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Our ref: 12575233-LTR-9

January 30, 2026

Mr. Brian Rath
Environmental Engineer Senior
Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources
6200 Park Avenue, Suite 200
Des Moines, Iowa 50321

2025 IDNR Template Tables
Louisa Generating Station West Monofill
Muscatine, Iowa
Permit 70-SDP-17-04C

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 Amstrong.

Regards,

Kevin G. Armstrong
Hydrogeologist

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KA/mss/9/S4

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

Table 7

Summary of Ongoing and Newly Identified Control Limit Exceedances
2025 Annual Water Quality Report
Louisa Generating Station - West Monofill
Permit No. 70-SDP-17-04C

Well	Constituent	Units	Most recent result	Background Standard	Groundwater Protection Standard 40 CFR §257.95(h)
MW-03 (Background)	None	--	--	--	--
MW-04 (Background)	pH, lab	s.u.	7.4 J	7.53 - 8.29	None
	Radium-226 & 228	pCi/L	1.06	0.640	5
MW-17R	pH, lab	s.u.	7.3 J	7.53 - 8.29	None
	Radium-226 & 228	pCi/L	0.952	0.640	5
MW-18A	pH, lab	s.u.	6.8 J	7.53-8.29	None
MW-20A	pH, lab	s.u.	6.6 J	7.53-8.29	None
MW-21	Calcium	mg/L	100	73.1	None
	Chloride	mg/L	13.6	9.95	None
	Sulfate	mg/L	125	63.6	None
	Total Dissolved Solids (TDS)	mg/L	510	389	None
	Barium	mg/L	0.101	0.0688	2.0
	Radium-226 & 228	pCi/L	1.03	0.640	5
MW-22	pH, lab	s.u.	7.3 J / 7.3 J	7.53-8.29	None
	Chromium	mg/L	0.0166 / 0.0165	0.0153	0.1
	Molybdenum	mg/L	0.0340 / 0.0341	0.000200 U	0.100
	Radium-226 & 228	pCi/L	0.519 / 1.19	0.640	5

Comments:

Statistics are based on the background concentration (inter-well prediction limit) developed in accordance with the Federal CCR rule. Table 4.4 of the Annual Groundwater Monitoring and Corrective Action Report compares the MCL, GWPS, and background concentrations for the Appendix IV Parameters. The background concentration is used as the site-specific GWPS when higher than the MCL or GWPS.

Table 4.3 of the Annual Groundwater Monitoring and Corrective Action Report provides the background concentrations established for the Appendix III and IV analytes.

The following Appendix III/IV analyte(s) are compared to the background concentrations, no IDNR Action Level has been established: calcium.

The following Appendix III analyte(s) are compared to the background concentrations, which are higher than the IDNR Action Level: None.

The following Appendix IV analyte(s) are compared to the background concentrations, which are higher than the IDNR Action Level: None.

Table 9

Historical Control Limit & GWPS Exceedances
2025 Annual Water Quality Report
Louisa Generating Station - West Monofill
Permit No. 70-SDP-17-04C

Key: gray =CL; black =GWPS		March	June	September	March	September	November	March	September	March	September	March	August	March	September
Well	Constituent	2020	2020	2020	2021	2021	2021	2022	2022	2023	2023	2024	2024	2025	2025
MW-03 (Background)	pH, lab		*ns*				*ns*								
	Arsenic		*ns*	*na*			*ns*								
	Cadmium		*ns*	*na*			*ns*								
	Cobalt		*ns*	*na*			*ns*								
	Lead		*ns*				*ns*								
	Molybdenum		*ns*				*ns*								
	Radium-226 & 228		*ns*				*ns*								
	Thallium		*ns*	*na*			*ns*								
MW-04 (Background)	pH, lab		*ns*				*ns*								
	Boron		*ns*				*ns*								
	Chloride		*ns*				*ns*								
	Radium-226 & 228		*ns*				*ns*								
	Selenium		*ns*				*ns*								
MW-17R	pH, lab		*ns*				*ns*								
	Sulfate		*ns*				*ns*								
	Radium-226 & 228		*ns*				*ns*								
MW-18A	pH, lab		*na*				*ns*								
	Sulfate						*ns*								
	Selenium		*na*				*ns*								
MW-20A	Chloride		*na*				*ns*								
	pH, lab						*ns*								
	Sulfate		*na*				*ns*								
	Total Dissolved Solids (TDS)		*na*				*ns*								
	Arsenic		*na*	*na*			*ns*								
	Barium		*na*				*ns*								
	Beryllium		*na*	*na*			*ns*								
	Cadmium		*na*	*na*			*ns*								
	Cobalt		*na*	*na*			*ns*								
	Lead		*na*				*ns*								
	Molybdenum		*na*				*ns*								
	Radium-226 & 228		*na*				*ns*								
	Selenium		*na*				*ns*								
	Thallium		*na*	*na*			*ns*								
MW-21	Calcium		*ns*				*ns*								
	Chloride		*ns*				*ns*								
	pH, lab		*ns*				*ns*								
	Sulfate		*ns*				*ns*								
	Total Dissolved Solids (TDS)		*ns*				*ns*								
	Barium		*ns*				*ns*								
	Radium-226 & 228		*ns*				*ns*								
MW-22	Boron														
	Chloride		*na*				*na*								
	pH, lab		*na*				*na*								
	Sulfate						*na*								
	Chromium						*na*								
	Molybdenum						*na*								
	Radium-226 & 228		*na*				*na*								
	Selenium						*na*								

Comments:

ns - No sample collected during this sampling event.

na - Constituent not analyzed.

Statistics are based on the background concentration (inter-well prediction limit) developed in accordance with the Federal CCR rule.

Table 4.4 of the Annual Groundwater Monitoring and Corrective Action Report compares the MCL, GWPS, and background concentrations for the Appendix IV Parameters. The background concentration is used as the site-specific GWPS when higher than the MCL or GWPS.

Table 4.3 of the Annual Groundwater Monitoring and Corrective Action Report provides the background concentrations established for the Appendix III and IV analytes.

The following Appendix III/IV analyte(s) are compared to the background concentrations, no IDNR Action Level has been established: calcium.

