal UPL	8.44
	Fluoride (total)	8	2018-03 - 2020-03	88%	0.500 U	0.588	Non-parametric UPL	0.588
	pH, lab	8	2018-03 - 2020-03	0%	7.7	8	Normal UPL	8.22
	- lower limit							7.58
	Sulfate	8	2018-03 - 2020-03	13%	5.00 U	10.3	Normal UPL	12.7
	Total Dissolved Solids (TDS)	8	2018-03 - 2019-09	0%	152	292	<< Increasing trend in baseline -- UPL not calculated >>	152 - 292
MW-213A (Upgradient)	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	88%	0.000446 J	< 0.001	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	88%	0.000574 J	< 0.002	DQR	< 0.002
	Barium (total)	8	2018-03 - 2019-09	0%	0.0238	0.0325	Normal UPL	0.0376
	Beryllium (total)	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	75%	0.000815 J	< 0.005	DQR	< 0.005
	Cobalt (total)	8	2018-03 - 2019-09	25%	0.000063 J	< 0.0005	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	100%	0.0005 U	0.0005 U	DQR	< 0.0005
	Lithium (total)	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	DQR	< 0.01
	Mercury (total)	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	50%	0.0604 U	0.565	KM Normal UPL	0.905
	Selenium (total)	8	2018-03 - 2019-09	100%	< 0.005	< 0.005	DQR	< 0.005
	Thallium (total)	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	N	Date Range	% ND	Baseline Period Statistics		Background method	Value (mg/L)
					Minimum (mg/L)	Maximum (mg/L)		
MW-221A (Upgradient)	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	0.200 U	0.200 U	DQR	< 0.2
	Calcium (total)	8	2018-03 - 2019-09	0%	34.4	53.3	Normal UPL	61.0
	Chloride	8	2018-03 - 2020-03	50%	4.21 J/3.24 J	5.21	Non-parametric UPL	5.21
	Fluoride (total)	8	2018-03 - 2020-03	100%	0.500 U	0.500 U	DQR	< 0.5
	pH, lab	8	2018-03 - 2020-03	0%	7.7 / 7.7	8.1 / 8.0	Normal UPL	8.27
	- lower limit							7.61
	Sulfate	8	2018-03 - 2020-03	0%	8.41	12.7	Normal UPL	14.8
	Total Dissolved Solids (TDS)	8	2018-03 - 2020-03	0%	156	164 J / 212	Normal UPL	201
MW-221A (Upgradient)	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	100%	< 0.002	< 0.002	DQR	< 0.002
	Barium (total)	8	2018-03 - 2018-06	0%	0.0277	0.0325	Normal UPL	0.0351
	Beryllium (total)	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	50%	0.000774 J	0.0423	KM Log UPL	0.0638
	Cobalt (total)	8	2018-03 - 2019-09	50%	0.000062 J	< 0.0005	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	88%	0.0005U/0.0005U	0.000862	Non-parametric UPL	0.000862
	Lithium (total)	8	2018-03 - 2018-06	100%	0.01U/0.01U	0.01 U/0.01 U	DQR	< 0.01
	Mercury (total)	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	75%	-0.0360 U	0.595	Non-parametric UPL	0.595
	Selenium (total)	8	2018-03 - 2019-09	100%	< 0.005	0.0238 U	DQR	< 0.0238
	Thallium (total)	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
MW-230	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	< 0.2	< 0.2	DQR	< 0.2
	Calcium (total)	8	2018-03 - 2019-09	0%	21.8	37.3	Normal UPL	41.4
	Chloride	8	2018-03 - 2020-03	100%	< 5	< 5	DQR	< 5
	Fluoride (total)	8	2018-03 - 2020-03	100%	< 0.5	< 0.5	DQR	< 0.5
	pH, lab	8	2018-03 - 2020-03	0%	7.6	8.3	Normal UPL	8.86
	- lower limit							7.41
	Sulfate	8	2018-03 - 2019-09	13%	4.6 J	31.4	Non-parametric UPL	31.4
	Total Dissolved Solids (TDS)	8	2018-03 - 2019-09	0%	74	198	<< Increasing trend in baseline -- UPL not calculated >>	74 - 198
MW-230	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	100%	< 0.001	< 0.001	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	63%	0.0006 J	< 0.002	DQR	< 0.002
	Barium (total)	8	2018-03 - 2019-09	0%	0.0124	0.0220	Non-parametric UPL	0.0220
	Beryllium (total)	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-06	100%	< 0.0005	< 0.0005	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	38%	0.000758 J	< 0.005	DQR	< 0.005
	Cobalt (total)	8	2018-03 - 2019-09	63%	0.000097 J	< 0.0005	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	75%	0.000273 J	0.000579	Non-parametric UPL	0.000579
	Lithium (total)	8	2018-03 - 2018-06	100%	0.01 U	0.01 U	DQR	< 0.01
	Mercury (total)	8	2018-03 - 2018-06	100%	< 0.0002	< 0.0002	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-06	100%	< 0.002	< 0.002	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	88%	0.0563 U	0.344	Non-parametric UPL	0.344
	Selenium (total)	8	2018-03 - 2019-09	100%	< 0.005	< 0.005	DQR	< 0.005
	Thallium (total)	8	2018-03 - 2018-06	100%	< 0.001	< 0.001	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
MW-231	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	< 0.2	< 0.2	DQR	< 0.2
	Calcium (total)	8	2018-03 - 2020-03	0%	20.4	47.1 / 46.8	<< Increasing trend in baseline -- UPL not calculated >>	20.4 - 46.95
	Chloride	8	2018-03 - 2020-03	88%	2.83 J	< 5	DQR	< 5
	Fluoride (total)	8	2018-03 - 2020-03	100%	< 0.5	< 0.5	DQR	< 0.5
	pH, lab	8	2018-03 - 2020-03	0.0%	8 / 8.1	8.3	<< Decreasing trend in baseline -- UPL not calculated >>	8.05 - 8.3
	Sulfate	8	2018-03 - 2019-09	25%	4.15 J	44.9 / 45.2	KM Gamma UPL	78.8
	Total Dissolved Solids (TDS)	8	2018-03 - 2020-03	0%	66	212 / 202	Normal UPL	276
MW-231	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	100.0%	< 0.001	< 0.001	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	25.0%	0.00066 J	< 0.002	DQR	< 0.002
	Barium (total)	8	2018-03 - 2019-09	0.0%	0.0124	0.0246/0.0283	Normal UPL	0.0297
	Beryllium (total)	8	2018-03 - 2018-06	100.0%	< 0.001	< 0.001	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-06	100.0%	< 0.0005	< 0.0005	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	25.0%	0.000774 J	< 0.005	DQR	< 0.005
	Cobalt (total)	8	2018-03 - 2019-09	25.0%	0.000066 J	< 0.0005	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	100.0%	0.0005 U	0.0005 U	DQR	< 0.0005
	Lithium (total)	8	2018-03 - 2018-06	100.0%	0.01 U	0.01 U	DQR	< 0.01
	Mercury (total)	8	2018-03 - 2018-06	100.0%	< 0.0002	< 0.0002	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-06	100.0%	< 0.002	< 0.002	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	75.0%	-0.0138 U	0.391	Non-parametric UPL	0.391
	Selenium (total)	8	2018-03 - 2019-09	100.0%	< 0.005	< 0.005	DQR	< 0.005
	Thallium (total)	8	2018-03 - 2018-06	100.0%	< 0.001	< 0.001	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
MW-232	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	< 0.2	< 0.2	DQR	< 0.2
	Calcium (total)	8	2018-03 - 2019-09	0%	17.5	27.1	Normal UPL	31.3
	Chloride	8	2018-03 - 2020-03	88%	< 5	5.71	Non-parametric UPL	5.71
	Fluoride (total)	8	2018-03 - 2020-03	88%	< 0.5	1.26	Non-parametric UPL	1.26
	pH, lab	8	2018-03 - 2019-09	0%	8.2	8.4	Normal UPL	8.48
	- lower limit							8.04
	Sulfate	8	2018-03 - 2020-03	50%	3.99 J	5.8	<< Decreasing trend in baseline -- UPL not calculated >>	3.99 J - 5.8
	Total Dissolved Solids (TDS)	8	2018-03 - 2020-03	0%	62.0	140	Normal UPL	193
MW-232	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	100.0%	< 0.001	< 0.001	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	25.0%	0.000894 J	< 0.002	DQR	< 0.002
	Barium (total)	8	2018-03 - 2019-09	0.0%	0.012	0.0184	Non-parametric UPL	0.0184
	Beryllium (total)	8	2018-03 - 2018-06	100.0%	< 0.001	< 0.001	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-06	100.0%	< 0.0005	< 0.0005	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	50.0%	0.000783 J	< 0.005	DQR	< 0.005
	Cobalt (total)	8	2018-03 - 2019-09	87.5%	0.00008 J	< 0.0005	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	100.0%	0.0005 U	0.0005 U	DQR	< 0.0005
	Lithium (total)	8	2018-03 - 2018-06	100.0%	0.01 U	0.01 U	DQR	< 0.01
	Mercury (total)	8	2018-03 - 2018-06	100.0%	< 0.0002	< 0.0002	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-06	100.0%	< 0.002	< 0.002	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	100.0%	-0.0431 U	0.281 U	DQR	< 0.281
	Selenium (total)	8	2018-03 - 2019-09	100.0%	< 0.005	< 0.005	DQR	< 0.005
	Thallium (total)	8	2018-03 - 2018-06	100.0%	< 0.001	< 0.001	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
MW-233	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	< 0.2	< 0.2	DQR	< 0.2
	Calcium (total)	8	2018-03 - 2019-09	0%	24.6	31.8	<< Increasing trend in baseline -- UPL not calculated >>	24.6 - 31.8
	Chloride	8	2018-03 - 2020-03	100%	< 5	< 5	DQR	< 5
	Fluoride (total)	8	2018-03 - 2020-03	100%	< 0.5	< 0.5	DQR	< 0.5
	pH, lab	8	2018-03 - 2019-09	0%	8	8.3	Normal UPL	8.42
	- lower limit							7.88
	Sulfate	8	2018-03 - 2020-03	38%	4.30 J	5.26 / 5.12	KM Normal UPL	5.6
	Total Dissolved Solids (TDS)	8	2018-03 - 2020-03	0%	112	190	Normal UPL	217
MW-233	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	100.0%	< 0.001	< 0.001	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	25.0%	0.00072 J	< 0.002	DQR	< 0.002
	Barium (total)	8	2018-03 - 2019-09	0.0%	0.0142	0.0190	Normal UPL	0.0216
	Beryllium (total)	8	2018-03 - 2018-06	100.0%	< 0.001	< 0.001	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-06	100.0%	< 0.0005	< 0.0005	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	37.5%	0.000777 J	< 0.005	DQR	< 0.005
	Cobalt (total)	8	2018-03 - 2019-09	87.5%	0.000119 J	< 0.0005	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	100.0%	0.0005 U	0.0005 U	DQR	0.0005 U
	Lithium (total)	8	2018-03 - 2018-06	100.0%	0.01 U	0.01 U	DQR	0.01 U
	Mercury (total)	8	2018-03 - 2018-06	100.0%	< 0.0002	< 0.0002	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-06	100.0%	< 0.002	< 0.002	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	87.5%	-0.0805 U	0.365	Non-parametric UPL	0.365
	Selenium (total)	8	2018-03 - 2019-09	87.5%	0.00103 J	< 0.005	DQR	< 0.005
	Thallium (total)	8	2018-03 - 2018-06	100.0%	< 0.001	< 0.001	DQR	< 0.001

Table 4.4

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent	Baseline Period Statistics						
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)	Background method	Value (mg/L)
MW-234	Appendix III							
	Boron (total)	8	2018-03 - 2020-03	100%	0.2U / 0.2U	0.2U / 0.2U	DQR	< 0.200
	Calcium (total)	8	2018-03 - 2020-03	0%	14.4	27.7	Normal UPL	30.3
	Chloride	8	2018-03 - 2020-03	88%	5U / 5U	9.60 / 5.00 U	Non-parametric UPL	9.60
	Fluoride (total)	8	2018-03 - 2020-03	75%	0.491 J	2.28 / 0.500 U	Non-parametric UPL	2.28
	pH, lab	8	2018-03 - 2019-09	0%	8.1 / 8.1	8.5	<< Increasing trend in baseline -- UPL not calculated >>	8.1 - 8.5
	Sulfate	8	2018-03 - 2020-03	25%	4.6J / 3.82J	11.8	KM Normal UPL	16.5
	Total Dissolved Solids (TDS)	8	2018-03 - 2020-03	0%	66 / 54	128	Normal UPL	154
MW-234	Appendix IV							
	Antimony (total)	8	2018-03 - 2019-09	100.0%	0.001 U	0.001 U	DQR	< 0.001
	Arsenic (total)	8	2018-03 - 2019-09	75.0%	0.000667 J	0.002 U	DQR	< 0.002
	Barium (total)	8	2018-03 - 2019-09	0.0%	0.00942	0.0129	Normal UPL	0.0155
	Beryllium (total)	8	2018-03 - 2018-07	100.0%	0.001U/0.001U	0.001U/0.001U	DQR	< 0.001
	Cadmium (total)	8	2018-03 - 2018-07	100.0%	0.0005U/0.0005U	0.0005U/0.0005U	DQR	< 0.0005
	Chromium (total)	8	2018-03 - 2019-09	62.5%	0.000782 J	0.005 U	DQR	< 0.005
	Cobalt (total)	8	2018-03 - 2019-09	75.0%	0.000061 J	0.0005U/0.0005U	DQR	< 0.0005
	Lead (total)	8	2018-03 - 2019-09	100.0%	0.0005 U	0.0005 U	DQR	< 0.0005
	Lithium (total)	8	2018-03 - 2018-07	100.0%	0.01U/0.01U	0.01U/0.01U	DQR	< 0.01
	Mercury (total)	8	2018-03 - 2018-07	100.0%	0.0002U/0.0002U	0.0002U/0.0002U	DQR	< 0.0002
	Molybdenum (total)	8	2018-03 - 2018-07	100.0%	0.002U/0.002U	0.002U/0.002U	DQR	< 0.002
	Radium 226+228	8	2018-03 - 2019-09	37.5%	-0.0492 U	0.585	Normal UPL	0.585
	Selenium (total)	8	2018-03 - 2019-09	62.5%	0.001 J	0.005 U	DQR	< 0.005
	Thallium (total)	8	2018-03 - 2018-07	100.0%	0.001U/0.001U	0.001U/0.001U	DQR	< 0.001

**Revised Baseline Monitoring Inter-well and Intra-well Predictions Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Well	Constituent				Baseline Period Statistics		Background method	Value (mg/L)
		N	Date Range	% ND	Minimum (mg/L)	Maximum (mg/L)		

Notes:

N = Number of samples

% ND = Percentage of non-detect results

CAS = Chemical Abstracts Service

EPA = United States Environmental Protection Agency

SM = Standard Method

DQR = Double Quantification Rule. Constituents that are "never detected" above the analytical reporting limit (i.e., not including J-qualified data below the reporting limit) in background (inter-well) or baseline (intra-well) are evaluated through observing if two subsequent detections above the reporting limit occur (which would indicate a statistically significant increase).

UPL = An Upper Prediction Limit (UPL) based on a "1-of-2" retesting approach and site-wide false positive rate (SWFPR) of 0.10 (see Chapter 19 of USEPA, 2009)

Normal UPL = UPL for a normal distribution (for data sets with no non-detect results)

KM Normal UPL = UPL for a normal distribution using the Kaplan-Meier method for non-detects (for data sets with between 15 to 50 percent non-detects)

Gamma UPL = UPL for a gamma distribution (for data sets with no non-detect results), utilizing the Wilson-Hilferty (cube root) transformation

Non-parametric UPL = Rank-based UPL for non-normal data sets or data sets containing more than 50 percent non-detects

Non-Parametric UTLs with 16 upgradient background samples have a coverage of only 0.78 (i.e., 78th percentile) at 95 percent confidence.

Table 4.5

Comparison of 2025 Monitoring Results to Intra-well and Inter-well Prediction Limits for Constituents in Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa

			Appendix III						Appendix IV															
			Boron	Calcium	Chloride	Fluoride	pH, lab	Sulfate	Total dissolved solids (TDS)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Radium-226 & 228	Selenium	Thallium	
			mg/L	mg/L	mg/L	mg/L	s.u.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pCi/L	mg/L	mg/L	
			None	None	None	4.0 ^{MCL}	None	None	None	0.006 ^{MCL}	0.01 ^{MCL}	2.0 ^{MCL}	0.004 ^{MCL}	0.005 ^{MCL}	0.1 ^{MCL}	0.006 ^{GWPS}	0.015 ^{GWPS}	0.040 ^{GWPS}	0.002 ^{MCL}	0.100 ^{GWPS}	5 ^{MCL}	0.05 ^{MCL}	0.002 ^{MCL}	
Comparison Basis			inter-well	inter-well	intra-well	inter-well	intra-well	intra-well	intra-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	inter-well	
Well	Sample Date	Monitoring Event																						
MW-213A (upgradient)																								
Comparison value			< 0.200	64.6	8.44	0.588	7.58 - 8.22	12.7	152 - 292 [†]	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	0.01 U	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	UPL	UPL (NP)	LPL - UPL	UPL	Baseline range	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	DQR	DQR	
3/24/2025			0.100 U	39.2	7.04	1.00 U	7.9 J	13.3	164	0.002 U	0.002 U	0.0297	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	0.0303	0.005 U	0.001 U	
9/9/2025			0.100 U	39.3	5.77	1.00 U	8.0 J	9.01	188	0.002 U	0.002 U	0.0292	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	1.12	0.005 U	0.001 U	
MW-221A (upgradient)																								
Comparison value			< 0.200	64.6	5.21	0.588	7.61 - 8.27	14.8	201	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	< 0.010	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	UPL (NP)	UPL (NP)	LPL - UPL	UPL	UPL	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	UPL	DQR	DQR
3/24/2025			0.100 U	38.1	5.07	1.00 U	8.0 J	12.8	160	0.002 U	0.002 U	0.0299	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	0.519	0.005 U	0.001 U	
9/9/2025			0.100 U	46.6	14.9	1.00 U	8.0 J	29.5	200	0.002 U	0.002 U	0.0338	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	1.43	0.005 U	0.001 U	
MW-230																								
Comparison value			< 0.200	64.6	< 5.0	0.588	7.41 - 8.86	31.4	74.0 - 198	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	< 0.010	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	DQR	UPL (NP)	LPL - UPL	UPL (NP)	Baseline range	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	UPL	DQR	DQR
3/24/2025			0.100 U	58.6	5.00 U	1.00 U	7.8 J	17.5	240	0.002 U	0.002 U	0.0498	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	0.6	0.005 U	0.001 U	
9/9/2025			0.100 U	59.5	5.00 U	1.00 U	7.8 J	29.8	272	0.002 U	0.002 U	0.0452	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	1.03	0.005 U	0.001 U	
MW-231																								
Comparison value			< 0.200	64.6	< 5	0.588	7.89 - 8.49	45.2	276	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	< 0.010	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	DQR	UPL (NP)	Baseline range	UPL (NP)	UPL	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	UPL	DQR	DQR
3/24/2025			0.100 U / 0.100 U	76.0 / 71.2	5.00 U / 5.00 U	1.00 U / 1.00 U	7.6 J / 7.7 J	12.1 / 7.57	294 / 306	0.002 U / 0.002 U	0.002 U / 0.002 U	0.0705 / 0.0665	0.001 U / 0.001 U	0.0002 U / 0.0002 U	0.005 U / 0.005 U	0.0005 U / 0.0005 U	0.0005 U / 0.0005 U	0.0100 U / 0.0100 U	0.0002 U / 0.0002 U	0.002 U / 0.002 U	0.228 / 0.439	0.005 U / 0.005 U	0.001 U / 0.001 U	
9/9/2025			0.100 U / 0.100 U	82.4 / 72.7	5.00 U / 5.00 U	1.00 U / 1.00 U	7.6 J / 7.7 J	8.98 / 9.04	318 / 316	0.002 U / 0.002 U	0.002 U / 0.002 U	0.0738 / 0.0656	0.001 U / 0.001 U	0.0002 U / 0.0002 U	0.005 U / 0.005 U	0.0005 U / 0.0005 U	0.0005 U / 0.0005 U	0.0100 U / 0.0100 U	0.0002 U / 0.0002 U	0.002 U / 0.002 U	0.547 / 1.77	0.005 U / 0.005 U	0.001 U / 0.001 U	
MW-232																								
Comparison value			< 0.200	64.6	5.71	0.588	8.04 - 8.48	3.99 - 5.80	193	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	< 0.010	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	UPL (NP)	UPL (NP)	LPL - UPL	Baseline range	UPL	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	UPL	DQR	DQR
3/24/2025			0.100 U	66.9	5.00 U	1.00 U	7.7 J	77.9	342	0.002 U	0.002 U	0.0622	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	0.436	0.005 U	0.001 U	
9/9/2025			0.100 U	56.5	5.00 U	1.00 U	7.8 J	46.1	278	0.002 U	0.002 U	0.0511	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	1.25	0.005 U	0.001 U	
MW-233																								
Comparison value			< 0.200	64.6	< 5.0	0.588	7.88 - 8.42	5.6	217	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	< 0.010	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	DQR	UPL (NP)	LPL - UPL	UPL	UPL (NP)	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	UPL	DQR	DQR
3/24/2025			0.100 U	81	5.76	1.00 U	7.7 J	39.4	348	0.002 U	0.002 U	0.0708	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	0.211	0.005 U	0.001 U	
9/9/2025			0.100 U	73	6.3	1.00 U	7.6 J	37.4	336	0.002 U	0.002 U	0.0651	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.002 U	0.282	0.005 U	0.001 U	
MW-234																								
Comparison value			< 0.200	64.6	9.60	0.588	8.1 - 8.5	16.5	154	< 0.001	< 0.002	0.0396	< 0.001	< 0.0005	0.0423	< 0.0005	0.000862	< 0.010	< 0.0002	< 0.002	1.026	< 0.0238	< 0.001	
Comparison value method			DQR	UPL	UPL (NP)	UPL (NP)	Baseline range	UPL (NP)	UPL	DQR	DQR	UPL	DQR	DQR	UPL (NP)	DQR	UPL (NP)	DQR	DQR	DQR	DQR	UPL	DQR	DQR
3/24/2025			0.100 U	35.3	5.00 U	1.00 U	8.3 J	25.6	174	0.002 U	0.002 U	0.027	0.001 U	0.0002 U	0.005 U	0.0005 U	0.00137 U	0.010 U	0.0002 U	0.0002 U	0.621	0.005 U	0.001 U	
9/9/2025			0.100 U	27.5	5.00 U	1.00 U	8.2 J	20.1	144	0.002 U	0.002 U	0.0204	0.001 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.010 U	0.0002 U	0.0002 U	1.17	0.005 U	0.001 U	

Notes:

368/370 - Field duplicate results.

U - Not detected at the associated reporting limit.

J - Estimated concentration.

232 Value exceeds comparison baseline values and/or baseline ranges.

† - Trend present during baseline period, no UTL values calculated (baseline range listed for comparison).

Values in italics indicate newer data with higher reporting limits than observed during the baseline period, but are not interpreted as a concentration increase.

MCL - Maximum contaminant level.

GWPS - Groundwater protection standard established under 40 CFR 257.95(h)(2).

DQR - Double Quantification Rule.

UPL - Upper Prediction Limit.

UPL (NP) - Upper Prediction Limit (Non-parametric).

Table 4.6

**Groundwater Protection Standards for East Monofill Groundwater
Louisa Generating Station - East Monofill
Muscatine, Iowa**

Parameters	Units	MCL ^a 40 CFR 257.95(h)(1)	GWPS ^b 40 CFR 257.95(h)(2)	Background ^c 40 CFR 257.95(h)(3)	Site-Specific GWPS	Maximum 2025 Concentration Downgradient ^d	2025 Conclusion
Appendix IV							
Antimony	mg/L	0.006 ^a	NA	< 0.001	0.006 ^a	0.00200 U	Below GWPS
Arsenic	mg/L	0.01 ^a	NA	< 0.002	0.01 ^a	0.00200 U	Below GWPS
Barium	mg/L	2.0 ^a	NA	0.0396	2.0 ^a	0.0738	Below GWPS
Beryllium	mg/L	0.004 ^a	NA	< 0.001	0.004 ^a	0.00100 U	Below GWPS
Cadmium	mg/L	0.005 ^a	NA	< 0.0005	0.005 ^a	0.000200 U	Below GWPS
Chromium	mg/L	0.1 ^a	NA	0.0423	0.1 ^a	0.00500 U	Below GWPS
Cobalt	mg/L	NA	0.006 ^b	< 0.0005	0.006 ^b	0.000500 U	Below GWPS
Fluoride	mg/L	4.0 ^a	NA	0.588	4.0 ^a	1.00 U	Below GWPS
Lead	mg/L	NA	0.015 ^b	0.000862	0.015 ^b	0.000500 U	Below GWPS
Lithium	mg/L	NA	0.040 ^b	< 0.01	0.040 ^b	0.0100 U	Below GWPS
Mercury	mg/L	0.002 ^a	NA	< 0.0002	0.002 ^a	0.000200 U	Below GWPS
Molybdenum	mg/L	NA	0.100 ^b	< 0.002	0.100 ^b	0.00200 U	Below GWPS
Radium-226 & 228	pCi/L	5 ^a	NA	1.026	5 ^a	1.77	Below GWPS
Selenium	mg/L	0.05 ^a	NA	< 0.0238	0.05 ^a	0.00500 U	Below GWPS
Thallium	mg/L	0.002 ^a	NA	< 0.001	0.002 ^a	0.00100 U	Below GWPS

Notes:

MCL - Maximum Contaminant Level.

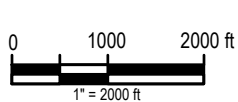
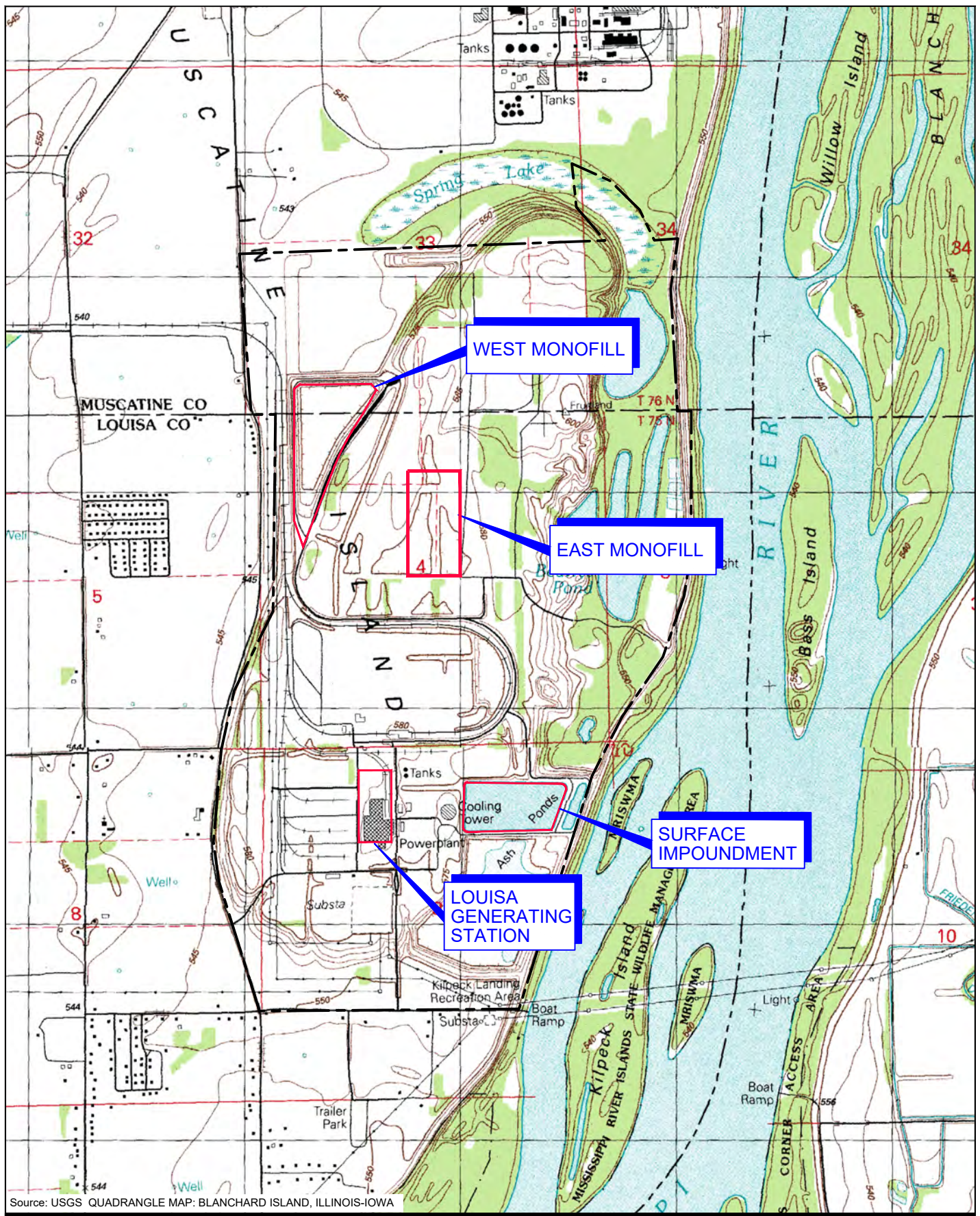
NA - Not applicable.

J - Estimated concentration.

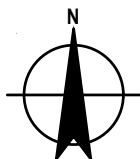
U - Not detected at the associated reporting limit.

^a Maximum contaminant level (MCL).^b Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).^c Determined from baseline data set for MW-213A and MW-221A.^d Determined from downgradient wells data set for MW-230, MW-231, MW-232, MW-233, MW-234.

Figures



Coordinate System:
NAD83 State PPlane
Iowa South Feet

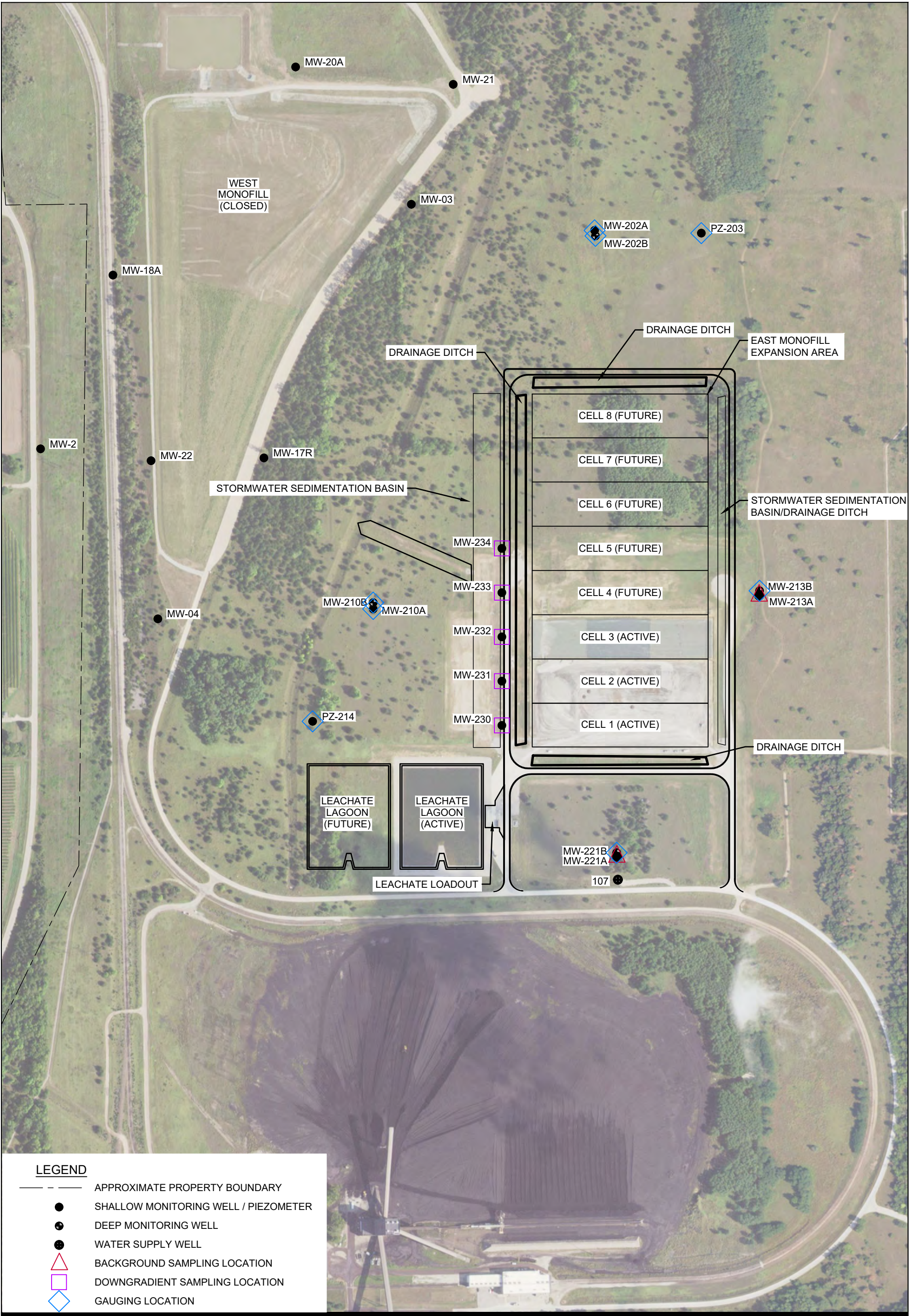


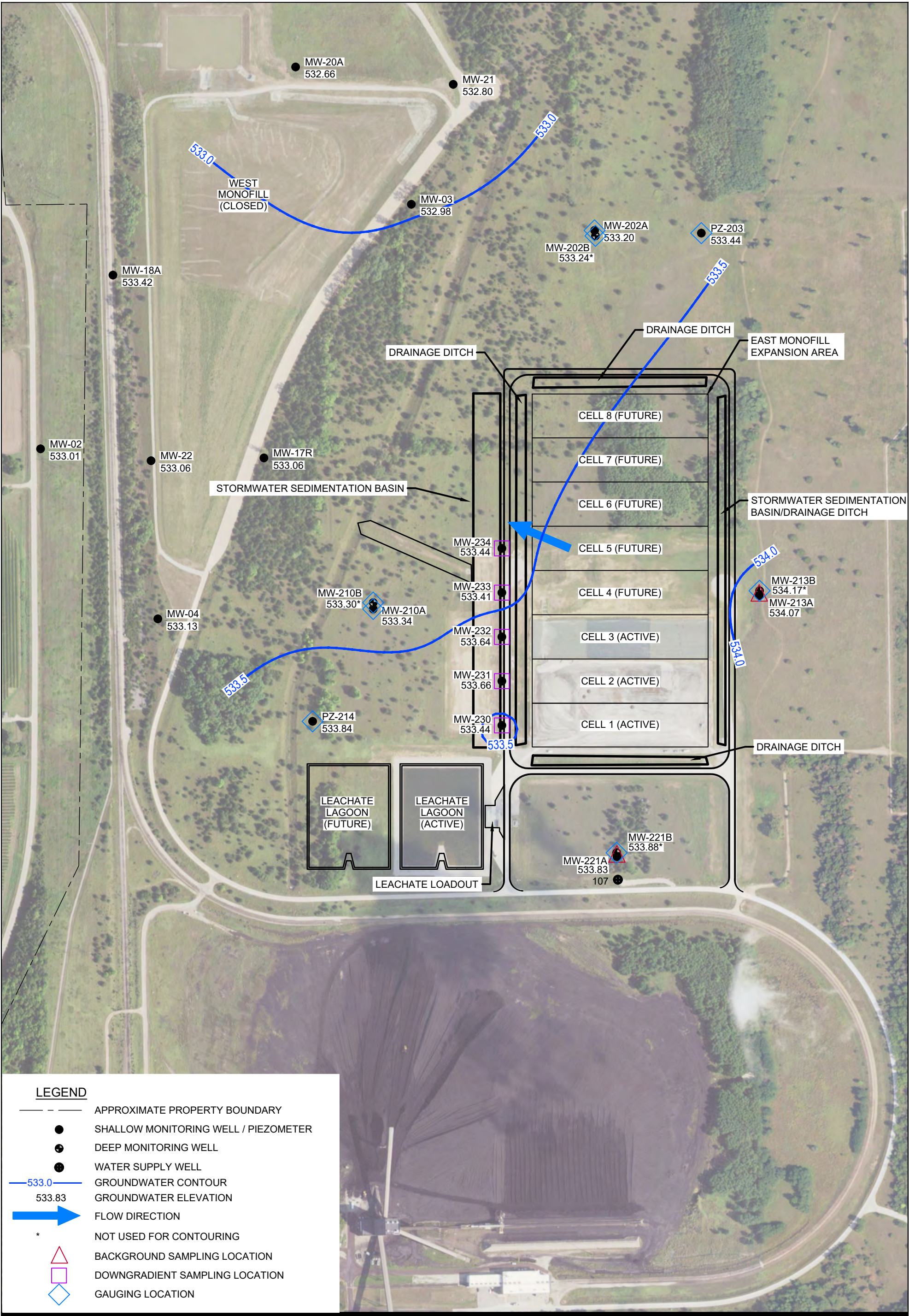
MIDAMERICAN ENERGY COMPANY
LOUISA GENERATING STATION
EAST MONOFILL
MUSCATINE, IOWA

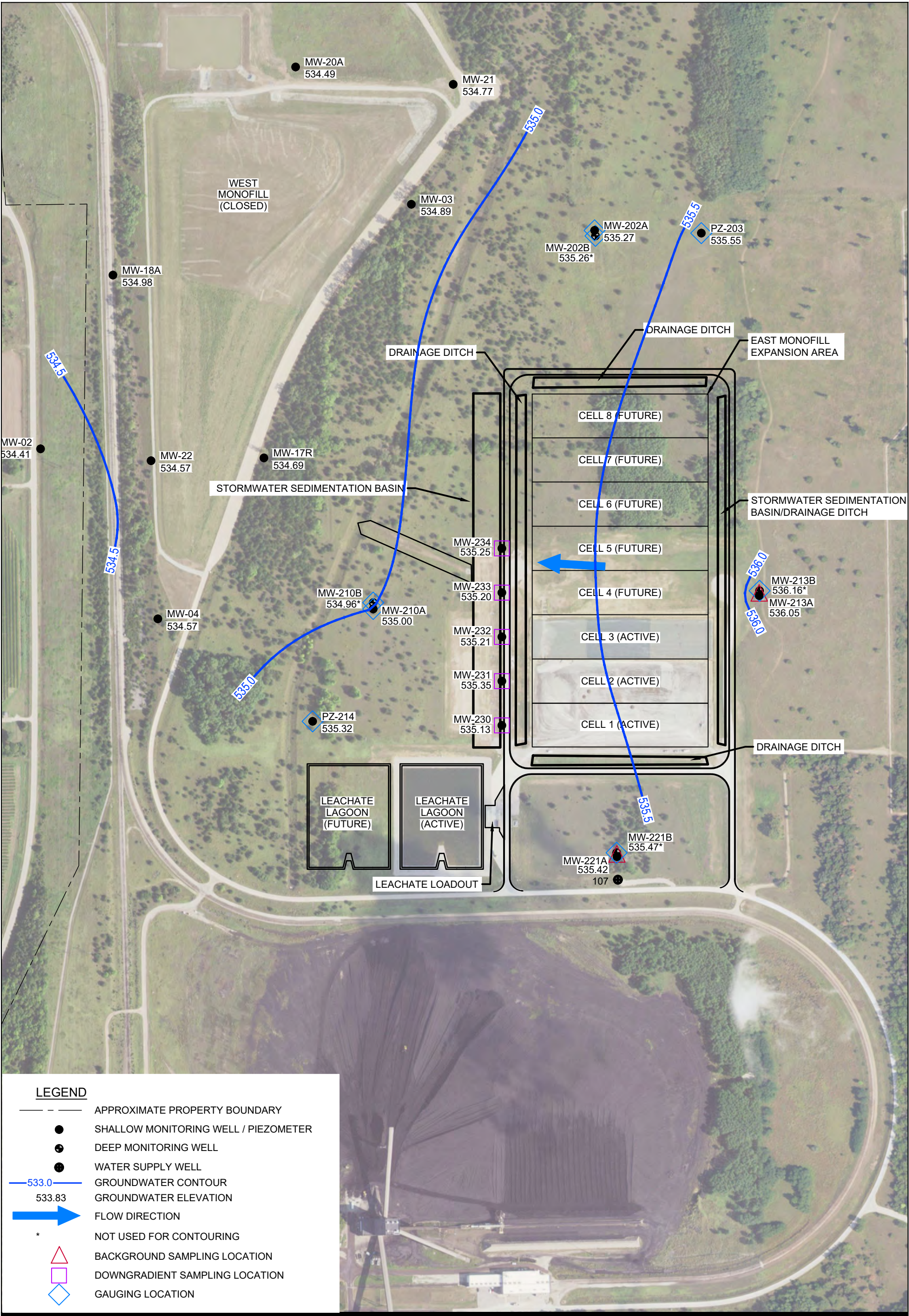
SITE LOCATION MAP

Project No. 12575233
Date May 2024

FIGURE 1.1







LEGEND

APPROXIMATE PROPERTY BOUNDARY

SHALLOW MONITORING WELL / PIEZOMETER

DEEP MONITORING WELL

WATER SUPPLY WELL

533.0

GROUNDWATER CONTOUR

533.83

GROUNDWATER ELEVATION

FLOW DIRECTION

*

NOT USED FOR CONTOURING

BACKGROUND SAMPLING LOCATION

DOWNGRAIDENT SAMPLING LOCATION

GAUGING LOCATION

0200400

ft

1" = 400 ft

Coordinate System:
NAD83 State Plane
Iowa South Feet

N

GHD

MIDAMERICAN ENERGY COMPANY
LOUISA GENERATING STATION
EAST MONOFILL
MUSCATINE, IOWA

GROUNDWATER FLOW MAP
SEPTEMBER 3, 2025

Project No. 12575233
Date January 2026

FIGURE 3.2

Filename: N:\US\Des Moines\Projects\5631\2575233\Digital_Design\ACAD\Figures\RPT017\12575233-GHD-00-00-RPT-EN-D101_017.DWG
Plot Date: 20 January 2026 3:30 PM

Appendices

Appendix A

Groundwater Sample Collection Records

Low-Flow Test Report:

Test Date / Time: 3/24/2025 2:46:11 PM
Project: LGS East Monofill MW-213A
Operator Name: Brooke Wasson

Location Name: MW-213A Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 38.5 ft Total Depth: 48.5 ft Initial Depth to Water: 44.2 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 44.5 ft Pump Intake From TOC: 46.5 ft Estimated Total Volume Pumped: 1840 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 1455

Weather Conditions:
50 degrees f sunny breezy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/24/2025 2:46 PM	00:00	7.43 pH	12.84 °C	0.35 mS/cm	8.14 mg/L	0.00 NTU	-41.0 mV	44.20 ft	200.00 ml/min
3/24/2025 2:47 PM	01:47	7.64 pH	12.91 °C	0.33 mS/cm	6.67 mg/L	0.00 NTU	-50.8 mV	44.20 ft	200.00 ml/min
3/24/2025 2:49 PM	03:34	7.72 pH	13.40 °C	0.32 mS/cm	6.69 mg/L	0.00 NTU	-51.4 mV	44.20 ft	200.00 ml/min
3/24/2025 2:51 PM	05:21	7.74 pH	13.58 °C	0.32 mS/cm	6.68 mg/L	0.00 NTU	-48.9 mV	44.20 ft	200.00 ml/min
3/24/2025 2:53 PM	07:08	7.77 pH	13.89 °C	0.32 mS/cm	6.65 mg/L	0.00 NTU	-45.8 mV	44.20 ft	200.00 ml/min
3/24/2025 2:55 PM	09:12	7.70 pH	13.88 °C	0.31 mS/cm	6.65 mg/L	0.00 NTU	-41.2 mV	44.20 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW213A-GW-0325	

Low-Flow Test Report:

Test Date / Time: 3/24/2025 3:32:18 PM
Project: LGS East Monofill MW-221A
Operator Name: Brooke Wasson

Location Name: MW-221A Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 40.6 ft Total Depth: 53.4 ft Initial Depth to Water: 45.96 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 49.4 ft Pump Intake From TOC: 51.4 ft Estimated Total Volume Pumped: 2200 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 1545

Weather Conditions:
52 degrees F cloudy breezy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/24/2025 3:32 PM	00:00	7.75 pH	13.52 °C	0.29 mS/cm	9.78 mg/L	76.83 NTU	2.0 mV	45.96 ft	200.00 ml/min
3/24/2025 3:34 PM	01:50	7.84 pH	13.13 °C	0.30 mS/cm	10.54 mg/L	74.41 NTU	-13.8 mV	45.96 ft	200.00 ml/min
3/24/2025 3:35 PM	03:40	7.85 pH	12.96 °C	0.30 mS/cm	10.55 mg/L	74.02 NTU	-19.1 mV	45.99 ft	200.00 ml/min
3/24/2025 3:37 PM	05:30	7.82 pH	12.83 °C	0.29 mS/cm	10.55 mg/L	85.85 NTU	-22.5 mV	45.99 ft	200.00 ml/min
3/24/2025 3:39 PM	07:20	7.83 pH	12.94 °C	0.28 mS/cm	10.55 mg/L	0.00 NTU	-9.6 mV	45.99 ft	200.00 ml/min
3/24/2025 3:41 PM	09:10	7.89 pH	12.90 °C	0.27 mS/cm	10.58 mg/L	0.00 NTU	-27.7 mV	45.99 ft	200.00 ml/min
3/24/2025 3:43 PM	11:00	7.83 pH	12.89 °C	0.27 mS/cm	10.54 mg/L	0.00 NTU	-28.3 mV	45.99 ft	200.00 ml/min

Samples

Sample ID:	Description:
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Low-Flow Test Report:

Test Date / Time: 3/24/2025 4:07:59 PM
Project: LGS East Monofill MW-230
Operator Name: Brooke Wasson

Location Name: MW-230 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 44.5 ft Total Depth: 54.5 ft Initial Depth to Water: 45.76 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 50.5 ft Pump Intake From TOC: 52.5 ft Estimated Total Volume Pumped: 2750 ml Flow Cell Volume: 130 ml Final Flow Rate: 300 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 1620

Weather Conditions:
52 degrees F cloudy breezy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/24/2025 4:07 PM	00:00	7.61 pH	13.97 °C	0.47 mS/cm	9.89 mg/L	23.16 NTU	4.3 mV	45.76 ft	300.00 ml/min
3/24/2025 4:09 PM	01:50	7.55 pH	14.04 °C	0.47 mS/cm	9.92 mg/L	25.13 NTU	-13.6 mV	45.76 ft	300.00 ml/min
3/24/2025 4:11 PM	03:40	7.55 pH	14.09 °C	0.46 mS/cm	9.92 mg/L	16.15 NTU	-17.3 mV	45.76 ft	300.00 ml/min
3/24/2025 4:13 PM	05:30	7.56 pH	14.13 °C	0.46 mS/cm	9.92 mg/L	9.17 NTU	-17.5 mV	45.76 ft	300.00 ml/min
3/24/2025 4:15 PM	07:20	7.52 pH	14.12 °C	0.46 mS/cm	9.89 mg/L	5.43 NTU	-15.2 mV	45.76 ft	300.00 ml/min
3/24/2025 4:17 PM	09:10	7.55 pH	14.08 °C	0.46 mS/cm	9.86 mg/L	2.17 NTU	-15.2 mV	45.76 ft	300.00 ml/min

Samples

Sample ID:	Description:
MW-230_25_03	

Low-Flow Test Report:

Test Date / Time: 3/24/2025 4:40:02 PM
Project: LGS East Monofill MW-231
Operator Name: Brooke Wasson

Location Name: MW-231 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 44.9 ft Total Depth: 54.9 ft Initial Depth to Water: 46.44 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 50.9 ft Pump Intake From TOC: 52.9 ft Estimated Total Volume Pumped: 925 ml Flow Cell Volume: 130 ml Final Flow Rate: 100 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 1650
Collected field duplicate

Weather Conditions:
53 degrees F cloudy breezy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/24/2025 4:40 PM	00:00	7.74 pH	13.72 °C	0.47 mS/cm	9.17 mg/L	6.35 NTU	12.3 mV	46.44 ft	100.00 ml/min
3/24/2025 4:41 PM	01:51	7.54 pH	12.16 °C	0.53 mS/cm	8.55 mg/L	3.73 NTU	4.0 mV	46.44 ft	100.00 ml/min
3/24/2025 4:43 PM	03:42	7.42 pH	12.39 °C	0.55 mS/cm	7.85 mg/L	0.00 NTU	0.6 mV	46.44 ft	100.00 ml/min
3/24/2025 4:45 PM	05:33	7.39 pH	12.69 °C	0.56 mS/cm	7.45 mg/L	0.00 NTU	-0.0 mV	46.44 ft	100.00 ml/min
3/24/2025 4:47 PM	07:24	7.32 pH	12.90 °C	0.57 mS/cm	7.31 mg/L	0.00 NTU	1.1 mV	46.44 ft	100.00 ml/min
3/24/2025 4:49 PM	09:15	7.30 pH	12.96 °C	0.57 mS/cm	7.26 mg/L	0.00 NTU	0.4 mV	46.44 ft	100.00 ml/min

Samples

Sample ID:	Description:
MW-231_25_03	

FD-1_25_03	
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Low-Flow Test Report:

Test Date / Time: 3/24/2025 5:42:50 PM
Project: LGS East Monofill MW-232
Operator Name: Brooke Wasson

Location Name: MW-232 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 44.3 ft Total Depth: 54.3 ft Initial Depth to Water: 44.59 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 50.3 ft Pump Intake From TOC: 52.3 ft Estimated Total Volume Pumped: 1833.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 1755
Collected Field blank at 1745

Weather Conditions:
52 degrees F cloudy breezy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/24/2025 5:42 PM	00:00	7.75 pH	12.99 °C	0.50 mS/cm	9.88 mg/L	0.00 NTU	29.3 mV	44.59 ft	250.00 ml/min
3/24/2025 5:44 PM	01:50	7.64 pH	13.45 °C	0.47 mS/cm	10.07 mg/L	0.00 NTU	13.7 mV	44.59 ft	250.00 ml/min
3/24/2025 5:46 PM	03:40	7.55 pH	13.53 °C	0.48 mS/cm	10.00 mg/L	0.00 NTU	7.8 mV	44.59 ft	250.00 ml/min
3/24/2025 5:48 PM	05:30	7.45 pH	13.60 °C	0.49 mS/cm	9.84 mg/L	0.00 NTU	5.4 mV	44.59 ft	250.00 ml/min
3/24/2025 5:50 PM	07:20	7.43 pH	13.61 °C	0.49 mS/cm	9.84 mg/L	0.00 NTU	4.7 mV	44.59 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW-232_25_03	
FB-1_25_03	

Low-Flow Test Report:

Test Date / Time: 3/24/2025 6:09:52 PM
Project: LGS East Monofill MW-233
Operator Name: Brooke Wasson

Location Name: MW-233 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 42.6 ft Total Depth: 52.7 ft Initial Depth to Water: 44.21 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 48.7 ft Pump Intake From TOC: 50.7 ft Estimated Total Volume Pumped: 7266.667 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 1850

Weather Conditions:
51 degrees F overcast breezy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/24/2025 6:09 PM	00:00	7.58 pH	13.34 °C	0.48 mS/cm	10.13 mg/L	2.07 NTU	18.7 mV	44.21 ft	200.00 ml/min
3/24/2025 6:11 PM	01:49	7.40 pH	13.27 °C	0.37 mS/cm	9.48 mg/L	2.23 NTU	11.8 mV	44.21 ft	200.00 ml/min
3/24/2025 6:13 PM	03:38	7.33 pH	13.28 °C	0.59 mS/cm	9.23 mg/L	0.00 NTU	10.6 mV	44.21 ft	200.00 ml/min
3/24/2025 6:15 PM	05:27	7.28 pH	13.30 °C	0.50 mS/cm	9.16 mg/L	0.00 NTU	11.0 mV	44.21 ft	200.00 ml/min
3/24/2025 6:17 PM	07:16	7.27 pH	13.31 °C	0.38 mS/cm	9.08 mg/L	0.00 NTU	11.5 mV	44.21 ft	200.00 ml/min
3/24/2025 6:18 PM	09:05	7.24 pH	13.32 °C	0.59 mS/cm	9.04 mg/L	0.00 NTU	12.3 mV	44.21 ft	200.00 ml/min
3/24/2025 6:20 PM	10:54	7.23 pH	13.35 °C	0.64 mS/cm	9.02 mg/L	0.00 NTU	13.4 mV	44.21 ft	200.00 ml/min
3/24/2025 6:22 PM	12:43	7.22 pH	13.36 °C	0.60 mS/cm	8.93 mg/L	0.00 NTU	14.1 mV	44.21 ft	200.00 ml/min
3/24/2025 6:24 PM	14:32	7.20 pH	13.34 °C	0.62 mS/cm	8.92 mg/L	0.00 NTU	14.8 mV	44.21 ft	200.00 ml/min
3/24/2025 6:26 PM	16:21	7.17 pH	13.36 °C	0.52 mS/cm	8.63 mg/L	0.00 NTU	15.8 mV	44.21 ft	200.00 ml/min
3/24/2025 6:28 PM	18:10	7.18 pH	13.34 °C	0.50 mS/cm	8.36 mg/L	0.00 NTU	16.8 mV	44.21 ft	200.00 ml/min

3/24/2025 6:29 PM	19:59	7.18 pH	13.32 °C	0.42 mS/cm	8.42 mg/L	0.00 NTU	17.8 mV	44.21 ft	200.00 ml/min
3/24/2025 6:31 PM	21:48	7.17 pH	13.35 °C	0.50 mS/cm	8.41 mg/L	0.00 NTU	18.9 mV	44.21 ft	200.00 ml/min
3/24/2025 6:33 PM	23:37	7.18 pH	13.35 °C	0.64 mS/cm	8.42 mg/L	0.00 NTU	19.5 mV	44.21 ft	200.00 ml/min
3/24/2025 6:35 PM	25:26	7.18 pH	13.32 °C	0.54 mS/cm	8.46 mg/L	0.00 NTU	20.3 mV	44.21 ft	200.00 ml/min
3/24/2025 6:37 PM	27:15	7.13 pH	13.32 °C	0.57 mS/cm	8.45 mg/L	0.00 NTU	21.5 mV	44.21 ft	200.00 ml/min
3/24/2025 6:38 PM	29:04	7.15 pH	13.32 °C	0.45 mS/cm	8.46 mg/L	0.00 NTU	22.1 mV	44.21 ft	200.00 ml/min
3/24/2025 6:40 PM	30:53	7.14 pH	13.33 °C	0.63 mS/cm	8.42 mg/L	0.00 NTU	22.6 mV	44.21 ft	200.00 ml/min
3/24/2025 6:42 PM	32:42	7.14 pH	13.32 °C	0.50 mS/cm	8.45 mg/L	0.00 NTU	23.2 mV	44.21 ft	200.00 ml/min
3/24/2025 6:44 PM	34:31	7.14 pH	13.32 °C	0.52 mS/cm	8.45 mg/L	0.00 NTU	23.8 mV	44.21 ft	200.00 ml/min
3/24/2025 6:46 PM	36:20	7.14 pH	13.33 °C	0.50 mS/cm	8.45 mg/L	0.00 NTU	24.3 mV	44.21 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-233_25_03	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 7:52:25 AM
Project: LGS East Monofill MW-234
Operator Name: Brooke Wasson

Location Name: MW-234 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 43.4 ft Total Depth: 53.4 ft Initial Depth to Water: 45.57 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 49.4 ft Pump Intake From TOC: 51.4 ft Estimated Total Volume Pumped: 2393.333 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 500 Serial Number: 1194835
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Test Notes:
Sampled 0805

Weather Conditions:
41 degrees F overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
3/25/2025 7:52 AM	00:00	8.88 pH	9.60 °C	0.05 mS/cm	10.71 mg/L	0.00 NTU	93.8 mV	45.57 ft	200.00 ml/min
3/25/2025 7:54 AM	01:50	7.81 pH	12.20 °C	0.32 mS/cm	10.64 mg/L	0.00 NTU	32.9 mV	45.58 ft	200.00 ml/min
3/25/2025 7:56 AM	03:40	7.70 pH	12.56 °C	0.32 mS/cm	10.91 mg/L	0.00 NTU	23.8 mV	45.58 ft	200.00 ml/min
3/25/2025 7:57 AM	05:30	7.64 pH	12.63 °C	0.31 mS/cm	11.01 mg/L	0.00 NTU	21.3 mV	45.58 ft	200.00 ml/min
3/25/2025 7:59 AM	07:20	7.60 pH	12.69 °C	0.30 mS/cm	11.04 mg/L	0.00 NTU	16.8 mV	45.58 ft	200.00 ml/min
3/25/2025 8:01 AM	09:10	7.58 pH	12.74 °C	0.29 mS/cm	11.03 mg/L	0.00 NTU	15.4 mV	45.58 ft	200.00 ml/min
3/25/2025 8:02 AM	10:08	7.62 pH	12.73 °C	0.29 mS/cm	10.99 mg/L	0.00 NTU	14.9 mV	45.58 ft	200.00 ml/min
3/25/2025 8:04 AM	11:58	7.62 pH	12.76 °C	0.28 mS/cm	11.03 mg/L	0.00 NTU	14.9 mV	45.58 ft	200.00 ml/min

Samples

Sample ID:	Description:
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MW-234_25_03	
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 9/9/2025 10:47:43 AM
Project: LGS East Monofill MW-213A
Operator Name: Brooke Wasson

Location Name: MW-213A Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 38.5 ft Total Depth: 48.5 ft Initial Depth to Water: 42.32 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 44.5 ft Pump Intake From TOC: 46.5 ft Estimated Total Volume Pumped: 3745 ml Flow Cell Volume: 130 ml Final Flow Rate: 300 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:
Sampled 1105

Weather Conditions:
66 degrees F mostly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 10:47 AM	00:00	7.285 pH	17.99 °C	0.317 mS/cm	8.701 mg/L	0.000 NTU	189.5 mV	42.32 ft	300.0 ml/min
9/9/2025 10:49 AM	01:47	7.833 pH	14.63 °C	0.283 mS/cm	8.757 mg/L	0.000 NTU	179.1 mV	42.32 ft	300.0 ml/min
9/9/2025 10:51 AM	03:34	7.853 pH	14.14 °C	0.288 mS/cm	8.470 mg/L	0.000 NTU	176.6 mV	42.32 ft	300.0 ml/min
9/9/2025 10:53 AM	05:21	7.795 pH	14.00 °C	0.294 mS/cm	8.285 mg/L	0.000 NTU	177.0 mV	42.32 ft	300.0 ml/min
9/9/2025 10:54 AM	07:08	7.753 pH	13.99 °C	0.299 mS/cm	8.118 mg/L	0.000 NTU	177.8 mV	42.32 ft	300.0 ml/min
9/9/2025 10:56 AM	08:55	7.707 pH	13.89 °C	0.304 mS/cm	7.907 mg/L	0.000 NTU	179.2 mV	42.32 ft	300.0 ml/min
9/9/2025 10:58 AM	10:42	7.690 pH	13.78 °C	0.305 mS/cm	7.754 mg/L	0.000 NTU	179.5 mV	42.32 ft	300.0 ml/min
9/9/2025 11:00 AM	12:29	7.680 pH	13.66 °C	0.307 mS/cm	7.733 mg/L	0.000 NTU	179.5 mV	42.32 ft	300.0 ml/min

Samples

Sample ID:	Description:
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MW213A-GW-0925	
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Low-Flow Test Report:

Test Date / Time: 9/9/2025 11:21:54 AM
Project: LGS East Monofill MW-221A
Operator Name: Brooke Wasson

Location Name: MW-221A Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 40.6 ft Total Depth: 53.4 ft Initial Depth to Water: 44.4 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 49.4 ft Pump Intake From TOC: 51.4 ft Estimated Total Volume Pumped: 1375 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:
Sampled 1130

Weather Conditions:
69 degrees F mostly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 11:21 AM	00:00	7.680 pH	17.45 °C	0.295 mS/cm	8.824 mg/L	0.000 NTU	162.9 mV	44.40 ft	250.0 ml/min
9/9/2025 11:23 AM	01:50	7.935 pH	14.91 °C	0.360 mS/cm	8.243 mg/L	0.000 NTU	156.5 mV	44.40 ft	250.0 ml/min
9/9/2025 11:25 AM	03:40	7.930 pH	14.69 °C	0.361 mS/cm	8.234 mg/L	0.000 NTU	157.3 mV	44.40 ft	250.0 ml/min
9/9/2025 11:27 AM	05:30	7.914 pH	14.36 °C	0.360 mS/cm	8.340 mg/L	0.000 NTU	157.9 mV	44.40 ft	250.0 ml/min

Samples

Sample ID:	Description:
MW221A-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/9/2025 11:51:14 AM
Project: LGS East Monofill MW-230
Operator Name: Brooke Wasson

Location Name: MW-230 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 44.5 ft Total Depth: 54.5 ft Initial Depth to Water: 44.1 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 50.5 ft Pump Intake From TOC: 52.5 ft Estimated Total Volume Pumped: 2750 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:
Sampled 1205

Weather Conditions:
69 degrees F mostly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 11:51 AM	00:00	7.763 pH	16.01 °C	0.420 mS/cm	9.525 mg/L	73.92 NTU	153.5 mV	44.10 ft	250.0 ml/min
9/9/2025 11:53 AM	01:50	7.710 pH	15.75 °C	0.423 mS/cm	9.491 mg/L	87.54 NTU	154.8 mV	44.10 ft	250.0 ml/min
9/9/2025 11:54 AM	03:40	7.672 pH	15.68 °C	0.442 mS/cm	9.392 mg/L	347.9 NTU	156.3 mV	44.10 ft	250.0 ml/min
9/9/2025 11:56 AM	05:30	7.655 pH	15.46 °C	0.448 mS/cm	9.386 mg/L	403.9 NTU	156.4 mV	44.10 ft	250.0 ml/min
9/9/2025 11:58 AM	07:20	7.610 pH	15.68 °C	0.437 mS/cm	9.308 mg/L	0.000 NTU	158.1 mV	44.10 ft	250.0 ml/min
9/9/2025 12:00 PM	09:10	7.641 pH	15.65 °C	0.440 mS/cm	9.291 mg/L	0.000 NTU	155.3 mV	44.10 ft	250.0 ml/min
9/9/2025 12:02 PM	11:00	7.646 pH	15.51 °C	0.442 mS/cm	9.233 mg/L	0.000 NTU	154.3 mV	44.10 ft	250.0 ml/min

Samples

Sample ID:	Description:
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MW-230_25_09	
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 9/9/2025 12:20:40 PM
Project: LGS East Monofill MW-231
Operator Name: Brooke Wasson

Location Name: MW-231 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 44.9 ft Total Depth: 54.9 ft Initial Depth to Water: 44.73 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 50.9 ft Pump Intake From TOC: 52.9 ft Estimated Total Volume Pumped: 2312.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
---	--	--

Test Notes:
Sampled 1235

Weather Conditions:
72 degrees F cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 12:20 PM	00:00	7.629 pH	20.54 °C	0.472 mS/cm	7.912 mg/L	0.000 NTU	139.0 mV	44.73 ft	250.0 ml/min
9/9/2025 12:22 PM	01:51	7.452 pH	16.67 °C	0.547 mS/cm	7.094 mg/L	0.000 NTU	143.6 mV	44.73 ft	250.0 ml/min
9/9/2025 12:24 PM	03:42	7.432 pH	16.26 °C	0.560 mS/cm	6.705 mg/L	2.546 NTU	145.1 mV	44.73 ft	250.0 ml/min
9/9/2025 12:26 PM	05:33	7.403 pH	15.89 °C	0.564 mS/cm	6.684 mg/L	15.10 NTU	146.9 mV	44.73 ft	250.0 ml/min
9/9/2025 12:28 PM	07:24	7.383 pH	15.90 °C	0.568 mS/cm	6.808 mg/L	0.000 NTU	148.6 mV	44.73 ft	250.0 ml/min
9/9/2025 12:29 PM	09:15	7.376 pH	15.77 °C	0.568 mS/cm	6.650 mg/L	0.000 NTU	149.0 mV	44.73 ft	250.0 ml/min

Samples

Sample ID:	Description:
MW-231_09_25	
FD-1_09_25	

Low-Flow Test Report:

Test Date / Time: 9/9/2025 1:12:03 PM
Project: LGS East Monofill MW-232
Operator Name: Brooke Wasson

Location Name: MW-232 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 44.3 ft Total Depth: 54.3 ft Initial Depth to Water: 43.01 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 50.3 ft Pump Intake From TOC: 52.3 ft Estimated Total Volume Pumped: 2200 ml Flow Cell Volume: 130 ml Final Flow Rate: 300 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:
Sampled 1320

Weather Conditions:
72 degrees F cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 1:12 PM	00:00	7.957 pH	18.91 °C	0.453 mS/cm	9.300 mg/L	69.60 NTU	135.3 mV	43.01 ft	300.0 ml/min
9/9/2025 1:13 PM	01:50	7.758 pH	15.93 °C	0.428 mS/cm	9.604 mg/L	230.0 NTU	139.7 mV	43.01 ft	300.0 ml/min
9/9/2025 1:15 PM	03:40	7.682 pH	15.60 °C	0.464 mS/cm	9.586 mg/L	0.000 NTU	146.1 mV	43.01 ft	300.0 ml/min
9/9/2025 1:17 PM	05:30	7.615 pH	15.14 °C	0.470 mS/cm	9.644 mg/L	0.000 NTU	149.4 mV	43.01 ft	300.0 ml/min
9/9/2025 1:19 PM	07:20	7.578 pH	15.17 °C	0.469 mS/cm	9.572 mg/L	0.000 NTU	150.9 mV	43.01 ft	300.0 ml/min

Samples

Sample ID:	Description:
MW-232_09_25	

Low-Flow Test Report:

Test Date / Time: 9/9/2025 1:37:39 PM
Project: LGS East Monofill MW-233
Operator Name: Brooke Wasson

Location Name: MW-233 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 42.6 ft Total Depth: 52.7 ft Initial Depth to Water: 42.45 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 48.7 ft Pump Intake From TOC: 50.7 ft Estimated Total Volume Pumped: 4995.833 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:
Sampled 1400

Weather Conditions:
74 degrees F cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 1:37 PM	00:00	7.733 pH	19.17 °C	0.561 mS/cm	8.461 mg/L	0.000 NTU	132.7 mV	42.45 ft	250.0 ml/min
9/9/2025 1:39 PM	01:49	7.511 pH	15.98 °C	0.492 mS/cm	5.768 mg/L	18.48 NTU	136.5 mV	42.45 ft	250.0 ml/min
9/9/2025 1:41 PM	03:38	7.108 pH	16.48 °C	0.000 mS/cm	7.817 mg/L	0.000 NTU	134.2 mV	42.45 ft	250.0 ml/min
9/9/2025 1:43 PM	05:27	7.652 pH	18.65 °C	0.000 mS/cm	8.998 mg/L	0.000 NTU	134.6 mV	42.45 ft	250.0 ml/min
9/9/2025 1:44 PM	07:16	7.825 pH	20.08 °C	0.000 mS/cm	8.831 mg/L	0.000 NTU	128.6 mV	42.45 ft	250.0 ml/min
9/9/2025 1:46 PM	09:05	7.898 pH	21.17 °C	0.000 mS/cm	8.689 mg/L	0.000 NTU	125.1 mV	42.45 ft	250.0 ml/min
9/9/2025 1:48 PM	10:54	7.899 pH	22.10 °C	0.000 mS/cm	8.568 mg/L	0.000 NTU	123.9 mV	42.45 ft	250.0 ml/min
9/9/2025 1:50 PM	12:43	7.483 pH	19.03 °C	0.305 mS/cm	5.446 mg/L	0.000 NTU	128.6 mV	42.45 ft	250.0 ml/min
9/9/2025 1:52 PM	14:32	7.479 pH	16.27 °C	0.536 mS/cm	5.629 mg/L	13.11 NTU	130.8 mV	42.45 ft	250.0 ml/min
9/9/2025 1:54 PM	16:21	7.466 pH	15.38 °C	0.577 mS/cm	5.922 mg/L	0.000 NTU	133.8 mV	42.45 ft	250.0 ml/min
9/9/2025 1:55 PM	18:10	7.459 pH	15.11 °C	0.578 mS/cm	5.800 mg/L	0.000 NTU	133.8 mV	42.45 ft	250.0 ml/min

9/9/2025 1:57 PM	19:59	7.477 pH	15.00 °C	0.576 mS/cm	5.804 mg/L	0.000 NTU	133.2 mV	42.45 ft	250.0 ml/min
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Samples

Sample ID:	Description:
MW-233_25_09	

Low-Flow Test Report:

Test Date / Time: 9/9/2025 2:14:24 PM
Project: LGS East Monofill MW-234
Operator Name: Brooke Wasson

Location Name: MW-234 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 43.4 ft Total Depth: 53.4 ft Initial Depth to Water: 43.8 ft	Pump Type: Solinst Model 407 Bladder Pump Tubing Type: Teflon-lined 1/4" x 1/4" twin-bonded tubing Tubing Inner Diameter: 0.125 in Tubing Length: 49.4 ft Pump Intake From TOC: 51.4 ft Estimated Total Volume Pumped: 2750 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Serial Number: 809048
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Test Notes:
Sampled 1430

Weather Conditions:
75 degrees F cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 20	+/- 5	
9/9/2025 2:14 PM	00:00	7.948 pH	20.62 °C	0.306 mS/cm	8.959 mg/L	0.000 NTU	131.0 mV	43.80 ft	250.0 ml/min
9/9/2025 2:16 PM	01:50	8.253 pH	15.60 °C	0.221 mS/cm	9.565 mg/L	4.994 NTU	151.2 mV	43.80 ft	250.0 ml/min
9/9/2025 2:18 PM	03:40	8.292 pH	15.13 °C	0.223 mS/cm	9.913 mg/L	6.630 NTU	154.2 mV	43.80 ft	250.0 ml/min
9/9/2025 2:19 PM	05:30	8.222 pH	15.06 °C	0.245 mS/cm	9.953 mg/L	0.000 NTU	165.7 mV	43.80 ft	250.0 ml/min
9/9/2025 2:21 PM	07:20	8.200 pH	14.90 °C	0.245 mS/cm	9.982 mg/L	0.000 NTU	175.3 mV	43.80 ft	250.0 ml/min
9/9/2025 2:23 PM	09:10	8.184 pH	14.74 °C	0.245 mS/cm	10.05 mg/L	0.000 NTU	181.1 mV	43.80 ft	250.0 ml/min
9/9/2025 2:25 PM	11:00	8.190 pH	14.80 °C	0.243 mS/cm	10.02 mg/L	0.000 NTU	183.6 mV	43.80 ft	250.0 ml/min

Samples

Sample ID:	Description:
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MW-234_25_09	
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Created using VuSitu from In-Situ, Inc.

Appendix B

Laboratory Analytical Reports

ANALYTICAL REPORT

PREPARED FOR

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

Generated 4/25/2025 10:07:45 AM

JOB DESCRIPTION

MEC Louisa East CCR Monofill

JOB NUMBER

310-302688-1

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



Generated
4/25/2025 10:07:45 AM

Authorized for release by
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Case Narrative

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

Job ID: 310-302688-1

Job ID: 310-302688-1

Eurofins Cedar Falls

Job Narrative 310-302688-1

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

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

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

Receipt

The samples were received on 3/26/2025 9:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were -4.5°C, -1.8°C and -1.2°C.

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-234_25_03 (310-302688-7) and FD-1_25_03 (310-302688-8). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-213A_25_03 (310-302688-1), MW-221A_25_03 (310-302688-2), MW-230_25_03 (310-302688-3), MW-231_25_03 (310-302688-4), MW-232_25_03 (310-302688-5) and MW-233_25_03 (310-302688-6). 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.

Eurofins Cedar Falls

Case Narrative

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

Job ID: 310-302688-1

Job ID: 310-302688-2

Eurofins Cedar Falls

Job Narrative 310-302688-2

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 and/or narrative comments are included to explain any exceptions, if applicable.

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

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

Receipt

The samples were received on 3/26/2025 9:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were -4.5°C, -1.8°C and -1.2°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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-302688-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-302688-1	MW-213A_25_03	Water	03/24/25 14:55	03/26/25 09:05
310-302688-2	MW-221A_25_03	Water	03/24/25 15:45	03/26/25 09:05
310-302688-3	MW-230_25_03	Water	03/24/25 16:20	03/26/25 09:05
310-302688-4	MW-231_25_03	Water	03/24/25 16:50	03/26/25 09:05
310-302688-5	MW-232_25_03	Water	03/24/25 17:55	03/26/25 09:05
310-302688-6	MW-233_25_03	Water	03/24/25 18:50	03/26/25 09:05
310-302688-7	MW-234_25_03	Water	03/24/25 08:05	03/26/25 09:05
310-302688-8	FD-1_25_03	Water	03/24/25 00:00	03/26/25 09:05
310-302688-9	FB-1_25_03	Water	03/24/25 17:45	03/26/25 09:05

Detection Summary

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

Job ID: 310-302688-1

Client Sample ID: MW-213A_25_03

Lab Sample ID: 310-302688-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.04		5.00		mg/L	5		9056A	Total/NA
Sulfate	13.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.0297		0.00200		mg/L	1		6020B	Total/NA
Calcium	39.2		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	164		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-221A_25_03

Lab Sample ID: 310-302688-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.07		5.00		mg/L	5		9056A	Total/NA
Sulfate	12.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0299		0.00200		mg/L	1		6020B	Total/NA
Calcium	38.1		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	160		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.0	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-230_25_03

Lab Sample ID: 310-302688-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	17.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.0498		0.00200		mg/L	1		6020B	Total/NA
Calcium	58.6		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	240		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-231_25_03

Lab Sample ID: 310-302688-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	12.1		5.00		mg/L	5		9056A	Total/NA
Barium	0.0705		0.00200		mg/L	1		6020B	Total/NA
Calcium	76.0		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	294		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-232_25_03

Lab Sample ID: 310-302688-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	77.9		5.00		mg/L	5		9056A	Total/NA
Barium	0.0622		0.00200		mg/L	1		6020B	Total/NA
Calcium	66.9		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	342		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-233_25_03

Lab Sample ID: 310-302688-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.76		5.00		mg/L	5		9056A	Total/NA
Sulfate	39.4		5.00		mg/L	5		9056A	Total/NA
Barium	0.0708		0.00200		mg/L	1		6020B	Total/NA
Calcium	81.0		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	348		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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-302688-1

Client Sample ID: MW-234_25_03

Lab Sample ID: 310-302688-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	25.6		5.00		mg/L	5		9056A	Total/NA
Barium	0.0270		0.00200		mg/L	1		6020B	Total/NA
Calcium	35.3		0.500		mg/L	1		6020B	Total/NA
Lead	0.00137		0.000500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	174		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.3	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: FD-1_25_03

Lab Sample ID: 310-302688-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	7.57		5.00		mg/L	5		9056A	Total/NA
Barium	0.0665		0.00200		mg/L	1		6020B	Total/NA
Calcium	71.2		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	306		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: FB-1_25_03

Lab Sample ID: 310-302688-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.000532		0.000500		mg/L	1		6020B	Total/NA
pH	8.4	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: 310-302688-1

Client Sample ID: MW-213A_25_03

Lab Sample ID: 310-302688-1

Date Collected: 03/24/25 14:55

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.04		5.00		mg/L			04/02/25 19:07	5
Fluoride	<1.00		1.00		mg/L			04/02/25 19:07	5
Sulfate	13.3		5.00		mg/L			04/02/25 19:07	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		03/31/25 08:30	04/01/25 19:19	1
Arsenic	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:19	1
Barium	0.0297		0.00200		mg/L		03/31/25 08:30	04/01/25 19:19	1
Beryllium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/02/25 13:22	1
Boron	<0.100		0.100		mg/L		03/31/25 08:30	04/01/25 19:19	1
Cadmium	<0.000200		0.000200		mg/L		03/31/25 08:30	04/01/25 19:19	1
Calcium	39.2		0.500		mg/L		03/31/25 08:30	04/01/25 19:19	1
Chromium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 19:19	1
Cobalt	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 19:19	1
Lead	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 19:19	1
Lithium	<0.0100		0.0100		mg/L		03/31/25 08:30	04/01/25 19:19	1
Molybdenum	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:19	1
Selenium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 19:19	1
Thallium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/01/25 19:19	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	164		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.9	HF	1.0		SU			03/26/25 11:38	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	<0.306	U	0.184	0.185	1.00	0.306	pCi/L	03/28/25 07:20	04/23/25 07:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	83.4		30 - 110					03/28/25 07:20	04/23/25 07:53	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	<0.769	U	0.401	0.402	1.00	0.769	pCi/L	03/28/25 07:27	04/22/25 14:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	83.4		30 - 110					03/28/25 07:27	04/22/25 14:15	1
Y Carrier	74.0		30 - 110					03/28/25 07:27	04/22/25 14:15	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-213A_25_03
Date Collected: 03/24/25 14:55
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-1
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	<0.769	U	0.441	0.443	5.00	0.769	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-221A_25_03

Lab Sample ID: 310-302688-2

Date Collected: 03/24/25 15:45

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.07		5.00		mg/L			04/02/25 19:22	5
Fluoride	<1.00		1.00		mg/L			04/02/25 19:22	5
Sulfate	12.8		5.00		mg/L			04/02/25 19:22	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		03/28/25 09:00	03/31/25 17:42	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:42	1
Barium	0.0299		0.00200		mg/L		03/28/25 09:00	03/31/25 17:42	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:42	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 13:07	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 17:42	1
Calcium	38.1		0.500		mg/L		03/28/25 09:00	03/31/25 17:42	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:42	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:42	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:42	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 17:42	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:42	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:42	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:42	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	160		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			03/26/25 11:39	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	0.548		0.234	0.239	1.00	0.245	pCi/L	03/28/25 07:20	04/23/25 07:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	88.0		30 - 110					03/28/25 07:20	04/23/25 07:53	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	<0.639	U	0.341	0.341	1.00	0.639	pCi/L	03/28/25 07:27	04/22/25 14:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	88.0		30 - 110					03/28/25 07:27	04/22/25 14:16	1
Y Carrier	77.8		30 - 110					03/28/25 07:27	04/22/25 14:16	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-221A_25_03
Date Collected: 03/24/25 15:45
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-2
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	<0.639	U	0.414	0.416	5.00	0.639	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-230_25_03

Lab Sample ID: 310-302688-3

Date Collected: 03/24/25 16:20

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			04/02/25 19:38	5
Fluoride	<1.00		1.00		mg/L			04/02/25 19:38	5
Sulfate	17.5		5.00		mg/L			04/02/25 19:38	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		03/28/25 09:00	03/31/25 18:08	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:08	1
Barium	0.0498		0.00200		mg/L		03/28/25 09:00	03/31/25 18:08	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:08	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 13:28	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 18:08	1
Calcium	58.6		0.500		mg/L		03/28/25 09:00	03/31/25 18:08	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:08	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:08	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:08	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 18:08	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:08	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:08	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:08	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	240		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.8	HF	1.0		SU			03/26/25 11:41	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	<0.262	U	0.152	0.153	1.00	0.262	pCi/L	03/28/25 07:20	04/23/25 07:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.0		30 - 110					03/28/25 07:20	04/23/25 07:53	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	<0.601	U	0.389	0.392	1.00	0.601	pCi/L	03/28/25 07:27	04/22/25 14:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.0		30 - 110					03/28/25 07:27	04/22/25 14:03	1
Y Carrier	72.9		30 - 110					03/28/25 07:27	04/22/25 14:03	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-230_25_03
Date Collected: 03/24/25 16:20
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-3
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	<0.601	U	0.418	0.421	5.00	0.601	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-231_25_03

Lab Sample ID: 310-302688-4

Date Collected: 03/24/25 16:50

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			04/02/25 19:53	5
Fluoride	<1.00		1.00		mg/L			04/02/25 19:53	5
Sulfate	12.1		5.00		mg/L			04/02/25 19:53	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		03/28/25 09:00	03/31/25 17:48	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:48	1
Barium	0.0705		0.00200		mg/L		03/28/25 09:00	03/31/25 17:48	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:48	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 13:11	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 17:48	1
Calcium	76.0		0.500		mg/L		03/28/25 09:00	03/31/25 17:48	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:48	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:48	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:48	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 17:48	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:48	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:48	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 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		03/31/25 14:25	04/01/25 12:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	294		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.6	HF	1.0		SU			03/26/25 11:43	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	<0.245	U	0.141	0.142	1.00	0.245	pCi/L	03/28/25 07:20	04/23/25 07:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.0		30 - 110					03/28/25 07:20	04/23/25 07:53	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	<0.598	U	0.339	0.340	1.00	0.598	pCi/L	03/28/25 07:27	04/22/25 14:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	87.0		30 - 110					03/28/25 07:27	04/22/25 14:03	1
Y Carrier	77.4		30 - 110					03/28/25 07:27	04/22/25 14:03	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-231_25_03
Date Collected: 03/24/25 16:50
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-4
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	<0.598	U	0.367	0.368	5.00	0.598	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-232_25_03

Lab Sample ID: 310-302688-5

Date Collected: 03/24/25 17:55

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			04/02/25 20:40	5
Fluoride	<1.00		1.00		mg/L			04/02/25 20:40	5
Sulfate	77.9		5.00		mg/L			04/02/25 20:40	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		03/28/25 09:00	03/31/25 18:03	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:03	1
Barium	0.0622		0.00200		mg/L		03/28/25 09:00	03/31/25 18:03	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:03	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 13:23	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 18:03	1
Calcium	66.9		0.500		mg/L		03/28/25 09:00	03/31/25 18:03	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:03	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:03	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:03	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 18:03	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:03	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:03	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:03	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	342		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.7	HF	1.0		SU			03/26/25 11:44	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	0.402		0.196	0.199	1.00	0.203	pCi/L	03/28/25 07:24	04/23/25 07:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.4		30 - 110					03/28/25 07:24	04/23/25 07:53	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	<0.494	U	0.265	0.265	1.00	0.494	pCi/L	03/28/25 07:27	04/22/25 14:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.4		30 - 110					03/28/25 07:27	04/22/25 14:04	1
Y Carrier	79.6		30 - 110					03/28/25 07:27	04/22/25 14:04	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-232_25_03
Date Collected: 03/24/25 17:55
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-5
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	<0.494	U	0.330	0.331	5.00	0.494	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-233_25_03

Lab Sample ID: 310-302688-6

Date Collected: 03/24/25 18:50

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.76		5.00		mg/L			04/02/25 20:56	5
Fluoride	<1.00		1.00		mg/L			04/02/25 20:56	5
Sulfate	39.4		5.00		mg/L			04/02/25 20:56	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		03/31/25 08:30	04/01/25 19:22	1
Arsenic	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:22	1
Barium	0.0708		0.00200		mg/L		03/31/25 08:30	04/01/25 19:22	1
Beryllium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/02/25 13:25	1
Boron	<0.100		0.100		mg/L		03/31/25 08:30	04/01/25 19:22	1
Cadmium	<0.000200		0.000200		mg/L		03/31/25 08:30	04/01/25 19:22	1
Calcium	81.0		0.500		mg/L		03/31/25 08:30	04/01/25 19:22	1
Chromium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 19:22	1
Cobalt	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 19:22	1
Lead	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 19:22	1
Lithium	<0.0100		0.0100		mg/L		03/31/25 08:30	04/01/25 19:22	1
Molybdenum	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:22	1
Selenium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 19:22	1
Thallium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/01/25 19:22	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	348		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.7	HF	1.0		SU			03/26/25 11:48	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	<0.276	U	0.167	0.167	1.00	0.276	pCi/L	03/31/25 07:39	04/23/25 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.8		30 - 110					03/31/25 07:39	04/23/25 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	<0.494	U	0.272	0.273	1.00	0.494	pCi/L	03/31/25 07:42	04/23/25 14:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	95.8		30 - 110					03/31/25 07:42	04/23/25 14:09	1
Y Carrier	77.8		30 - 110					03/31/25 07:42	04/23/25 14:09	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-233_25_03
Date Collected: 03/24/25 18:50
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-6
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	<0.494	U	0.319	0.320	5.00	0.494	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-234_25_03

Lab Sample ID: 310-302688-7

Date Collected: 03/24/25 08:05

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/27/25 18:05	5
Fluoride	<1.00		1.00		mg/L			03/27/25 18:05	5
Sulfate	25.6		5.00		mg/L			03/27/25 18:05	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		03/28/25 09:00	03/31/25 18:00	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:00	1
Barium	0.0270		0.00200		mg/L		03/28/25 09:00	03/31/25 18:00	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:00	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 13:14	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 18:00	1
Calcium	35.3		0.500		mg/L		03/28/25 09:00	03/31/25 18:00	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:00	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:00	1
Lead	0.00137		0.000500		mg/L		03/28/25 09:00	03/31/25 18:00	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 18:00	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:00	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:00	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:00	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	174		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.3	HF	1.0		SU			03/26/25 11:45	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	0.346		0.216	0.218	1.00	0.283	pCi/L	03/31/25 07:39	04/23/25 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.6		30 - 110					03/31/25 07:39	04/23/25 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	<0.571	U	0.344	0.345	1.00	0.571	pCi/L	03/31/25 07:42	04/23/25 14:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.6		30 - 110					03/31/25 07:42	04/23/25 14:09	1
Y Carrier	73.3		30 - 110					03/31/25 07:42	04/23/25 14:09	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: MW-234_25_03
Date Collected: 03/24/25 08:05
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-7
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	0.621		0.406	0.408	5.00	0.571	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: FD-1_25_03

Lab Sample ID: 310-302688-8

Date Collected: 03/24/25 00:00

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/27/25 18:20	5
Fluoride	<1.00		1.00		mg/L			03/27/25 18:20	5
Sulfate	7.57		5.00		mg/L			03/27/25 18:20	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		03/28/25 09:00	03/31/25 18:05	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:05	1
Barium	0.0665		0.00200		mg/L		03/28/25 09:00	03/31/25 18:05	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 18:05	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 13:26	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 18:05	1
Calcium	71.2		0.500		mg/L		03/28/25 09:00	03/31/25 18:05	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:05	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:05	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 18:05	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 18:05	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 18:05	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 18:05	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 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		03/31/25 14:25	04/01/25 12:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	306		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.7	HF	1.0		SU			03/26/25 11:46	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	0.295		0.196	0.197	1.00	0.256	pCi/L	03/31/25 07:39	04/23/25 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.2		30 - 110					03/31/25 07:39	04/23/25 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	<0.591	U	0.336	0.337	1.00	0.591	pCi/L	03/31/25 07:42	04/23/25 14:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.2		30 - 110					03/31/25 07:42	04/23/25 14:20	1
Y Carrier	75.1		30 - 110					03/31/25 07:42	04/23/25 14:20	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: FD-1_25_03
Date Collected: 03/24/25 00:00
Date Received: 03/26/25 09:05

Lab Sample ID: 310-302688-8
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	<0.591	U	0.389	0.390	5.00	0.591	pCi/L		04/24/25 16:53	1

Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: FB-1_25_03

Lab Sample ID: 310-302688-9

Date Collected: 03/24/25 17:45

Matrix: Water

Date Received: 03/26/25 09:05

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/27/25 18:36	1
Fluoride	<0.200		0.200		mg/L			03/27/25 18:36	1
Sulfate	<1.00		1.00		mg/L			03/27/25 18:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:24	1
Arsenic	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:24	1
Barium	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:24	1
Beryllium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/02/25 13:28	1
Boron	<0.100		0.100		mg/L		03/31/25 08:30	04/01/25 19:24	1
Cadmium	<0.000200		0.000200		mg/L		03/31/25 08:30	04/01/25 19:24	1
Calcium	<0.500		0.500		mg/L		03/31/25 08:30	04/01/25 19:24	1
Chromium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 19:24	1
Cobalt	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 19:24	1
Lead	0.000532		0.000500		mg/L		03/31/25 08:30	04/01/25 19:24	1
Lithium	<0.0100		0.0100		mg/L		03/31/25 08:30	04/01/25 19:24	1
Molybdenum	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 19:24	1
Selenium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 19:24	1
Thallium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/01/25 19:24	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<50.0		50.0		mg/L			03/27/25 15:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.4	HF	1.0		SU			03/26/25 11:47	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	<0.267	U	0.164	0.165	1.00	0.267	pCi/L	03/31/25 07:39	04/23/25 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	81.4		30 - 110					03/31/25 07:39	04/23/25 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	<0.582	U	0.346	0.346	1.00	0.582	pCi/L	03/31/25 07:42	04/23/25 14:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	81.4		30 - 110					03/31/25 07:42	04/23/25 14:20	1
Y Carrier	74.8		30 - 110					03/31/25 07:42	04/23/25 14:20	1

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Client Sample Results

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

Job ID: 310-302688-1

Client Sample ID: FB-1_25_03

Lab Sample ID: 310-302688-9

Date Collected: 03/24/25 17:45

Matrix: Water

Date Received: 03/26/25 09:05

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	<0.582	U	0.383	0.383	5.00	0.582	pCi/L		04/24/25 16:53	1

Definitions/Glossary

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

Job ID: 310-302688-1

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.