The following Appendix III analyte(s) are compared to the background concentrations, which are higher than the IDNR Action Level: None.

The following Appendix IV analyte(s) are compared to the background concentrations, which are higher than the IDNR Action Level: None.

Grey shading indicates exceedance of the background concentration.

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 West Monofill Groundwater
MidAmerican Energy Company
Louisa Generating Station - West CCR Monofill
Permit No. 70-SDP-17-04C

Analytes	Units	IDNR CCR Rule *567 IAC Chapter 103, paragraph 103.1(4)d* MCL [a]	HAL [b]	SDWR [c]	Federal CCR Rule *40 CFR 257.95(h)(1) - 40 CFR 257.95(h)(3)* MCL [a]	CCR Rule GWPS [d]	Site-Specific Background [e]	Site-Specific GWPS	Proposed Basis for Comparison on IDNR Template Tables
Appendix III									
Boron	mg/L	--	6	--	--	--	0.588	none	Use HAL.
Calcium	mg/L	--	--	--	--	--	**73.1**	none	**No MCL or HAL, so use background for comparison.**
Chloride	mg/L	--	--	250	--	--	9.95	none	Use secondary MCL.
pH, lab	s.u.	--	--	6.5-8.5	--	--	7.53-8.29	none	Use secondary MCL.
Sulfate	mg/L	--	--	250	--	--	63.6	none	Use secondry MCL.
TDS	mg/L	--	--	500	--	--	389	none	Use secondry MCL.
Appendix IV									
Antimony	mg/L	0.006	0.006	--	0.006	--	0.00200 U	0.006 [a]	Federal site-specific GWPS equal to the MCL and HAL.
Arsenic	mg/L	0.01	--	--	0.01	--	0.00200 U	0.01 [a]	Federal site-specific GWPS equal to the MCL.
Barium	mg/L	2.0	--	--	2.0	--	0.0688	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	--	0.0153	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	--	1.74	4.0 [a]	Federal site-specific GWPS equal to the MCL.
Lead	mg/L	0.015 [f]	--	2.0	--	0.015	0.000500 U	0.015 [d]	Federal site-specific GWPS equal to the MCL.
Lithium	mg/L	--	--	--	--	0.040	0.0100 U	**0.040** [d]	**Federal GWPS (no MCL or HAL).**
Mercury	mg/L	0.002	0.002	--	0.002	--	0.000200 U	0.002 [a]	Federal site-specific GWPS equal to the MCL and HAL.
Molybdenum	mg/L	--	0.04	--	--	0.100	0.000200 U	**0.100** [d]	**Federal GWPS (higher than the HAL).**
Radium-226 & 22	pCi/L	5	--	--	5	--	0.64	5 [a]	Federal site-specific GWPS equal to the MCL.
Selenium	mg/L	0.05	0.05	--	0.05	--	0.00500 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 limits) developed in accordance with the Federal CCR rule, determined from baseline data set for MW-3, MW-4, and MW-17R (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 West Monofill - Muscatine, Iowa
Permit No. 70-SDP-17-04C

Sample Location:					MW-03	MW-03	MW-04	MW-04	MW-17R	MW-17R	MW-18A	MW-18A	MW-20A
Sample ID:					MW03-GW-0325	MW03-GW-0925	MW04-GW-0325	MW04-GW-0925	MW17R-GW-0325	MW17R-GW-0925	MW18A-GW-0325	MW18A-GW-0925	MW20A-GW-0325
Sample Date:					3/25/2025	9/3/2025	3/25/2025	9/3/2025	3/25/2025	9/3/2025	3/25/2025	9/3/2025	3/25/2025
Parameters	**Units**	**MCL [a]**	**HAL [b]**	**SDWR [c]**									
Appendix III													
Boron	mg/L	--	6	--	0.100 U	0.100 U	0.434	0.300	0.100 U	0.100 U	0.125	0.288	0.171
Calcium	mg/L	--	--	--	23.4	29.6	46.1	45.5	40.6	37.9	43.1	40.2	41.2
Chloride	mg/L	--	--	250	5.00 U	5.00 U	5.00 U	6.31	5.00 U	5.00 U	8.50	5.00 U	10.1
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	1.00 U
pH, lab	s.u.	--	--	6.5 - 8.5	8.5 J	7.7 J	7.9 J	7.4 J	8.1 J	7.3 J	7.1 J	6.8 J	7.2 J
Sulfate	mg/L	--	--	250	5.38	5.09	11.6	26.0	24.5	15.5	27.8	28.8	50.4
Total dissolved solids (TDS)	mg/L	--	--	500	84.0	140	222	252	172	180	168	202	228
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	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	0.00200 U
Barium	mg/L	2.0	--	--	0.0152	0.0177	0.0518	0.0441	0.0348	0.0302	0.0301	0.0332	0.0446
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	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	0.000200 U
Chromium	mg/L	0.1	--	--	0.00500 U	0.00500 U	0.00500 U	0.00542	0.00500 U	0.00500 U	0.00539	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
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	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	0.002	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	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	0.00200 U
Radium-226 & 228	pCi/L	5	--	--	-0.139	0.394	0.149	1.06	0.484	0.952	0.578	0.602	0.172
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	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	0.00100 U

2025 Monitoring Analytical Results Summary
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa
Permit No. 70-SDP-17-04C

Sample Location:		MW-20A	MW-21	MW-21	MW-22	MW-22	MW-22	MW-22
Sample ID:		MW20A-GW-0925	MW21-GW-0325	MW21-GW-0925	MW22-GW-0325	DP02-GW-0325	MW22-GW-0925	DP02-GW-0925
Sample Date:		9/3/2025	3/25/2025	9/3/2025	3/25/2025	3/25/2025 (Duplicate)	9/3/2025	9/3/2025 (Duplicate)
Parameters	**Units**							
Appendix III								
Boron	mg/L	0.153	0.100 U	0.122	0.483	0.474	0.397	0.390
Calcium	mg/L	23.9	53.0	100	40.7	40.6	31.3	31.0
Chloride	mg/L	5.00 U	10.5	13.6	11.5	11.8	7.50	7.51
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.	6.6 J	7.7 J	7.8 J	7.2 J	7.2 J	7.3 J	7.3 J
Sulfate	mg/L	40.3	30.4	125	75.2	77.0	36.5	36.3
Total dissolved solids (TDS)	mg/L	178	230	**510**	258	264	226	220
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	0.0242	0.0554	0.101	0.0296	0.0290	0.0255	0.0253
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	0.0196	0.0194	0.0166	0.0165
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	0.0288	0.0291	0.0340	0.0341
Radium-226 & 228	pCi/L	0.562	0.231	1.03	0.385	0.672	0.519	1.19
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