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: 310-302688-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-450049/3

Matrix: Water

Analysis Batch: 450049

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			03/27/25 12:06	1
Fluoride	<0.200		0.200		mg/L			03/27/25 12:06	1
Sulfate	<1.00		1.00		mg/L			03/27/25 12:06	1

Lab Sample ID: LCS 310-450049/4

Matrix: Water

Analysis Batch: 450049

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.806		mg/L		98	90 - 110
Fluoride	2.00	1.975		mg/L		99	90 - 110
Sulfate	10.0	9.832		mg/L		98	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-449947/1-A

Matrix: Water

Analysis Batch: 450313

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 449947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 16:42	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 16:42	1
Barium	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 16:42	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 16:42	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 16:42	1
Calcium	<0.500		0.500		mg/L		03/28/25 09:00	03/31/25 16:42	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 16:42	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 16:42	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 16:42	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 16:42	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 16:42	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 16:42	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 16:42	1

Lab Sample ID: MB 310-449947/1-A

Matrix: Water

Analysis Batch: 450398

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 449947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 12:33	1

Lab Sample ID: LCS 310-449947/2-A

Matrix: Water

Analysis Batch: 450313

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 449947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2138		mg/L		107	80 - 120
Arsenic	0.200	0.2083		mg/L		104	80 - 120
Barium	0.100	0.1065		mg/L		107	80 - 120
Beryllium	0.100	0.09950		mg/L		100	80 - 120

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QC Sample Results

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

Job ID: 310-302688-1

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

Lab Sample ID: LCS 310-449947/2-A
Matrix: Water
Analysis Batch: 450313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.100	0.1033		mg/L		103	80 - 120
Calcium	2.00	2.025		mg/L		101	80 - 120
Chromium	0.100	0.1083		mg/L		108	80 - 120
Cobalt	0.100	0.1103		mg/L		110	80 - 120
Lead	0.200	0.2088		mg/L		104	80 - 120
Lithium	0.200	0.2104		mg/L		105	80 - 120
Molybdenum	0.200	0.2036		mg/L		102	80 - 120
Selenium	0.400	0.4126		mg/L		103	80 - 120
Thallium	0.100	0.1097		mg/L		110	80 - 120

Lab Sample ID: LCS 310-449947/2-A
Matrix: Water
Analysis Batch: 450398

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.2010		mg/L		100	80 - 120

Lab Sample ID: 310-302688-2 DU
Matrix: Water
Analysis Batch: 450313

Client Sample ID: MW-221A_25_03
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.0299		0.03048		mg/L		2	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Calcium	38.1		39.35		mg/L		3	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	<0.0100		<0.0100		mg/L		NC	20
Molybdenum	<0.00200		<0.00200		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

Lab Sample ID: 310-302688-2 DU
Matrix: Water
Analysis Batch: 450398

Client Sample ID: MW-221A_25_03
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Boron	<0.100		<0.100		mg/L		NC	20

Lab Sample ID: MB 310-450094/1-A
Matrix: Water
Analysis Batch: 450427

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 450094

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 18:12	1
Arsenic	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 18:12	1

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QC Sample Results

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

Job ID: 310-302688-1

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

Lab Sample ID: MB 310-450094/1-A
Matrix: Water
Analysis Batch: 450427

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 450094

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 18:12	1
Beryllium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/01/25 18:12	1
Boron	<0.100		0.100		mg/L		03/31/25 08:30	04/01/25 18:12	1
Cadmium	<0.000200		0.000200		mg/L		03/31/25 08:30	04/01/25 18:12	1
Calcium	<0.500		0.500		mg/L		03/31/25 08:30	04/01/25 18:12	1
Chromium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 18:12	1
Cobalt	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 18:12	1
Lead	<0.000500		0.000500		mg/L		03/31/25 08:30	04/01/25 18:12	1
Lithium	<0.0100		0.0100		mg/L		03/31/25 08:30	04/01/25 18:12	1
Molybdenum	<0.00200		0.00200		mg/L		03/31/25 08:30	04/01/25 18:12	1
Selenium	<0.00500		0.00500		mg/L		03/31/25 08:30	04/01/25 18:12	1
Thallium	<0.00100		0.00100		mg/L		03/31/25 08:30	04/01/25 18:12	1

Lab Sample ID: LCS 310-450094/2-A
Matrix: Water
Analysis Batch: 450427

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 450094

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2208		mg/L		110	80 - 120
Arsenic	0.200	0.2049		mg/L		102	80 - 120
Barium	0.100	0.1032		mg/L		103	80 - 120
Beryllium	0.100	0.09635		mg/L		96	80 - 120
Boron	0.200	0.2061		mg/L		103	80 - 120
Cadmium	0.100	0.09963		mg/L		100	80 - 120
Calcium	2.00	1.946		mg/L		97	80 - 120
Chromium	0.100	0.1017		mg/L		102	80 - 120
Cobalt	0.100	0.1072		mg/L		107	80 - 120
Lead	0.200	0.2060		mg/L		103	80 - 120
Lithium	0.200	0.2131		mg/L		107	80 - 120
Molybdenum	0.200	0.1997		mg/L		100	80 - 120
Selenium	0.400	0.3836		mg/L		96	80 - 120
Thallium	0.100	0.08830		mg/L		88	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-450154/1-A
Matrix: Water
Analysis Batch: 450371

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 450154

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 11:44	1

Lab Sample ID: LCS 310-450154/2-A
Matrix: Water
Analysis Batch: 450371

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 450154

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001724		mg/L		103	80 - 120

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QC Sample Results

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

Job ID: 310-302688-1

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

Lab Sample ID: MB 310-449987/1
Matrix: Water
Analysis Batch: 449987

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			03/27/25 15:17	1

Lab Sample ID: LCS 310-449987/2
Matrix: Water
Analysis Batch: 449987

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	1004		mg/L		100	88 - 110

Lab Sample ID: 310-302688-1 DU
Matrix: Water
Analysis Batch: 449987

Client Sample ID: MW-213A_25_03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	164		154.0		mg/L		6	16

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-449833/1
Matrix: Water
Analysis Batch: 449833

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		101	98 - 102

Lab Sample ID: 310-302688-3 DU
Matrix: Water
Analysis Batch: 449833

Client Sample ID: MW-230_25_03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.8	HF	7.8		SU		0.1	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-709793/1-A
Matrix: Water
Analysis Batch: 713901

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 709793

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.349	U	0.159	0.159	1.00	0.349	pCi/L	03/28/25 07:20	04/23/25 06:07	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	89.0		30 - 110					03/28/25 07:20	04/23/25 06:07	1

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QC Sample Results

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

Job ID: 310-302688-1

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

Lab Sample ID: LCS 160-709793/2-A
Matrix: Water
Analysis Batch: 713901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709793

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		9.58	9.510		1.21	1.00	0.265	pCi/L	99	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	87.3		30 - 110							

Lab Sample ID: MB 160-709943/1-A
Matrix: Water
Analysis Batch: 713902

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 709943

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.302	U	0.182	0.183	1.00	0.302	pCi/L	03/31/25 07:39	04/23/25 21:50	1
Carrier	MB %Yield	MB Qualifier	Limits							
Barium	94.6		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/31/25 07:39	04/23/25 21:50	1

Lab Sample ID: LCS 160-709943/2-A
Matrix: Water
Analysis Batch: 713902

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709943

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		9.58	9.070		1.21	1.00	0.297	pCi/L	95	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	87.8		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-709794/1-A
Matrix: Water
Analysis Batch: 713702

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 709794

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.532	U	0.319	0.320	1.00	0.532	pCi/L	03/28/25 07:27	04/22/25 14:14	1
Carrier	MB %Yield	MB Qualifier	Limits							
Barium	89.0		30 - 110							
Y Carrier	84.1		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/28/25 07:27	04/22/25 14:14	1
								03/28/25 07:27	04/22/25 14:14	1

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QC Sample Results

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

Job ID: 310-302688-1

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

Lab Sample ID: LCS 160-709794/2-A
Matrix: Water
Analysis Batch: 713702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709794

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		9.52	11.62		1.53	1.00	0.623	pCi/L	122	75 - 125
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Barium	87.3		30 - 110							
Y Carrier	82.2		30 - 110							

Lab Sample ID: MB 160-709944/1-A
Matrix: Water
Analysis Batch: 713893

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 709944

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.588	U	0.320	0.320	1.00	0.588	pCi/L	03/31/25 07:42	04/23/25 14:08	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits							
Barium	94.6		30 - 110							
Y Carrier	80.0		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/31/25 07:42	04/23/25 14:08	1
								03/31/25 07:42	04/23/25 14:08	1

Lab Sample ID: LCS 160-709944/2-A
Matrix: Water
Analysis Batch: 713893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 709944

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		9.51	11.79		1.55	1.00	0.600	pCi/L	124	75 - 125
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Barium	87.8		30 - 110							
Y Carrier	80.7		30 - 110							

QC Association Summary

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

Job ID: 310-302688-1

HPLC/IC

Analysis Batch: 450049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-7	MW-234_25_03	Total/NA	Water	9056A	
310-302688-8	FD-1_25_03	Total/NA	Water	9056A	
310-302688-9	FB-1_25_03	Total/NA	Water	9056A	
MB 310-450049/3	Method Blank	Total/NA	Water	9056A	
LCS 310-450049/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 450731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	9056A	
310-302688-2	MW-221A_25_03	Total/NA	Water	9056A	
310-302688-3	MW-230_25_03	Total/NA	Water	9056A	
310-302688-4	MW-231_25_03	Total/NA	Water	9056A	
310-302688-5	MW-232_25_03	Total/NA	Water	9056A	
310-302688-6	MW-233_25_03	Total/NA	Water	9056A	

Metals

Prep Batch: 449947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-2	MW-221A_25_03	Total/NA	Water	3005A	
310-302688-3	MW-230_25_03	Total/NA	Water	3005A	
310-302688-4	MW-231_25_03	Total/NA	Water	3005A	
310-302688-5	MW-232_25_03	Total/NA	Water	3005A	
310-302688-7	MW-234_25_03	Total/NA	Water	3005A	
310-302688-8	FD-1_25_03	Total/NA	Water	3005A	
MB 310-449947/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-449947/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-302688-2 DU	MW-221A_25_03	Total/NA	Water	3005A	

Prep Batch: 450094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	3005A	
310-302688-6	MW-233_25_03	Total/NA	Water	3005A	
310-302688-9	FB-1_25_03	Total/NA	Water	3005A	
MB 310-450094/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-450094/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 450154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	7470A	
310-302688-2	MW-221A_25_03	Total/NA	Water	7470A	
310-302688-3	MW-230_25_03	Total/NA	Water	7470A	
310-302688-4	MW-231_25_03	Total/NA	Water	7470A	
310-302688-5	MW-232_25_03	Total/NA	Water	7470A	
310-302688-6	MW-233_25_03	Total/NA	Water	7470A	
310-302688-7	MW-234_25_03	Total/NA	Water	7470A	
310-302688-8	FD-1_25_03	Total/NA	Water	7470A	
310-302688-9	FB-1_25_03	Total/NA	Water	7470A	
MB 310-450154/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-450154/2-A	Lab Control Sample	Total/NA	Water	7470A	

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QC Association Summary

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

Job ID: 310-302688-1

Metals

Analysis Batch: 450313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-2	MW-221A_25_03	Total/NA	Water	6020B	449947
310-302688-3	MW-230_25_03	Total/NA	Water	6020B	449947
310-302688-4	MW-231_25_03	Total/NA	Water	6020B	449947
310-302688-5	MW-232_25_03	Total/NA	Water	6020B	449947
310-302688-7	MW-234_25_03	Total/NA	Water	6020B	449947
310-302688-8	FD-1_25_03	Total/NA	Water	6020B	449947
MB 310-449947/1-A	Method Blank	Total/NA	Water	6020B	449947
LCS 310-449947/2-A	Lab Control Sample	Total/NA	Water	6020B	449947
310-302688-2 DU	MW-221A_25_03	Total/NA	Water	6020B	449947

Analysis Batch: 450371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	7470A	450154
310-302688-2	MW-221A_25_03	Total/NA	Water	7470A	450154
310-302688-3	MW-230_25_03	Total/NA	Water	7470A	450154
310-302688-4	MW-231_25_03	Total/NA	Water	7470A	450154
310-302688-5	MW-232_25_03	Total/NA	Water	7470A	450154
310-302688-6	MW-233_25_03	Total/NA	Water	7470A	450154
310-302688-7	MW-234_25_03	Total/NA	Water	7470A	450154
310-302688-8	FD-1_25_03	Total/NA	Water	7470A	450154
310-302688-9	FB-1_25_03	Total/NA	Water	7470A	450154
MB 310-450154/1-A	Method Blank	Total/NA	Water	7470A	450154
LCS 310-450154/2-A	Lab Control Sample	Total/NA	Water	7470A	450154

Analysis Batch: 450398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-2	MW-221A_25_03	Total/NA	Water	6020B	449947
310-302688-3	MW-230_25_03	Total/NA	Water	6020B	449947
310-302688-4	MW-231_25_03	Total/NA	Water	6020B	449947
310-302688-5	MW-232_25_03	Total/NA	Water	6020B	449947
310-302688-7	MW-234_25_03	Total/NA	Water	6020B	449947
310-302688-8	FD-1_25_03	Total/NA	Water	6020B	449947
MB 310-449947/1-A	Method Blank	Total/NA	Water	6020B	449947
LCS 310-449947/2-A	Lab Control Sample	Total/NA	Water	6020B	449947
310-302688-2 DU	MW-221A_25_03	Total/NA	Water	6020B	449947

Analysis Batch: 450427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	6020B	450094
310-302688-6	MW-233_25_03	Total/NA	Water	6020B	450094
310-302688-9	FB-1_25_03	Total/NA	Water	6020B	450094
MB 310-450094/1-A	Method Blank	Total/NA	Water	6020B	450094
LCS 310-450094/2-A	Lab Control Sample	Total/NA	Water	6020B	450094

Analysis Batch: 450543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	6020B	450094
310-302688-6	MW-233_25_03	Total/NA	Water	6020B	450094
310-302688-9	FB-1_25_03	Total/NA	Water	6020B	450094

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QC Association Summary

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

Job ID: 310-302688-1

General Chemistry

Analysis Batch: 449833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-2	MW-221A_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-3	MW-230_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-4	MW-231_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-5	MW-232_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-6	MW-233_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-7	MW-234_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-8	FD-1_25_03	Total/NA	Water	SM 4500 H+ B	
310-302688-9	FB-1_25_03	Total/NA	Water	SM 4500 H+ B	
LCS 310-449833/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-302688-3 DU	MW-230_25_03	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 449987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	SM 2540C	
310-302688-2	MW-221A_25_03	Total/NA	Water	SM 2540C	
310-302688-3	MW-230_25_03	Total/NA	Water	SM 2540C	
310-302688-4	MW-231_25_03	Total/NA	Water	SM 2540C	
310-302688-5	MW-232_25_03	Total/NA	Water	SM 2540C	
310-302688-6	MW-233_25_03	Total/NA	Water	SM 2540C	
310-302688-7	MW-234_25_03	Total/NA	Water	SM 2540C	
310-302688-8	FD-1_25_03	Total/NA	Water	SM 2540C	
310-302688-9	FB-1_25_03	Total/NA	Water	SM 2540C	
MB 310-449987/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-449987/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-302688-1 DU	MW-213A_25_03	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 709793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	PrecSep-21	
310-302688-2	MW-221A_25_03	Total/NA	Water	PrecSep-21	
310-302688-3	MW-230_25_03	Total/NA	Water	PrecSep-21	
310-302688-4	MW-231_25_03	Total/NA	Water	PrecSep-21	
310-302688-5	MW-232_25_03	Total/NA	Water	PrecSep-21	
MB 160-709793/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-709793/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 709794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-1	MW-213A_25_03	Total/NA	Water	PrecSep_0	
310-302688-2	MW-221A_25_03	Total/NA	Water	PrecSep_0	
310-302688-3	MW-230_25_03	Total/NA	Water	PrecSep_0	
310-302688-4	MW-231_25_03	Total/NA	Water	PrecSep_0	
310-302688-5	MW-232_25_03	Total/NA	Water	PrecSep_0	
MB 160-709794/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-709794/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Eurofins Cedar Falls

QC Association Summary

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

Job ID: 310-302688-1

Rad

Prep Batch: 709943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-6	MW-233_25_03	Total/NA	Water	PrecSep-21	
310-302688-7	MW-234_25_03	Total/NA	Water	PrecSep-21	
310-302688-8	FD-1_25_03	Total/NA	Water	PrecSep-21	
310-302688-9	FB-1_25_03	Total/NA	Water	PrecSep-21	
MB 160-709943/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-709943/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 709944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302688-6	MW-233_25_03	Total/NA	Water	PrecSep_0	
310-302688-7	MW-234_25_03	Total/NA	Water	PrecSep_0	
310-302688-8	FD-1_25_03	Total/NA	Water	PrecSep_0	
310-302688-9	FB-1_25_03	Total/NA	Water	PrecSep_0	
MB 160-709944/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-709944/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 310-302688-1

Client Sample ID: MW-213A_25_03

Lab Sample ID: 310-302688-1

Date Collected: 03/24/25 14:55

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450731	WZC8	EET CF	04/02/25 19:07
Total/NA	Prep	3005A			450094	QTZ5	EET CF	03/31/25 08:30
Total/NA	Analysis	6020B		1	450427	NFT2	EET CF	04/01/25 19:19
Total/NA	Prep	3005A			450094	QTZ5	EET CF	03/31/25 08:30
Total/NA	Analysis	6020B		1	450543	NFT2	EET CF	04/02/25 13:22
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:13
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:38
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713893	SWS	EET SL	04/23/25 07:53
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713702	SWS	EET SL	04/22/25 14:15
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: MW-221A_25_03

Lab Sample ID: 310-302688-2

Date Collected: 03/24/25 15:45

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450731	WZC8	EET CF	04/02/25 19:22
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 13:07
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 17:42
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:20
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:39
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713893	SWS	EET SL	04/23/25 07:53
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713702	SWS	EET SL	04/22/25 14:16
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: MW-230_25_03

Lab Sample ID: 310-302688-3

Date Collected: 03/24/25 16:20

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450731	WZC8	EET CF	04/02/25 19:38
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 13:28

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-302688-1

Client Sample ID: MW-230_25_03

Lab Sample ID: 310-302688-3

Date Collected: 03/24/25 16:20

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 18:08
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:22
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:41
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713893	SWS	EET SL	04/23/25 07:53
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713696	SWS	EET SL	04/22/25 14:03
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: MW-231_25_03

Lab Sample ID: 310-302688-4

Date Collected: 03/24/25 16:50

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450731	WZC8	EET CF	04/02/25 19:53
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 13:11
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 17:48
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:24
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:43
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713893	SWS	EET SL	04/23/25 07:53
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713696	SWS	EET SL	04/22/25 14:03
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: MW-232_25_03

Lab Sample ID: 310-302688-5

Date Collected: 03/24/25 17:55

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450731	WZC8	EET CF	04/02/25 20:40
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 13:23
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 18:03
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:26

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-302688-1

Client Sample ID: MW-232_25_03

Lab Sample ID: 310-302688-5

Date Collected: 03/24/25 17:55

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:44
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:24
Total/NA	Analysis	9315		1	713893	SWS	EET SL	04/23/25 07:53
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713696	SWS	EET SL	04/22/25 14:04
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: MW-233_25_03

Lab Sample ID: 310-302688-6

Date Collected: 03/24/25 18:50

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450731	WZC8	EET CF	04/02/25 20:56
Total/NA	Prep	3005A			450094	QTZ5	EET CF	03/31/25 08:30
Total/NA	Analysis	6020B		1	450427	NFT2	EET CF	04/01/25 19:22
Total/NA	Prep	3005A			450094	QTZ5	EET CF	03/31/25 08:30
Total/NA	Analysis	6020B		1	450543	NFT2	EET CF	04/02/25 13:25
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:29
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:48
Total/NA	Prep	PrecSep-21			709943	OGC	EET SL	03/31/25 07:39
Total/NA	Analysis	9315		1	713901	SWS	EET SL	04/23/25 22:47
Total/NA	Prep	PrecSep_0			709944	OGC	EET SL	03/31/25 07:42
Total/NA	Analysis	9320		1	713893	SWS	EET SL	04/23/25 14:09
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: MW-234_25_03

Lab Sample ID: 310-302688-7

Date Collected: 03/24/25 08:05

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450049	QTZ5	EET CF	03/27/25 18:05
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 13:14
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 18:00
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:31
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:45
Total/NA	Prep	PrecSep-21			709943	OGC	EET SL	03/31/25 07:39
Total/NA	Analysis	9315		1	713901	SWS	EET SL	04/23/25 22:47

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-302688-1

Client Sample ID: MW-234_25_03

Lab Sample ID: 310-302688-7

Date Collected: 03/24/25 08:05

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep_0			709944	OGC	EET SL	03/31/25 07:42
Total/NA	Analysis	9320		1	713893	SWS	EET SL	04/23/25 14:09
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: FD-1_25_03

Lab Sample ID: 310-302688-8

Date Collected: 03/24/25 00:00

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450049	QTZ5	EET CF	03/27/25 18:20
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 13:26
Total/NA	Prep	3005A			449947	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 18:05
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:33
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:46
Total/NA	Prep	PrecSep-21			709943	OGC	EET SL	03/31/25 07:39
Total/NA	Analysis	9315		1	713901	SWS	EET SL	04/23/25 22:47
Total/NA	Prep	PrecSep_0			709944	OGC	EET SL	03/31/25 07:42
Total/NA	Analysis	9320		1	713901	SWS	EET SL	04/23/25 14:20
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Client Sample ID: FB-1_25_03

Lab Sample ID: 310-302688-9

Date Collected: 03/24/25 17:45

Matrix: Water

Date Received: 03/26/25 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	450049	QTZ5	EET CF	03/27/25 18:36
Total/NA	Prep	3005A			450094	QTZ5	EET CF	03/31/25 08:30
Total/NA	Analysis	6020B		1	450427	NFT2	EET CF	04/01/25 19:24
Total/NA	Prep	3005A			450094	QTZ5	EET CF	03/31/25 08:30
Total/NA	Analysis	6020B		1	450543	NFT2	EET CF	04/02/25 13:28
Total/NA	Prep	7470A			450154	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 12:35
Total/NA	Analysis	SM 2540C		1	449987	XJ7V	EET CF	03/27/25 15:17
Total/NA	Analysis	SM 4500 H+ B		1	449833	W9YR	EET CF	03/26/25 11:47
Total/NA	Prep	PrecSep-21			709943	OGC	EET SL	03/31/25 07:39
Total/NA	Analysis	9315		1	713901	SWS	EET SL	04/23/25 22:47
Total/NA	Prep	PrecSep_0			709944	OGC	EET SL	03/31/25 07:42
Total/NA	Analysis	9320		1	713901	SWS	EET SL	04/23/25 14:20
Total/NA	Analysis	Ra226_Ra228		1	714315	CAH	EET SL	04/24/25 16:53

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-302688-1

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

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Accreditation/Certification Summary

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

Job ID: 310-302688-1

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: 310-302688-1

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



310-302688 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHP</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project: <u>MEC Louisa East</u>
Receipt Information			
Date/Time Received:	DATE <u>3/26</u>	TIME <u>0905</u>	Received By: <u>BP</u>
Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes: Cooler ID. _____			
Multiple Coolers? ☒ Yes ☐ No If yes: Cooler # <u>1</u> of <u>3</u>			
Cooler Custody Seals Present? ☐ Yes ☒ No If yes: Cooler custody seals intact? ☐ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes: Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes: Which VOA samples are in cooler? ↓ _____			
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>Y</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>-1.2</u>		Corrected Temp (°C): <u>-1.2</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>		<u>CONTAINER 2</u>
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☒ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>GHP</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project: <u>MEC Louisa East</u>
Receipt Information			
Date/Time Received:	DATE <u>3/26</u>	TIME <u>0905</u>	Received By: <u>BP</u>
Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes: Cooler ID: _____
Multiple Coolers?		☒ Yes ☐ No	If yes: Cooler # <u>2</u> of <u>3</u>
Cooler Custody Seals Present?		☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>Y^o</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>-18</u>		Corrected Temp (°C): <u>-18</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>		<u>CONTAINER 2</u>
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☒ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>GHP</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project. <u>MEC Louisa East</u>
Receipt Information			
Date/Time Received:	DATE <u>3/26</u>	TIME <u>0905</u>	Received By <u>BP</u>
Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes: Cooler ID. _____			
Multiple Coolers? ☒ Yes ☐ No If yes: Cooler # <u>3</u> of <u>3</u>			
Cooler Custody Seals Present? ☐ Yes ☒ No If yes: Cooler custody seals intact? ☐ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes: Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes: Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>Y</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>-4.5</u>		Corrected Temp (°C): <u>4.5</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>		<u>CONTAINER 2</u>
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No			
a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☒ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record

DSM 214

Client Information		Sampler Brooke Wasson		Lab PM Zach T Bindert		Carrier Tracking No(s).		COC No:	
Client Contact: Kevin Armstrong		Phone: 563-568-7524		E-Mail Zach.Bindert@eurofins.com		State of Origin: Iowa		Page: Page 1 of 1	
Company GHD Services Inc.		PWSID:		Analysis Requested		Job #:			
Address: 11228 Aurora Avenue		Due Date Requested:		Perform MS/MSD (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
City: Des Moines		TAT Requested (days): Standard		Field Filtered Sample (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
State, Zip: IA, 50322-7905		Compliance Project: ☐ Yes ☐ No		Field Filtered Sample (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
Phone: 515-414-3935		PO #: 340-017016		Field Filtered Sample (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
Email: Kevin.Armstrong@ghd.com		WO #: 12575233-003		Field Filtered Sample (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
Project Name: MEC Louisa East CCR Monofill		Project #: 31007299		Field Filtered Sample (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
Site: MEC Louisa East CCR Monofill		SSOW#: 12575233-003		Field Filtered Sample (Yes or No)		9316_Ra226 - Standard Target List		9320_Ra228 - Standard Target List	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code	Matrix (W=water, S=solid, O=wastefoil, BT=tissue, A=air)	Total Number of containers		
MW-213A_25_03	3/24/25	1455	G	W	N	N	2540C_Calcd, SM4600_H+	9056A_ORGM_28D - Chloride, Fluoride, Sulfate	6020B_7470A - CCR Metals List
MW-221A_25_03	3/24/25	1545	G	W	N	N			
MW-230_25_03	3/24/25	11020	G	W	N	N			
MW-231_25_03	3/24/25	1950	G	W	N	N			
MW-232_25_03	3/24/25	1755	G	W	N	N			
MW-233_25_03	3/24/25	1850	G	W	N	N			
MW-234_25_03	3/25/25	0805	G	W	N	N			
FD-1_25_03	3/24/25	-	G	W	N	N			
FB-1_25_03	3/24/25	1745	G	W	N	N			
Possible Hazard Identification		Deliverable Requested 1, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Special Instructions/Note:	
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Date:		Date:		Return To Client		Disposal By Lab	
Relinquished by: Brooke Wasson		Date/Time: 3/25/25		Date/Time: 3/25/25		Special Instructions/QC Requirements. Database Facility Code 1114676-GD-MidAmeri		Archive For Months	
Relinquished by:		Date/Time:		Date/Time:		Method of Shipment:			
Relinquished by:		Date/Time:		Date/Time:		Cooler Temperature(s) °C and Other Remarks:			
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No		Custody Seal No					

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-302688-1

Login Number: 302688

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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

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

Eurofins Cedar Falls

Tracer/Carrier Summary

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

Job ID: 310-302688-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba					
Lab Sample ID	Client Sample ID	(30-110)					
310-302688-1	MW-213A_25_03	83.4					
310-302688-2	MW-221A_25_03	88.0					
310-302688-3	MW-230_25_03	91.0					
310-302688-4	MW-231_25_03	87.0					
310-302688-5	MW-232_25_03	91.4					
310-302688-6	MW-233_25_03	95.8					
310-302688-7	MW-234_25_03	93.6					
310-302688-8	FD-1_25_03	93.2					
310-302688-9	FB-1_25_03	81.4					
LCS 160-709793/2-A	Lab Control Sample	87.3					
LCS 160-709943/2-A	Lab Control Sample	87.8					
MB 160-709793/1-A	Method Blank	89.0					
MB 160-709943/1-A	Method Blank	94.6					
Tracer/Carrier Legend							
Ba = Barium							

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba	Y				
Lab Sample ID	Client Sample ID	(30-110)	(30-110)				
310-302688-1	MW-213A_25_03	83.4	74.0				
310-302688-2	MW-221A_25_03	88.0	77.8				
310-302688-3	MW-230_25_03	91.0	72.9				
310-302688-4	MW-231_25_03	87.0	77.4				
310-302688-5	MW-232_25_03	91.4	79.6				
310-302688-6	MW-233_25_03	95.8	77.8				
310-302688-7	MW-234_25_03	93.6	73.3				
310-302688-8	FD-1_25_03	93.2	75.1				
310-302688-9	FB-1_25_03	81.4	74.8				
LCS 160-709794/2-A	Lab Control Sample	87.3	82.2				
LCS 160-709944/2-A	Lab Control Sample	87.8	80.7				
MB 160-709794/1-A	Method Blank	89.0	84.1				
MB 160-709944/1-A	Method Blank	94.6	80.0				
Tracer/Carrier Legend							
Ba = Barium							
Y = Y Carrier							



ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/15/2025 11:07:32 AM

JOB DESCRIPTION

MEC Louisa East CCR Monofill

JOB NUMBER

310-315312-1

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



Generated
10/15/2025 11:07:32 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Case Narrative

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

Job ID: 310-315312-1

Job ID: 310-315312-1

Eurofins Cedar Falls

Job Narrative 310-315312-1

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

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

Receipt

The samples were received on 9/10/2025 6:04 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 1.9°C and 2.3°C.

HPLC/IC

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-213A_25_09 (310-315312-1), MW-221A_25_09 (310-315312-2), MW-230_25_09 (310-315312-3), MW-231_25_09 (310-315312-4), MW-232_25_09 (310-315312-5), MW-233_25_09 (310-315312-6), MW-234_25_09 (310-315312-7) and FD-1_25_09 (310-315312-8). 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.

Eurofins Cedar Falls

Case Narrative

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

Job ID: 310-315312-1

Job ID: 310-315312-2

Eurofins Cedar Falls

Job Narrative 310-315312-2

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 samples were received on 9/10/2025 6:04 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 1.9°C and 2.3°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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-315312-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
310-315312-1	MW-213A_25_09	Water	09/09/25 11:05	09/10/25 18:04	Iowa
310-315312-2	MW-221A_25_09	Water	09/09/25 11:30	09/10/25 18:04	Iowa
310-315312-3	MW-230_25_09	Water	09/09/25 12:05	09/10/25 18:04	Iowa
310-315312-4	MW-231_25_09	Water	09/09/25 12:35	09/10/25 18:04	Iowa
310-315312-5	MW-232_25_09	Water	09/09/25 13:20	09/10/25 18:04	Iowa
310-315312-6	MW-233_25_09	Water	09/09/25 14:00	09/10/25 18:04	Iowa
310-315312-7	MW-234_25_09	Water	09/09/25 14:30	09/10/25 18:04	Iowa
310-315312-8	FD-1_25_09	Water	09/09/25 00:00	09/10/25 18:04	Iowa
310-315312-9	FB-1_25_09	Water	09/09/25 13:00	09/10/25 18:04	Iowa

Detection Summary

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

Job ID: 310-315312-1

Client Sample ID: MW-213A_25_09

Lab Sample ID: 310-315312-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.77		5.00		mg/L	5		9056A	Total/NA
Sulfate	9.01		5.00		mg/L	5		9056A	Total/NA
Barium	0.0292		0.00200		mg/L	1		6020B	Total/NA
Calcium	39.3		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	188		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.0	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-221A_25_09

Lab Sample ID: 310-315312-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	29.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.0338		0.00200		mg/L	1		6020B	Total/NA
Calcium	46.6		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	200		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.0	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-230_25_09

Lab Sample ID: 310-315312-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	29.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0452		0.00200		mg/L	1		6020B	Total/NA
Calcium	59.5		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	272		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-231_25_09

Lab Sample ID: 310-315312-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.98		5.00		mg/L	5		9056A	Total/NA
Barium	0.0738		0.00200		mg/L	1		6020B	Total/NA
Calcium	82.4		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	318		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-232_25_09

Lab Sample ID: 310-315312-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	46.1		5.00		mg/L	5		9056A	Total/NA
Barium	0.0511		0.00200		mg/L	1		6020B	Total/NA
Calcium	56.5		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	278		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.8	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW-233_25_09

Lab Sample ID: 310-315312-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.30		5.00		mg/L	5		9056A	Total/NA
Sulfate	37.4		5.00		mg/L	5		9056A	Total/NA
Barium	0.0651		0.00200		mg/L	1		6020B	Total/NA
Calcium	73.0		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	336		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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-315312-1

Client Sample ID: MW-234_25_09

Lab Sample ID: 310-315312-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	20.1		5.00		mg/L	5		9056A	Total/NA
Barium	0.0204		0.00200		mg/L	1		6020B	Total/NA
Calcium	27.5		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	144		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: FD-1_25_09

Lab Sample ID: 310-315312-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	9.04		5.00		mg/L	5		9056A	Total/NA
Barium	0.0656		0.00200		mg/L	1		6020B	Total/NA
Calcium	72.7		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	316		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: FB-1_25_09

Lab Sample ID: 310-315312-9

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	6.1	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-213A_25_09

Lab Sample ID: 310-315312-1

Date Collected: 09/09/25 11:05

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.77		5.00		mg/L			09/18/25 11:04	5
Fluoride	<1.00		1.00		mg/L			09/18/25 11:04	5
Sulfate	9.01		5.00		mg/L			09/18/25 11:04	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		09/16/25 09:30	09/22/25 14:04	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:04	1
Barium	0.0292		0.00200		mg/L		09/16/25 09:30	09/22/25 14:04	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:04	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:04	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:04	1
Calcium	39.3		0.500		mg/L		09/16/25 09:30	09/22/25 14:04	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:04	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:04	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:04	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:04	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:04	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:04	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:04	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	188		50.0		mg/L			09/11/25 15:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			09/11/25 12:47	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	<0.359	U	0.229	0.230	1.00	0.359	pCi/L	09/18/25 07:52	10/13/25 19:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.1		30 - 110					09/18/25 07:52	10/13/25 19:31	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	0.887		0.454	0.462	1.00	0.660	pCi/L	09/18/25 07:56	10/13/25 12:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	91.1		30 - 110					09/18/25 07:56	10/13/25 12:10	1
Y Carrier	86.7		30 - 110					09/18/25 07:56	10/13/25 12:10	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-213A_25_09

Lab Sample ID: 310-315312-1

Date Collected: 09/09/25 11:05

Matrix: Water

Date Received: 09/10/25 18:04

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	1.12		0.508	0.516	5.00	0.660	pCi/L		10/14/25 17:06	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-221A_25_09

Lab Sample ID: 310-315312-2

Date Collected: 09/09/25 11:30

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.9		5.00		mg/L			09/18/25 11:37	5
Fluoride	<1.00		1.00		mg/L			09/18/25 11:37	5
Sulfate	29.5		5.00		mg/L			09/18/25 11:37	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		09/16/25 09:30	09/17/25 14:50	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/17/25 14:50	1
Barium	0.0338		0.00200		mg/L		09/16/25 09:30	09/17/25 14:50	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/18/25 14:35	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/19/25 13:57	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/17/25 14:50	1
Calcium	46.6		0.500		mg/L		09/16/25 09:30	09/17/25 14:50	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/17/25 14:50	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/17/25 14:50	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/17/25 14:50	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/18/25 14:35	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/17/25 14:50	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/17/25 14:50	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/17/25 14:50	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	200		50.0		mg/L			09/11/25 15:19	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.0	HF	1.0		SU			09/11/25 12:35	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	0.664		0.204	0.212	1.00	0.189	pCi/L	09/19/25 08:01	10/13/25 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	79.4		30 - 110					09/19/25 08:01	10/13/25 08:17	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	0.768		0.438	0.444	1.00	0.632	pCi/L	09/19/25 08:10	10/10/25 12:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	79.4		30 - 110					09/19/25 08:10	10/10/25 12:15	1
Y Carrier	82.6		30 - 110					09/19/25 08:10	10/10/25 12:15	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-221A_25_09

Lab Sample ID: 310-315312-2

Date Collected: 09/09/25 11:30

Matrix: Water

Date Received: 09/10/25 18:04

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	1.43		0.483	0.492	5.00	0.632	pCi/L		10/14/25 17:06	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-230_25_09

Lab Sample ID: 310-315312-3

Date Collected: 09/09/25 12:05

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/18/25 11:48	5
Fluoride	<1.00		1.00		mg/L			09/18/25 11:48	5
Sulfate	29.8		5.00		mg/L			09/18/25 11:48	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		09/16/25 09:30	09/22/25 14:13	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:13	1
Barium	0.0452		0.00200		mg/L		09/16/25 09:30	09/22/25 14:13	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:13	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:13	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:13	1
Calcium	59.5		0.500		mg/L		09/16/25 09:30	09/22/25 14:13	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:13	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:13	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:13	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:13	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:13	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:13	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:13	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	272		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.8	HF	1.0		SU			09/11/25 12:46	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	<0.252	U	0.157	0.157	1.00	0.252	pCi/L	09/19/25 08:01	10/13/25 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	70.1		30 - 110					09/19/25 08:01	10/13/25 08:17	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	<0.897	U	0.588	0.593	1.00	0.897	pCi/L	09/19/25 08:10	10/10/25 12:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	70.1		30 - 110					09/19/25 08:10	10/10/25 12:15	1
Y Carrier	82.2		30 - 110					09/19/25 08:10	10/10/25 12:15	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-230_25_09
Date Collected: 09/09/25 12:05
Date Received: 09/10/25 18:04

Lab Sample ID: 310-315312-3
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	1.03		0.609	0.613	5.00	0.897	pCi/L		10/15/25 10:40	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-231_25_09

Lab Sample ID: 310-315312-4

Date Collected: 09/09/25 12:35

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/18/25 12:21	5
Fluoride	<1.00		1.00		mg/L			09/18/25 12:21	5
Sulfate	8.98		5.00		mg/L			09/18/25 12:21	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		09/16/25 09:30	09/22/25 14:16	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:16	1
Barium	0.0738		0.00200		mg/L		09/16/25 09:30	09/22/25 14:16	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:16	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:16	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:16	1
Calcium	82.4		0.500		mg/L		09/16/25 09:30	09/22/25 14:16	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:16	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:16	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:16	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:16	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:16	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:16	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:16	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	318		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.6	HF	1.0		SU			09/11/25 12:34	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	0.212		0.138	0.139	1.00	0.188	pCi/L	09/19/25 08:01	10/13/25 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	81.7		30 - 110					09/19/25 08:01	10/13/25 08:17	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	<0.662	U	0.401	0.403	1.00	0.662	pCi/L	09/19/25 08:10	10/10/25 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	81.7		30 - 110					09/19/25 08:10	10/10/25 12:08	1
Y Carrier	74.4		30 - 110					09/19/25 08:10	10/10/25 12:08	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-231_25_09

Lab Sample ID: 310-315312-4

Date Collected: 09/09/25 12:35

Matrix: Water

Date Received: 09/10/25 18:04

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	<0.662	U	0.424	0.426	5.00	0.662	pCi/L		10/15/25 10:40	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-232_25_09

Lab Sample ID: 310-315312-5

Date Collected: 09/09/25 13:20

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/18/25 12:32	5
Fluoride	<1.00		1.00		mg/L			09/18/25 12:32	5
Sulfate	46.1		5.00		mg/L			09/18/25 12:32	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		09/16/25 09:30	09/22/25 14:18	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:18	1
Barium	0.0511		0.00200		mg/L		09/16/25 09:30	09/22/25 14:18	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:18	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:18	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:18	1
Calcium	56.5		0.500		mg/L		09/16/25 09:30	09/22/25 14:18	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:18	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:18	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:18	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:18	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:18	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:18	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:18	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	278		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.8	HF	1.0		SU			09/11/25 12:44	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	0.329		0.168	0.171	1.00	0.211	pCi/L	09/19/25 08:01	10/13/25 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	76.6		30 - 110					09/19/25 08:01	10/13/25 08:17	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	0.918		0.512	0.519	1.00	0.735	pCi/L	09/19/25 08:10	10/10/25 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	76.6		30 - 110					09/19/25 08:10	10/10/25 12:08	1
Y Carrier	72.5		30 - 110					09/19/25 08:10	10/10/25 12:08	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-232_25_09
Date Collected: 09/09/25 13:20
Date Received: 09/10/25 18:04

Lab Sample ID: 310-315312-5
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	1.25		0.539	0.546	5.00	0.735	pCi/L		10/15/25 10:40	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-233_25_09

Lab Sample ID: 310-315312-6

Date Collected: 09/09/25 14:00

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.30		5.00		mg/L			09/18/25 12:43	5
Fluoride	<1.00		1.00		mg/L			09/18/25 12:43	5
Sulfate	37.4		5.00		mg/L			09/18/25 12:43	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		09/16/25 09:30	09/22/25 14:21	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:21	1
Barium	0.0651		0.00200		mg/L		09/16/25 09:30	09/22/25 14:21	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:21	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:21	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:21	1
Calcium	73.0		0.500		mg/L		09/16/25 09:30	09/22/25 14:21	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:21	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:21	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:21	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:21	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:21	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:21	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:21	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	336		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.6	HF	1.0		SU			09/11/25 12:33	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	<0.255	U	0.145	0.146	1.00	0.255	pCi/L	09/19/25 08:01	10/13/25 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	80.7		30 - 110					09/19/25 08:01	10/13/25 08:17	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	<0.611	U	0.356	0.357	1.00	0.611	pCi/L	09/19/25 08:10	10/10/25 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	80.7		30 - 110					09/19/25 08:10	10/10/25 12:08	1
Y Carrier	82.6		30 - 110					09/19/25 08:10	10/10/25 12:08	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-233_25_09
Date Collected: 09/09/25 14:00
Date Received: 09/10/25 18:04

Lab Sample ID: 310-315312-6
Matrix: Water

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228										
Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
(2σ+/-)	(2σ+/-)									
Combined Radium 226 + 228	<0.611	U	0.384	0.386	5.00	0.611	pCi/L		10/15/25 10:40	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-234_25_09

Lab Sample ID: 310-315312-7

Date Collected: 09/09/25 14:30

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/18/25 12:54	5
Fluoride	<1.00		1.00		mg/L			09/18/25 12:54	5
Sulfate	20.1		5.00		mg/L			09/18/25 12:54	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		09/16/25 09:30	09/22/25 14:24	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:24	1
Barium	0.0204		0.00200		mg/L		09/16/25 09:30	09/22/25 14:24	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:24	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:24	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:24	1
Calcium	27.5		0.500		mg/L		09/16/25 09:30	09/22/25 14:24	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:24	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:24	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:24	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:24	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:24	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:24	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:24	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	144		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.2	HF	1.0		SU			09/11/25 12:43	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	<0.305	U	0.174	0.174	1.00	0.305	pCi/L	09/19/25 07:48	10/14/25 22:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.4		30 - 110					09/19/25 07:48	10/14/25 22:06	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	1.07		0.396	0.408	1.00	0.493	pCi/L	09/19/25 07:52	10/14/25 11:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.4		30 - 110					09/19/25 07:52	10/14/25 11:48	1
Y Carrier	86.0		30 - 110					09/19/25 07:52	10/14/25 11:48	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: MW-234_25_09

Lab Sample ID: 310-315312-7

Date Collected: 09/09/25 14:30

Matrix: Water

Date Received: 09/10/25 18:04

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	1.17		0.433	0.444	5.00	0.493	pCi/L		10/15/25 10:40	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: FD-1_25_09

Lab Sample ID: 310-315312-8

Date Collected: 09/09/25 00:00

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/18/25 13:06	5
Fluoride	<1.00		1.00		mg/L			09/18/25 13:06	5
Sulfate	9.04		5.00		mg/L			09/18/25 13:06	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		09/16/25 09:30	09/22/25 14:27	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:27	1
Barium	0.0656		0.00200		mg/L		09/16/25 09:30	09/22/25 14:27	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:27	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:27	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:27	1
Calcium	72.7		0.500		mg/L		09/16/25 09:30	09/22/25 14:27	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:27	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:27	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:27	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:27	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:27	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:27	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:27	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	316		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.7	HF	1.0		SU			09/11/25 12:32	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	0.304		0.207	0.209	1.00	0.286	pCi/L	09/19/25 07:48	10/14/25 22:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.4		30 - 110					09/19/25 07:48	10/14/25 22:06	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	1.46		0.427	0.448	1.00	0.476	pCi/L	09/19/25 07:52	10/14/25 11:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.4		30 - 110					09/19/25 07:52	10/14/25 11:48	1
Y Carrier	86.7		30 - 110					09/19/25 07:52	10/14/25 11:48	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: FD-1_25_09

Lab Sample ID: 310-315312-8

Date Collected: 09/09/25 00:00

Matrix: Water

Date Received: 09/10/25 18:04

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	1.77		0.475	0.494	5.00	0.476	pCi/L		10/15/25 10:40	1

Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: FB-1_25_09

Lab Sample ID: 310-315312-9

Date Collected: 09/09/25 13:00

Matrix: Water

Date Received: 09/10/25 18:04

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			09/18/25 13:17	1
Fluoride	<0.200		0.200		mg/L			09/18/25 13:17	1
Sulfate	<1.00		1.00		mg/L			09/18/25 13:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:33	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:33	1
Barium	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:33	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:33	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 14:33	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 14:33	1
Calcium	<0.500		0.500		mg/L		09/16/25 09:30	09/22/25 14:33	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:33	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:33	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 14:33	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 14:33	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 14:33	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 14:33	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 14:33	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<50.0		50.0		mg/L			09/12/25 18:08	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.1	HF	1.0		SU			09/11/25 12:45	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	<0.392	U	0.245	0.246	1.00	0.392	pCi/L	09/19/25 07:48	10/14/25 22:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.6		30 - 110					09/19/25 07:48	10/14/25 22:06	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	0.981		0.413	0.422	1.00	0.538	pCi/L	09/19/25 07:52	10/14/25 11:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.6		30 - 110					09/19/25 07:52	10/14/25 11:48	1
Y Carrier	80.7		30 - 110					09/19/25 07:52	10/14/25 11:48	1

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Client Sample Results

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

Job ID: 310-315312-1

Client Sample ID: FB-1_25_09
Date Collected: 09/09/25 13:00
Date Received: 09/10/25 18:04

Lab Sample ID: 310-315312-9
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	1.22		0.480	0.488	5.00	0.538	pCi/L		10/15/25 10:40	1

Definitions/Glossary

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

Job ID: 310-315312-1

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.