Notes:

[a] Maximum contaminant level (MCL) estabilised 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

IDNR Template to AGWMCAR Cross Reference Table

Louisa Generating Station - West Monofill
Permit No. 70-SDP-17-04C

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 December 2015.
	Table 4.3 Inter-Well Comparisons for Monitoring Data vs. Upgradient Background Prediction Limits	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 December 2015.
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 4.3 Inter-Well Comparisons for Monitoring Data vs. Upgradient Background Prediction Limits	Provides the prediction limit value (background level).
Table 6 Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances	Table 4.3 Inter-Well Comparisons for Monitoring Data vs. Upgradient Background Prediction Limits	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 Baseline Period Groundwater Monitoring Data	Provides groundwater analytical data from the baseline period at the CCR Monofill.
	Table 4.2 Monitoring Analytical Results Summary	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	NA	Not applicable since the West Monofill does not have a Leachate Collection System.
Table 12 Gas Monitoring Summary	NA	Not applicable since the West Monofill holds CCR and does not generate gas.

Annual Groundwater Monitoring and Corrective Action Report for the West Monofill

Permit 70-SDP-17-04C
Louisa Generating Station
Muscatine, Iowa

MidAmerican Energy Company

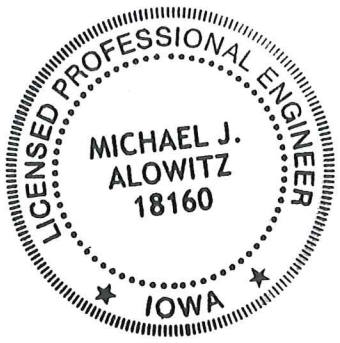
January 30, 2026

The Power of Commitment

Certification

Annual Groundwater Monitoring and Corrective Action Report for the West Monofill
Permit 70-SDP-17-04C
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: 1/30/2026

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) West 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 this 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 this annual reporting period, this CCR unit continued to operate 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	Ongoing, verified statistically significant increases were detected for the following Appendix III constituents during the calendar year 2025 reporting period: – Chloride SSI at MW-21
Provide the date when the assessment monitoring program was initiated for the CCR unit.	The assessment monitoring program for this CCR unit was initiated in April 2018.
(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 constituent was detected at a statistically significant level above the groundwater protection standard.
Provide the date when the assessment of corrective measures was initiated for the CCR unit;	No corrective measures activities are 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	No corrective measures activities are required for this CCR unit.
Provide the date when the assessment of corrective measures was completed for the CCR unit.	No corrective measures activities are 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	No corrective measures activities are 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 are required for this CCR unit.

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Appendices

1. Introduction

This *Annual Groundwater Monitoring and Corrective Action Report* was prepared by GHD Services Inc. (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) West Monofill located near Muscatine, Iowa. The West Monofill is located approximately 4 miles south of the city of Muscatine, Iowa in the southwest quarter of Section 33, Township 76 North, and Range 2 West and northwest quarter of Section 4, Township 75 North, and Range 2 West in Louisa and Muscatine counties, Iowa. The Site Location Map (Figure 1.1) shows the location of the West Monofill and MidAmerican's LGS facilities. The East Monofill at the LGS facility is in use and its groundwater monitoring is reported separately from the West Monofill. The West Monofill, East Monofill and associated monitoring well locations are shown on Figure 1.2.

MidAmerican initiated baseline groundwater monitoring at the West Monofill in accordance with the Federal CCR rule in December 2015. The initial eight rounds of baseline monitoring, sampling, and analysis were completed prior to the October 17, 2017 deadline established in the Federal CCR rule (40 CFR §257.94). Data for the eight required baseline monitoring events and the first detection monitoring event were presented in the annual report dated January 30, 2018 (Terracon, 2018a). Two semiannual assessment monitoring events were conducted during 2025 (on March 24-25 and September 3, 2025).

On May 1, 2018, MidAmerican completed an alternative source determination (GHD, 2018a) for the West Monofill which determined the West Monofill is not the source of statistically significant decreases (SSDs) of pH detected in groundwater. Statistically significant increases (SSIs) were detected in groundwater; therefore, the West Monofill entered into assessment monitoring during 2018 (GHD, 2018b) and remained in assessment monitoring in 2025. The 2025 semiannual assessment monitoring events were completed in accordance with 40 CFR §257.95.

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 & Steinhilber, 1977).

2. Groundwater Monitoring Activities

2.1 Groundwater Monitoring Network

The groundwater monitoring network consists of eight monitoring wells (MW-02, MW-03, MW-04, MW-17R, MW-18A, MW-20A, MW-21, and MW-22) (Table 2.1). No changes to the groundwater monitoring network were made during this reporting period. Groundwater elevation data were collected from the eight monitoring wells, and groundwater samples were collected from seven of the monitoring wells (MW-03, MW-04, MW-17R, MW-18A, MW-20A, MW-21, and MW-22). The seven sampled monitoring wells and the one remaining well are screened near the water table (which occurs at a depth of approximately 12 to 50 feet bgs in the area). Horizontal spacing between the downgradient shallow alluvial aquifer monitoring wells range from about 700 feet to 1,300 feet. Groundwater samples are used to assess potential impacts of the West Monofill on surrounding groundwater. Well construction details are provided in Table 2.2. Groundwater elevation data are used to identify upgradient and downgradient monitoring points at the West Monofill.

2.2 Monitoring Well Inspection

During each sampling event, the monitoring wells were visually inspected, and if present, deficient conditions of the monitoring wells were noted on the field forms (Appendix A). Monitoring 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. The monitoring wells were found to be in generally good condition, with no issues affecting well or sample integrity. Due to the surrounding topography, sediment has accumulated on top of some of the monitoring 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. The total depth measurements collected in 2025 indicate no monitoring wells were occluded at or above the 10 percent criterion.

2.3 Sample Collection

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

Prior to sample collection, 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 2025 monitoring events are included in Appendix A. During each of the monitoring events, a field duplicate sample was collected for quality assurance/quality control (QA/QC) purposes. A duplicate sample was collected from MW-22 during the March 2025 and September 2025 sampling events.

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, respectively) for the March and September 2025 monitoring events. The laboratory analyses were conducted by Eurofins Environment Testing North Central, LLC (Eurofins) in Cedar Falls, Iowa except for radium 226 and 228 (combined) analyses which 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 (September 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 for use as noted in the data tables.

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. Table 3.1 presents groundwater elevations measured in wells during the March and September sampling events at the West Monofill. A groundwater flow map was prepared using water level measurements from each monitoring event for the alluvial aquifer associated with the West Monofill and the East Monofill (Figures 3.1 and 3.2). The inferred groundwater flow direction during the March 2025 monitoring event was northwest across the West Monofill area; inferred groundwater flow direction was westerly across the West Monofill area during the September 2025 event. The variations in groundwater elevation and flow direction observed during the monitoring events are likely a result of variability in the amount and rate of infiltration of precipitation and potentially elevations of irrigation wells to the west of the Site.

3.2 Horizontal Hydraulic Gradient and Groundwater Flow Velocity

Hydraulic conductivity estimates for the alluvial aquifer at the West Monofill were derived from single well-specific capacity tests and ranged from 0.0293 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]) (Terracon, 2018a).

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 two recent monitoring events at the West Monofill, the average linear groundwater velocity at the water table (shallow alluvial aquifer) was estimated to range between 0.11 m/day (approximately 140 feet per year), calculated for the March 2025 monitoring event, and 0.14 m/day (approximately 170 feet per year), calculated for the September 2025 monitoring event. The estimated horizontal gradients and average linear groundwater flow velocities for each of the monitoring events is summarized in Table 3.2.

3.3 Monitoring Well Network Assessment

Groundwater elevations were within the screened interval in all wells during the March 2025 gauging and sampling event and above the screened interval except in monitoring wells MW-02 (March and September), MW-21 (September), and MW-22 (September). Table 2.2 provides the top and bottom of screen elevations and Table 3.1 provides the water table elevations measured in each well during the gauging events.

The West 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 Code of Federal Regulation CFR Part 257, Section 91. Monitoring wells MW-03, MW-04, and MW-17R have been identified as background sampling locations.

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 plots of concentration versus time for each analyte in the current monitoring program. Analytical results for groundwater samples collected during the eight baseline monitoring events (December 2015 through July 2017) and the 2025 monitoring events are summarized in Tables 4.1 and 4.2, respectively. The cumulative groundwater analytical database for the West Monofill monitoring network from December 2015 through 2025 is provided in Appendix D.

4.1 Statistical Analysis Approach

As required by the Federal CCR rule 40 CFR §257.90(b), prior to October 17, 2017, the owner or operator of the CCR unit must develop the groundwater sampling and analysis program to include selection and certification of the statistical procedures to be used for evaluating groundwater monitoring data as required by section 257.93. The Groundwater Statistical Method Certification (Terracon, 2018b) uses an inter-well prediction interval statistical analysis. The selected statistical methods for the Site include trend analysis utilizing the Sen's Slope/Mann-Kendall method and an inter-well prediction interval to analyze the laboratory analytical data for an SSI. The statistical analyses and methods were conducted in general accordance with and conform to the performance standards of the Federal CCR rule.

During the December 2015 through December 2017 baseline monitoring period, trend analysis was conducted on each monitoring well during each monitoring event (background and compliance) for the laboratory measured Detection Monitoring parameters (Appendix III, 40 CFR 257) and each Site monitoring well during the background monitoring events for the laboratory measured Assessment Monitoring parameters (Appendix IV, 40 CFR 257).

Inter-well prediction limit intervals were prepared for each Appendix III and Appendix IV parameter using the combined background monitoring data collected from monitoring wells MW-03, MW-04, and MW-17R.

The inter-well prediction limit for lithium was updated in the 2023 AGWMCAR (GHD, 2024) due to a change in the laboratory's method report limit for lithium; beginning with the 2018 monitoring events the lithium reporting limit was reduced from 0.0500 milligrams per liter (mg/L) to 0.0100 mg/L. The inter-well prediction limit for antimony was updated as part of the 2024 AGWMCAR (GHD, 2025) due to a change in the laboratory's method report limit for antimony; beginning with the 2021 monitoring events the antimony reporting limit was increased from 0.00100 mg/L to 0.00200 mg/L. Changes to the laboratory reporting limit for cadmium have also occurred and recalculation of the inter-well prediction limits for cadmium will be considered after eight samples at the new reporting limit have been obtained.

4.2 Assessment of Baseline Data

4.2.1 Stability Assessment/Baseline Period Trend Analysis

The assessment of temporal trends is included as a precursor to inter-well comparisons, as the statistical methods for these comparisons assume that a stable condition is present in the reference data set (i.e., the upgradient background data set for inter-well comparisons). Where a trend is identified, the comparison procedures must be adjusted to take this into account.

The Methods Certification selected the Sen's Slope/Mann-Kendall Trend Test statistical procedures for evaluating trends in the baseline data. The applicability and methodology are discussed in the Methods Certification. The baseline data sets presented in Table 4.1 were subjected to trend testing as described above. Trends were found for the following wells/constituents (Terracon, 2018a):

– Decreasing trend for calcium at MW-22.

– Increasing trend for total dissolved solids (TDS) at MW-03 and MW-20A.
– Increasing trend for chloride at MW-20A.
– Increasing trend for sulfate at MW-04 and MW-20A.
– Decreasing trend for barium at MW-22.
– Increasing trend for molybdenum at MW-22.

4.3 Evaluation of 2025 Assessment Monitoring Data

4.3.1 Inter-well Comparisons (versus Upgradient Background)

Inter-well comparisons of current monitoring data are conducted by comparing monitoring data from the 2025 monitoring events (March and September 2025) to the upgradient background predication limits derived from the baseline period data at the upgradient wells (MW-03, MW-04, and MW-17R). These comparisons are presented in Table 4.3.