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: 310-315312-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-467605/3

Matrix: Water

Analysis Batch: 467605

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			09/18/25 10:08	1
Fluoride	<0.200		0.200		mg/L			09/18/25 10:08	1
Sulfate	<1.00		1.00		mg/L			09/18/25 10:08	1

Lab Sample ID: LCS 310-467605/4

Matrix: Water

Analysis Batch: 467605

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.333		mg/L		93	90 - 110
Fluoride	2.00	2.045		mg/L		102	90 - 110
Sulfate	10.0	10.05		mg/L		100	90 - 110

Lab Sample ID: 310-315312-1 MS

Matrix: Water

Analysis Batch: 467605

Client Sample ID: MW-213A_25_09

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.77		25.0	27.66		mg/L		88	80 - 120
Fluoride	<1.00		5.00	5.104		mg/L		102	80 - 120
Sulfate	9.01		25.0	33.79		mg/L		99	80 - 120

Lab Sample ID: 310-315312-1 MSD

Matrix: Water

Analysis Batch: 467605

Client Sample ID: MW-213A_25_09

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	5.77		25.0	27.61		mg/L		87	80 - 120	0	15
Fluoride	<1.00		5.00	5.098		mg/L		102	80 - 120	0	15
Sulfate	9.01		25.0	33.80		mg/L		99	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-466542/1-A

Matrix: Water

Analysis Batch: 467077

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 466542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/16/25 09:30	09/17/25 13:18	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/17/25 13:18	1
Barium	<0.00200		0.00200		mg/L		09/16/25 09:30	09/17/25 13:18	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/17/25 13:18	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/17/25 13:18	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/17/25 13:18	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/17/25 13:18	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/17/25 13:18	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/17/25 13:18	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/17/25 13:18	1

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QC Sample Results

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

Job ID: 310-315312-1

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

Lab Sample ID: MB 310-466542/1-A
Matrix: Water
Analysis Batch: 467205

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.500		0.500		mg/L		09/16/25 09:30	09/18/25 13:08	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/18/25 13:08	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/18/25 13:08	1

Lab Sample ID: MB 310-466542/1-A
Matrix: Water
Analysis Batch: 467355

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/19/25 13:39	1

Lab Sample ID: LCS 310-466542/2-A
Matrix: Water
Analysis Batch: 467077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.1912		mg/L		96	80 - 120
Arsenic	0.200	0.1911		mg/L		96	80 - 120
Barium	0.100	0.09247		mg/L		92	80 - 120
Beryllium	0.100	0.09112		mg/L		91	80 - 120
Cadmium	0.100	0.09246		mg/L		92	80 - 120
Chromium	0.100	0.09164		mg/L		92	80 - 120
Cobalt	0.100	0.09056		mg/L		91	80 - 120
Lead	0.200	0.1888		mg/L		94	80 - 120
Selenium	0.400	0.3675		mg/L		92	80 - 120
Thallium	0.100	0.09993		mg/L		100	80 - 120

Lab Sample ID: LCS 310-466542/2-A
Matrix: Water
Analysis Batch: 467205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	2.00	1.836		mg/L		92	80 - 120
Lithium	0.200	0.1947		mg/L		97	80 - 120
Molybdenum	0.200	0.1951		mg/L		98	80 - 120

Lab Sample ID: LCS 310-466542/2-A
Matrix: Water
Analysis Batch: 467355

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.2023		mg/L		101	80 - 120

Lab Sample ID: MB 310-466548/1-A
Matrix: Water
Analysis Batch: 467551

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466548

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 13:39	1
Arsenic	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 13:39	1

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QC Sample Results

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

Job ID: 310-315312-1

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

Lab Sample ID: MB 310-466548/1-A

Matrix: Water

Analysis Batch: 467551

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 466548

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 13:39	1
Beryllium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 13:39	1
Boron	<0.100		0.100		mg/L		09/16/25 09:30	09/22/25 13:39	1
Cadmium	<0.000200		0.000200		mg/L		09/16/25 09:30	09/22/25 13:39	1
Calcium	<0.500		0.500		mg/L		09/16/25 09:30	09/22/25 13:39	1
Chromium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 13:39	1
Cobalt	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 13:39	1
Lead	<0.000500		0.000500		mg/L		09/16/25 09:30	09/22/25 13:39	1
Lithium	<0.0100		0.0100		mg/L		09/16/25 09:30	09/22/25 13:39	1
Molybdenum	<0.00200		0.00200		mg/L		09/16/25 09:30	09/22/25 13:39	1
Selenium	<0.00500		0.00500		mg/L		09/16/25 09:30	09/22/25 13:39	1
Thallium	<0.00100		0.00100		mg/L		09/16/25 09:30	09/22/25 13:39	1

Lab Sample ID: LCS 310-466548/2-A

Matrix: Water

Analysis Batch: 467551

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 466548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.1747		mg/L		87	80 - 120
Arsenic	0.200	0.1707		mg/L		85	80 - 120
Barium	0.100	0.08688		mg/L		87	80 - 120
Beryllium	0.100	0.09431		mg/L		94	80 - 120
Boron	0.200	0.1758		mg/L		88	80 - 120
Cadmium	0.100	0.08812		mg/L		88	80 - 120
Calcium	2.00	1.780		mg/L		89	80 - 120
Chromium	0.100	0.09187		mg/L		92	80 - 120
Cobalt	0.100	0.09006		mg/L		90	80 - 120
Lead	0.200	0.1786		mg/L		89	80 - 120
Lithium	0.200	0.1856		mg/L		93	80 - 120
Molybdenum	0.200	0.1763		mg/L		88	80 - 120
Selenium	0.400	0.3489		mg/L		87	80 - 120
Thallium	0.100	0.09249		mg/L		92	80 - 120

Lab Sample ID: 310-315312-8 DU

Matrix: Water

Analysis Batch: 467551

Client Sample ID: FD-1_25_09

Prep Type: Total/NA

Prep Batch: 466548

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	0.0656		0.06438		mg/L		2	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	72.7		70.46		mg/L		3	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	<0.0100		<0.0100		mg/L		NC	20

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QC Sample Results

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

Job ID: 310-315312-1

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

Lab Sample ID: 310-315312-8 DU

Matrix: Water

Analysis Batch: 467551

Client Sample ID: FD-1_25_09

Prep Type: Total/NA

Prep Batch: 466548

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Molybdenum	<0.00200		<0.00200		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		0.09090		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-467199/1-A

Matrix: Water

Analysis Batch: 467505

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 467199

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/19/25 14:15	09/22/25 09:19	1

Lab Sample ID: LCS 310-467199/2-A

Matrix: Water

Analysis Batch: 467505

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 467199

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001611		mg/L		97	80 - 120

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

Lab Sample ID: MB 310-466445/1

Matrix: Water

Analysis Batch: 466445

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			09/11/25 15:19	1

Lab Sample ID: LCS 310-466445/2

Matrix: Water

Analysis Batch: 466445

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	1040		mg/L		104	89 - 110

Lab Sample ID: MB 310-466593/1

Matrix: Water

Analysis Batch: 466593

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			09/12/25 18:08	1

Lab Sample ID: LCS 310-466593/2

Matrix: Water

Analysis Batch: 466593

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	1028		mg/L		103	89 - 110

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QC Sample Results

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

Job ID: 310-315312-1

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-466416/1
Matrix: Water
Analysis Batch: 466416

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

Lab Sample ID: LCS 310-466416/28
Matrix: Water
Analysis Batch: 466416

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 160-736493/1-A
Matrix: Water
Analysis Batch: 740415

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736493

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.405	U	0.246	0.247	1.00	0.405	pCi/L	09/18/25 07:52	10/13/25 16:45	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	89.3		30 - 110					09/18/25 07:52	10/13/25 16:45	1

Lab Sample ID: LCS 160-736493/2-A
Matrix: Water
Analysis Batch: 740415

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736493

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	9.57	9.858		1.31	1.00	0.346	pCi/L	103	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Barium	88.8		30 - 110						

Lab Sample ID: MB 160-736720/1-A
Matrix: Water
Analysis Batch: 740611

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736720

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.352	U	0.196	0.196	1.00	0.352	pCi/L	09/19/25 07:48	10/14/25 22:06	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.4		30 - 110					09/19/25 07:48	10/14/25 22:06	1

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QC Sample Results

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

Job ID: 310-315312-1

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

Lab Sample ID: LCS 160-736720/2-A
Matrix: Water
Analysis Batch: 740611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736720

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		9.57	8.800		1.16	1.00	0.311	pCi/L	92	75 - 125
Carrier	%Yield	LCS Qualifier	Limits							
Barium	91.1		30 - 110							

Lab Sample ID: MB 160-736724/1-A
Matrix: Water
Analysis Batch: 740386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736724

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.172	U	0.109	0.110	1.00	0.172	pCi/L	09/19/25 08:01	10/13/25 08:06	1
Carrier	%Yield	MB Qualifier	Limits							
Barium	83.2		30 - 110							
								Prepared	Analyzed	Dil Fac
								09/19/25 08:01	10/13/25 08:06	1

Lab Sample ID: LCS 160-736724/2-A
Matrix: Water
Analysis Batch: 740386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736724

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		9.57	9.219		1.07	1.00	0.236	pCi/L	96	75 - 125
Carrier	%Yield	LCS Qualifier	Limits							
Barium	84.0		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-736494/1-A
Matrix: Water
Analysis Batch: 740386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736494

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.6065		0.402	0.406	1.00	0.604	pCi/L	09/18/25 07:56	10/13/25 12:05	1
Carrier	%Yield	MB Qualifier	Limits							
Barium	89.3		30 - 110							
Y Carrier	82.2		30 - 110							
								Prepared	Analyzed	Dil Fac
								09/18/25 07:56	10/13/25 12:05	1
								09/18/25 07:56	10/13/25 12:05	1

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QC Sample Results

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

Job ID: 310-315312-1

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

Lab Sample ID: LCS 160-736494/2-A
Matrix: Water
Analysis Batch: 740386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736494

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.98	10.44		1.39	1.00	0.539	pCi/L	116	75 - 125
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Barium	88.8		30 - 110							
Y Carrier	85.2		30 - 110							

Lab Sample ID: MB 160-736721/1-A
Matrix: Water
Analysis Batch: 740598

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736721

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7531		0.324	0.331	1.00	0.403	pCi/L	09/19/25 07:52	10/14/25 11:48	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	93.4		30 - 110					09/19/25 07:52	10/14/25 11:48	1
Y Carrier	85.2		30 - 110					09/19/25 07:52	10/14/25 11:48	1

Lab Sample ID: LCS 160-736721/2-A
Matrix: Water
Analysis Batch: 740598

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736721

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.98	9.472		1.28	1.00	0.480	pCi/L	105	75 - 125
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Barium	91.1		30 - 110							
Y Carrier	85.2		30 - 110							

Lab Sample ID: MB 160-736725/1-A
Matrix: Water
Analysis Batch: 740104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 736725

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.606	U	0.376	0.378	1.00	0.606	pCi/L	09/19/25 08:10	10/10/25 12:13	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	83.2		30 - 110					09/19/25 08:10	10/10/25 12:13	1
Y Carrier	83.4		30 - 110					09/19/25 08:10	10/10/25 12:13	1

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QC Sample Results

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

Job ID: 310-315312-1

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

Lab Sample ID: LCS 160-736725/2-A
Matrix: Water
Analysis Batch: 740104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 736725

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.99	11.07		1.48	1.00	0.539	pCi/L	123	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Barium	84.0		30 - 110							
Y Carrier	81.5		30 - 110							

QC Association Summary

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

Job ID: 310-315312-1

HPLC/IC

Analysis Batch: 467605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	9056A	
310-315312-2	MW-221A_25_09	Total/NA	Water	9056A	
310-315312-3	MW-230_25_09	Total/NA	Water	9056A	
310-315312-4	MW-231_25_09	Total/NA	Water	9056A	
310-315312-5	MW-232_25_09	Total/NA	Water	9056A	
310-315312-6	MW-233_25_09	Total/NA	Water	9056A	
310-315312-7	MW-234_25_09	Total/NA	Water	9056A	
310-315312-8	FD-1_25_09	Total/NA	Water	9056A	
310-315312-9	FB-1_25_09	Total/NA	Water	9056A	
MB 310-467605/3	Method Blank	Total/NA	Water	9056A	
LCS 310-467605/4	Lab Control Sample	Total/NA	Water	9056A	
310-315312-1 MS	MW-213A_25_09	Total/NA	Water	9056A	
310-315312-1 MSD	MW-213A_25_09	Total/NA	Water	9056A	

Metals

Prep Batch: 466542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-2	MW-221A_25_09	Total/NA	Water	3005A	
MB 310-466542/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-466542/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 466548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	3005A	
310-315312-3	MW-230_25_09	Total/NA	Water	3005A	
310-315312-4	MW-231_25_09	Total/NA	Water	3005A	
310-315312-5	MW-232_25_09	Total/NA	Water	3005A	
310-315312-6	MW-233_25_09	Total/NA	Water	3005A	
310-315312-7	MW-234_25_09	Total/NA	Water	3005A	
310-315312-8	FD-1_25_09	Total/NA	Water	3005A	
310-315312-9	FB-1_25_09	Total/NA	Water	3005A	
MB 310-466548/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-466548/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-315312-8 DU	FD-1_25_09	Total/NA	Water	3005A	

Analysis Batch: 467077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-2	MW-221A_25_09	Total/NA	Water	6020B	466542
MB 310-466542/1-A	Method Blank	Total/NA	Water	6020B	466542
LCS 310-466542/2-A	Lab Control Sample	Total/NA	Water	6020B	466542

Prep Batch: 467199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	7470A	
310-315312-2	MW-221A_25_09	Total/NA	Water	7470A	
310-315312-3	MW-230_25_09	Total/NA	Water	7470A	
310-315312-4	MW-231_25_09	Total/NA	Water	7470A	
310-315312-5	MW-232_25_09	Total/NA	Water	7470A	
310-315312-6	MW-233_25_09	Total/NA	Water	7470A	
310-315312-7	MW-234_25_09	Total/NA	Water	7470A	

Eurofins Cedar Falls

QC Association Summary

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

Job ID: 310-315312-1

Metals (Continued)

Prep Batch: 467199 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-8	FD-1_25_09	Total/NA	Water	7470A	
310-315312-9	FB-1_25_09	Total/NA	Water	7470A	
MB 310-467199/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-467199/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 467205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-2	MW-221A_25_09	Total/NA	Water	6020B	466542
MB 310-466542/1-A	Method Blank	Total/NA	Water	6020B	466542
LCS 310-466542/2-A	Lab Control Sample	Total/NA	Water	6020B	466542

Analysis Batch: 467355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-2	MW-221A_25_09	Total/NA	Water	6020B	466542
MB 310-466542/1-A	Method Blank	Total/NA	Water	6020B	466542
LCS 310-466542/2-A	Lab Control Sample	Total/NA	Water	6020B	466542

Analysis Batch: 467505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	7470A	467199
310-315312-2	MW-221A_25_09	Total/NA	Water	7470A	467199
310-315312-3	MW-230_25_09	Total/NA	Water	7470A	467199
310-315312-4	MW-231_25_09	Total/NA	Water	7470A	467199
310-315312-5	MW-232_25_09	Total/NA	Water	7470A	467199
310-315312-6	MW-233_25_09	Total/NA	Water	7470A	467199
310-315312-7	MW-234_25_09	Total/NA	Water	7470A	467199
310-315312-8	FD-1_25_09	Total/NA	Water	7470A	467199
310-315312-9	FB-1_25_09	Total/NA	Water	7470A	467199
MB 310-467199/1-A	Method Blank	Total/NA	Water	7470A	467199
LCS 310-467199/2-A	Lab Control Sample	Total/NA	Water	7470A	467199

Analysis Batch: 467551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	6020B	466548
310-315312-3	MW-230_25_09	Total/NA	Water	6020B	466548
310-315312-4	MW-231_25_09	Total/NA	Water	6020B	466548
310-315312-5	MW-232_25_09	Total/NA	Water	6020B	466548
310-315312-6	MW-233_25_09	Total/NA	Water	6020B	466548
310-315312-7	MW-234_25_09	Total/NA	Water	6020B	466548
310-315312-8	FD-1_25_09	Total/NA	Water	6020B	466548
310-315312-9	FB-1_25_09	Total/NA	Water	6020B	466548
MB 310-466548/1-A	Method Blank	Total/NA	Water	6020B	466548
LCS 310-466548/2-A	Lab Control Sample	Total/NA	Water	6020B	466548
310-315312-8 DU	FD-1_25_09	Total/NA	Water	6020B	466548

General Chemistry

Analysis Batch: 466416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-2	MW-221A_25_09	Total/NA	Water	SM 4500 H+ B	

Eurofins Cedar Falls

QC Association Summary

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

Job ID: 310-315312-1

General Chemistry (Continued)

Analysis Batch: 466416 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-3	MW-230_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-4	MW-231_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-5	MW-232_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-6	MW-233_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-7	MW-234_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-8	FD-1_25_09	Total/NA	Water	SM 4500 H+ B	
310-315312-9	FB-1_25_09	Total/NA	Water	SM 4500 H+ B	
LCS 310-466416/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-466416/28	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 466445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	SM 2540C	
310-315312-2	MW-221A_25_09	Total/NA	Water	SM 2540C	
MB 310-466445/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-466445/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 466593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-3	MW-230_25_09	Total/NA	Water	SM 2540C	
310-315312-4	MW-231_25_09	Total/NA	Water	SM 2540C	
310-315312-5	MW-232_25_09	Total/NA	Water	SM 2540C	
310-315312-6	MW-233_25_09	Total/NA	Water	SM 2540C	
310-315312-7	MW-234_25_09	Total/NA	Water	SM 2540C	
310-315312-8	FD-1_25_09	Total/NA	Water	SM 2540C	
310-315312-9	FB-1_25_09	Total/NA	Water	SM 2540C	
MB 310-466593/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-466593/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 736493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	PrecSep-21	
MB 160-736493/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-736493/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 736494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-1	MW-213A_25_09	Total/NA	Water	PrecSep_0	
MB 160-736494/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-736494/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 736720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-7	MW-234_25_09	Total/NA	Water	PrecSep-21	
310-315312-8	FD-1_25_09	Total/NA	Water	PrecSep-21	
310-315312-9	FB-1_25_09	Total/NA	Water	PrecSep-21	
MB 160-736720/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-736720/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Eurofins Cedar Falls

QC Association Summary

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

Job ID: 310-315312-1

Rad

Prep Batch: 736721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-7	MW-234_25_09	Total/NA	Water	PrecSep_0	
310-315312-8	FD-1_25_09	Total/NA	Water	PrecSep_0	
310-315312-9	FB-1_25_09	Total/NA	Water	PrecSep_0	
MB 160-736721/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-736721/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 736724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-2	MW-221A_25_09	Total/NA	Water	PrecSep-21	
310-315312-3	MW-230_25_09	Total/NA	Water	PrecSep-21	
310-315312-4	MW-231_25_09	Total/NA	Water	PrecSep-21	
310-315312-5	MW-232_25_09	Total/NA	Water	PrecSep-21	
310-315312-6	MW-233_25_09	Total/NA	Water	PrecSep-21	
MB 160-736724/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-736724/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 736725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315312-2	MW-221A_25_09	Total/NA	Water	PrecSep_0	
310-315312-3	MW-230_25_09	Total/NA	Water	PrecSep_0	
310-315312-4	MW-231_25_09	Total/NA	Water	PrecSep_0	
310-315312-5	MW-232_25_09	Total/NA	Water	PrecSep_0	
310-315312-6	MW-233_25_09	Total/NA	Water	PrecSep_0	
MB 160-736725/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-736725/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

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

Job ID: 310-315312-1

Client Sample ID: MW-213A_25_09

Lab Sample ID: 310-315312-1

Date Collected: 09/09/25 11:05

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 11:04
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:04
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:32
Total/NA	Analysis	SM 2540C		1	466445	ENB7	EET CF	09/11/25 15:19
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:47
Total/NA	Prep	PrecSep-21			736493	JTR	EET SL	09/18/25 07:52
Total/NA	Analysis	9315		1	740415	SWS	EET SL	10/13/25 19:31
Total/NA	Prep	PrecSep_0			736494	JTR	EET SL	09/18/25 07:56
Total/NA	Analysis	9320		1	740415	SWS	EET SL	10/13/25 12:10
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/14/25 17:06

Client Sample ID: MW-221A_25_09

Lab Sample ID: 310-315312-2

Date Collected: 09/09/25 11:30

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 11:37
Total/NA	Prep	3005A			466542	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467205	NFT2	EET CF	09/18/25 14:35
Total/NA	Prep	3005A			466542	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467355	NFT2	EET CF	09/19/25 13:57
Total/NA	Prep	3005A			466542	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467077	NFT2	EET CF	09/17/25 14:50
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:34
Total/NA	Analysis	SM 2540C		1	466445	ENB7	EET CF	09/11/25 15:19
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:35
Total/NA	Prep	PrecSep-21			736724	JTR	EET SL	09/19/25 08:01
Total/NA	Analysis	9315		1	740415	SWS	EET SL	10/13/25 08:17
Total/NA	Prep	PrecSep_0			736725	JTR	EET SL	09/19/25 08:10
Total/NA	Analysis	9320		1	740104	SWS	EET SL	10/10/25 12:15
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/14/25 17:06

Client Sample ID: MW-230_25_09

Lab Sample ID: 310-315312-3

Date Collected: 09/09/25 12:05

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 11:48
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:13

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-315312-1

Client Sample ID: MW-230_25_09

Lab Sample ID: 310-315312-3

Date Collected: 09/09/25 12:05

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:41
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:46
Total/NA	Prep	PrecSep-21			736724	JTR	EET SL	09/19/25 08:01
Total/NA	Analysis	9315		1	740415	SWS	EET SL	10/13/25 08:17
Total/NA	Prep	PrecSep_0			736725	JTR	EET SL	09/19/25 08:10
Total/NA	Analysis	9320		1	740104	SWS	EET SL	10/10/25 12:15
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

Client Sample ID: MW-231_25_09

Lab Sample ID: 310-315312-4

Date Collected: 09/09/25 12:35

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 12:21
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:16
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:43
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:34
Total/NA	Prep	PrecSep-21			736724	JTR	EET SL	09/19/25 08:01
Total/NA	Analysis	9315		1	740415	SWS	EET SL	10/13/25 08:17
Total/NA	Prep	PrecSep_0			736725	JTR	EET SL	09/19/25 08:10
Total/NA	Analysis	9320		1	740123	SWS	EET SL	10/10/25 12:08
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

Client Sample ID: MW-232_25_09

Lab Sample ID: 310-315312-5

Date Collected: 09/09/25 13:20

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 12:32
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:18
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:45
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:44
Total/NA	Prep	PrecSep-21			736724	JTR	EET SL	09/19/25 08:01
Total/NA	Analysis	9315		1	740415	SWS	EET SL	10/13/25 08:17
Total/NA	Prep	PrecSep_0			736725	JTR	EET SL	09/19/25 08:10
Total/NA	Analysis	9320		1	740123	SWS	EET SL	10/10/25 12:08

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-315312-1

Client Sample ID: MW-232_25_09

Lab Sample ID: 310-315312-5

Date Collected: 09/09/25 13:20

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

Client Sample ID: MW-233_25_09

Lab Sample ID: 310-315312-6

Date Collected: 09/09/25 14:00

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 12:43
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:21
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:47
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:33
Total/NA	Prep	PrecSep-21			736724	JTR	EET SL	09/19/25 08:01
Total/NA	Analysis	9315		1	740415	SWS	EET SL	10/13/25 08:17
Total/NA	Prep	PrecSep_0			736725	JTR	EET SL	09/19/25 08:10
Total/NA	Analysis	9320		1	740123	SWS	EET SL	10/10/25 12:08
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

Client Sample ID: MW-234_25_09

Lab Sample ID: 310-315312-7

Date Collected: 09/09/25 14:30

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 12:54
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:24
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:49
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:43
Total/NA	Prep	PrecSep-21			736720	JTR	EET SL	09/19/25 07:48
Total/NA	Analysis	9315		1	740611	SWS	EET SL	10/14/25 22:06
Total/NA	Prep	PrecSep_0			736721	JTR	EET SL	09/19/25 07:52
Total/NA	Analysis	9320		1	740598	SWS	EET SL	10/14/25 11:48
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

Client Sample ID: FD-1_25_09

Lab Sample ID: 310-315312-8

Date Collected: 09/09/25 00:00

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467605	ZRI4	EET CF	09/18/25 13:06

Eurofins Cedar Falls

Lab Chronicle

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

Job ID: 310-315312-1

Client Sample ID: FD-1_25_09

Lab Sample ID: 310-315312-8

Date Collected: 09/09/25 00:00

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:27
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:51
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:32
Total/NA	Prep	PrecSep-21			736720	JTR	EET SL	09/19/25 07:48
Total/NA	Analysis	9315		1	740611	SWS	EET SL	10/14/25 22:06
Total/NA	Prep	PrecSep_0			736721	JTR	EET SL	09/19/25 07:52
Total/NA	Analysis	9320		1	740598	SWS	EET SL	10/14/25 11:48
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

Client Sample ID: FB-1_25_09

Lab Sample ID: 310-315312-9

Date Collected: 09/09/25 13:00

Matrix: Water

Date Received: 09/10/25 18:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	467605	ZRI4	EET CF	09/18/25 13:17
Total/NA	Prep	3005A			466548	WK2X	EET CF	09/16/25 09:30
Total/NA	Analysis	6020B		1	467551	NFT2	EET CF	09/22/25 14:33
Total/NA	Prep	7470A			467199	RLT9	EET CF	09/19/25 14:15
Total/NA	Analysis	7470A		1	467505	RLT9	EET CF	09/22/25 09:53
Total/NA	Analysis	SM 2540C		1	466593	ENB7	EET CF	09/12/25 18:08
Total/NA	Analysis	SM 4500 H+ B		1	466416	W9YR	EET CF	09/11/25 12:45
Total/NA	Prep	PrecSep-21			736720	JTR	EET SL	09/19/25 07:48
Total/NA	Analysis	9315		1	740611	SWS	EET SL	10/14/25 22:06
Total/NA	Prep	PrecSep_0			736721	JTR	EET SL	09/19/25 07:52
Total/NA	Analysis	9320		1	740598	SWS	EET SL	10/14/25 11:48
Total/NA	Analysis	Ra226_Ra228		1	740621	CAH	EET SL	10/15/25 10:40

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: 310-315312-1

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: 310-315312-1

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



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client. <u>GHD</u>			
City/State.	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project
Receipt Information			
Date/Time Received	DATE <u>9-10-25</u>	TIME <u>1804</u>	Received By. <u>PH</u>
Delivery Type ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other. _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes: Cooler ID:
Multiple Coolers?		☒ Yes ☒ No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?		☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID: <u>44</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>1.9</u>		Corrected Temp (°C): <u>1.9</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>		<u>CONTAINER 2</u>
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Environment Testing
America

Place COC scanning label
here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>GHD</u>			
City/State	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project.
Receipt Information			
Date/Time Received	DATE <u>9-10-25</u>	TIME <u>1804</u>	Received By. <u>PH</u>
Delivery Type. ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other.			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes Cooler ID.			
Multiple Coolers? ☒ Yes ☒ No If yes: Cooler # <u>2</u> of <u>2</u>			
Cooler Custody Seals Present? ☐ Yes ☒ No If yes: Cooler custody seals intact? ☐ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes: Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes. Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant. ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE			
Thermometer ID: <u>44</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>2.3</u>		Corrected Temp (°C): <u>2.3</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

DSM 214

Client Information		Sampler		Lab PM		Carrier Tracking No(s)		GOC No:					
Client Contact:		Brooke Wasson		Zach T Bindert									
Kevin Armstrong		Phone:		E-Mail:		State of Origin:		Page:					
		563-568-7524		Zach Bindert@eurofins.com		Iowa		Page 1 of 1					
Company:		GHD Services Inc.		PWSID:		Job #:							
Address:		11228 Aurora Avenue		Due Date Requested:		Analysis Requested		Preservation Codes:					
City:		Des Moines		TAT Requested (days):		Standard		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)					
State, Zip:		IA, 50322-7905		Compliance Project:		Δ Yes Δ No							
Phone:		515-414-3935		PO #:		340-017016							
Email:		Kevin.Armstrong@ghd.com		WO #:		12575233-003							
Project Name:		MEC Louisa East CCR Monofill		Project #:		31007299							
Site:		MEC Louisa East CCR Monofill		SSOW#:		12575233-003							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=other, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9316_Ra226 - Standard Target List	9320_Ra228 - Standard Target List	9068A_ORGFM_28D - Chloride, Fluoride, Sulfate	6020B_7470A - CCR Metals List	2540C_Calcd, SM4500_H+	Total Number of Containers	Special Instructions/Note:
MW-213A_25_09	9/9/25	1105	G	W	N	X	X	X	X	X	N	X	All Appendix III and Appendix IV constituents
MW-221A_25_09		1130	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW-230_25_09		1205	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW-231_25_09		1235	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW-232_25_09		1320	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW-233_25_09		1400	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW-234_25_09		1430	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
FD-1_25_09		—	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
FB-1_25_09		1300	G	W	N	X	X	X	X	X	X		All Appendix III and Appendix IV constituents
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological													
Deliverable Requested I, II, III, IV, Other (specify)													
Empty Kit Relinquished by: _____ Date: _____													
Relinquished by: _____ Date/Time: _____ Company: _____													
Relinquished by: _____ Date/Time: _____ Company: _____													
Relinquished by: _____ Date/Time: _____ Company: _____													
Custody Seals Intact: _____ Custody Seal No: _____													
Cooler Temperature(s) °C and Other Remarks: _____													

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

Special Instructions/QC Requirements. Database Facility Code 11114876-GD-MidAmen

Method of Shipment: _____

Received by: _____ Date/Time: 9/10/25 Company: GHD

Received by: _____ Date/Time: 9-10-16 1809 Company: _____

Received by: _____ Date/Time: _____ Company: _____

Ver 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-315312-1

Login Number: 315312

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Hirsch, Preston

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

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

Eurofins Cedar Falls

Tracer/Carrier Summary

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

Job ID: 310-315312-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba					
		(30-110)					
310-315312-1	MW-213A_25_09	91.1					
310-315312-2	MW-221A_25_09	79.4					
310-315312-3	MW-230_25_09	70.1					
310-315312-4	MW-231_25_09	81.7					
310-315312-5	MW-232_25_09	76.6					
310-315312-6	MW-233_25_09	80.7					
310-315312-7	MW-234_25_09	90.4					
310-315312-8	FD-1_25_09	93.4					
310-315312-9	FB-1_25_09	90.6					
LCS 160-736493/2-A	Lab Control Sample	88.8					
LCS 160-736720/2-A	Lab Control Sample	91.1					
LCS 160-736724/2-A	Lab Control Sample	84.0					
MB 160-736493/1-A	Method Blank	89.3					
MB 160-736720/1-A	Method Blank	93.4					
MB 160-736724/1-A	Method Blank	83.2					
Tracer/Carrier Legend							
Ba = Barium							

Method: 9320 - Radium-228 (GFPC)

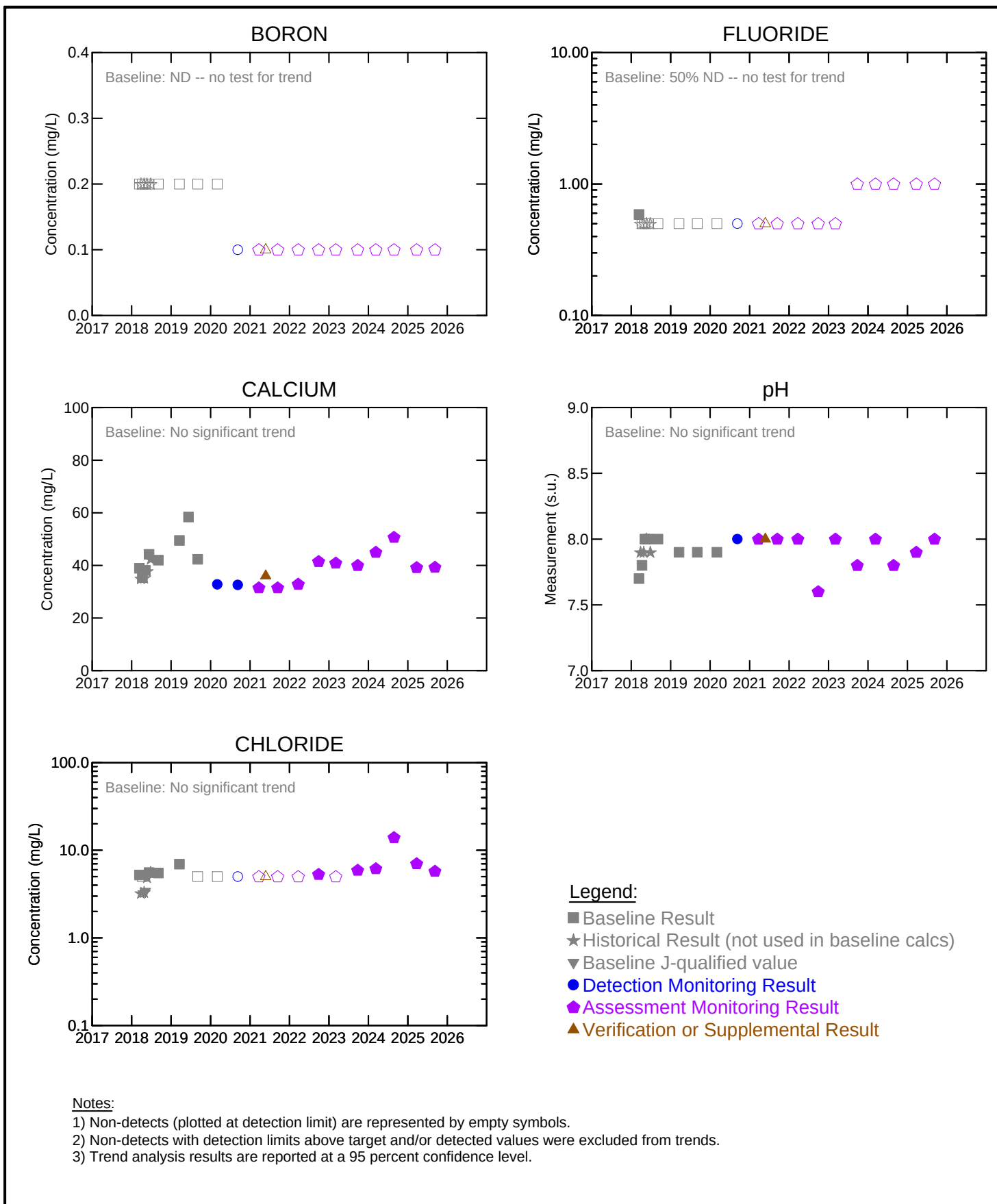
Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba	Y				
		(30-110)	(30-110)				
310-315312-1	MW-213A_25_09	91.1	86.7				
310-315312-2	MW-221A_25_09	79.4	82.6				
310-315312-3	MW-230_25_09	70.1	82.2				
310-315312-4	MW-231_25_09	81.7	74.4				
310-315312-5	MW-232_25_09	76.6	72.5				
310-315312-6	MW-233_25_09	80.7	82.6				
310-315312-7	MW-234_25_09	90.4	86.0				
310-315312-8	FD-1_25_09	93.4	86.7				
310-315312-9	FB-1_25_09	90.6	80.7				
LCS 160-736494/2-A	Lab Control Sample	88.8	85.2				
LCS 160-736721/2-A	Lab Control Sample	91.1	85.2				
LCS 160-736725/2-A	Lab Control Sample	84.0	81.5				
MB 160-736494/1-A	Method Blank	89.3	82.2				
MB 160-736721/1-A	Method Blank	93.4	85.2				
MB 160-736725/1-A	Method Blank	83.2	83.4				
Tracer/Carrier Legend							
Ba = Barium							
Y = Y Carrier							

Appendix C

Time Series Plots

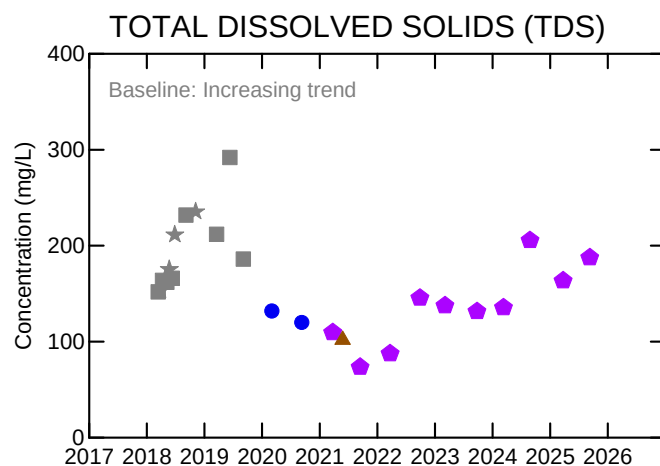
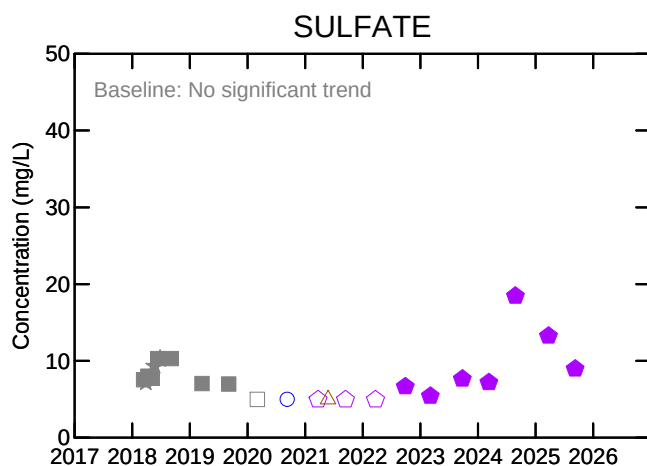


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-213A -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 1.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

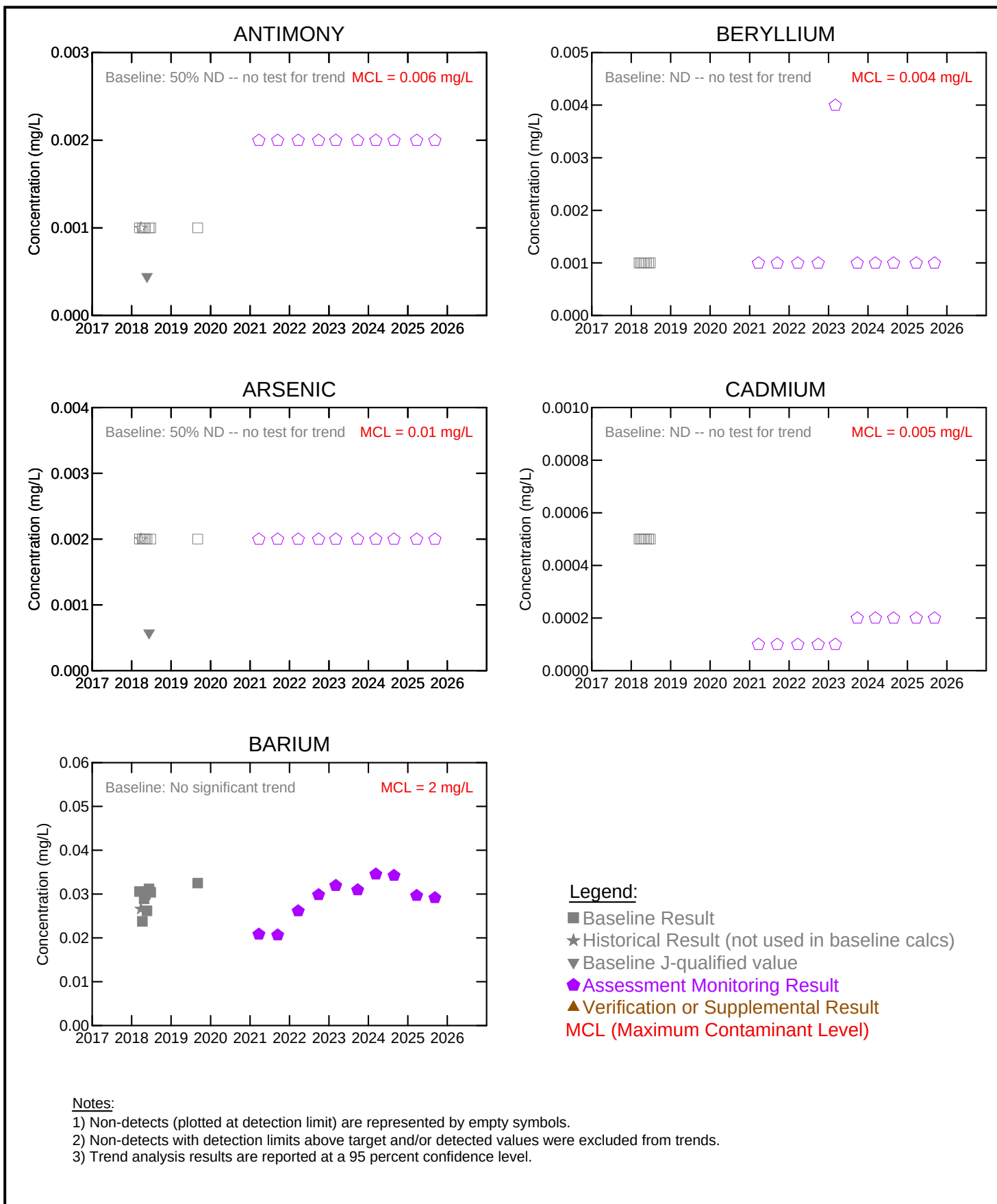


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-213A -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 1.b