The results of the inter-well comparisons indicate observations where one or both 2025 assessment monitoring events have a constituent concentration or measurement outside of baseline conditions in the upgradient wells. These include the following potentially statistically significant increases (SSIs) or decreases (SSDs):

– Calcium SSI at MW-21.
– Chloride SSI at MW-20A, MW-21, and MW-22.
– pH SSI at upgradient well MW-03.
– pH SSD at upgradient wells MW-04 and MW-17R and downgradient wells MW-18A, MW-20A, and MW-22.
– Sulfate SSI at MW-21 and MW-22.
– TDS SSI at MW-21.
– Barium SSI at MW-21.
– Chromium SSI at MW-22.
– Molybdenum SSI at MW-22.
– Radium 226 and 228 (combined) SSI at MW-04 (upgradient), MW-17R (upgradient), MW-21, and MW-22.

Ongoing, verified SSIs or SSDs following the September 2025 event include:

– Chloride SSI at MW-21.
– pH SSD at MW-18A, MW-20A, and MW-22.
– Chromium SSI at MW-22.
– Molybdenum SSI at MW-22.
– Radium 226 and 228 (combined) SSI at MW-22.

4.4 Comparison to Maximum Contaminant Levels (MCLs)

The 2025 sample results are compared to the USEPA MCL for constituents with an MCL. During the March and September 2025 semiannual assessment monitoring events, all Appendix III and Appendix IV parameters were analyzed. A summary of these sample results compared to groundwater protection standards (GWPSs) is provided in Table 4.4.

4.4.1 Appendix III Analytes

– Boron. No MCL has been established for boron. Three wells had detections of boron during the March 2025 sampling event and four monitoring wells had detections of boron during the September 2025 sampling event.

The maximum boron concentration in the 2025 samples was 0.483 milligrams per liter (mg/L) at MW-22 in March 2025.

- Calcium. No MCL has been established for calcium. The maximum calcium concentration in the 2025 samples was 100 mg/L at downgradient monitoring well MW-21 (September 2025).
- Chloride. No MCL has been established for chloride. The maximum chloride concentration detected in the 2025 samples was 13.6 mg/L at MW-21 (downgradient), during the September sampling event.
- Fluoride. The MCL for fluoride is 4.0 mg/L. Fluoride concentrations were below the method reporting limit (1.0 mg/L) in all samples collected in 2025.
- pH. No MCL has been established for pH. The lowest pH recorded during 2025 was 6.6 at downgradient monitoring well MW-20A in September 2025. The highest pH recorded during the 2025 assessment monitoring events was 8.5 at upgradient monitoring well MW-03 in March 2025.
- Sulfate. No MCL has been established for sulfate. The maximum sulfate concentration detected in the 2025 samples was 125 mg/L at downgradient monitoring well MW-21 in September 2025.
- TDS. No MCL has been established for TDS. The maximum TDS concentration detected in the 2025 samples was 510 mg/L at downgradient monitoring well MW-21 in September 2025.

4.4.2 Appendix IV Analytes

- 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 during the 2025 event in all monitoring wells.
- Barium. Barium was detected in all monitored wells during the 2025 monitoring events. However, the detected levels were below the MCL for barium (2.0 mg/L), with a maximum detected concentration in the 2025 samples of 0.101 mg/L at downgradient monitoring well MW-21 (September 2025).
- 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 was detected in monitoring wells MW-04, MW-18A, and MW-22 at concentrations below the established MCL (0.1 mg/L). All other samples were below the detection limit of 0.00500 mg/L. The maximum concentration of chromium detected in the 2025 samples was 0.0196 mg/L at downgradient monitoring well MW-22 during March 2025.
- Cobalt. No MCL has been established for cobalt; the GWPS established under 40 CFR §257.95(h)(2) for cobalt is 0.006 mg/L. Cobalt concentrations were below the method reporting limit (0.000500 mg/L) in all monitoring wells during the 2025 monitoring events.
- Fluoride. The MCL for fluoride is 4.0 mg/L. Fluoride concentrations were below the method reporting limit (1.0 mg/L) in all samples collected in 2025.
- 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 method reporting limit (0.000500 mg/L) in all monitoring wells during the 2025 monitoring events.
- 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 only detected in downgradient

monitoring well MW-22 with a maximum concentration of 0.0341 mg/L in the duplicate sample during the March 2025 sampling event. Molybdenum was not detected at concentrations exceeding the method reporting limit (0.00200 mg/L) at other wells during the 2025 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 in each monitoring well during the 2025 monitoring events. The maximum detected concentration was 1.19 pCi/L at downgradient monitoring well MW-22 in the duplicate sample during the September 2025 monitoring event, which is below the MCL.
- Selenium. The MCL for selenium is 0.05 mg/L and method reporting limit is 0.00500 mg/L. Selenium was not detected at concentrations exceeding the method reporting limit during the 2025 events.
- 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 each monitoring well 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 was completed for the West Monofill (GHD, 2018b) and is summarized below.

5.1 Description of Alternate Source Determination

As described in the 2017 Annual Groundwater Monitoring and Corrective Action Report (Terracon, 2018a), based on the inter-well prediction interval lower limit of 7.603 for pH, an SSD (pH below the lower limit) was identified at monitoring wells MW-18A, MW-20A, and MW-22 for the October 2017 compliance monitoring event. This SSD was verified by sampling completed in February 2018. The SSD continued in the March 2019 event at all three monitoring wells and in September 2019 in MW-20A and MW-22. During 2020, the pH SSD was observed in March 2020 in MW-20A and in September 2020 in MW-18A and MW-20A. From 2021 to 2023, the pH SSD was observed in MW-18A, MW-20A, and MW-22. In 2024 the pH SSD was observed in MW-18A and MW-22. In 2025, confirmed pH SSDs were observed at MW-18A, MW-20A, and MW-22.

For most characteristics of groundwater evaluated, an SSI is subject to additional evaluation. For pH, however, both an SSI and an SSD indicate potential changes to groundwater quality relative to background concentrations. The Alternate Source Determination Report (GHD, 2018a) addressed an SSD for pH.

MidAmerican developed a new, lined CCR Monofill (East Monofill) at the LGS facility. The East Monofill is located upgradient of the West Monofill. No CCR storage or disposal occurred in the East Monofill prior to October 15, 2018 and no CCR storage or disposal occurred upgradient of the East Monofill. As part of the work associated with the East Monofill, MidAmerican initiated groundwater monitoring of that area in 2017. Groundwater flow is generally to the west-northwest, from the East Monofill, toward the West Monofill.

An impact to groundwater from the West Monofill would be expected as an increase in pH. However, based on available groundwater monitoring data, naturally occurring groundwater conditions demonstrate decreasing pH concentrations from the East Monofill area to the West Monofill background wells to the West Monofill downgradient wells with the SSD.

5.2 Alternate Source Determination Conclusion

As demonstrated in the alternate source determination evaluation, the West Monofill is not the source of the observed pH SSDs in groundwater.

6. Conclusions and Recommendations

6.1 Groundwater Flow and Evaluation of the Monitoring Network

Groundwater flow in the vicinity of the West Monofill was observed to be in northwest or westerly directions during the 2025 monitoring events. The groundwater flow evaluation (see Figures 3.1 and 3.2) indicates the monitoring network is sufficient and has appropriately located upgradient and downgradient well locations.

In an August 4, 2023 comment letter regarding the 2022 AGWMCAR, the Iowa Department of Natural Resources (IDNR) requested a clarification regarding the use of inter-well prediction limits at MW-03 and if MW-03 remains a valid background point monitoring for the West Monofill. The IDNR noted the 2022 results from MW-03 exceeded the inter-well prediction limits for several parameters (arsenic, cadmium, cobalt, lead, molybdenum, radium and thallium during one or both 2022 events).

Hydraulicly, MW-03 remains consistently upgradient of the West Monofill (Figures 3.1 and 3.2) and is a valid upgradient monitoring point. Additionally, none of the Appendix IV constituents observed to be above the inter-well prediction limits during 2022 were above the inter-well prediction limits in the subsequent (2023 through 2025) data; this suggests the 2022 SSIs were unrelated to the West Monofill and MW-03 remains a valid background monitoring location. MW-03 and the other upgradient monitoring wells will continue to be evaluated to consider their appropriateness as background monitoring locations.

6.2 Groundwater Quality

The statistical evaluation of groundwater monitoring data collected during the baseline period (December 2015 to July 2017) was conducted in accordance with the Federal CCR rule and Unified Guidance for assessing groundwater data (USEPA, 2009). This evaluation (Terracon, 2018a) was successful in characterizing the baseline data sets, assessing the baseline data for trends, and generating inter-well upgradient background reference values and intra-well baseline values against which future monitoring data may be evaluated.

An assessment of monitoring data from samples collected during the two 2025 assessment monitoring events has been conducted. Key results of the evaluation include:

– Statistically significant concentration trends over time were observed in some baseline data sets at both downgradient wells and upgradient wells.
– Inter-well baseline values (prediction limits) have been calculated from the baseline data for three upgradient background wells (MW-03, MW-04, and MW-17R). The inter-well prediction limits for lithium and antimony were updated in 2023 and 2024, respectively, due to changes in the laboratory's reporting limits.
– Inter-well comparisons of the 2025 assessment monitoring data indicate the following:
    - The monitoring results at downgradient wells are mainly consistent with upgradient background conditions during the baseline period. The exceptions include verified SSDs of pH at MW-18A, MW-20A, and MW-22; and verified SSIs of chloride at MW-21 and chromium, molybdenum, and radium 226 and 228 (combined) at MW-22.
    - All Appendix IV constituents were detected at concentrations below the corresponding MCL or GWPS established under 40 CFR §257.95(h)(2) during the 2025 monitoring period.

6.3 Recommendations

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

7. References

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Tables

Table 2.1

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

Monitoring Well	Use in Monitoring Network	Role in Monitoring Network
MW-02	Gauged Only	Gauging Location
MW-03	Gauged and Sampled	Background Location
MW-04	Gauged and Sampled	Background Location
MW-17R	Gauged and Sampled	Background Location
MW-18A	Gauged and Sampled	Downgradient Location
MW-20A	Gauged and Sampled	Downgradient Location
MW-21	Gauged and Sampled	Downgradient Location
MW-22	Gauged and Sampled	Downgradient Location

Table 2.2

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

			Monitoring Well Construction					
Well Identification	Northing	Easting	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	19.31	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.
There is a discrepancy in past total depth measurements of MW-02, likely due to changes to the protective well casing post-construction. No well log exists for MW-02 (MWH, 2004), so the total depth was calculated from the average of measured values from 2015 to 2021.

Table 2.3

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

Well	Top of Casing Elevation (NAVD88)	Total Well Depth Below Top of Casing (feet BTOC)	Screen Length (feet)	5-Sep-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-02	547.03	19.31[a]	10	NA		19.59	-2.8%	19.63	-3.2%	19.72	-4.1%	19.68	-3.70%	20.37	-10.60%
MW-03	580.39	58.20	10	58.20	0.0%	58.21	-0.1%	58.18	0.2%	58.25	-0.5%	58.14	0.60%	58.17	0.30%
MW-04	577.00	50.29	10	50.30	-0.1%	50.27	0.2%	50.27	0.2%	50.29	0.0%	50.28	0.10%	50.10	1.90%
MW-17R	579.90	52.67	10	52.65	0.2%	52.68	-0.1%	52.66	0.1%	52.67	0.0%	52.67	0.00%	52.62	0.50%
MW-18A	549.32	22.25	10	22.18	0.7%	22.11	1.4%	22.16	0.9%	22.19	0.6%	22.19	0.60%	22.29	-0.40%
MW-20A	547.21	22.45	10	22.40	0.5%	22.38	0.7%	22.38	0.7%	22.44	0.1%	22.40	0.50%	22.25	2.00%
MW-21	575.55	50.88	10	50.89	-0.1%	50.85	0.3%	50.85	0.3%	50.86	0.2%	50.85	0.30%	50.67	2.10%
MW-22	574.56	50.34	10	50.37	-0.3%	50.33	0.1%	50.30	0.4%	50.34	0.0%	50.32	0.20%	50.22	1.20%

Notes:

NA - No data available.