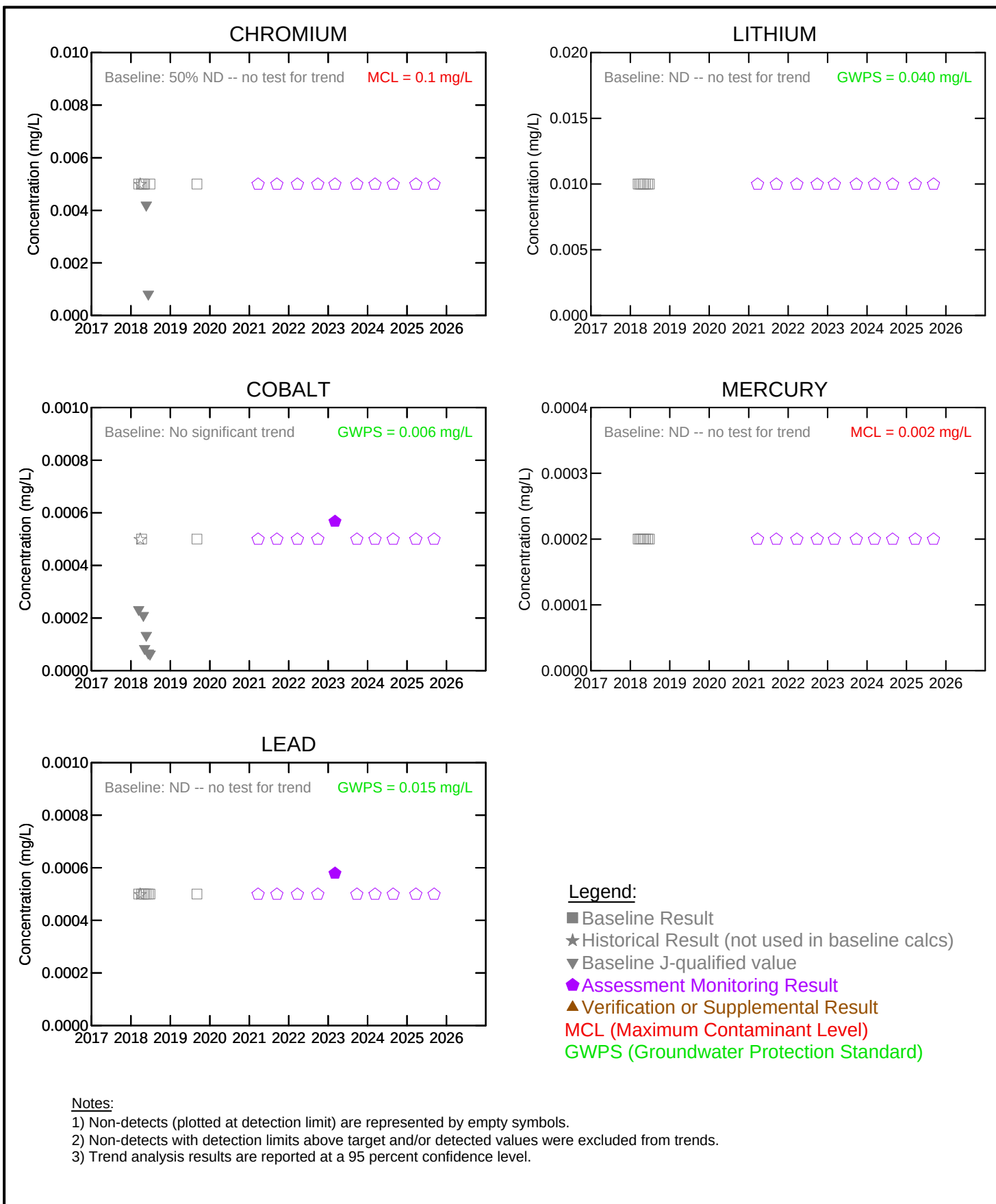


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-213A -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 1.c

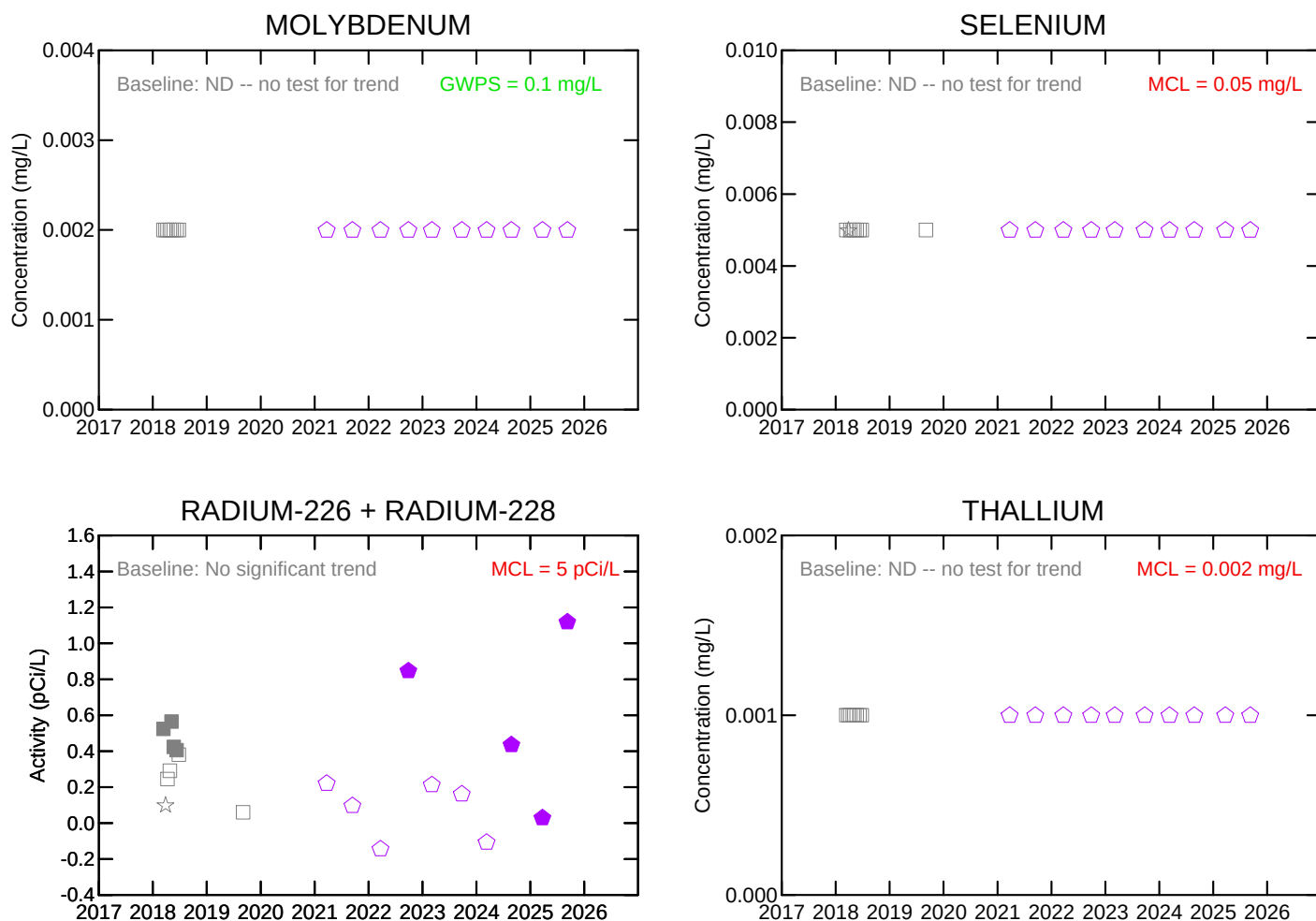


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-213A -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 1.d



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- ▼ Baseline J-qualified value
- ◆ Assessment Monitoring Result
- MCL (Maximum Contaminant Level)
- GWPS (Groundwater Protection Standard)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

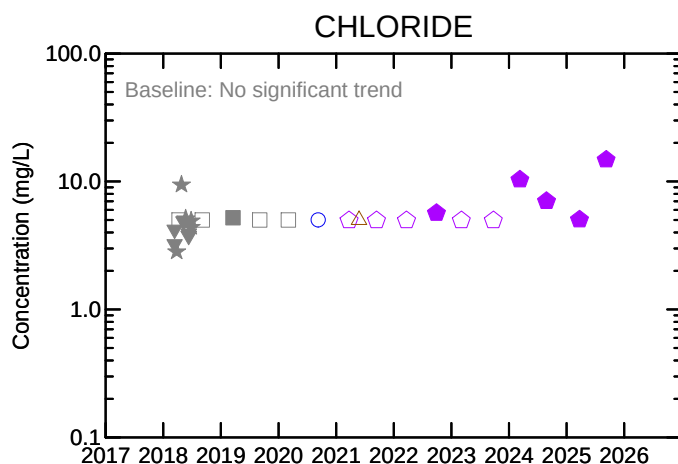
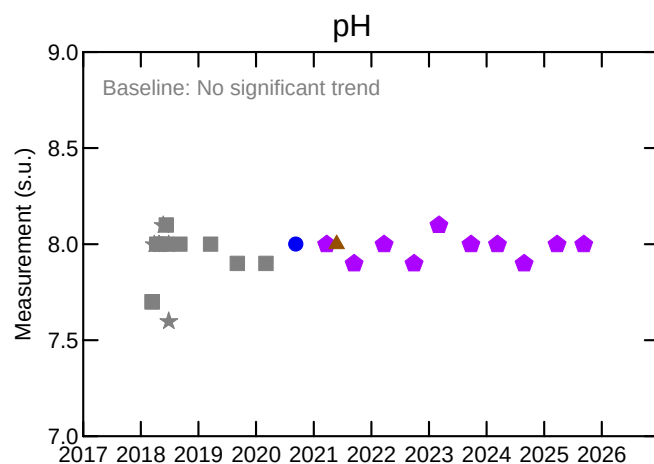
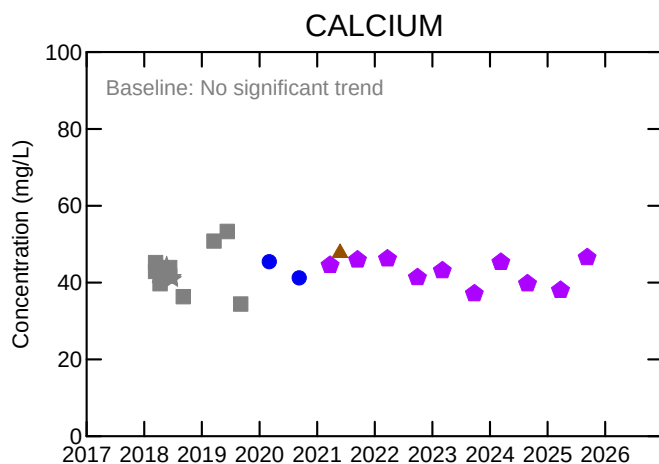
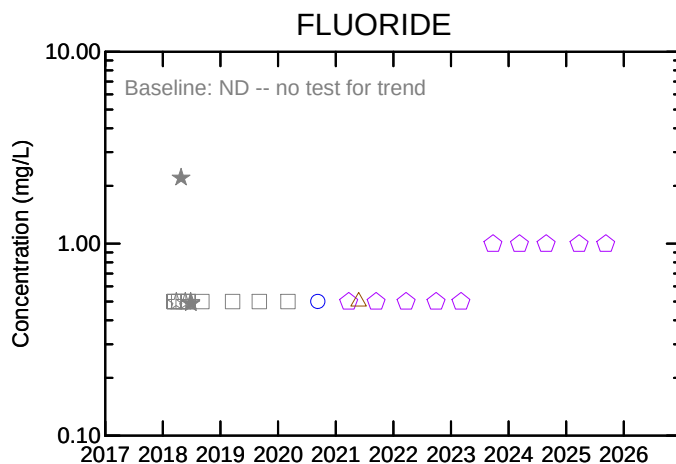
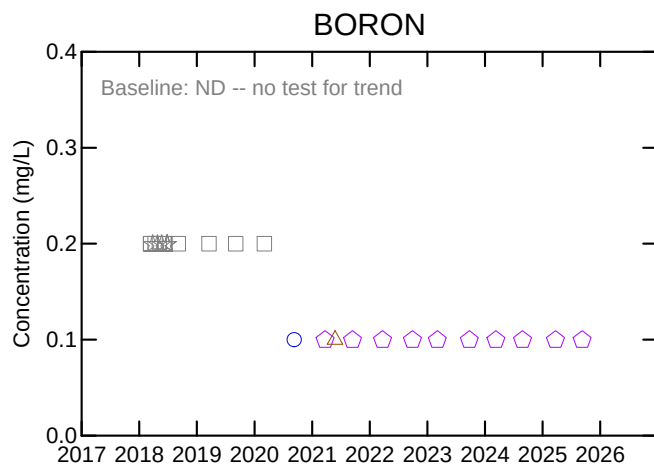


MidAmerican Energy Company
Louisia Generating Station
Muscatine, Iowa

**MW-213A -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 1.e



- Legend:**
- Baseline Result
 - ★ Historical Result (not used in baseline calcs)
 - ▼ Baseline J-qualified value
 - Detection Monitoring Result
 - ◆ Assessment Monitoring Result
 - ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

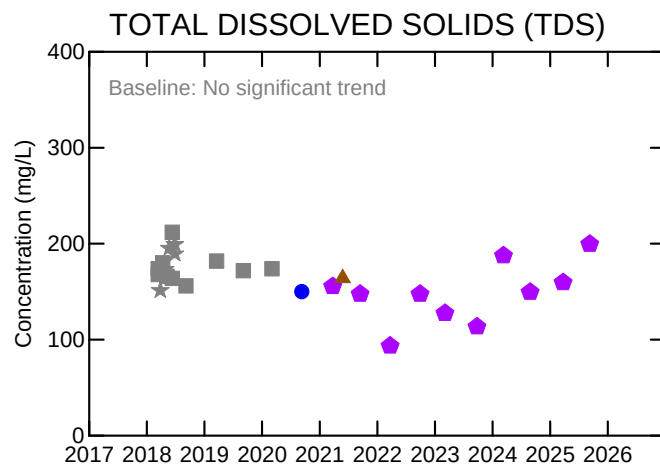
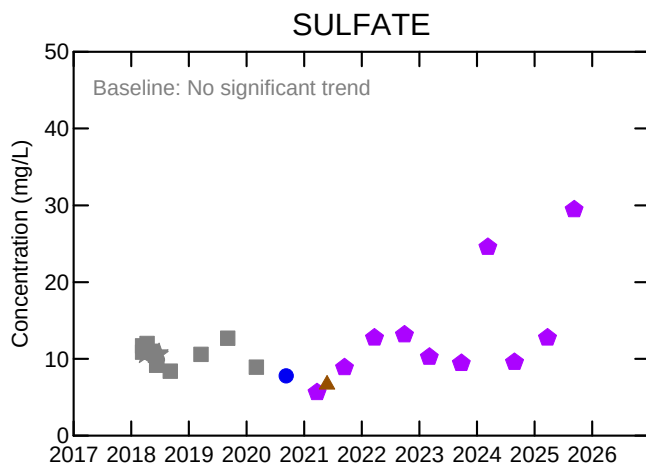


MidAmerican Energy Company
Louisia Generating Station
Muscatine, Iowa

**MW-221A -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 2.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

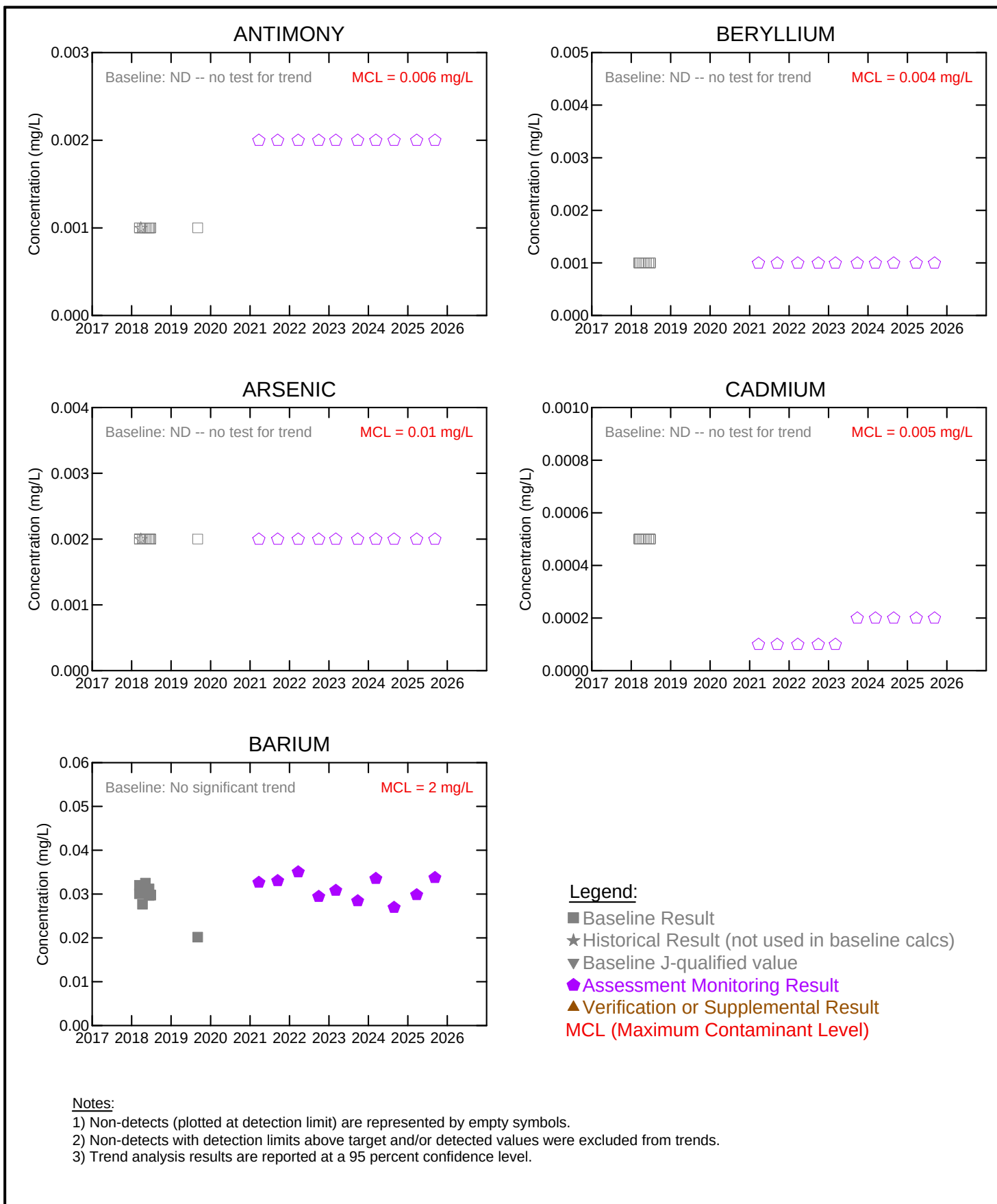


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-221A -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 2.b

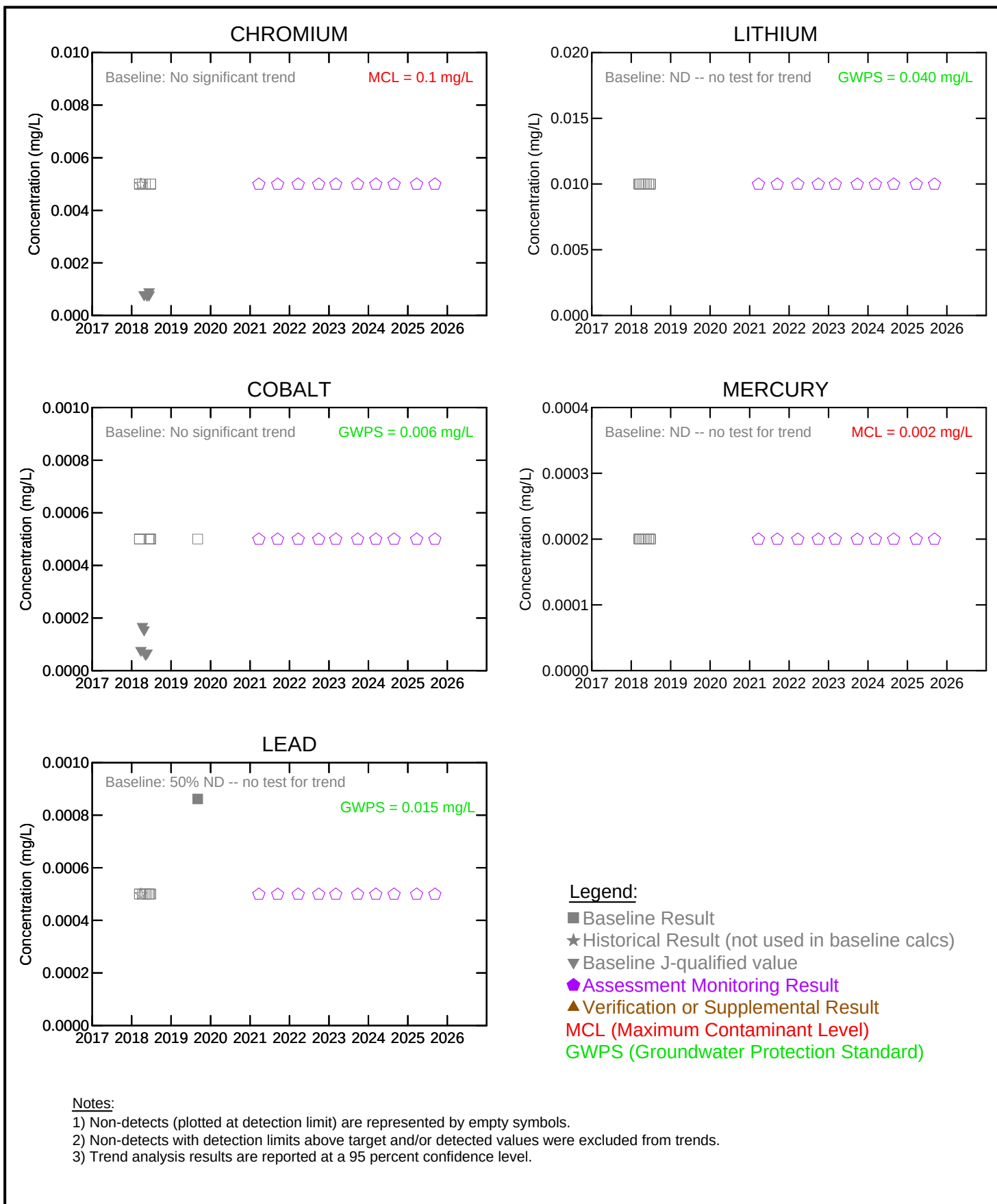


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-221A -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 2.c

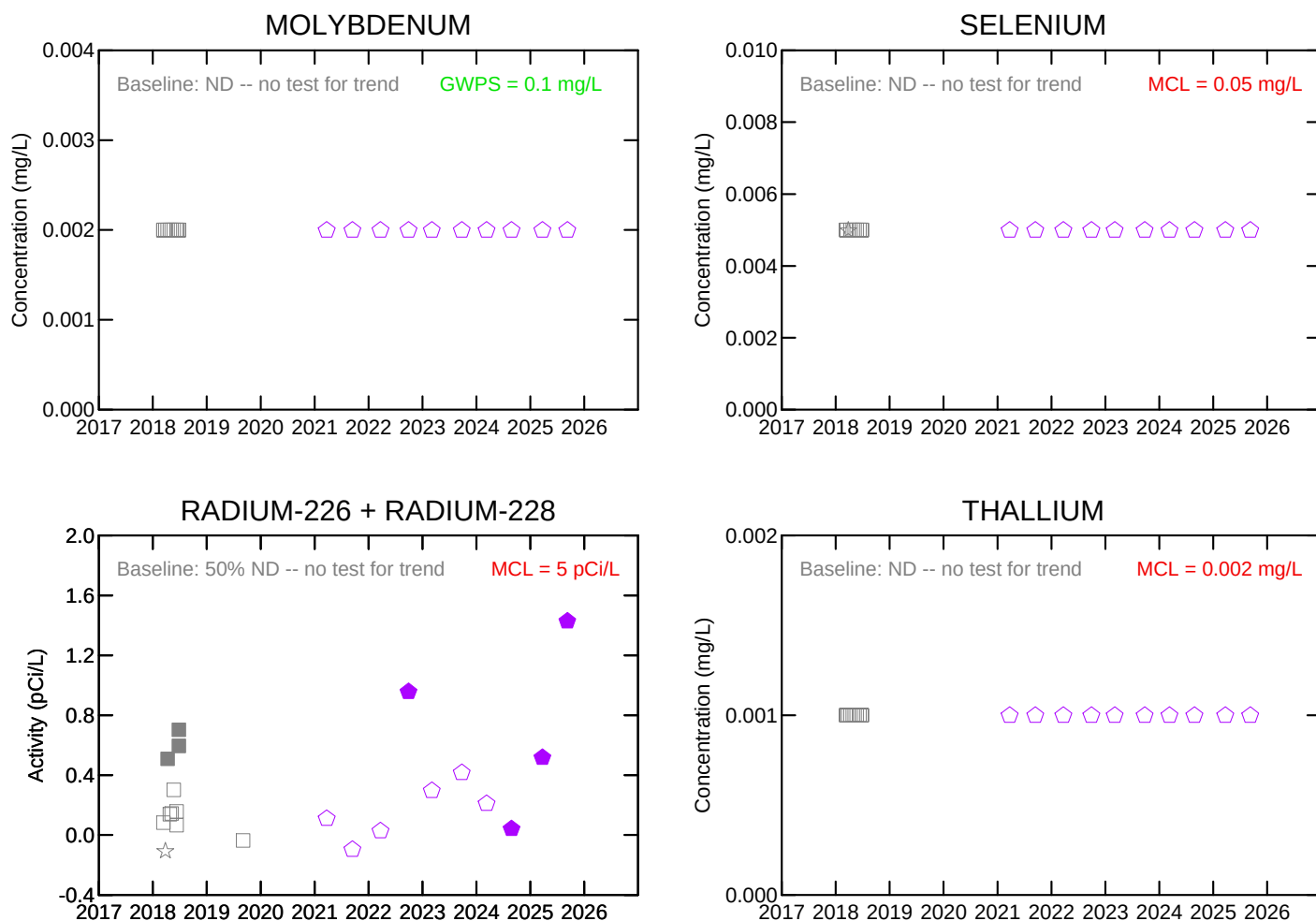


MidAmerican Energy Company
 Louisa Generating Station
 Muscatine, Iowa

Project No. **12575233**
 Date: **Dec 16 2025**

**MW-221A -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

figure 2.d



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- ▼ Baseline J-qualified value
- ◆ Assessment Monitoring Result
- MCL (Maximum Contaminant Level)
- GWPS (Groundwater Protection Standard)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

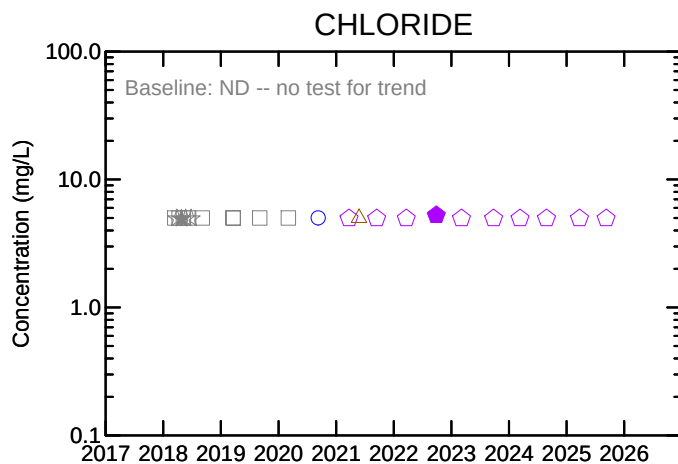
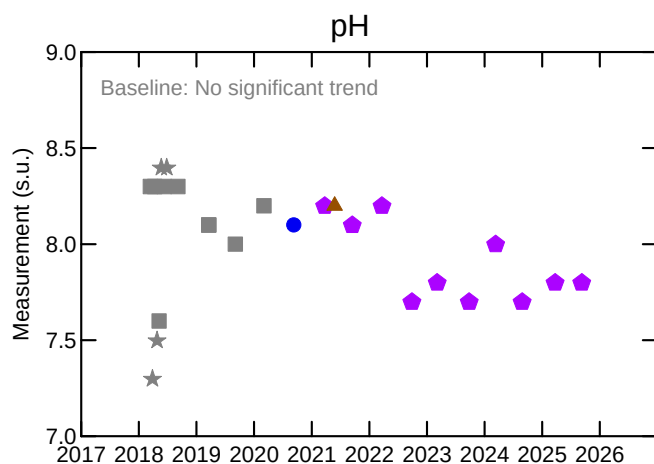
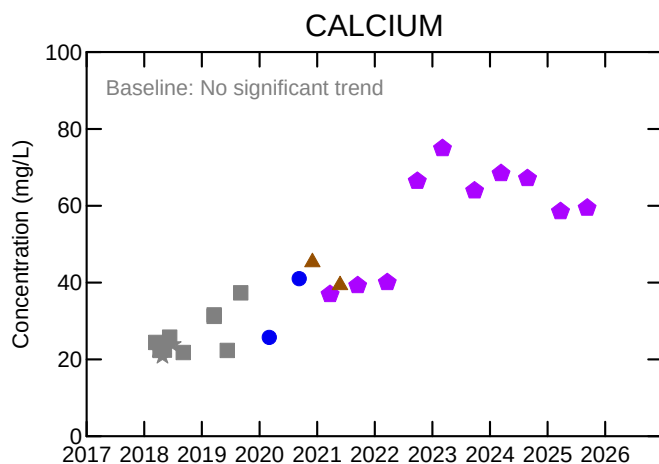
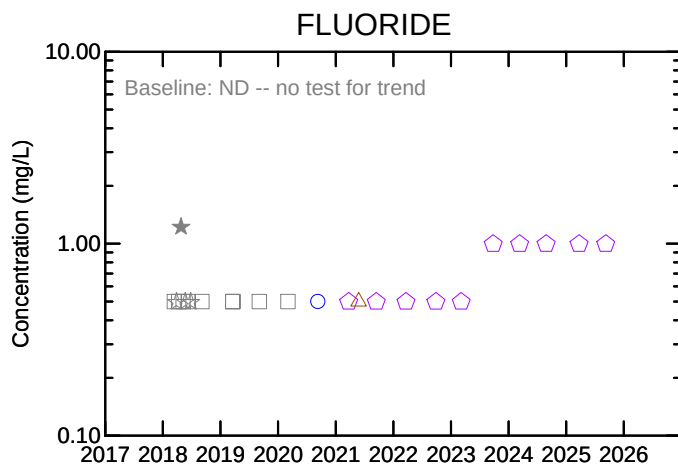
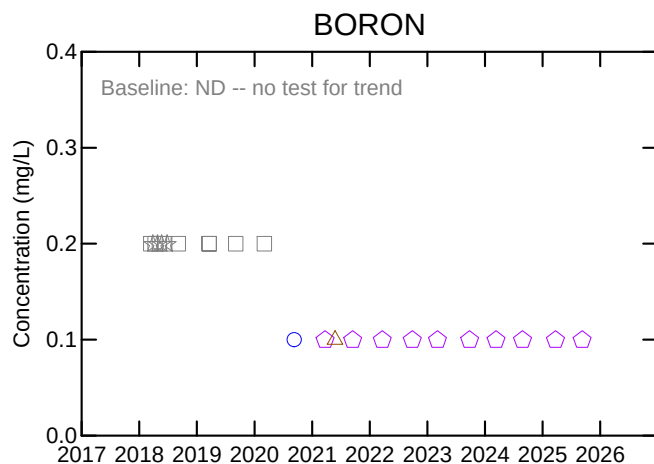


MidAmerican Energy Company
 Louisa Generating Station
 Muscatine, Iowa

**MW-221A -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
 Date: **Dec 16 2025**

figure 2.e



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calcs)
- ▼ Baseline J-qualified value
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

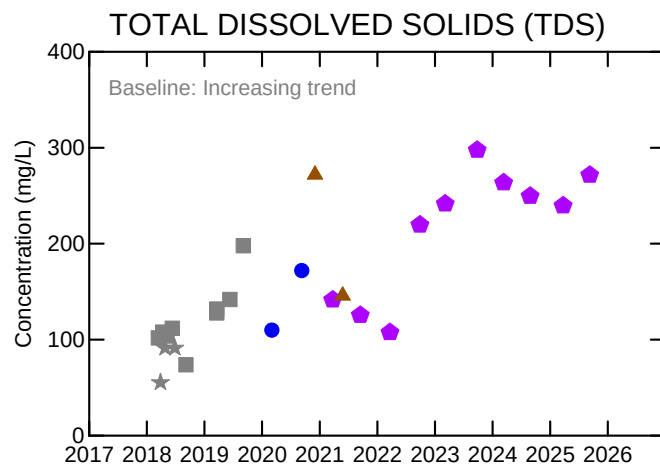
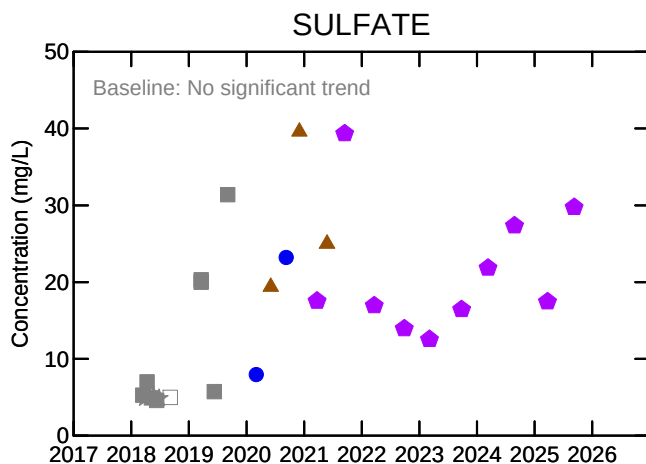


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-230 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 3.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

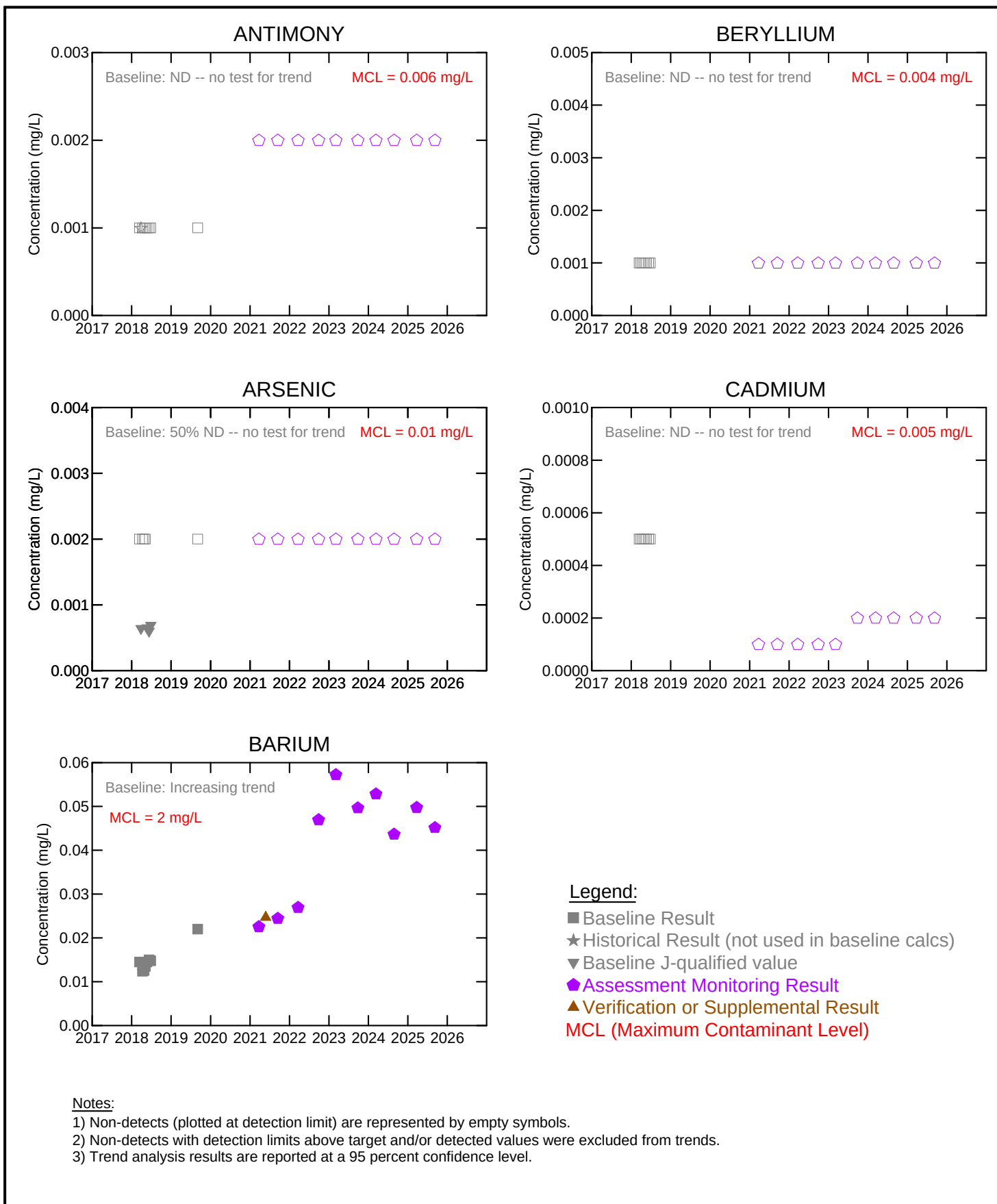


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-230 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 3.b

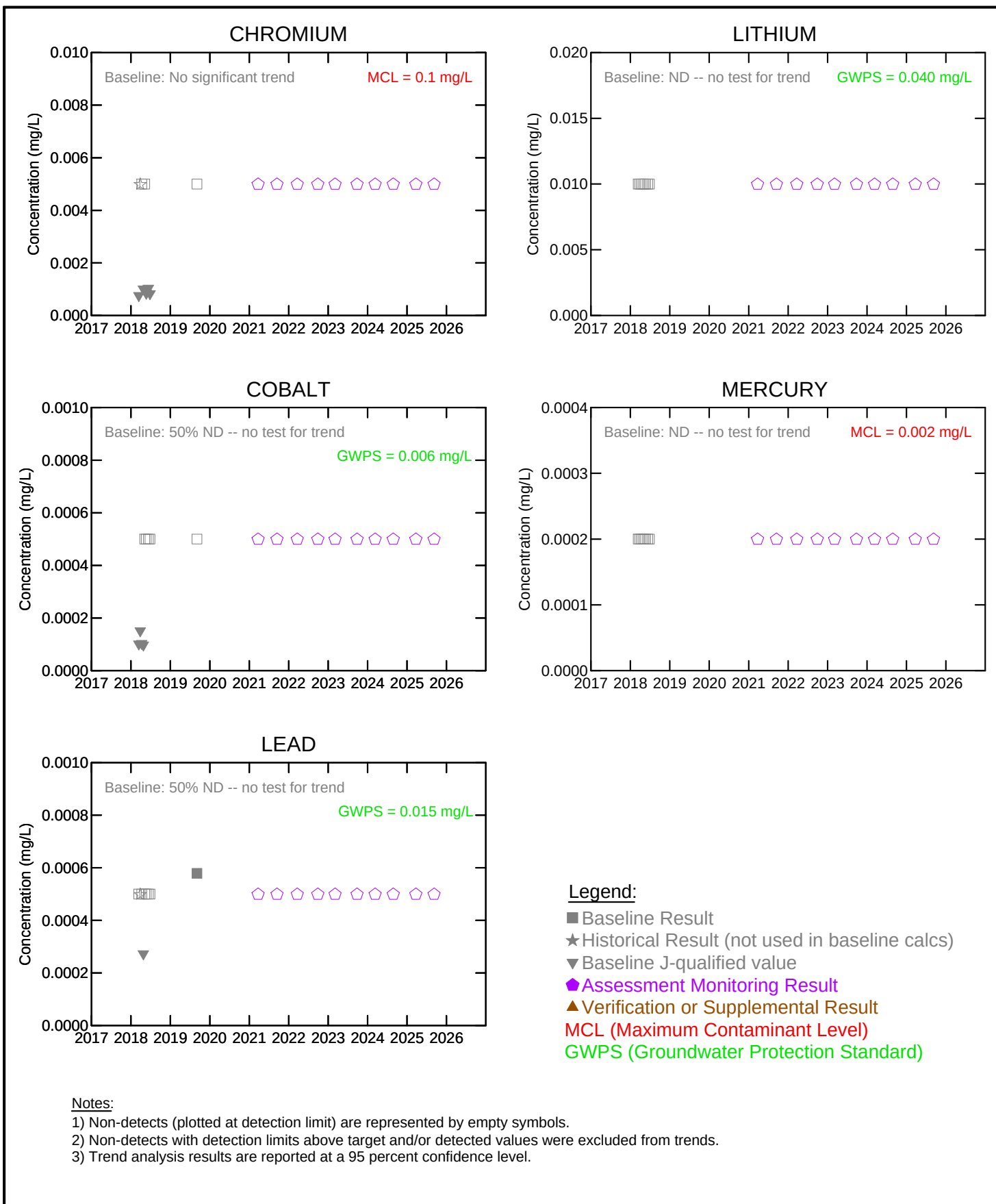


MidAmerican Energy Company
 Louisa Generating Station
 Muscatine, Iowa

**MW-230 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
 Date: **Dec 16 2025**

figure 3.c

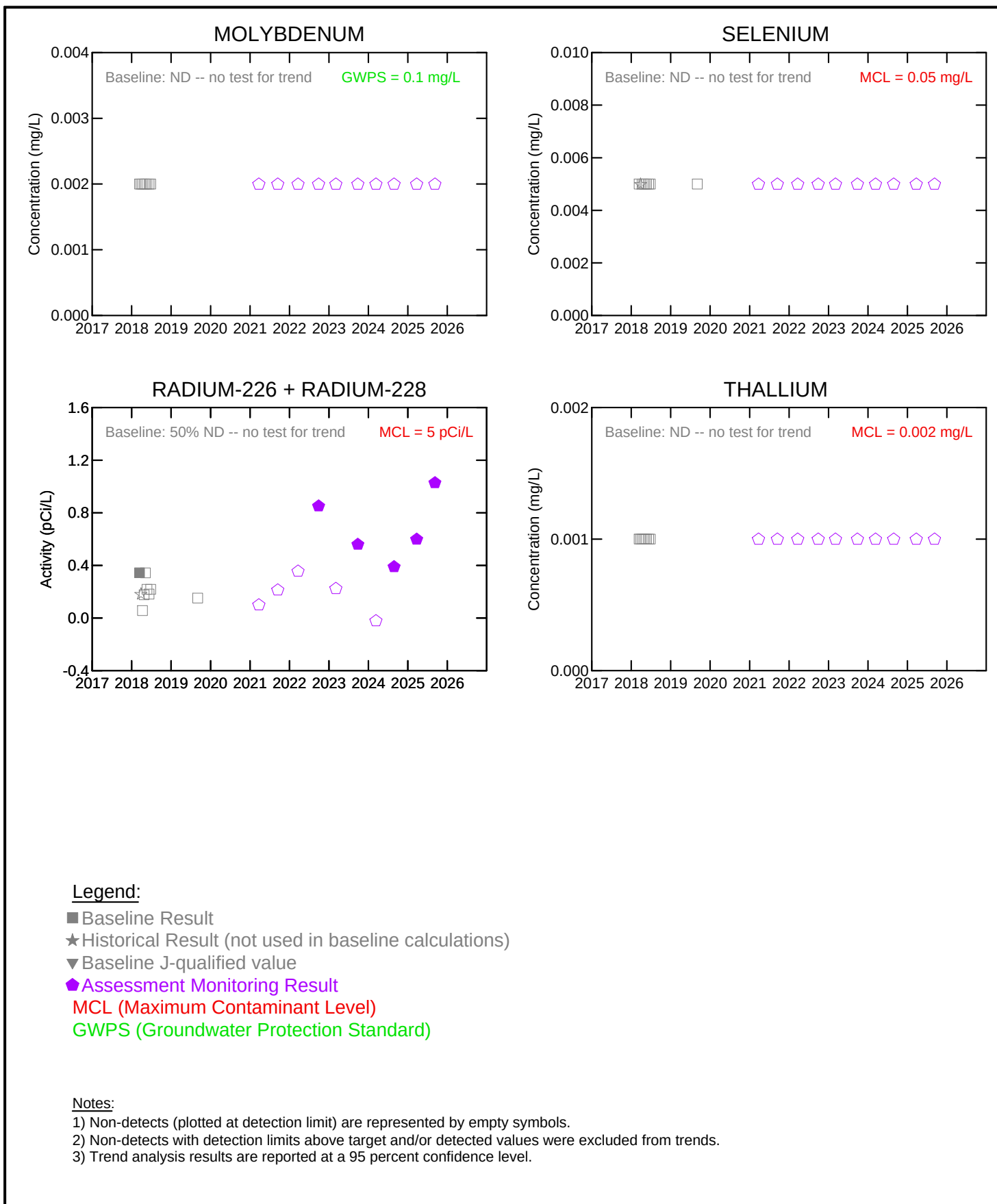


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-230 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 3.d