% - Percent.

[a] There is a discrepancy in past total depth measurements of MW-02, likely due to changes to the protective well casing post-construction. No well log exists for MW-02 (MWH, 2004), so the total depth was calculated from the average of measured values from 2015 to 2021.

Table 2.4

Appendix III Parameters (Detection Monitoring)
Louisa Generating Station - West 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

Table 2.5

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

	MW-03 (Upgradient)	MW-04 (Upgradient)	MW-17R (Upgradient)	MW-18A	MW-20A	MW-21	MW-22
Sampling Dates							
December 14, 2015	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
March 7, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
June 13, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
September 13, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
December 13, 2016	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
February 15, 2017	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
April 18, 2017	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
June 26, 2017	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
October 10-11, 2018	Detection	Detection	Detection	Detection	Detection	Detection	Detection
February 1, 2018	-	-	-	Verification	Verification	-	Verification
April 24, 2018	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
September 4, 2018	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
March 19-20, 2019	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
June 11, 2019	-	Verification	-	Verification	Verification	-	Verification
September 4-5, 2019	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
March 3-4, 2020	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
June 2-3, 2020	-	-	-	Verification	Verification	-	Verification
September 8-10, 2020	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
March 23-24, 2021	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
September 15-16, 2021	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
November 2, 2021	-	-	-	-	-	-	Verification
March 21-22, 2022	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
September 26-28, 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 11-14, 2024	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
August 26-28, 2024	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
March 24-26, 2025	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment
September 3, 2025	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment	Assessment

Table 2.6

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

	MW-03 (Upgradient)	MW-04 (Upgradient)	MW-17R (Upgradient)	MW-18A	MW-20A	MW-21	MW-22
Number of Samples							
Appendix III Analytes	24	24	24	24	24	24	24
Apendix IV Analytes	23	23	23	23	23	23	23

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 analytes only.
3. Assessment monitoring events include analysis of Appendix III and Appendix IV analytes.
4. Verification monitoring events include analysis of select Appendix III (Detection Monitoring) and Appendix IV (Assessment Monitoring) analytes.

Table 3.1

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

Well	Top of Casing Elevation (NAVD88)	Total Well Depth Below Top of Casing (feet BTOC)	15-Feb-2017 (NAVD88)	18-Apr-2017 (NAVD88)	26-Jun-2017 (NAVD88)	11-Oct-2017 (NAVD88)	1-Feb-2018 (NAVD88)	13-Mar-2018 (NAVD88)	24-Apr-2018 (NAVD88)	8-May-2018 (NAVD88)	10-Jul-2018 (NAVD88)	4-Sep-2018 (NAVD88)	19-Mar-2019 (NAVD88)	21-May-2019 (NAVD88)	11-Jun-2019 (NAVD88)	3-Sep-2019 (NAVD88)
MW-02	547.03	15.48	534.40	534.66		534.08	533.46	533.92	533.88	533.86	534.54	534.39	537.66	542.73	542.54	539.46
MW-03	580.39	58.20	534.77	535.08	536.53	534.35	533.58	534.02	534.10	534.19	535.81	534.92	537.96	543.46	544.03	540.41
MW-04	577.00	50.29	534.72	534.98	535.79	534.36	533.71	534.04	534.10	534.10	535.06	534.56	537.76	542.39	543.06	539.86
MW-17R	579.90	52.67	535.01	535.26	536.33	534.63	533.64	533.96	534.07	534.13	535.32	534.65	537.79	542.81	543.49	540.10
MW-18A	549.32	22.25	534.37	534.62	535.58	534.01	533.89	534.37	534.39			534.96	538.15	543.76	543.61	540.24
MW-20A	547.21	22.45	534.69	535.01	536.43	534.31	533.14	532.35	533.65	533.73	535.17	534.51	534.91	534.21	534.70	539.99
MW-21	575.55	50.88	534.79	535.14	536.79	534.36	533.36	533.84	532.93	534.06	535.78	534.79	537.82	543.43	543.87	540.27
MW-22	574.56	50.34	534.71	535.00	535.86	534.33	533.61	533.96	534.03	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	538.12	543.50	544.45	540.53
MW-202B [a]	578.78	82.60	-	-	-	-	-	533.96	-	534.57	536.36	535.23	538.14	543.52	544.49	540.54
MW-210A	578.23	50.88	-	-	-	-	-	534.28	-	534.48	535.80	535.02	537.95	542.75	544.00	540.39
MW-210B [a]	578.23	80.78	-	-	-	-	-	534.24	-	534.43	535.73	534.96	538.00	542.72	543.98	540.39
MW-213A [b]	578.27	48.49	-	-	-	-	-	535.16	-	535.86	537.73	536.06	538.59	543.38	544.94	540.36
MW-213B [a]	578.20	82.59	-	-	-	-	-	535.30	-	536.03	537.82	536.16	538.74	543.55	545.06	540.48
MW-221A	579.81	53.37	-	-	-	-	-	534.95	-	535.40	537.04	535.56	538.18	542.92	544.51	540.18
MW-221B [a]	579.50	83.52	-	-	-	-	-	534.02	-	535.44	537.07	535.61	538.31	543.04	544.59	540.26
MW-230	579.25	54.47	-	-	-	-	-	534.47	-	534.80	536.29	535.28	538.04	542.66	544.19	540.40
MW-231	580.10	54.90	-	-	-	-	-	534.65	-	534.96	536.47	535.48	538.21	542.89	545.39	540.60
MW-232	578.23	54.34	-	-	-	-	-	534.45	-	534.73	536.25	535.30	538.06	542.79	544.25	540.46
MW-233 [b]	577.62	52.67	-	-	-	-	-	534.41	-	534.69	536.22	535.26	538.06	542.86	544.34	540.47
MW-234 [b]	579.03	53.40	-	-	-	-	-	534.39	-	534.69	536.24	535.27	538.09	542.97	544.36	540.45
PZ-203	592.66	64.19	-	-	-	-	-	534.47	-	534.98	536.88	535.52	538.31	543.61	544.77	540.59
PZ-214	579.22	53.26	-	-	-	-	-	534.76	-	534.93	536.11	535.40	538.46	542.97	544.32	540.77