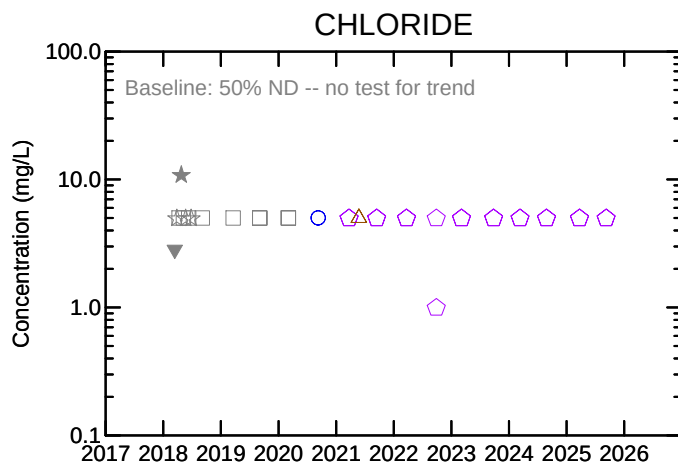
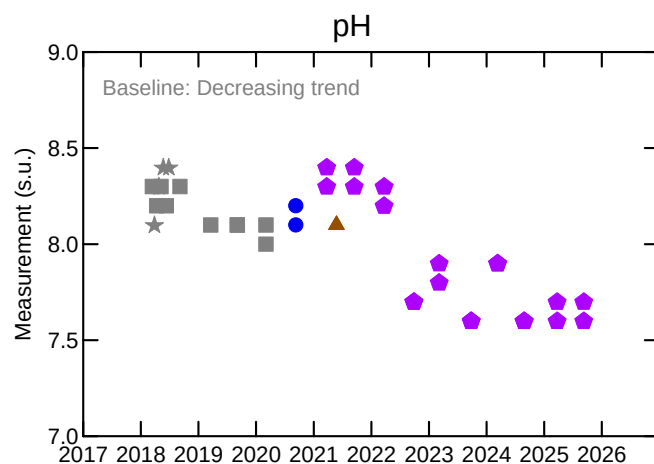
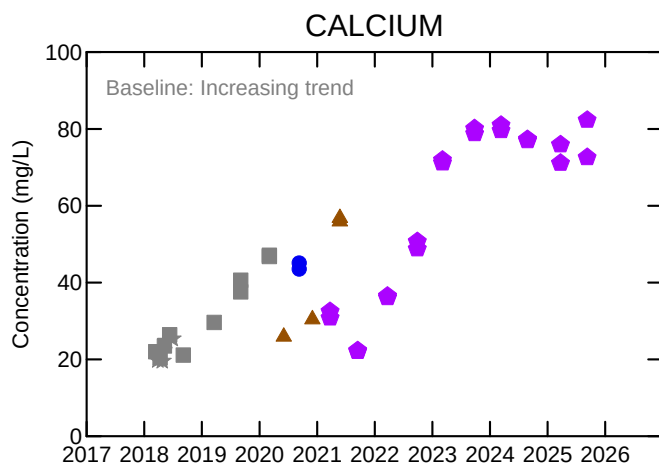
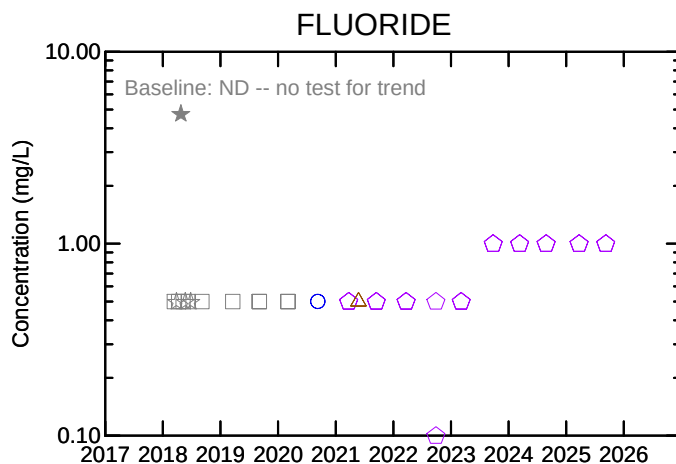
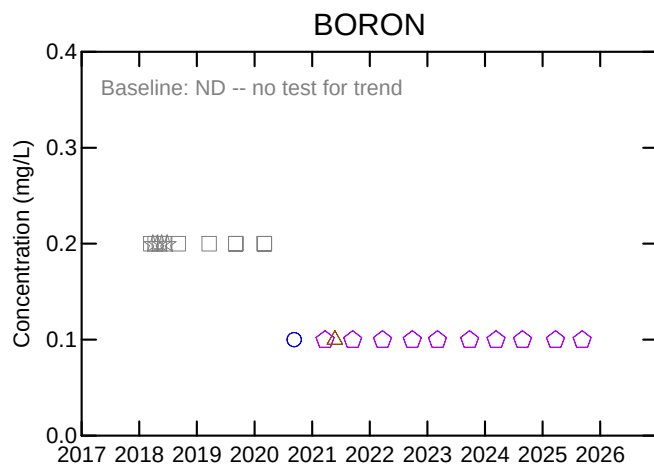


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-230 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 3.e



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calcs)
- ▼ Baseline J-qualified value
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

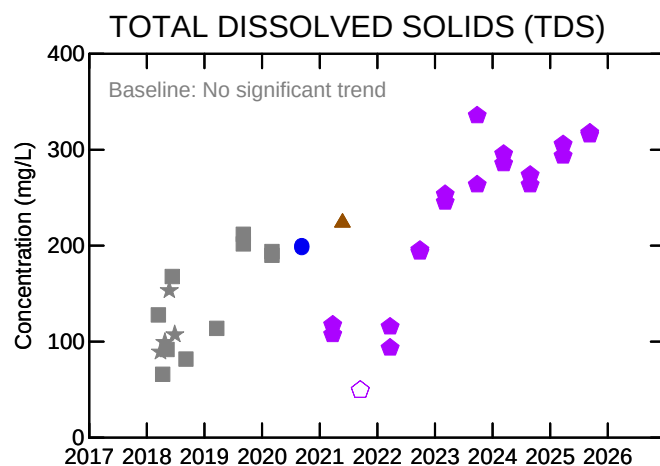
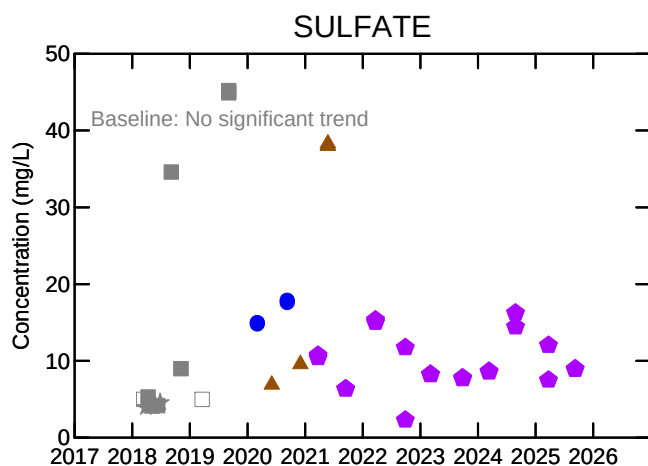


MidAmerican Energy Company
Louisiana Generating Station
Muscatine, Iowa

**MW-231 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 4.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

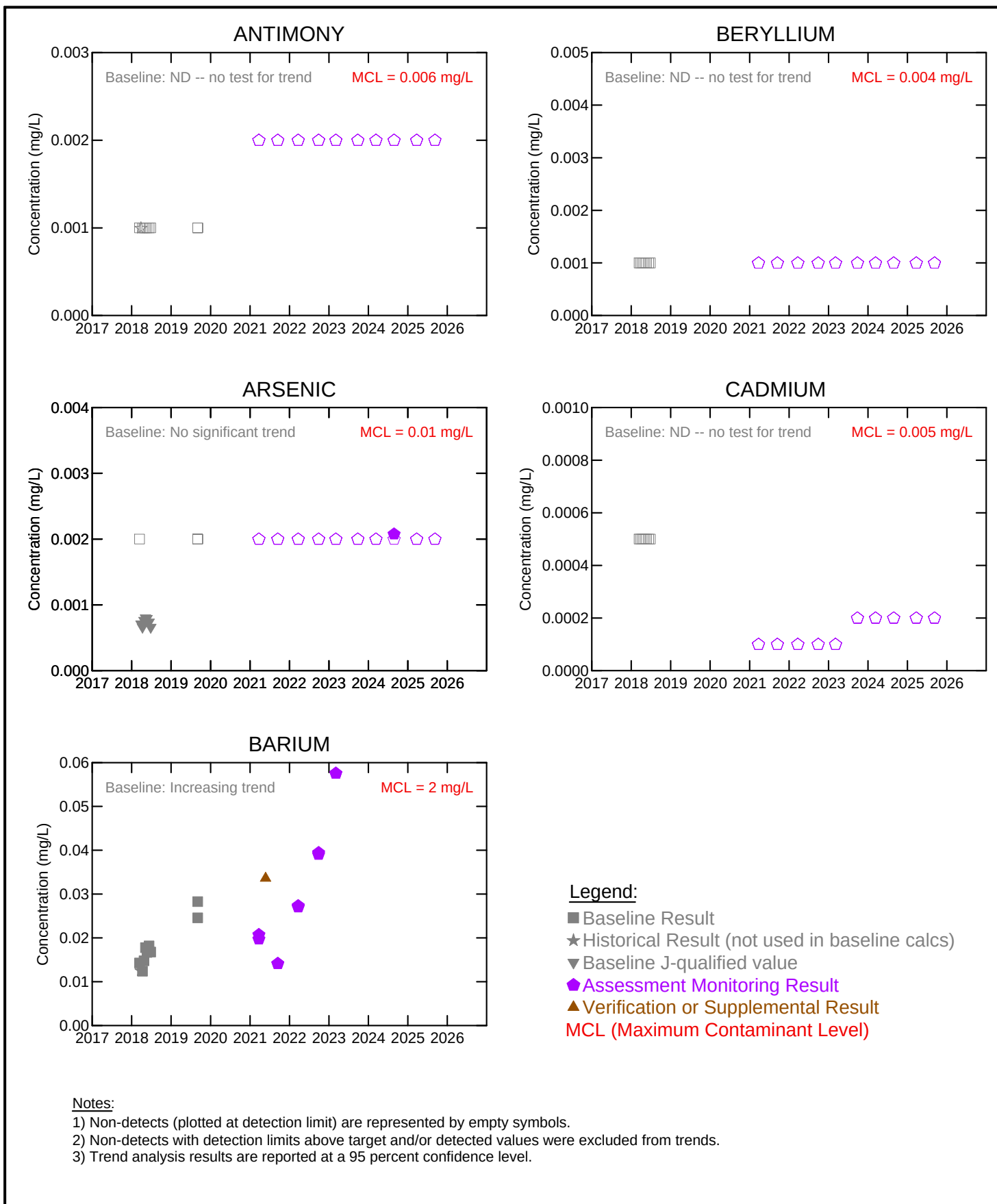


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-231 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 4.b

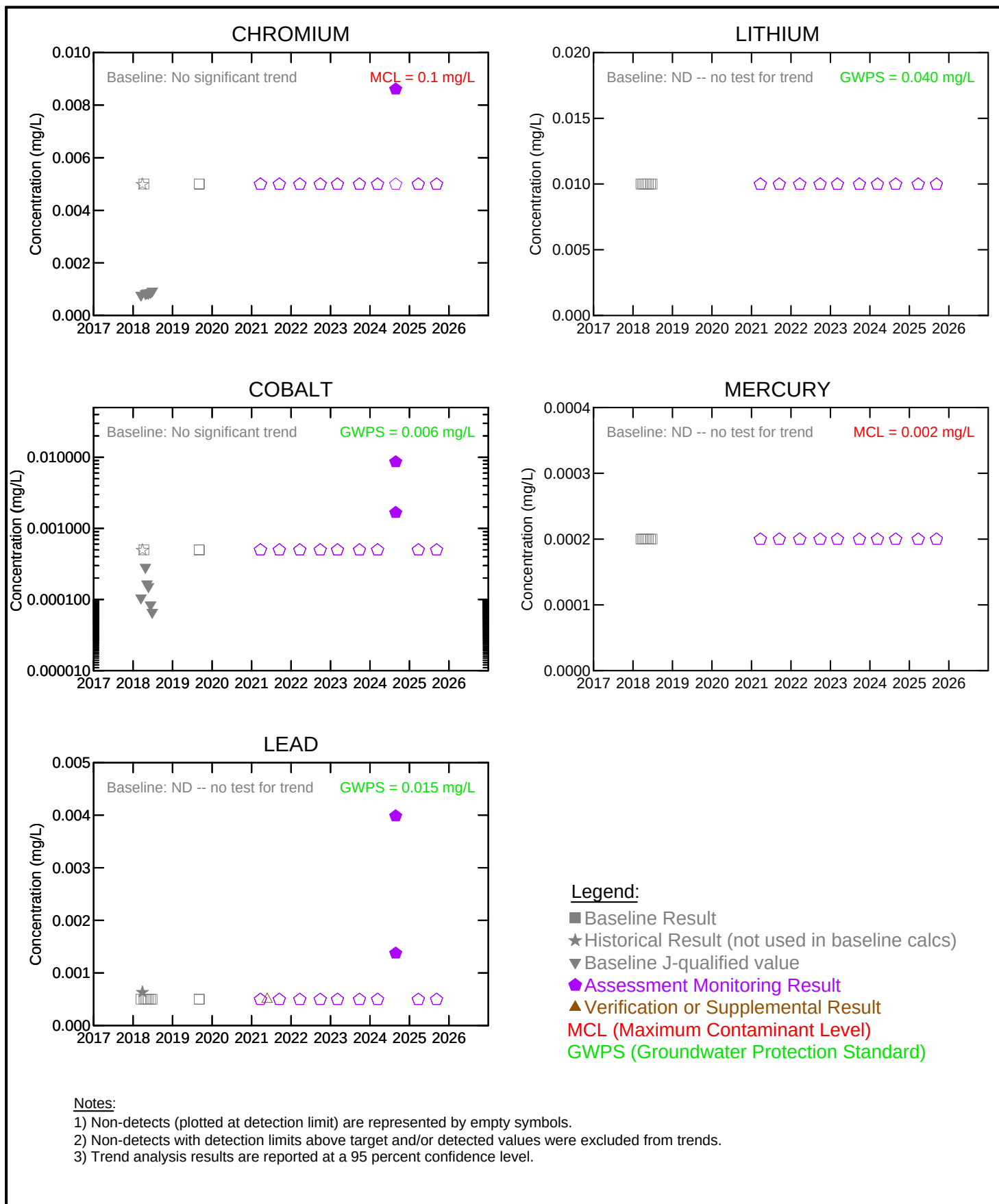


MidAmerican Energy Company
 Louisa Generating Station
 Muscatine, Iowa

**MW-231 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
 Date: **Dec 16 2025**

figure 4.c

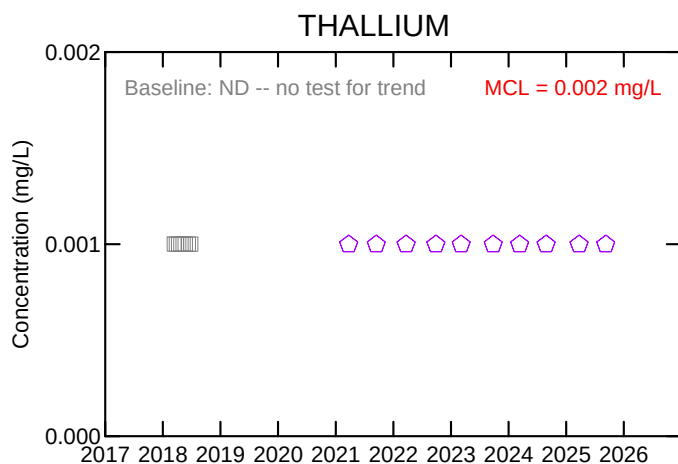
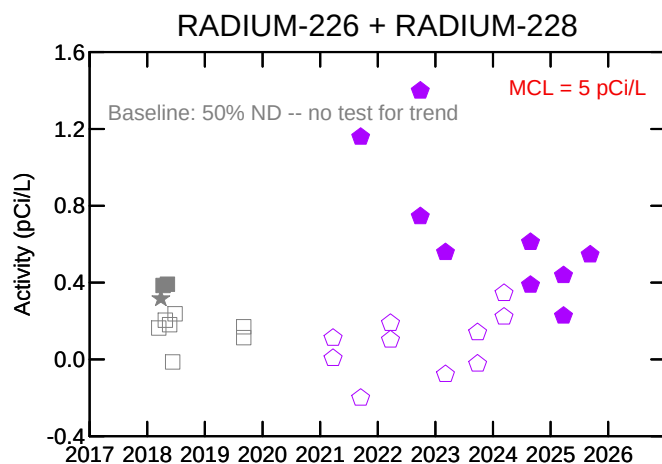
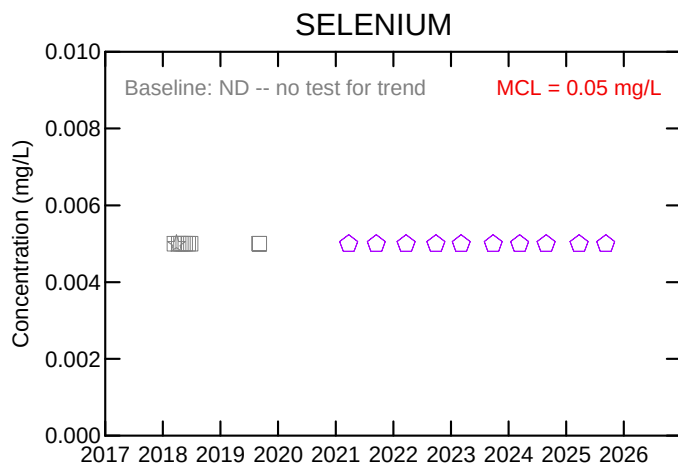
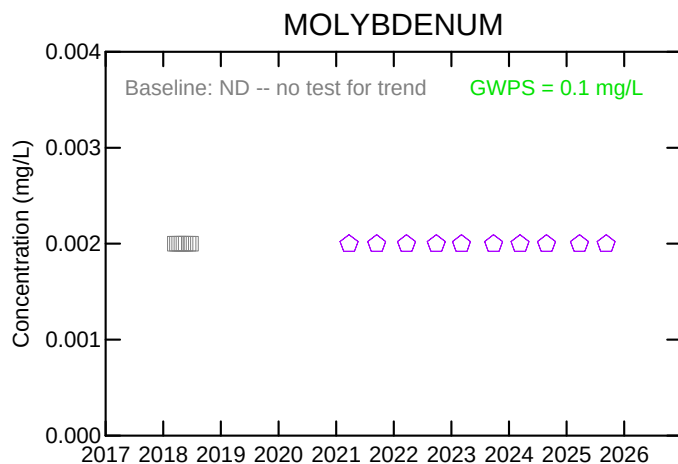


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-231 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 4.d



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- ▼ Baseline J-qualified value
- ◆ Assessment Monitoring Result
- MCL (Maximum Contaminant Level)
- GWPS (Groundwater Protection Standard)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

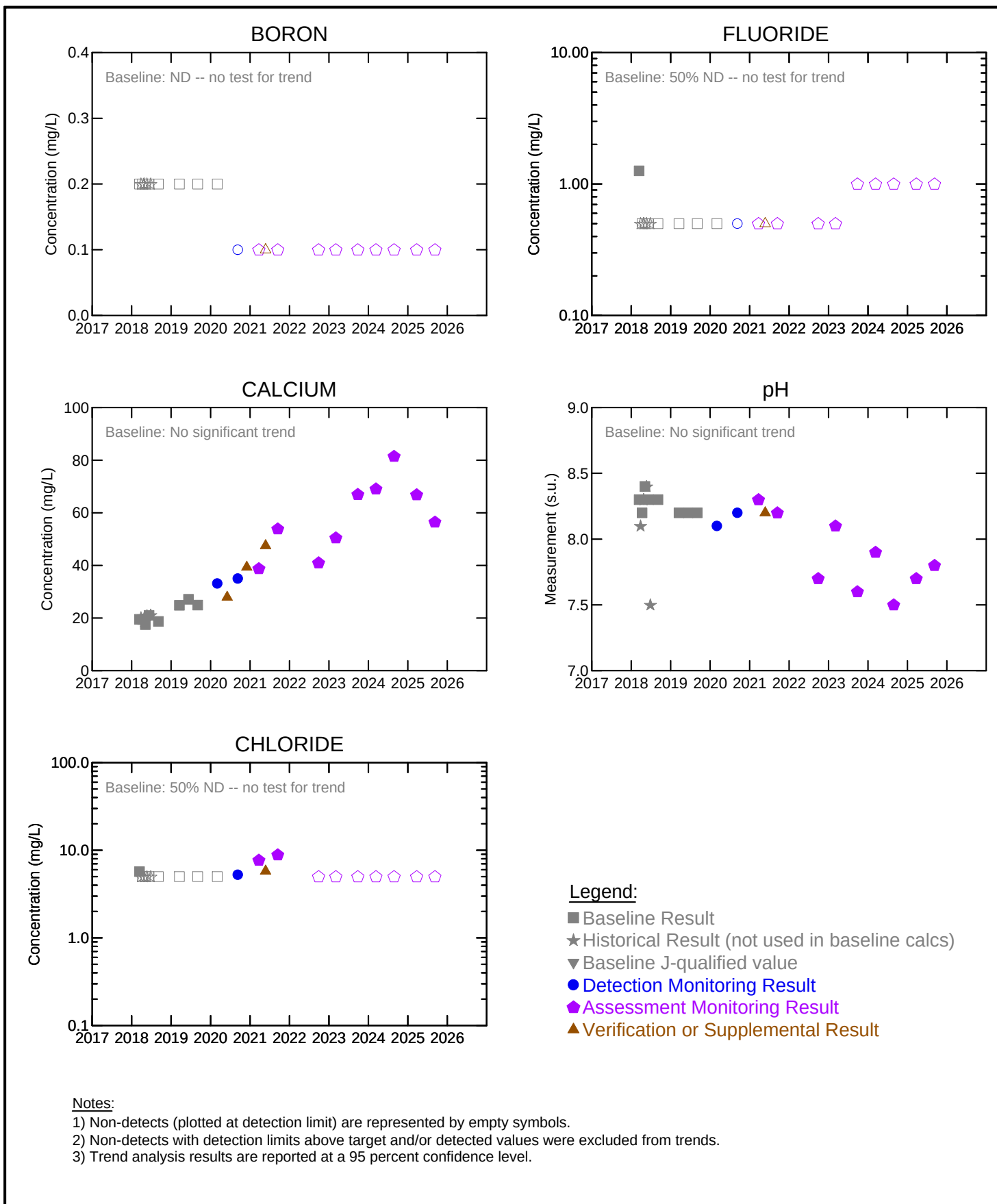


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-231 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 4.e

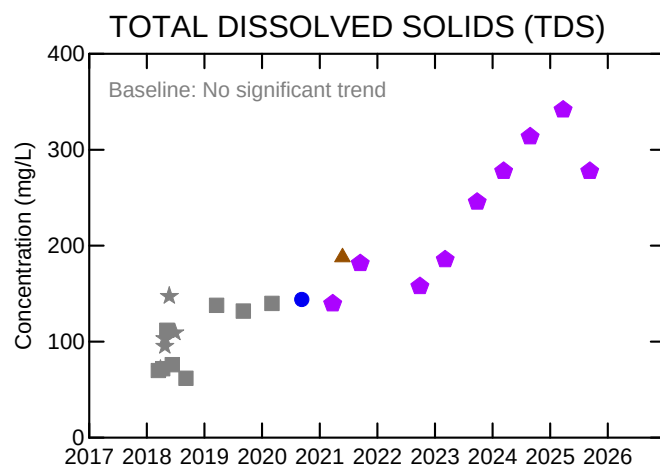
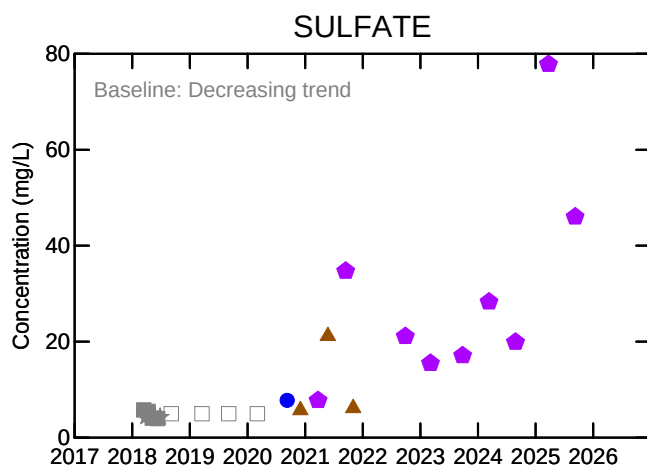


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-232 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 5.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

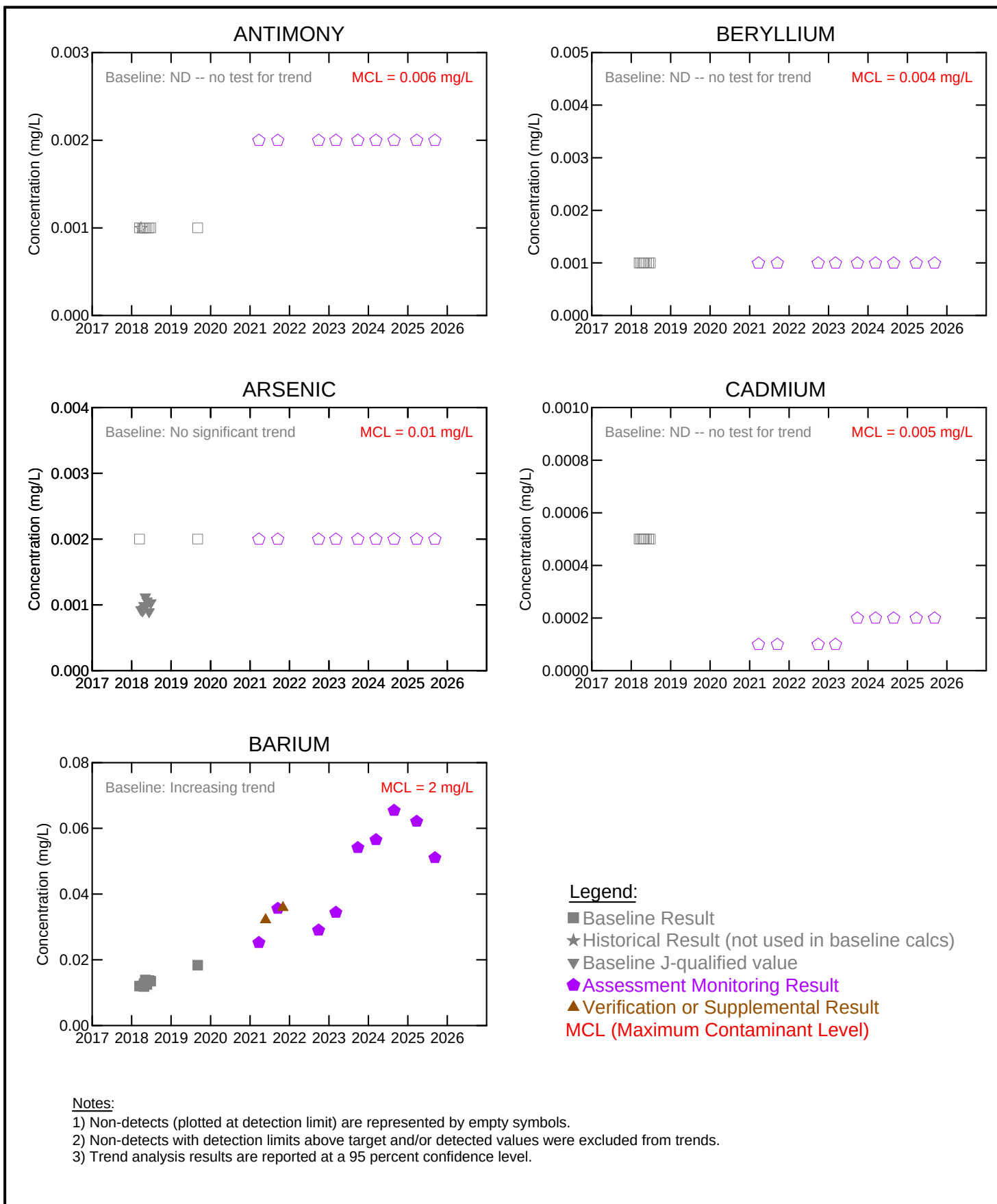


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-232 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 5.b

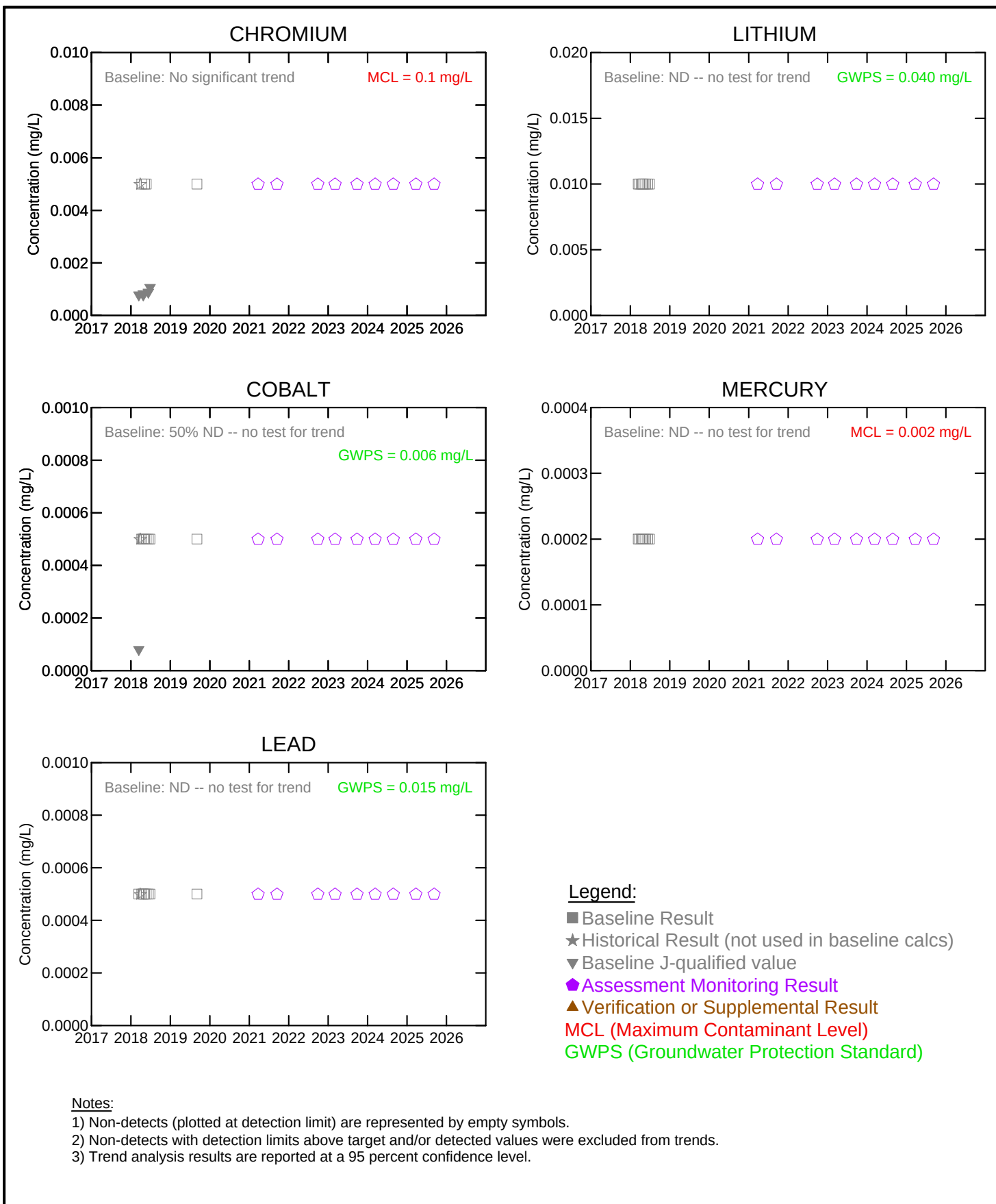


MidAmerican Energy Company
 Louisa Generating Station
 Muscatine, Iowa

**MW-232 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
 Date: **Dec 16 2025**

figure 5.c

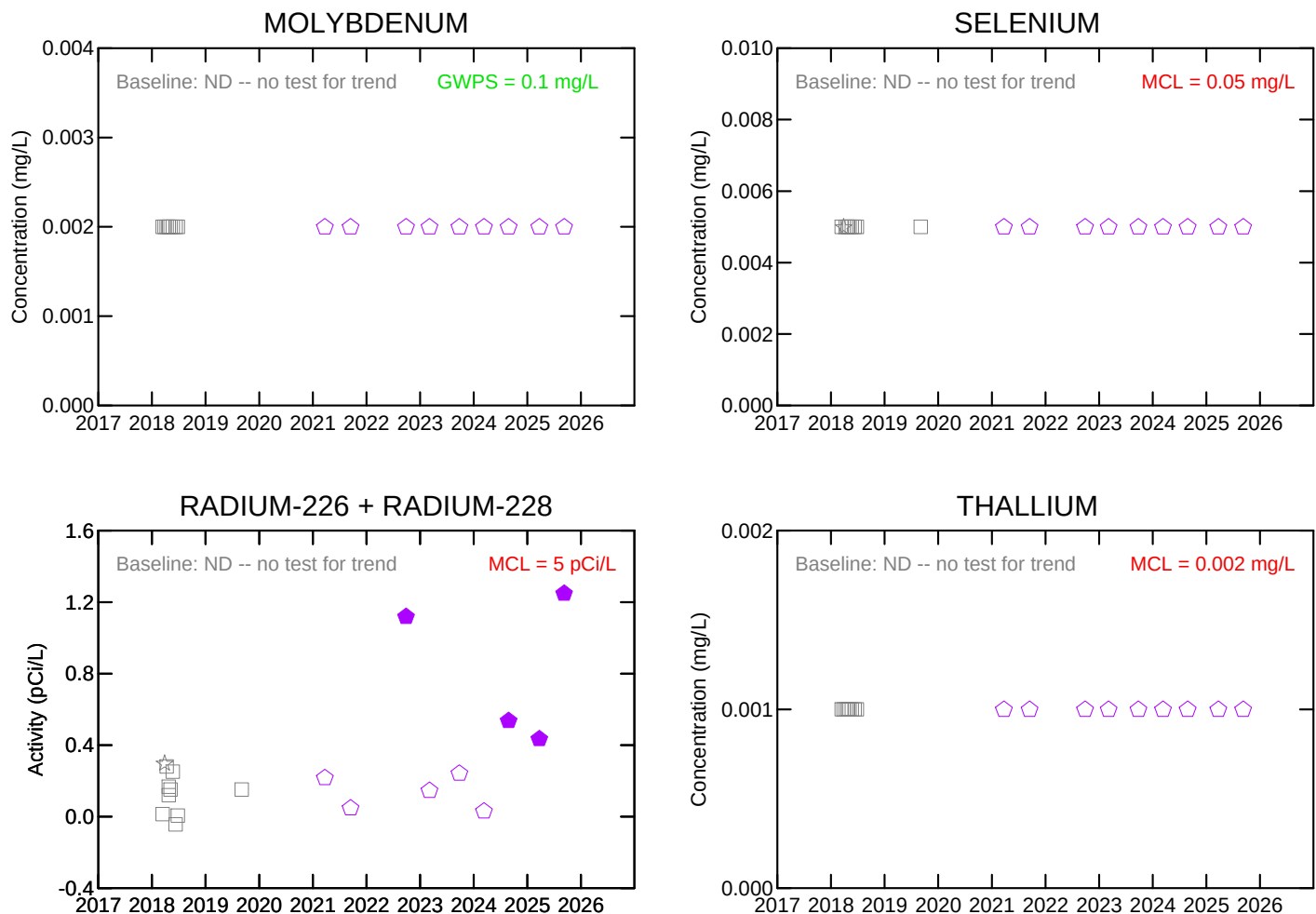


MidAmerican Energy Company
Louisia Generating Station
Muscatine, Iowa

**MW-232 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. 12575233
Date: Dec 16 2025

figure 5.d



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- ▼ Baseline J-qualified value
- ◆ Assessment Monitoring Result
- MCL (Maximum Contaminant Level)
- GWPS (Groundwater Protection Standard)

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

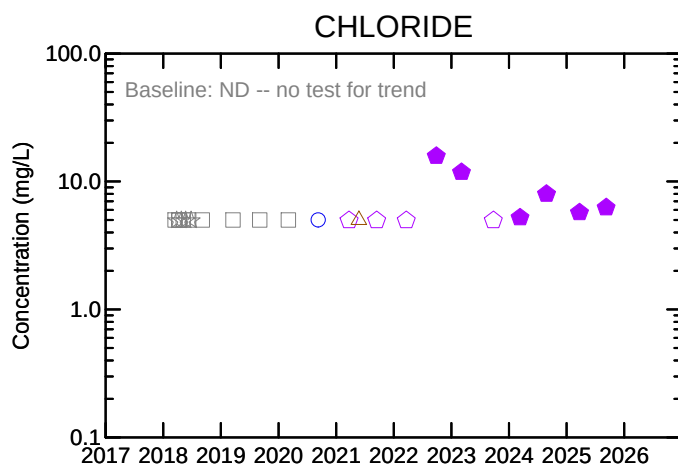
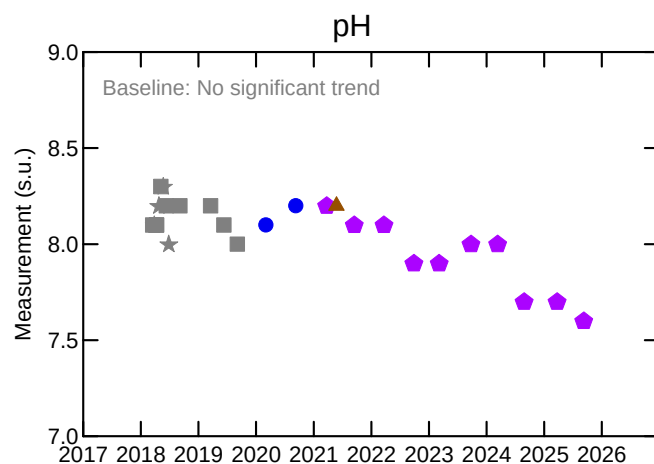
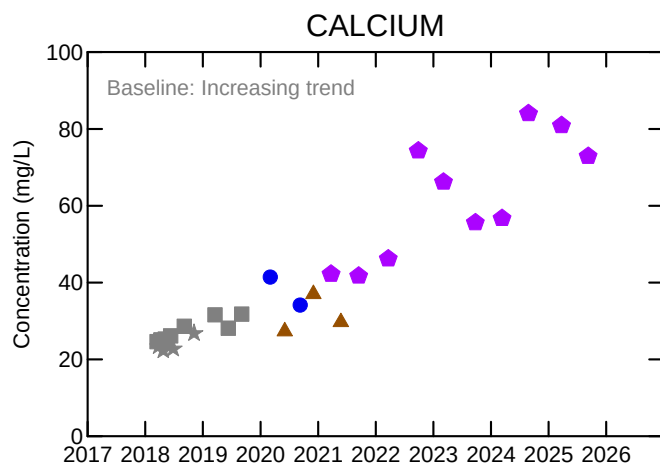
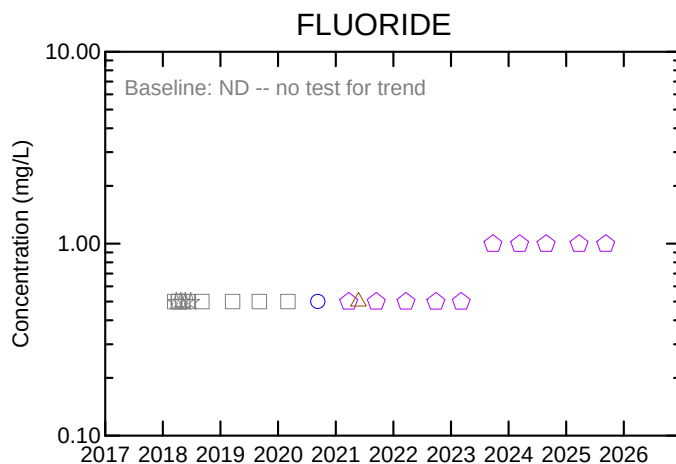
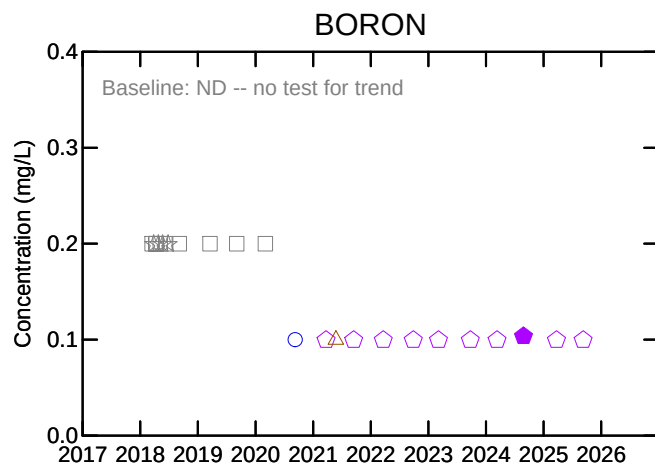


MidAmerican Energy Company
Louisia Generating Station
Muscatine, Iowa

**MW-232 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 5.e



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calcs)
- ▼ Baseline J-qualified value
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

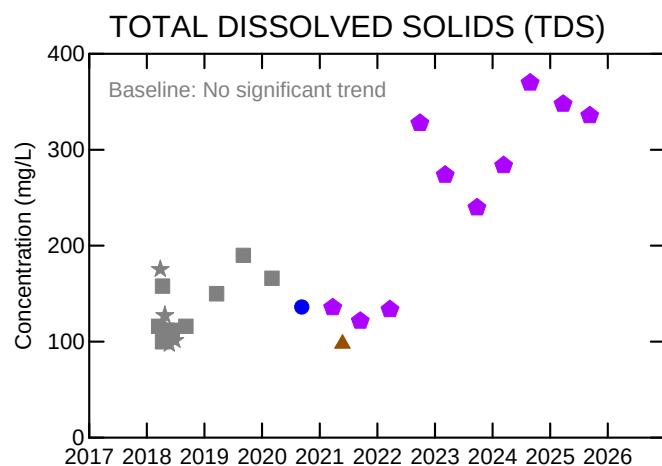
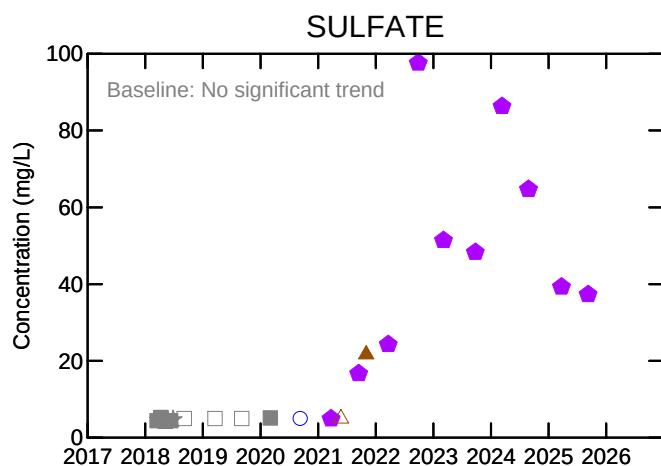


MidAmerican Energy Company
Louisiana Generating Station
Muscatine, Iowa

**MW-233 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 6.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

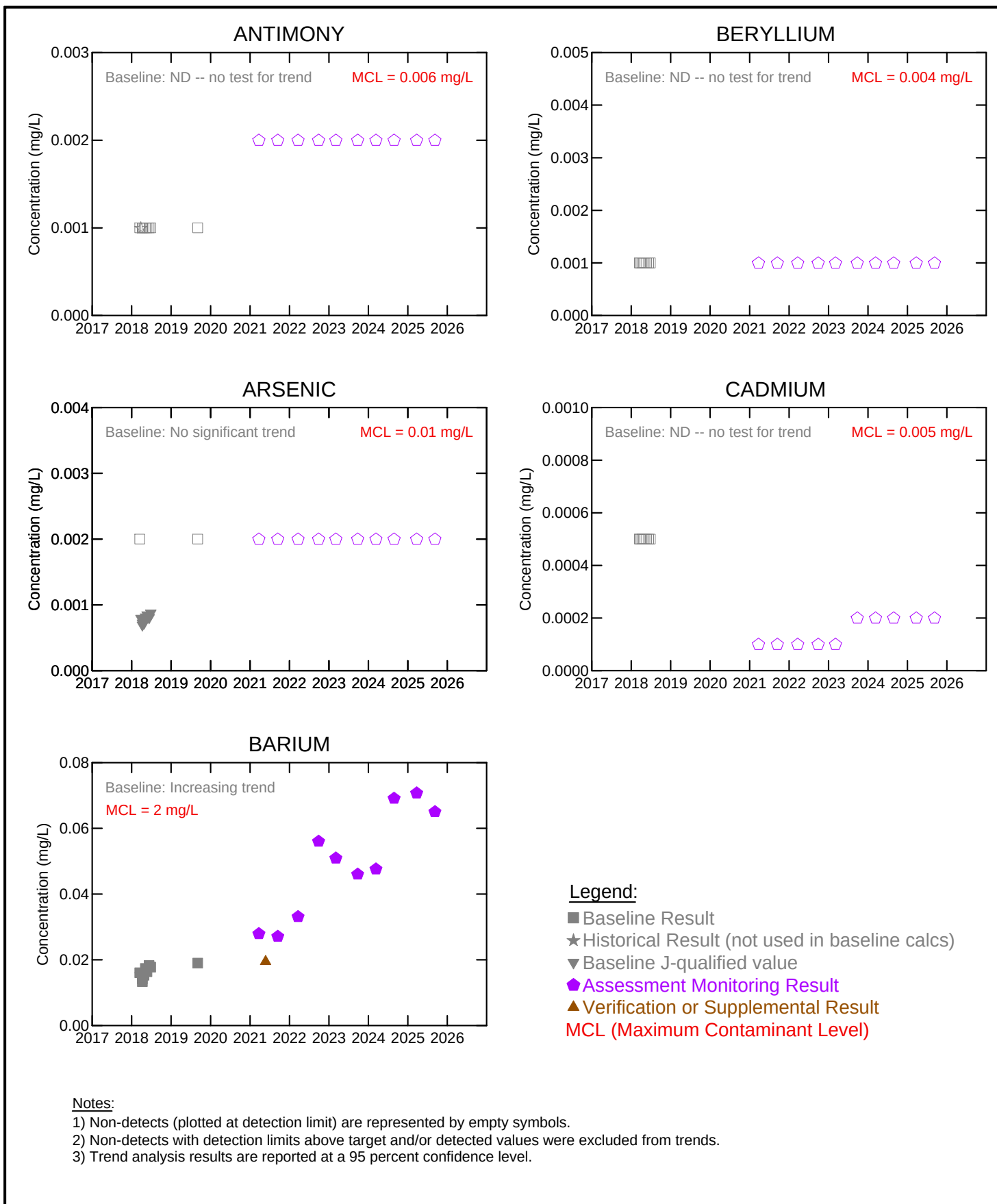


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-233 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 6.b

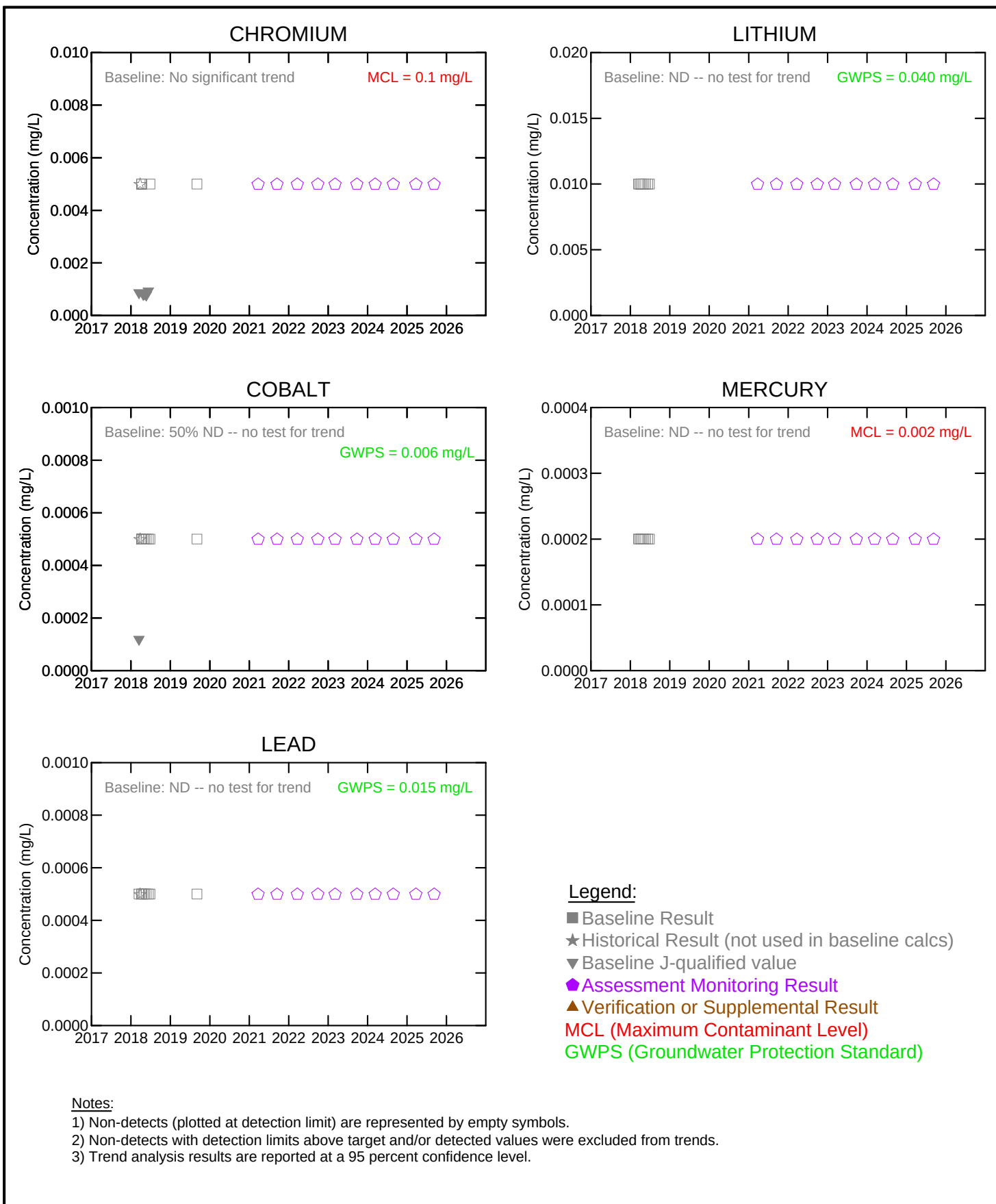


MidAmerican Energy Company
 Louisa Generating Station
 Muscatine, Iowa

**MW-233 -- APPENDIX IV PARAMETERS
 ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
 Date: **Dec 16 2025**

figure 6.c

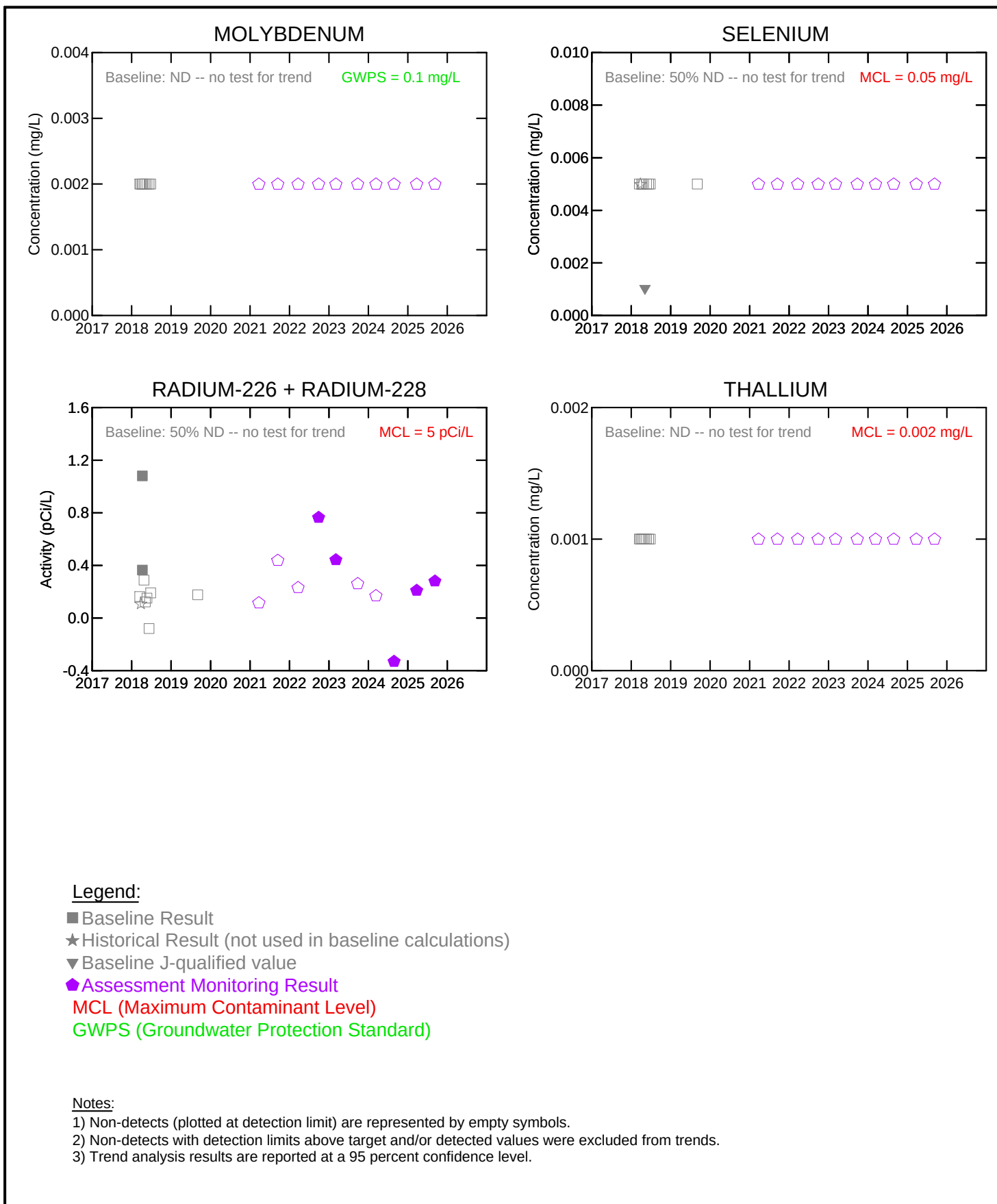


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-233 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 6.d

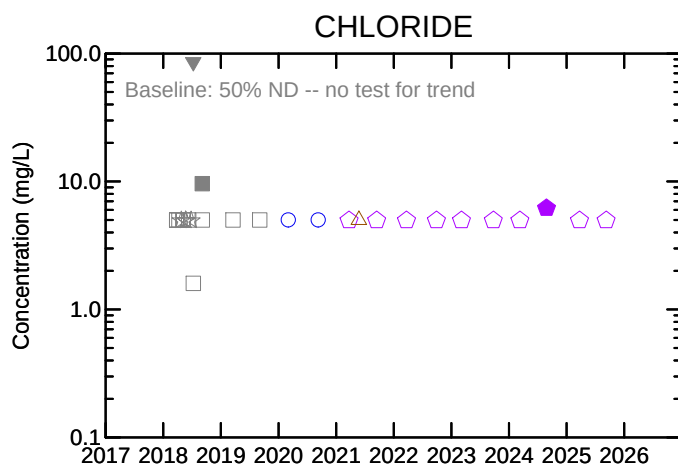
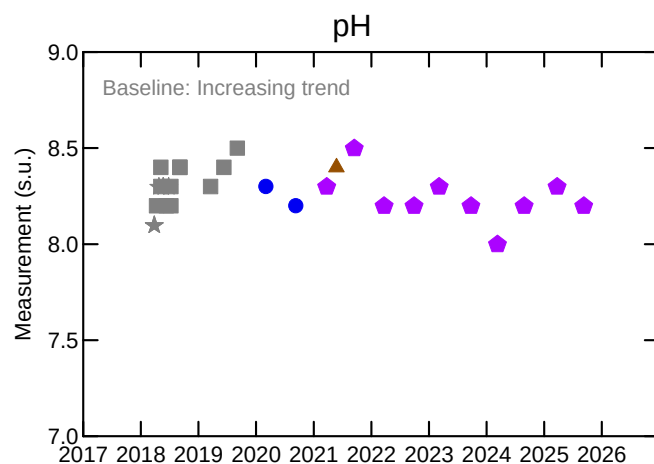
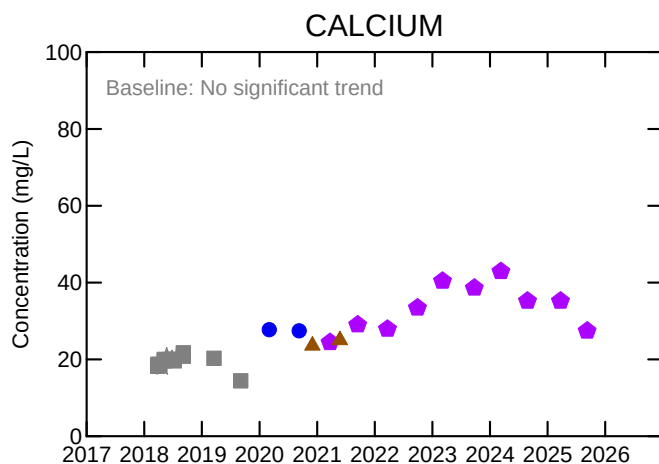
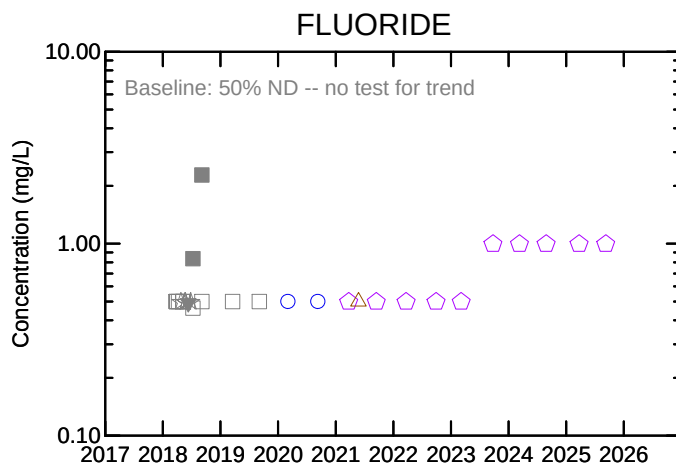
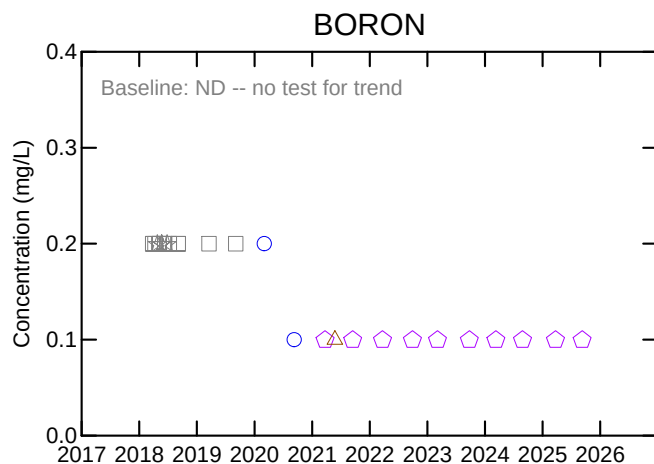


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-233 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 6.e



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calcs)
- ▼ Baseline J-qualified value
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

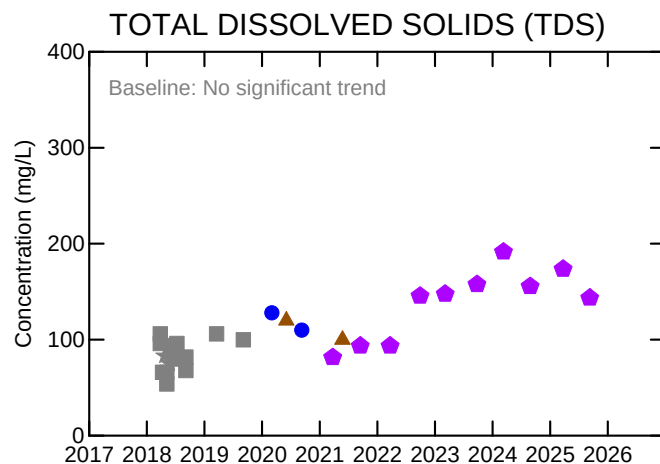
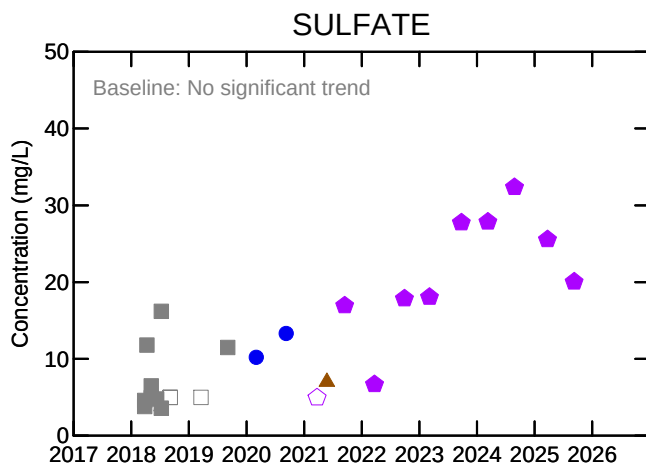


MidAmerican Energy Company
Louisia Generating Station
Muscatine, Iowa

**MW-234 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 7.a



Legend:

- Baseline Result
- ★ Historical Result (not used in baseline calculations)
- Detection Monitoring Result
- ◆ Assessment Monitoring Result
- ▲ Verification or Supplemental Result

Notes:

- 1) Non-detects (plotted at detection limit) are represented by empty symbols.
- 2) Non-detects with detection limits above target and/or detected values were excluded from trends.
- 3) Trend analysis results are reported at a 95 percent confidence level.

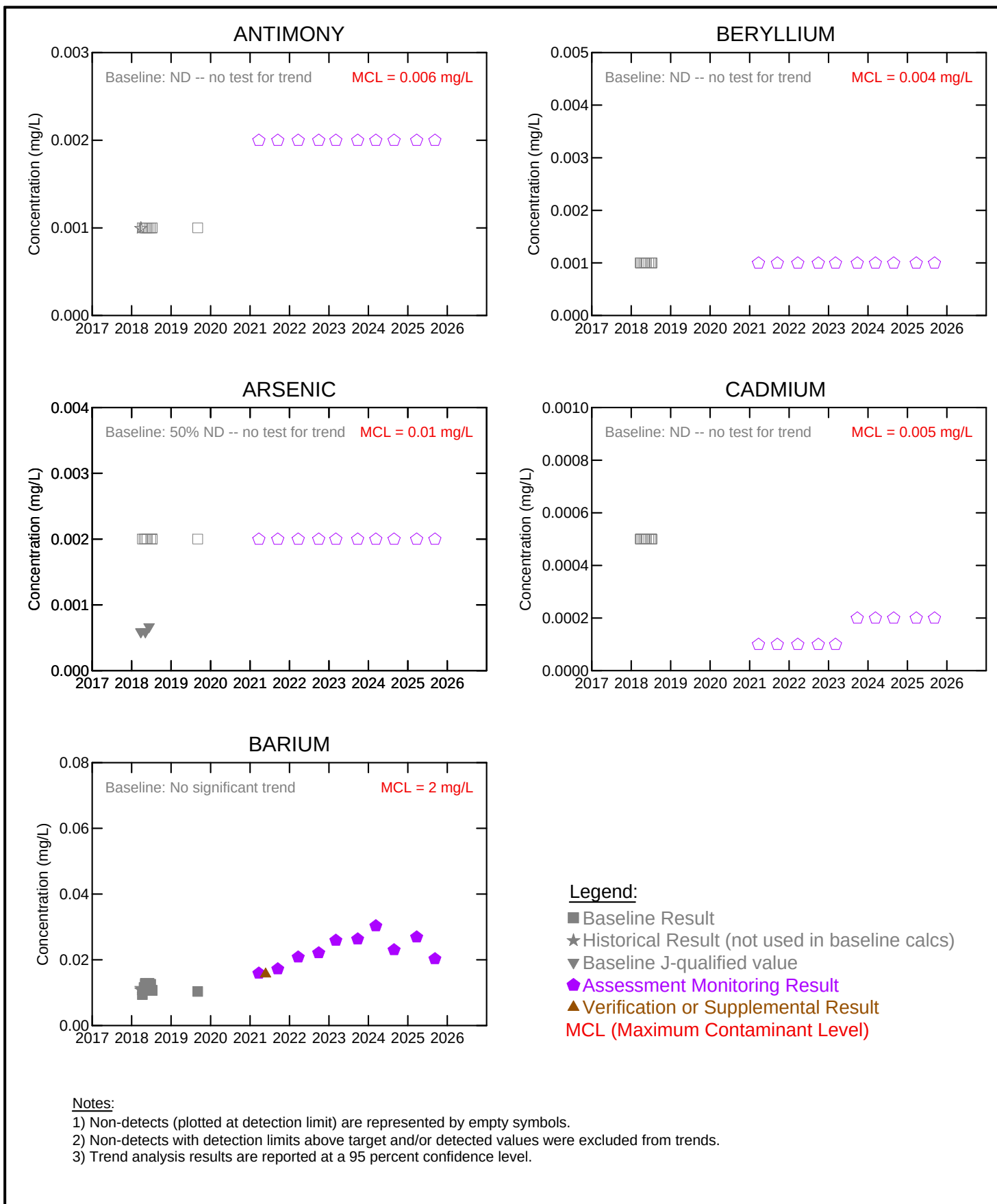


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-234 -- APPENDIX III PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 7.b

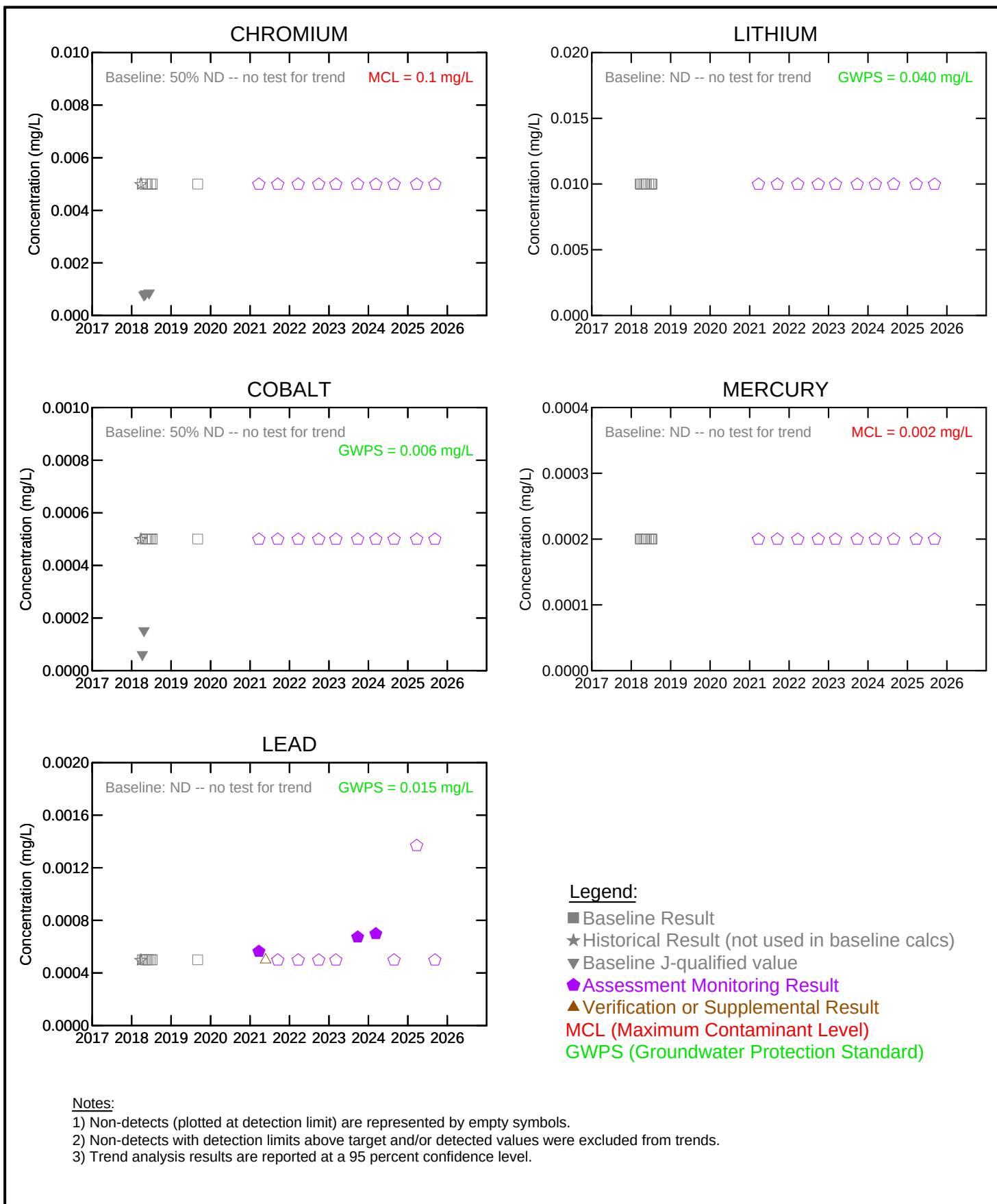


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-234 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 7.c

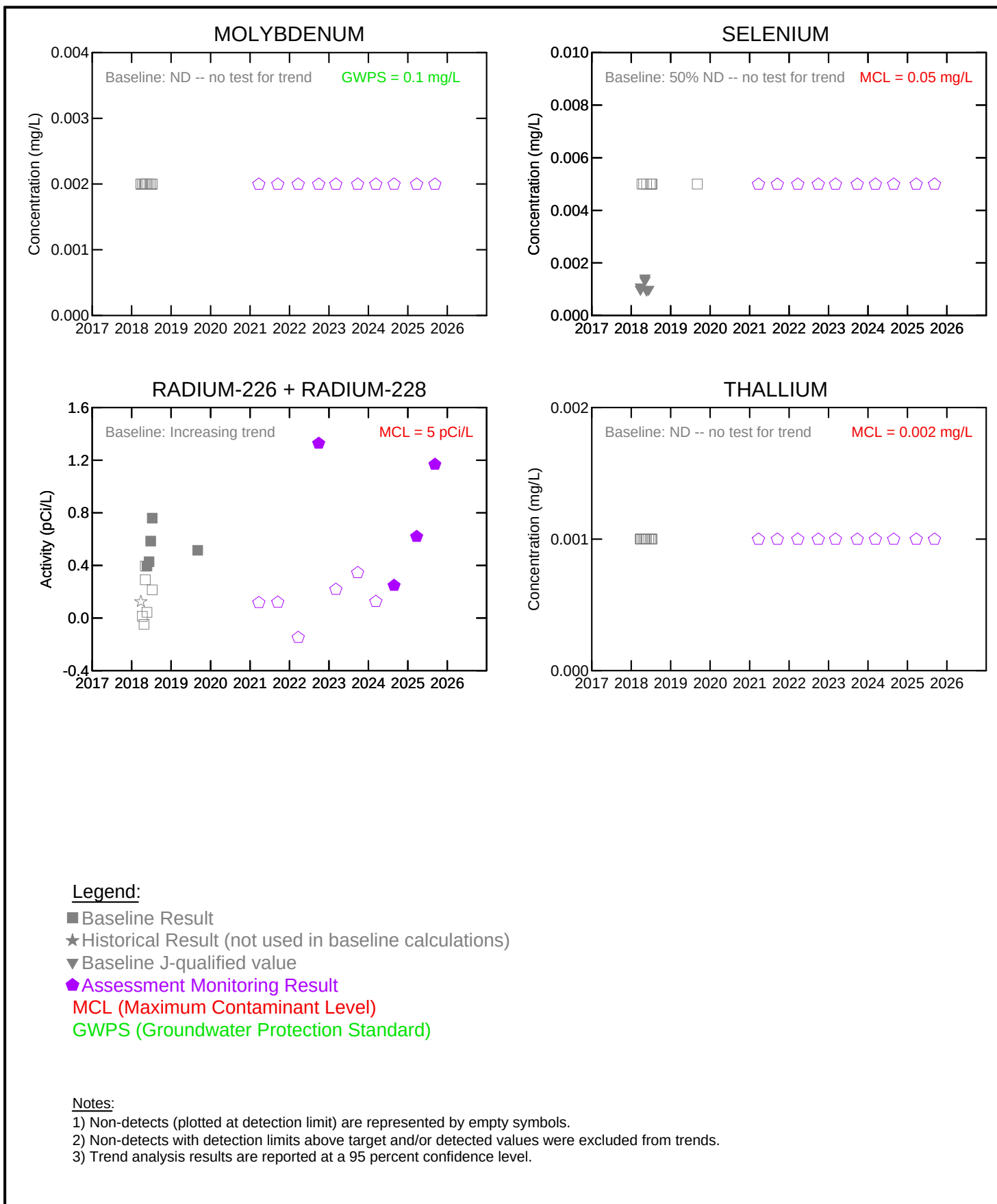


MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-234 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 7.d



MidAmerican Energy Company
Louisa Generating Station
Muscatine, Iowa

**MW-234 -- APPENDIX IV PARAMETERS
ANALYTE CONCENTRATION vs. TIME**

Project No. **12575233**
Date: **Dec 16 2025**

figure 7.e

Appendix D

**Groundwater Analytical Data
(March 2018 through 2025)**

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:			MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A
Sample ID:			MW-213A_18_03_01	MW-213A_18_03_2	MW-213A_18_04_1	MW-213A_18_04_2	MW-213A_18_05_1	MW-213A_05_2	MW-213A_18_06_01	MW-213A_18_06_02	MW-213A_18_09	MW-213A_18_11	MW-213A_19_03	MW-213A_19_06	MW-213A_19_09	MW-213A_20_03
Sample Date:			3/14/2018	3/28/2018	4/10/2018	4/26/2018	5/8/2018	5/23/2018	6/11/2018	6/27/2018	9/6/2018	11/6/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020
Site-Specific GWPS																
Parameters	Units															
Appendix III																
Boron	mg/L	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	--	0.200 U	--	0.200 U	0.200 U
Calcium	mg/L	NA	38.9	35	35.4	35.2	38.1	37.8	44.2	42.4	42.0	--	49.5	58.4	42.3	32.8
Chloride	mg/L	NA	5.22	3.23 J	5 U	3.32 J	3.4 J	4.88 J	5.58	5.6	5.51	--	6.95	--	5.00 U	5.00 U
Fluoride	mg/L	4	0.588	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.500 U	--	0.500 U	--	0.500 U	0.500 U
pH, lab	s.u.	NA	7.7 J	7.9 J	7.8 J	7.9 J	8 J	8 J	8 J	7.9 J	8.0 J	--	7.9 J	--	7.9 J	7.9 J
Sulfate	mg/L	NA	7.56	7.24	8.02	8.01	7.74	9.39	10.3	10.3	10.3	--	7.05	--	6.99	5.00 U
Total dissolved solids (TDS)	mg/L	NA	152	154	164	166	162	176	166	212	232	236	212	292	186	132
Appendix IV																
Antimony	mg/L	0.006	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.000446 J	0.001 U	0.001 U	--	--	--	--	0.00100 U	--
Arsenic	mg/L	0.01	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.000574 J	0.002 U	--	--	--	--	0.00200 U	--
Barium	mg/L	2	0.0306	0.0267	0.0238	0.0289	0.0299	0.0262	0.0312	0.0304	--	--	--	--	0.0325	--
Beryllium	mg/L	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--
Cadmium	mg/L	0.005	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	--	--
Chromium	mg/L	0.1	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0042 J	0.000815 J	0.005 U	--	--	--	--	0.00500 U	--
Cobalt	mg/L	0.006	0.000232 J	0.0005 U	0.0005 U	0.00021 J	0.000084 J	0.000134 J	0.000067 J	0.000063 J	--	--	--	--	0.000500 U	--
Lead	mg/L	0.015	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	0.000500 U	--
Lithium	mg/L	0.04	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--
Mercury	mg/L	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--	--	--	--	--	--
Molybdenum	mg/L	0.1	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--	--	--	--
Radium-226 & 228	pCi/L	5	0.524	0.101 U	0.245 U	0.291 U	0.565	0.424	0.405	0.38 U	--	--	--	--	0.0604 U	--
Selenium	mg/L	0.05	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	--	--	--	--	0.00500 U	--
Thallium	mg/L	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--
Field																
Conductivity, field	mS/cm	NA	0.31207	0.30543	0.28344	0.31001	0.29076	0.28454	0.43989	0.29785	0.317	0.43687	0.3777	0.412	0.353	0.254
Dissolved oxygen (DO), field	mg/L	NA	7.61	8.00	8.19	8.24	8.29	7.53	6.94	6.34	4.3	5.14	6.93	4.70	9.36	8.99
Oxidation reduction potential (ORP), field	millivolts	NA	46.1	198.9	203.0	186.3	159.0	193.3	173.7	185.2	245	155.3	264	176	112	233
pH, field	s.u.	NA	7.82	7.77	7.46	7.57	7.84	7.82	7.40	7.52	7.72	7.79	7.59	7.23	7.68	7.02
Temperature, ambient	Deg C	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	7.22
Temperature, field	Deg C	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	NA	14.57	12.57	12.26	15.02	16.22	15.33	15.24	16.37	14.16	12.84	13.15	14.35	14.04	11.49
Turbidity, field	NTU	NA	0.10	0.50	0	14.55	0.50	0.61	0.38	1.14	0	0.4	1.7	0.0	0.0	0
Notes:																
U - Not detected at the associated reporting limit.																
J - Estimated concentration.																
R - Rejected.																

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-213A	MW-221A	MW-221A
Sample ID:		MW-213A_20_09	MW-213A_21_03	MW-213A_21_05	MW-213_21_09	MW213A_22_03	MW-213A_22_09	MW-213A_23_03	MW-213A_23_03 Re1	MW-213A_23_03 Re2	MW-213A_23_09	MW-213A_24_03	MW-213A_24_08	MW-213A_25_03	MW-213A_25_09	MW-221A_18_03_01	FD-1_18_03_01
Sample Date:		9/9/2020	3/24/2021	5/26/2021	9/14/2021	3/23/2022	9/28/2022	3/6/2023	3/6/2023	3/6/2023	9/25/2023	3/11/2024	8/26/2024	3/24/2025	9/9/2025	3/14/2018	3/14/2018 (Duplicate)
Parameters	Units																
Appendix III																	
Boron	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	R	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.2 U	0.2 U
Calcium	mg/L	32.6	31.5	36.0	31.5	32.9	41.5	40.9	--	--	40.0	45.0	50.7	39.2	39.3	45.2	42.9
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.32	5.00 U	--	--	5.93	6.18	14.0	7.04	5.77	4.21 J	3.24 J
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	--	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.5 U	0.500 U
pH, lab	s.u.	8.0 J	8.0 J	8.0 J	8.0 J	8.0 J	7.6 J	8.0 J	--	--	7.8 J	8.0 J	7.8 J	7.9 J	8.0 J	7.7 J	7.7 J
Sulfate	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	6.70	5.47	--	--	7.71	7.24	18.5	13.3	9.01	11.7	10.9
Total dissolved solids (TDS)	mg/L	120	110	102	74.0	88.0	146	138	--	--	132	136	206	164	188	168	174
Appendix IV																	
Antimony	mg/L	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.001 U	0.00100 U
Arsenic	mg/L	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.00200 U
Barium	mg/L	--	0.0209	--	0.0207	0.0262	0.0299	0.0320	--	--	0.0310	0.0346	0.0343	0.0297	0.0292	0.032	0.0301
Beryllium	mg/L	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00400 U	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.00100 U
Cadmium	mg/L	--	0.000100 U	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0005 U	0.0005 U
Chromium	mg/L	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U
Cobalt	mg/L	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000568	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U
Lead	mg/L	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000580	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U
Lithium	mg/L	--	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	--	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.01 U	0.01 U
Mercury	mg/L	--	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0002 U	0.0002 U
Molybdenum	mg/L	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.002 U
Radium-226 & 228	pCi/L	--	0.222 U	--	0.0978 U	-0.143 U	0.848	0.214 U	--	--	0.163 U	-0.106 U	0.437	0.0303	1.12	0.0832 U	--
Selenium	mg/L	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U
Thallium	mg/L	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U
Field																	
Conductivity, field	mS/cm	0.245	0.23	0.273	--	--	0.28	0.27	--	--	0.29	0.32	0.36	0.31	0.307	0.28043	--
Dissolved oxygen (DO), field	mg/L	7.26	9.67	8.8	--	--	6.14	7.72	--	--	5.96	7.01	5.59	6.65	7.733	9.10	--
Oxidation reduction potential (ORP), field	millivolts	246	99.5	226	--	--	93.7	17.6	--	--	155.6	131.2	134.9	-41.2	179.5	92.4	--
pH, field	s.u.	7.85	7.65	7.73	--	--	8.65	7.79	--	--	7.31	7.62	7.54	7.7	7.68	8.01	--
Temperature, ambient	Deg C	15.56	--	--	--	--	--	--	--	--	27	--	--	--	--	--	--
Temperature, field	Deg C	--	--	14.69	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	13.15	12.62	--	--	--	14.21	12.32	--	--	14.44	14.37	14.49	13.88	13.66	13.38	--
Turbidity, field	NTU	1.9	0.97	0	--	--	1.04	5.31	--	--	0	0	0.4	0	0	28.51	--

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A
Sample ID:		MW-221A_18_03_2	MW-221A_18_04_1	MW-221A_18_04_2	MW-221A_18_05_1	MW-221A_05_2	MW-221A_18_06_01	FD-1_18_06_01	MW-221A_18_06_02	FD-1_18_06_02	MW-221A_18_09	MW-221A_19_03	MW-221A_19_06	MW-221A_19_09	MW-221A_20_03	MW-221A_20_09	MW-221A_21_03
Sample Date:		3/27/2018	4/11/2018	4/26/2018	5/9/2018	5/23/2018	6/11/2018	(Duplicate)	6/27/2018	(Duplicate)	9/6/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020	9/9/2020	3/24/2021
Parameters	Units																
Appendix III																	
Boron	mg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	0.200 U	--	0.200 U	0.200 U	0.100 U	0.100 U
Calcium	mg/L	42	39.7	42	42.6	44.5	43.9	41.7	41.5	41.0	36.3	50.8	53.3	34.4	45.4	41.2	44.6
Chloride	mg/L	2.86 J	5 U	9.51	4.89 J	5.17	3.77 J	3.93 J	4.45 J	4.98 J	5.00 U	5.21	--	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	0.5 U	0.5 U	2.22	0.5 U	0.5 U	0.5 U	0.500 U	0.5 U	0.492 J	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	8 J	8 J	8 J	8 J	8.1 J	8.1 J	8.0 J	8 J	7.6 J	8.0 J	8.0 J	--	7.9 J	7.9 J	8.0 J	8.0 J
Sulfate	mg/L	10.5	12	11.6	11	10.5	9.18	9.37	10.7	10.9	8.41	10.6	--	12.7	8.93	7.78	5.68
Total dissolved solids (TDS)	mg/L	152	180	174	166	196	164 J	212	190	200	156	182	--	172	174	150	156
Appendix IV																	
Antimony	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	0.00100 U	--	--	0.00200 U
Arsenic	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--	0.00200 U	--	--	0.00200 U
Barium	mg/L	0.0306	0.0277	0.031	0.0325	0.031	0.0312	0.0297	0.0298	0.0298	--	--	--	0.0202	--	--	0.0327
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--	0.00100 U
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	--	--	0.000100 U
Chromium	mg/L	0.005 U	0.005 U	0.000793 J	0.005 U	0.000774 J	0.000905 J	0.000790 J	0.005 U	0.005 U	--	--	--	0.0423	--	--	0.00500 U
Cobalt	mg/L	0.000077 J	0.000168 J	0.000155 J	0.000062 J	0.000067 J	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	0.000500 U	--	--	0.000500 U
Lead	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	0.000862	--	--	0.000500 U
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	0.0100 U
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--	--	--	--	--	--	0.000200 U
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--	--	--	--	0.00200 U
Radium-226 & 228	pCi/L	-0.105 U	0.509	0.139 U	0.144 U	0.301 U	0.158 U	0.0652 U	0.595	0.703	--	--	--	-0.0360 U	--	--	0.112 U
Selenium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	--	--	--	0.0238 U	--	--	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--	0.00100 U
Field																	
Conductivity, field	mS/cm	0.32926	0.32939	0.33072	0.32825	0.29772	0.42362	--	0.28279	--	0.268	0.352	0.383	0.281	0.325	0.3	0.26
Dissolved oxygen (DO), field	mg/L	9.44	8.93	8.91	7.56	6.76	7.79	--	7.19	--	5.75	7.01	6.61	9.66	10.62	8.23	10.33
Oxidation reduction potential (ORP), field	millivolts	202.4	239.1	180.4	156.5	173.1	138.5	--	162.6	--	248	317	162	96	235	237	97.3
pH, field	s.u.	7.80	7.51	7.69	7.78	8.15	7.61	--	7.85	--	7.87	7.85	7.44	7.78	7.05	7.81	7.59
Temperature, ambient	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	7.22	15.56	--
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	12.66	13.88	15.46	16.51	16.21	15.04	--	16.40	--	15.09	12.01	14.69	14.29	11.64	13.31	12.03
Turbidity, field	NTU	27.49	4.95	2.81	0.69	0.89	0.98	--	2.26	--	0	1.6	0.0	3.2	0	0.3	0.65

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-221A	MW-230	MW-230	MW-230	MW-230
Sample ID:		MW-221A_21_05	MW-221A_21_09	MW221A_22_03	MW-221A_22_09	MW-221A_23_03	MW-221A_23_03 Re1	MW-221A_23_03 Re2	MW-221A_23_09	MW-221A_24_03	MW-221A_24_08	MW-221A_25_03	MW-221A_25_09	MW-230_18_03_01	MW-230_18_03_2	MW-230_18_04_1	MW-230_18_04_2
Sample Date:		5/26/2021	9/14/2021	3/23/2022	9/29/2022	3/6/2023	3/6/2023	3/6/2023	9/25/2023	3/11/2024	8/27/2024	3/24/2025	9/9/2025	3/15/2018	3/28/2018	4/11/2018	4/26/2018
Parameters		Units															
Appendix III																	
Boron	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	R	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	mg/L	47.7	46.0	46.3	41.4	43.2	--	--	37.2	45.4	39.8	38.1	46.6	24.4	22.6	22.3	21
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.71	5.00 U	--	--	5.00 U	10.4	7.07	5.07	14.9	5 U	5 U	5 U	4.97 J
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	--	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.5 U	0.5 U	0.5 U	1.23
pH, lab	s.u.	8.0 J	7.9 J	8.0 J	7.9 J	8.1 J	--	--	8.0 J	8.0 J	7.9 J	8.0 J	8.0 J	8.3 J	7.3 J	8.3 J	7.5 J
Sulfate	mg/L	6.66	8.93	12.8	13.2	10.3	--	--	9.48	24.6	9.62	12.8	29.5	5.28	4.94 J	7.01	5.31
Total dissolved solids (TDS)	mg/L	164	148	94.0	148	128	--	--	114	188	150	160	200	102	56	108	92
Appendix IV																	
Antimony	mg/L	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	mg/L	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.000641 J	0.002 U	0.002 U
Barium	mg/L	--	0.0331	0.0351	0.0295	0.0309	--	--	0.0285	0.0336	0.0270	0.0299	0.0338	0.0145	0.0139	0.0124	0.0126
Beryllium	mg/L	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	mg/L	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Chromium	mg/L	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.000758 J	0.005 U	0.005 U	0.00101 J
Cobalt	mg/L	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000101 J	0.000151 J	0.000103 J	0.000097 J
Lead	mg/L	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U	0.0005 U	0.000273 J
Lithium	mg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	--	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.01 U
Mercury	mg/L	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	mg/L	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.002 U	0.002 U	0.002 U
Radium-226 & 228	pCi/L	--	-0.0947 U	0.0293 U	0.959	0.298 U	--	--	0.418 U	0.212 U	0.0437	0.519	1.43	0.344	0.183 U	0.0563 U	0.177 U
Selenium	mg/L	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U	0.005 U	0.005 U
Thallium	mg/L	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U
Field																	
Conductivity, field	mS/cm	0.318	--	--	0.29	0.29	--	--	0.27	0.34	0.3	0.27	0.36	0.16027	0.17006	0.16622	0.17195
Dissolved oxygen (DO), field	mg/L	6.7	--	--	9.2	9.69	--	--	9.82	8.79	8.48	10.54	8.34	10.49	10.63	10.43	10.60
Oxidation reduction potential (ORP), field	millivolts	203	--	--	18	6.1	--	--	85.8	123.3	119.3	-28.3	157.9	121.8	201.8	215.7	165.3
pH, field	s.u.	7.85	--	--	8.55	7.9	--	--	7.54	7.65	7.53	7.83	7.914	8.56	8.02	8.00	8.33
Temperature, ambient	Deg C	--	--	--	--	10	--	--	27	--	--	--	--	--	--	--	--
Temperature, field	Deg C	21.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	--	--	--	14.9	10.68	--	--	15.09	14.53	14.95	12.89	14.36	13.79	13.28	14.16	14.83
Turbidity, field	NTU	4.1	--	--	1.43	5.08	--	--	0	0	0.32	0	0	3.25	3.41	3.60	0.18

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-230
Sample ID:		MW-230_18_05_1	MW-230_05_2	MW-230_18_06_01	MW-230_18_06_02	MW-230_18_09	MW-230_19_03	FD-1_19_03	MW-230_19_06	MW-230_19_09	MW-230_20_03	MW-230_20_06	MW-230_20_09	MW-230_20_12	MW-230_21_03	MW-230_21_05	MW-230_21_09	MW230_22_03	MW-230_22_09
Sample Date:		5/9/2018	5/23/2018	6/11/2018	6/27/2018	9/6/2018	3/20/2019	3/20/2019 (Duplicate)	6/11/2019	9/4/2019	3/4/2020	6/3/2020	9/9/2020	12/2/2020	3/24/2021	5/26/2021	9/15/2021	3/22/2022	9/28/2022
Parameters	Units																		
Appendix III																			
Boron	mg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200 U	--	0.100 U	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	22.4	25.1	25.8	24	21.8	31.6	31.2	22.3	37.3	25.7	--	41.0	45.3	37.0	39.3	39.3	40.1	66.5
Chloride	mg/L	5 U	5 U	5 U	5 U	5.00 U	5.00 U	5.00 U	--	5.00 U	5.00 U	--	5.00 U	--	5.00 U	5.00 U	5.00 U	5.00 U	5.30
Fluoride	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U	--	0.500 U	--	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	7.6 J	8.4 J	8.3 J	8.4 J	8.3 J	8.1 J	8.1 J	--	8.0 J	8.2 J	--	8.1 J	--	8.2 J	8.2 J	8.1 J	8.2 J	7.7 J
Sulfate	mg/L	4.93 J	5.24	4.6 J	4.94 J	5.00 U	20.0	20.3	5.74	31.4	7.96	19.4	23.2	39.6	17.6	25.0	39.4	17.0	14.0
Total dissolved solids (TDS)	mg/L	104	106	112	92	74.0	132	128	142	198	110	--	172	272	142	146	126	108	220
Appendix IV																			
Antimony	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	0.00100 U	--	--	--	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.002 U	0.000651 J	0.0006 J	0.000688 J	--	--	--	--	0.00200 U	--	--	--	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.0135	0.0145	0.015	0.0148	--	--	--	--	0.0220	--	--	--	--	0.0226	0.0247	0.0245	0.0270	0.0470
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--	--	--	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	--	--	--	--	--	0.000100 U	--	0.000100 U	0.000100 U	0.000100 U
Chromium	mg/L	0.005 U	0.000847 J	0.00104 J	0.000833 J	--	--	--	--	0.00500 U	--	--	--	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	0.000500 U	--	--	--	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	0.000579	--	--	--	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	--	--	--	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--	--	--	--	--	--	--	--	--	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--	--	--	--	--	--	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	0.343 U	0.218 U	0.182 U	0.218 U	--	--	--	--	0.151 U	--	--	--	--	0.101 U	--	0.214 U	0.357 U	0.853
Selenium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	--	--	--	--	0.00500 U	--	--	--	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--	--	--	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U
Field																			
Conductivity, field	mS/cm	0.1713	0.1713	0.24004	0.16248	0.163	0.222	--	0.141	0.350	0.211	0.221	0.317	0.313	0.27	0.282	--	--	0.43
Dissolved oxygen (DO), field	mg/L	10.18	10.34	10.20	10.20	7.29	10.79	--	5.98	11.27	11.08	7.72	7.92	6.89	10.4	8.04	--	--	8.5
Oxidation reduction potential (ORP), field	millivolts	138.5	182.3	133.2	191.7	238	278	--	118	108	220	173	223	308	96.2	187	--	--	118.1
pH, field	s.u.	8.41	8.66	7.82	7.67	8.37	8.08	--	7.89	7.85	7.36	8.19	7.97	7.94	7.76	8.04	--	--	8.47
Temperature, ambient	Deg C	--	--	--	--	--	--	--	--	--	10	21.11	15.56	--	--	--	--	--	--
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19.64	--	--	--
Temperature, sample	Deg C	15.64	16.52	15.73	16.01	14.12	12.74	--	22.34	13.69	12.71	14.86	14.15	13.87	13.39	--	--	--	15.58
Turbidity, field	NTU	0	0	0.82	1.07	0	1.4	--	0.0	0.0	0	2.8	0.7	3	0.34	2.9	--	--	0.32
Notes:																			
U - Not detected at the associated reporting limit.																			
J - Estimated concentration.																			
R - Rejected.																			

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-230	MW-230	MW-230	MW-230	MW-230	MW-230	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231
Sample ID:		MW-230_23_03	MW-230_23_09	MW-230_24_03	MW-230_24_08	MW-230_25_03	MW-230_25_09	MW-231_18_03_01	MW-231_18_03_2	MW-231_18_04_1	MW-231_18_04_2	MW-231_18_05_1	MW-231_05_2	MW-231_18_06_01	MW-231_18_06_02	MW-231_18_09	MW-231_18_11	MW-231_19_03
Sample Date:		3/7/2023	9/26/2023	3/12/2024	8/27/2024	3/24/2025	9/9/2025	3/15/2018	3/28/2018	4/11/2018	4/25/2018	5/9/2018	5/23/2018	6/11/2018	6/27/2018	9/6/2018	11/6/2018	3/20/2019
Parameters	Units																	
Appendix III																		
Boron	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	--	0.200 U
Calcium	mg/L	75.0	64.0	68.5	67.2	58.6	59.5	22	19.9	20.4	19.7	23.5	24.9	26.4	25.5	21.1	--	29.6
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	2.83 J	5 U	5 U	10.9	5 U	5 U	5 U	5 U	5.00 U	--	5.00 U
Fluoride	mg/L	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.5 U	0.5 U	0.5 U	4.76	0.5 U	0.5 U	0.5 U	0.5 U	0.500 U	--	0.500 U
pH, lab	s.u.	7.8 J	7.7 J	8.0 J	7.7 J	7.8 J	7.8 J	8.3 J	8.1 J	8.2 J	8.3 J	8.3 J	8.4 J	8.2 J	8.4 J	8.3 J	--	8.1 J
Sulfate	mg/L	12.6	16.5	21.9	27.4	17.5	29.8	5 U	4.03 J	5.3	4.14 J	4.15 J	4.52 J	4.17 J	4.66 J	34.6	9.00	5.00 U
Total dissolved solids (TDS)	mg/L	242	298	264	250	240	272	128	90	66	100	92	154	168	108	82.0	--	114
Appendix IV																		
Antimony	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.000709 J	0.000661 J	0.000763 J	0.000801 J	0.000793 J	0.000737 J	0.00066 J	--	--	--
Barium	mg/L	0.0573	0.0497	0.0529	0.0437	0.0498	0.0452	0.0143	0.0126	0.0124	0.0148	0.0178	0.0167	0.0182	0.0168	--	--	--
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--
Cadmium	mg/L	0.000100 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.000774 J	0.005 U	0.005 U	0.000835 J	0.00086 J	0.000844 J	0.000877 J	0.000934 J	--	--	--
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000105 J	0.0005 U	0.0005 U	0.000283 J	0.000166 J	0.000152 J	0.000084 J	0.000066 J	--	--	--
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.000641	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--
Lithium	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--	--	--
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--
Radium-226 & 228	pCi/L	0.225 U	0.561	-0.0200 U	0.391	0.600	1.03	0.163 U	0.319	0.385	0.204 U	0.391	0.18 U	-0.0138 U	0.237 U	--	--	--
Selenium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	--	--	--
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--
Field																		
Conductivity, field	mS/cm	0.52	0.45	0.49	0.48	0.46	0.442	0.15918	0.16225	0.1714	0.14893	0.17385	0.16789	0.25852	0.1749	0.159	0.1838	0.190
Dissolved oxygen (DO), field	mg/L	8.54	9.38	9.06	9.42	9.86	9.233	10.92	11.07	10.57	10.60	10.62	10.45	10.50	10.43	7.2	11.31	10.18
Oxidation reduction potential (ORP), field	millivolts	36.9	91.4	127.3	135.8	-15.2	154.3	148.9	197.7	235.0	208.9	144.9	216.4	129.4	229.7	240	70.2	281
pH, field	s.u.	7.33	7.2	7.46	7.29	7.55	7.646	8.47	8.19	7.78	8.28	8.30	7.96	7.90	7.93	8.32	8.34	8.32
Temperature, ambient	Deg C	8.89	19.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	14.09	15.11	15.35	17.02	14.08	15.51	14.13	13.11	14.36	14.31	15.00	17.03	15.91	16.46	14.38	12.86	12.52
Turbidity, field	NTU	4.16	0	1.27	6.58	2.17	0	1.65	0.54	--	6.35	1.66	--	1.82	1.28	0	3.81	4.8

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231
Sample ID:		MW-231_19_09	FD-1_19_09	MW-231_20_03	FD-1_20_03	MW-231_20_06	MW-231_20_09	FD-1_20_09	MW-231_20_12	MW-231_21_03	FD-1_21_03	MW-231_21_05	FD-1_21_05	MW-231_21_09	FD-1_21_09	MW231_22_03	FD-1_22_03	FD-1_22_09	FD-1_22_09	MW-231_22_09	MW-231_23_03
Sample Date:		9/4/2019	9/4/2019	3/4/2020	3/4/2020	6/3/2020	9/9/2020	9/9/2020	12/2/2020	3/24/2021	3/24/2021	5/25/2021	5/25/2021	9/15/2021	9/15/2021	3/23/2022	3/23/2022	9/28/2022	9/28/2022	9/28/2022	3/7/2023
			(Duplicate)		(Duplicate)			(Duplicate)			(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		
Parameters	Units																				
Appendix III																					
Boron	mg/L	0.200 U	0.200 U	0.200 U	0.200 U	--	0.100 U	0.100 U	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	--	0.100 U	0.100 U
Calcium	mg/L	37.6	40.6	47.1	46.8	25.9	43.5	45.1	30.4	30.9	32.6	55.9	56.8	22.2	22.4	36.2	36.6	48.9	--	50.8	71.3
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	--	5.00 U	5.00 U	--	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	1.00 U	--	5.00 U	5.00 U
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.100 U	--	0.500 U	0.500 U
pH, lab	s.u.	8.1 J	8.1 J	8.0 J	8.1 J	--	8.1 J	8.2 J	--	8.3 J	8.4 J	8.1 J	8.1 J	8.4 J	8.3 J	8.3 J	8.2 J	7.7 J	--	7.7 J	7.8 J
Sulfate	mg/L	44.9	45.2	14.8	15.0	6.91	17.9	17.6	9.59	10.5	10.8	38.3	38.0	6.43	6.41	15.4	15.1	2.36 J	--	11.8 J	8.26
Total dissolved solids (TDS)	mg/L	212	202	190	194	--	198	200	--	118	108	224	224	50.0 U	50.0 U	116	94.0	194	--	196	254
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	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U
Arsenic	mg/L	0.00200 U	0.00200 U	--	--	--	--	--	--	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U
Barium	mg/L	0.0246	0.0283	--	--	--	--	--	--	0.0198	0.0208	--	0.0336	0.0142	0.0142	0.0271	0.0274	0.0391	--	0.0395	0.0576
Beryllium	mg/L	--	--	--	--	--	--	--	--	0.00100 U	0.00100 U	--	--	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	0.000100 U	--	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000100 U	--	0.000100 U	0.000100 U
Chromium	mg/L	0.00500 U	0.00500 U	--	--	--	--	--	--	0.00500 U	0.00500 U	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U
Cobalt	mg/L	0.000500 U	0.000500 U	--	--	--	--	--	--	0.000500 U	0.000500 U	--	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U
Lead	mg/L	0.000500 U	0.000500 U	--	--	--	--	--	--	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U
Lithium	mg/L	--	--	--	--	--	--	--	--	0.0100 U	0.0100 U	--	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U
Mercury	mg/L	--	--	--	--	--	--	--	--	0.000200 U	0.000200 U	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U
Molybdenum	mg/L	--	--	--	--	--	--	--	--	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	0.113 U	0.170 U	--	--	--	--	--	--	0.00731 U	0.113 U	--	--	1.16	-0.199 U	0.190 U	0.104 U	--	1.40	0.746	-0.0761 U
Selenium	mg/L	0.00500 U	0.00500 U	--	--	--	--	--	--	0.00500 U	0.00500 U	--	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U
Thallium	mg/L	--	--	--	--	--	--	--	--	0.00100 U	0.00100 U	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U
Field																					
Conductivity, field	mS/cm	0.358	--	0.353	--	0.174	0.338	--	0.223	0.24	--	0.431	--	--	--	--	--	--	--	0.33	0.47
Dissolved oxygen (DO), field	mg/L	10.23	--	10.8	--	8.01	8.05	--	7.87	10.94	--	9.73	--	--	--	--	--	--	--	8.31	8.96
Oxidation reduction potential (ORP), field	millivolts	89	--	218	--	191	227	--	296	91.3	--	216	--	--	--	--	--	--	--	123.3	48.9
pH, field	s.u.	8.01	--	7.25	--	7.94	7.97	--	8.18	7.93	--	8	--	--	--	--	--	--	--	8.45	7.43
Temperature, ambient	Deg C	--	--	10	--	22.78	14.44	--	--	--	--	--	--	--	--	--	--	--	--	--	4.44
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	16.18	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	13.72	--	12.63	--	14.49	13.97	--	13.06	13.01	--	--	--	--	--	--	--	--	--	15.13	10.61
Turbidity, field	NTU	0.0	--	0	--	8.4	0.5	--	2.5	0.2	--	0	--	--	--	--	--	--	--	3.62	1.1

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-231	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232
Sample ID:		FD-1_23_03	MW-231_23_09	FD-1_23_09	MW-231_24_03	FD-1_24_03	MW-231_24_08	FD-1_24_08	MW-231_25_03	FD-1_25_03	MW-231_25_09	FD-1_25_09	MW-232_18_03_01	MW-232_18_03_02	MW-232_18_04_1	MW-232_18_04_2	FD-1_18_04_2	MW-232_18_05_1	MW-232_05_2
Sample Date:		3/7/2023	9/26/2023	9/26/2023	3/12/2024	3/12/2024	8/27/2024	8/27/2024	3/24/2025	3/24/2025	9/9/2025	9/9/2025	3/15/2018	3/28/2018	4/11/2018	4/25/2018	4/25/2018	5/8/2018	5/23/2018
		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)					(Duplicate)		
Parameters	Units																		
Appendix III																			
Boron	mg/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	mg/L	72.0	80.2	78.9	81.1	79.7	77.4	77.1	76.0	71.2	82.4	72.7	19.5	20.1	19.4	19.8	18.6	17.5	20.9
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.71	5 U	5 U	5 U	5 U	5 U	5 U
Fluoride	mg/L	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.26	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
pH, lab	s.u.	7.9 J	7.6 J	7.6 J	7.9 J	7.9 J	7.6 J	7.6 J	7.6 J	7.7 J	7.6 J	7.7 J	8.3 J	8.1 J	8.2 J	8.3 J	8.3 J	8.4 J	8.4 J
Sulfate	mg/L	8.33	7.87	7.74	8.63	8.72	14.5	16.3	12.1	7.57	8.98	9.04	5.8	4.44 J	5.48	4.78 J	4.98 J	4.1 J	4.39 J
Total dissolved solids (TDS)	mg/L	246	336	264	286	296	264	274	294	306	318	316	70	72	72	104	96.0	112	148
Appendix IV																			
Antimony	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00208	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.000927 J	0.000908 J	0.00094 J	0.000988 J	0.00112 J	0.00106 J
Barium	mg/L	0.0576	0.0686	0.0671	0.0736	0.0711	0.0935	0.111	0.0705	0.0665	0.0738	0.0656	0.012	0.0123	0.0121	0.0128	0.0119	0.0139	0.0125
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	mg/L	0.000100 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00862	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.000783 J	0.005 U	0.005 U	0.000829 J	0.000786 J	0.005 U	0.005 U
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.00168 J	0.00869 J	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.00008 J	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.00138 J	0.00399 J	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Lithium	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Radium-226 & 228	pCi/L	0.559	0.142 U	-0.0218 U	0.223 U	0.346 U	0.389	0.612	0.228	0.439	0.547	1.77	0.0143 U	0.299 U	0.281 U	0.167 U	0.120 U	0.152 U	0.252 U
Selenium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Field																			
Conductivity, field	mS/cm	--	0.54	--	0.56	--	0.51	--	0.57	--	0.568	--	0.14476	0.16257	0.16478	0.14747	--	0.14641	0.13824
Dissolved oxygen (DO), field	mg/L	--	8.42	--	7.16	--	6.82	--	7.26	--	6.65	--	10.40	10.68	10.08	10.23	--	10.12	10.23
Oxidation reduction potential (ORP), field	millivolts	--	92.4	--	116.9	--	130.2	--	0.4	--	149	--	148.6	188.0	212.1	200.4	--	169.9	172.9
pH, field	s.u.	--	7.15	--	7.41	--	7.27	--	7.3	--	7.376	--	8.59	8.23	7.99	8.25	--	8.11	8.61
Temperature, ambient	Deg C	--	17.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	--	15.09	--	14.34	--	19.07	--	12.96	--	15.77	--	14.77	12.70	14.63	14.94	--	16.52	17.26
Turbidity, field	NTU	--	1.11	--	3.3	--	4.14	--	0	--	0	--	1.69	0.51	--	1.15	--	1.33	0
Notes:																			
U - Not detected at the associated reporting limit.																			
J - Estimated concentration.																			
R - Rejected.																			

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232	MW-232
Sample ID:		MW-232_18_06_01	MW-232_18_06_02	MW-232_18_09	MW-232_19_03	MW-232_19_06	MW-232_19_09	MW-232_20_03	MW-232_20_06	MW-232_20_09	MW-232_20_12	MW-232_21_03	MW-232_21_05	MW-232_21_09	MW232_21_11	MW-232_22_09	MW-232_23_03	MW-232_23_09	MW-232_24_03
Sample Date:		6/11/2018	6/27/2018	9/6/2018	3/19/2019	6/11/2019	9/4/2019	3/4/2020	6/3/2020	9/9/2020	12/2/2020	3/24/2021	5/25/2021	9/15/2021	11/2/2021	9/28/2022	3/7/2023	9/26/2023	3/12/2024
Parameters		Units																	
Appendix III																			
Boron	mg/L	0.2 U	0.2 U	0.200 U	0.200 U	--	0.200 U	0.200 U	--	0.100 U	--	0.100 U	0.100 U	0.100 U	--	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	21	21.1	18.7	24.8	27.1	24.9	33.1	27.9	35.0	39.3	38.8	47.5	53.9	--	41.0	50.5	67.0	69.1
Chloride	mg/L	5 U	5 U	5.00 U	5.00 U	--	5.00 U	5.00 U	--	5.25	--	7.72	5.79	8.90	--	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	0.5 U	0.5 U	0.500 U	0.500 U	--	0.500 U	0.500 U	--	0.500 U	--	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U	1.00 U	1.00 U
pH, lab	s.u.	8.3 J	7.5 J	8.3 J	8.2 J	8.2 J	8.2 J	8.1 J	--	8.2 J	--	8.3 J	8.2 J	8.2 J	--	7.7 J	8.1 J	7.6 J	7.9 J
Sulfate	mg/L	3.99 J	4.4 J	5.00 U	5.00 U	--	5.00 U	5.00 U	--	7.78	5.74	7.87	21.2	34.8	6.19	21.2	15.6	17.2	28.4
Total dissolved solids (TDS)	mg/L	76	110	62.0	138	--	132	140	--	144	--	140	188	182	--	158	186	246	278
Appendix IV																			
Antimony	mg/L	0.001 U	0.001 U	--	--	--	0.00100 U	--	--	--	--	0.00200 U	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.000894 J	0.00103 J	--	--	--	0.00200 U	--	--	--	--	0.00200 U	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	0.0137	0.0135	--	--	--	0.0184	--	--	--	--	0.0253	0.0322	0.0357	0.0359	0.0291	0.0345	0.0542	0.0566
Beryllium	mg/L	0.001 U	0.001 U	--	--	--	--	--	--	--	--	0.00100 U	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.0005 U	0.0005 U	--	--	--	--	--	--	--	--	0.000100 U	--	0.000100 U	--	0.000100 U	0.000100 U	0.000200 U	0.000200 U
Chromium	mg/L	0.000891 J	0.00107 J	--	--	--	0.00500 U	--	--	--	--	0.00500 U	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.0005 U	0.0005 U	--	--	--	0.000500 U	--	--	--	--	0.000500 U	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.0005 U	0.0005 U	--	--	--	0.000500 U	--	--	--	--	0.000500 U	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.01 U	0.01 U	--	--	--	--	--	--	--	--	0.0100 U	--	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	0.0002 U	0.0002 U	--	--	--	--	--	--	--	--	0.000200 U	--	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.002 U	0.002 U	--	--	--	--	--	--	--	--	0.00200 U	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	-0.0431 U	0.00512 U	--	--	--	0.151 U	--	--	--	--	0.218 U	--	0.0484 U	--	1.12	0.147 U	0.243 U	0.0312 U
Selenium	mg/L	0.005 U	0.005 U	--	--	--	0.00500 U	--	--	--	--	0.00500 U	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.001 U	0.001 U	--	--	--	--	--	--	--	--	0.00100 U	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Field																			
Conductivity, field	mS/cm	0.20384	0.13441	0.146	0.164	0.170	0.221	0.258	0.188	0.273	0.296	0.29	0.365	--	--	0.3	0.35	0.45	0.49
Dissolved oxygen (DO), field	mg/L	10.31	10.41	7.15	10.75	5.81	10.68	11.18	8.14	8.34	7.65	11.2	9.4	--	--	10.2	8.81	8.59	9.55
Oxidation reduction potential (ORP), field	millivolts	125.2	175.0	240	272	163	86	207	206	220	299	95.3	200	--	--	122.5	41.4	151.1	134.4
pH, field	s.u.	8.09	8.36	8.28	8.35	7.75	8.10	7.28	7.69	8.11	8.07	7.86	8.14	--	--	8.71	7.77	7.06	7.7
Temperature, ambient	Deg C	--	--	--	--	--	--	10	22.78	15	--	--	--	--	--	--	4.44	16.67	--
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	15.9	--	--	--	--	--	--
Temperature, sample	Deg C	15.59	16.43	14.6	13.25	21.94	13.69	12.53	14.31	13.76	13.04	12.77	--	--	--	15.38	12.54	14.39	13.49
Turbidity, field	NTU	2.37	0.87	0	3.1	0.0	0.0	0	0	0.1	0.3	0.47	1.7	--	--	3.2	2.1	0	0
Notes:																			
U - Not detected at the associated reporting limit.																			
J - Estimated concentration.																			
R - Rejected.																			

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-232	MW-232	MW-232	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233
Sample ID:		MW-232_24_08	MW-232_25_03	MW-232_25_09	MW-233_18_03_01	MW-233_18_03_02	MW-233_18_04_1	FD_1_18_04_1	MW-233_18_04_2	MW-233_18_05_1	MW-233_05_2	MW-233_18_06_01	MW-233_18_06_02	MW-233_18_09	MW-233_18_11	MW-233_19_03	MW-233_19_06
Sample Date:		8/27/2024	3/24/2025	9/9/2025	3/16/2018	3/27/2018	4/10/2018	4/10/2018 (Duplicate)	4/25/2018	5/8/2018	5/23/2018	6/11/2018	6/27/2018	9/5/2018	11/6/2018	3/19/2019	6/11/2019
Parameters	Units																
Appendix III																	
Boron	mg/L	0.100 U	0.100 U	0.100 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	--	0.200 U	--
Calcium	mg/L	81.5	66.9	56.5	24.6	23.5	25.1	24.8	22.4	25.3	25.4	26.1	22.9	28.6	26.9	31.6	28.1
Chloride	mg/L	5.00 U	5.00 U	5.00 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.00 U	--	5.00 U	--
Fluoride	mg/L	1.00 U	1.00 U	1.00 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.500 U	--	0.500 U	--
pH, lab	s.u.	7.5 J	7.7 J	7.8 J	8.1 J	8.1 J	8.1 J	8.1 J	8.2 J	8.3 J	8.3 J	8.2 J	8 J	8.2 J	--	8.2 J	8.1 J
Sulfate	mg/L	20.0	77.9	46.1	4.43 J	4.76 J	5.26	5.12	4.56 J	4.3 J	4.59 J	4.46 J	4.89 J	5.00 U	--	5.00 U	--
Total dissolved solids (TDS)	mg/L	314	342	278	116	176	100 J	158	128	112	98	112	102	116	--	150	--
Appendix IV																	
Antimony	mg/L	0.00200 U	0.00200 U	0.00200 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--
Arsenic	mg/L	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.000796 J	0.000725 J	0.000693 J	0.00072 J	0.000817 J	0.000848 J	0.000803 J	0.000875 J	--	--	--	--
Barium	mg/L	0.0655	0.0622	0.0511	0.0161	0.0156	0.0142	0.0134	0.0153	0.0174	0.0164	0.0183	0.0178	--	--	--	--
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--
Cadmium	mg/L	0.000200 U	0.000200 U	0.000200 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.000871 J	0.005 U	0.005 U	0.005 U	0.000806 J	0.000833 J	0.000777 J	0.000937 J	0.005 U	--	--	--	--
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.000119 J	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--
Lithium	mg/L	0.0100 U	0.0100 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--	--
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--	--	--	--
Molybdenum	mg/L	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--	--
Radium-226 & 228	pCi/L	0.538	0.436	1.25	0.163 U	0.109 U	0.365	1.08	0.288 U	0.122 U	0.152 U	-0.0805 U	0.191 U	--	--	--	--
Selenium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00103 J	0.005 U	0.005 U	0.005 U	--	--	--	--
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--
Field																	
Conductivity, field	mS/cm	0.59	0.49	0.469	0.20544	0.19264	0.17658	--	0.09177	0.18021	0.17281	0.25659	0.16741	0.227	0.20123	0.201	0.207
Dissolved oxygen (DO), field	mg/L	7.72	9.84	9.572	10.85	10.95	10.72	--	10.01	10.08	10.08	10.47	10.33	7.12	11.64	10.77	8.38
Oxidation reduction potential (ORP), field	millivolts	128.6	4.7	150.9	65.0	186.7	197.8	--	217.0	165.9	170.5	133.4	168.7	237	51	272	138
pH, field	s.u.	7.36	7.43	7.578	8.41	8.20	8.22	--	7.84	7.98	8.45	7.85	7.61	8.07	8.32	8.19	7.66
Temperature, ambient	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	17.36	13.61	15.17	12.99	12.73	13.34	--	15.77	16.11	16.63	15.37	15.85	14.93	12.8	13.16	15.34
Turbidity, field	NTU	0.24	0	0	4.47	0.82	--	--	3.06	0.61	--	0.90	1.05	0	1.77	1.4	0.0

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-233	MW-234	MW-234
Sample ID:		MW-233_20_03	MW-233_20_06	MW-233_20_09	MW-233_20_12	MW233_21_03	MW-233_21_05	MW-233_21_09	MW233_21_11	MW233_22_03	MW-233_22_09	MW-233_23_03	MW-233_23_09	MW-233_24_03	MW-233_24_08	MW-233_25_03	MW-233_25_09	MW-234_18_03_02	MW-234_18_03_02
Sample Date:		3/4/2020	6/3/2020	9/9/2020	12/2/2020	3/24/2021	5/25/2021	9/15/2021	11/2/2021	3/22/2022	9/28/2022	3/7/2023	9/25/2023	3/12/2024	8/27/2024	3/24/2025	9/9/2025	3/27/2018	FD-1_18_03_02 (Duplicate)
Parameters	Units																		
Appendix III																			
Boron	mg/L	0.200 U	--	0.100 U	--	0.100 U	0.100 U	0.100 U	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.104	0.100 U	0.100 U	0.2 U	0.2 U
Calcium	mg/L	41.4	27.3	34.1	37.0	42.3	29.7	41.8	--	46.3	74.4	66.3	55.7	56.8	84.1	81.0	73.0	18.7	18.2
Chloride	mg/L	5.00 U	--	5.00 U	--	5.00 U	5.00 U	5.00 U	--	5.00 U	15.9	11.9	5.00 U	5.26	8.04	5.76	6.30	5 U	5 U
Fluoride	mg/L	0.500 U	--	0.500 U	--	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.5 U	0.5 U
pH, lab	s.u.	8.1 J	--	8.2 J	--	8.2 J	8.2 J	8.1 J	--	8.1 J	7.9 J	7.9 J	8.0 J	8.0 J	7.7 J	7.7 J	7.6 J	8.1 J	8.1 J
Sulfate	mg/L	5.15	--	5.00 U	--	5.06	5.00 U	16.8	21.7	24.4	97.7	51.5	48.4	86.4	64.8	39.4	37.4	4.6 J	3.82 J
Total dissolved solids (TDS)	mg/L	166	--	136	--	136	98.0	122	--	134	328	274	240	284	370	348	336	106	96.0
Appendix IV																			
Antimony	mg/L	--	--	--	--	0.00200 U	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.001 U	0.001 U
Arsenic	mg/L	--	--	--	--	0.00200 U	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.000591 J	0.000590 J
Barium	mg/L	--	--	--	--	0.0280	0.0195	0.0272	--	0.0332	0.0561	0.0510	0.0461	0.0477	0.0692	0.0708	0.0651	0.0115	0.0110
Beryllium	mg/L	--	--	--	--	0.00100 U	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U
Cadmium	mg/L	--	--	--	--	0.000100 U	--	0.000100 U	--	0.000100 U	0.000100 U	0.000100 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0005 U	0.0005 U
Chromium	mg/L	--	--	--	--	0.00500 U	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.005 U	0.005 U
Cobalt	mg/L	--	--	--	--	0.000500 U	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U
Lead	mg/L	--	--	--	--	0.000500 U	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.0005 U	0.0005 U
Lithium	mg/L	--	--	--	--	0.0100 U	--	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.01 U	0.01 U
Mercury	mg/L	--	--	--	--	0.000200 U	--	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.0002 U	0.0002 U
Molybdenum	mg/L	--	--	--	--	0.00200 U	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.002 U	0.002 U
Radium-226 & 228	pCi/L	--	--	--	--	0.116 U	--	0.439 U	--	0.232 U	0.766	0.444	0.262 U	0.170 U	-0.329	0.211	0.282	0.127 U	--
Selenium	mg/L	--	--	--	--	0.00500 U	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00109 J	0.00100 J
Thallium	mg/L	--	--	--	--	0.00100 U	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.001 U	0.001 U
Field																			
Conductivity, field	mS/cm	0.308	0.194	0.246	0.256	0.28	0.202	--	--	--	0.53	0.43	0.44	0.46	0.66	0.5	0.576	0.15478	--
Dissolved oxygen (DO), field	mg/L	10.85	7.98	8.75	7.43	10.78	7.82	--	--	--	9.76	8.3	9.74	10.51	8.25	8.45	5.804	10.74	--
Oxidation reduction potential (ORP), field	millivolts	210	211	227	299	92.4	211	--	--	--	112.2	55.2	60.4	126.6	148.4	24.3	133.2	186.6	--
pH, field	s.u.	7.23	7.57	8.01	7.97	7.75	8.11	--	--	--	8.7	7.63	7.72	7.86	7.45	7.14	7.477	8.31	--
Temperature, ambient	Deg C	10	23.89	14.44	--	--	--	--	--	--	--	2.78	26.67	--	--	--	--	--	--
Temperature, field	Deg C	--	--	--	--	--	20.09	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	12.55	14.49	13.75	13.29	12.77	--	--	--	--	15.57	13	15.09	13.04	16.51	13.33	15	12.87	--
Turbidity, field	NTU	0	4.9	0	2.2	0.42	2.4	--	--	--	1.61	5.17	0	1.68	4.13	0	0	0.78	--

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234
Sample ID:		MW-234_18_04_1	MW-234_18_04_2	MW-234_18_05_1	FD-1_18_05_1	MW-234_05_2	FD-1_05_2	MW-234_18_06_01	MW-234_18_06_02	MW-234_18_07	FD-1_18_07	MW-234_18_09	FD-1_18-09	MW-234_19_03	MW-234_19_06	MW-234_19_09	MW-234_20_03	MW-234_20_06	MW-234_20_09
Sample Date:		4/10/2018	4/25/2018	5/8/2018	5/8/2018 (Duplicate)	5/23/2018	5/23/2018 (Duplicate)	6/11/2018	6/27/2018	7/10/2018	7/10/2018 (Duplicate)	9/5/2018	9/5/2018 (Duplicate)	3/19/2019	6/11/2019	9/4/2019	3/4/2020	6/3/2020	9/9/2020
Parameters	Units																		
Appendix III																			
Boron	mg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200 U	--	0.100 U
Calcium	mg/L	18.7	18.1	20	19.6	19.9	20.8	20	20.1	20	19.6	21.7	20.8	20.3	--	14.4	27.7	--	27.4
Chloride	mg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	85.8 J	1.60 U	9.60	5.00 U	5.00 U	--	5.00 U	5.00 U	--	5.00 U
Fluoride	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.491 J	0.5 U	0.836	0.462 U	2.28	0.500 U	0.500 U	--	0.500 U	0.500 U	--	0.500 U
pH, lab	s.u.	8.2 J	8.3 J	8.4 J	8.3 J	8.3 J	8.3 J	8.2 J	8.3 J	8.2 J	8.3 J	8.4 J	8.4 J	8.3 J	8.4 J	8.5 J	8.3 J	--	8.2 J
Sulfate	mg/L	11.8	4.98 J	4.96 J	6.51 J	4.88 J	5.12	4.78 J	4.21 J	16.2 J	3.57 J	5.00 U	5.00 U	5.00 U	--	11.5	10.2	--	13.3
Total dissolved solids (TDS)	mg/L	66	84	66	54.0	92	76.0	94	82	80	96.0	82.0	68.0	106	--	100	128	120	110
Appendix IV																			
Antimony	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	0.00100 U	--	--	--
Arsenic	mg/L	0.002 U	0.002 U	0.002 U	0.000589 J	0.002 U	0.002 U	0.000667 J	0.002 U	0.002 U	0.002 U	--	--	--	--	0.00200 U	--	--	--
Barium	mg/L	0.00942	0.0116	0.0129	0.0126	0.0125	0.0128	0.0129	0.0126	0.0107	0.0107	--	--	--	--	0.0104	--	--	--
Beryllium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--	--	--
Cadmium	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	--	--	--	--
Chromium	mg/L	0.005 U	0.000782 J	0.005 U	0.000826 J	0.005 U	0.005 U	0.000859 J	0.005 U	0.005 U	0.005 U	--	--	--	--	0.00500 U	--	--	--
Cobalt	mg/L	0.000061 J	0.000152 J	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	0.000500 U	--	--	--
Lead	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	--	--	--	--	0.000500 U	--	--	--
Lithium	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	--	--	--	--	--	--	--	--
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	--	--	--	--	--	--	--	--
Molybdenum	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	--	--	--	--	--	--	--	--
Radium-226 & 228	pCi/L	0.0121 U	-0.0492 U	0.291 U	0.395 U	0.395	0.0430 U	0.428	0.585	0.214 U	0.759	--	--	--	--	0.515	--	--	--
Selenium	mg/L	0.005 U	0.005 U	0.00135 J	0.00143 J	0.005 U	0.000967 J	0.001 J	0.005 U	0.005 U	0.005 U	--	--	--	--	0.00500 U	--	--	--
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--	--	--
Field																			
Conductivity, field	mS/cm	0.14082	0.14804	0.15347	--	0.14269	--	0.20768	0.13529	0.13822	--	0.148	0.148	0.141	0.102	0.141	0.226	0.181	0.224
Dissolved oxygen (DO), field	mg/L	10.59	9.88	10.01	--	10.11	--	10.20	10.06	10.93	--	7.68	7.68	0.55	8.56	10.38	9.36	7.57	7.79
Oxidation reduction potential (ORP), field	millivolts	189.0	262.7	162.4	--	175.9	--	135.9	154.5	186.1	--	224	224	255	114	98	212	165	225
pH, field	s.u.	8.36	8.07	8.14	--	8.41	--	7.96	8.30	7.41	--	8.24	8.24	8.44	8.20	8.48	7.44	7.83	8.18
Temperature, ambient	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	32.78	14.44
Temperature, field	Deg C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	13.33	16.06	16.45	--	16.00	--	15.46	16.72	16.94	--	15.1	15.1	13.20	15.36	13.44	12.27	14.97	13.68
Turbidity, field	NTU	3.23	2.62	0	--	--	--	0.91	3.30	1.12	--	0	0	2.3	4.5	0.0	0	1.4	0.9

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.

Groundwater Analytical Data (March 2018 through 2025)
Louisa Generating Station - East Monofill
Muscatine, Iowa

Sample Location:		MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234	MW-234
Sample ID:		MW-234_20_12	MW234_21_03	MW-234_21_05	MW-234_21_09	MW234_22_03	MW-234_22_09	MW-234_23_03	MW-234_23_09	MW-234_24_03	MW-234_24_08	MW-234_25_03	MW-234_25_09
Sample Date:		12/2/2020	3/24/2021	5/25/2021	9/15/2021	3/23/2022	9/29/2022	3/7/2023	9/25/2023	3/11/2024	8/27/2024	3/24/2025	9/9/2025
Parameters	Units												
Appendix III													
Boron	mg/L	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	23.6	24.5	25.0	29.1	28.0	33.5	40.5	38.7	43.0	35.3	35.3	27.5
Chloride	mg/L	--	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	6.24	5.00 U	5.00 U
Fluoride	mg/L	--	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	--	8.3 J	8.4 J	8.5 J	8.2 J	8.2 J	8.3 J	8.2 J	8.0 J	8.2 J	8.3 J	8.2 J
Sulfate	mg/L	--	5.00 U	7.01	17.0	6.73	17.9	18.1	27.8	27.9	32.4	25.6	20.1
Total dissolved solids (TDS)	mg/L	--	82.0	100	94.0	94.0	146	148	158	192	156	174	144
Appendix IV													
Antimony	mg/L	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	--	0.0160	0.0157	0.0173	0.0209	0.0222	0.0260	0.0264	0.0304	0.0231	0.0270	0.0204
Beryllium	mg/L	--	0.00100 U	--	0.00100 U	0.00100 U	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	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	--	0.000566	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000675	0.000700	0.000500 U	0.00137 U	0.000500 U
Lithium	mg/L	--	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	--	0.000200 U	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	--	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	--	0.118 U	--	0.121 U	-0.147 U	1.33	0.219 U	0.346 U	0.127 U	0.249	0.621	1.17
Selenium	mg/L	--	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Field													
Conductivity, field	mS/cm	0.74	0.19	0.187	--	--	0.27	0.29	0.3	0.34	0.28	0.28	0.243
Dissolved oxygen (DO), field	mg/L	7.3	10.69	8.03	--	--	9.94	10.41	10.49	10.44	10.25	11.03	10.02
Oxidation reduction potential (ORP), field	millivolts	275	94.4	192	--	--	11.7	78.8	80.1	118.7	165.5	14.9	183.6
pH, field	s.u.	8.03	7.87	8.3	--	--	8.65	7.84	7.92	7.87	7.89	7.62	8.19
Temperature, ambient	Deg C	--	--	--	--	--	--	2.22	26.67	--	--	--	--
Temperature, field	Deg C	--	--	20.66	--	--	--	--	--	--	--	--	--
Temperature, sample	Deg C	13.27	12.65	--	--	--	14.5	12.55	14.8	14.61	16.31	12.76	14.8
Turbidity, field	NTU	0	1.74	3	--	--	2.55	4.24	0	0.76	5.28	0	0

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
R - Rejected.



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