Table 3.1

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

Well	Top of Casing Elevation (NAVD88)	Total Well Depth Below Top of Casing (feet BTOC)	3-Mar-2020 (NAVD88)	2-Jun-2020 (NAVD88)	8-Sep-2020 (NAVD88)	22-Mar-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	547.03	15.48	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	580.39	58.20	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	577.00	50.29	537.96	539.04	536.98	537.01	533.59	532.91	532.25	531.95	532.21	532.74	532.28	536.79	533.13	534.57
MW-17R	579.90	52.67	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	549.32	22.25	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	547.21	22.45	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	575.55	50.88	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	574.56	50.34	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	579.05	53.00	538.33	539.91	537.50	535.22	533.98	533.15	532.53	532.45	532.41	532.68	532.41	538.41	533.20	535.27
MW-202B [a]	578.78	82.60	538.33	539.94	537.50	535.14	533.97	533.13	532.53	532.45	532.42	532.69	532.43	538.42	533.24	535.26
MW-210A	578.23	50.88	538.35	539.65	536.23	535.22	533.94	533.13	532.57	532.42	532.49	532.65	532.59	537.66	533.34	535.00
MW-210B [a]	578.23	80.78	538.32	539.60	537.43	535.15	533.91	533.10	532.53	532.39	532.43	532.61	532.54	537.62	533.29	534.96
MW-213A [b]	578.27	48.49	538.53	540.41	537.72	535.96	534.57	533.79	533.44	533.42	533.65	533.35	533.41	538.65	534.07	536.05
MW-213B [a]	578.20	82.59	538.63	540.50	537.82	536.07	534.68	533.88	533.55	533.52	533.75	533.50	533.55	538.78	534.17	536.16
MW-221A	579.81	53.37	538.50	540.38	537.53	535.56	534.03	533.38	533.10	532.96	533.24	532.92	533.34	538.25	533.83	535.42
MW-221B [a]	579.50	83.52	538.56	540.46	537.60	535.62	534.09	533.44	533.14	533.01	533.37	533.00	533.40	538.30	533.88	535.47
MW-230	579.25	54.47	538.44	539.95	537.59	535.31	534.01	533.22	532.75	532.67	532.79	532.77	532.85	537.90	533.44	535.13
MW-231	580.10	54.90	538.60	540.09	537.76	535.47	534.20	533.38	532.92	532.84	532.92	532.90	533.00	538.14	533.66	535.35
MW-232	578.23	54.34	538.42	539.91	537.60	535.29	534.06	533.58	NA	NA	532.64	532.75	532.72	537.99	533.64	535.21
MW-233 [b]	577.62	52.67	538.41	540.46	537.59	535.27	534.06	533.22	532.70	532.62	532.63	533.39	532.64	537.94	533.41	535.20
MW-234 [b]	579.03	53.40	538.42	539.86	537.62	535.31	534.12	533.26	532.72	532.63	532.64	532.80	532.68	538.07	533.44	535.25
PZ-203	592.66	64.19	538.41	540.13	537.61	535.40	534.18	533.36	532.80	532.76	532.73	532.93	532.66	538.75	533.44	535.55
PZ-214	579.22	53.26	538.82	540.13	537.90	535.65	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 - West Monofill
Muscatine, Iowa

Date	Horizontal Hydraulic Gradient (unitless)	Average Linear Groundwater Flow Velocity (meters/day)	Average Linear Groundwater Flow Velocity (feet/year)
1-Feb-2018	0.0003	0.08	98
24-Apr-2018	0.0002	0.05	65
4-Sep-2018	0.0003	0.07	88
19-Mar-2019	0.0001	0.04	44
21-May-2019	0.0005	0.15	176
11-Jun-2019	0.0009	0.27	324
3-Sep-2019	0.0006	0.18	218
3-Mar-2020	0.0002	0.07	85
2-Jun-2020	0.0006	0.16	191
8-Sep-2020	0.0004	0.13	150
22-Mar-2021	0.0001	0.03	31
13-Sep-2021	0.0005	0.14	163
2-Nov-2021	0.0004	0.11	135
21-Mar-2022	0.0004	0.11	136
26-Sep-2022	0.0006	0.18	221
6-Mar-2023	0.0004	0.12	149
25-Sep-2023	0.0005	0.16	187
11-Mar-2024	0.0005	0.14	170
26-Aug-2024	0.0008	0.22	270
24-Mar-2025	0.0004	0.11	140
3-Sep-2025	0.0005	0.14	170

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03
Sample ID:			MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03
Sample Date:			12/15/2015	3/8/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017
Parameters	**Units**	**MCL**								
Appendix III										
Boron	mg/L	None	0.0500 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	None	30.0	23.7	29.2	27.8	26.4	27.4	22.7	26.2
Chloride	mg/L	None	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	4.0 [a]	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.07	0.500 U
pH, lab	s.u.	None	7.99	8.08	8.22	8.2	8.0	8.3	8.1	8.0
Sulfate	mg/L	None	8.78	8.97	7.50	6.16	7.39	8.63	9.67	8.16
Total dissolved solids (TDS)	mg/L	None	112	158	136	160	252	182	168	214
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0191	0.0140	0.0178	0.0165	0.0160	0.0167	0.0155	0.0166
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	0.00500 U	0.00500 U	0.00508	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.006 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	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 [a]	0.194	0.439	-0.110	0.572	0.174	-0.0899	0.0316	0.120
Selenium	mg/L	0.05 [a]	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 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04
Sample ID:			MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04
Sample Date:			12/16/2015	3/7/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017
Parameters	**Units**	**MCL**								
Appendix III										
Boron	mg/L	None	0.584	0.276	0.201	0.225	0.369	0.417	0.341	0.454
Calcium	mg/L	None	53.9	60.2	59.6	56.5	66.2	70.4	59.2	57.9
Chloride	mg/L	None	5.00 U	5.00 U	5.00 U	5.33	5.00 U	5.00 U	5.94	5.15
Fluoride	mg/L	4.0 [a]	0.500 U	0.500 U	0.500 U	0.825	0.500 U	0.500 U	1.09	0.500 U
pH, lab	s.u.	None	7.84	7.79	7.71	7.8	7.6	7.6	7.8	7.5
Sulfate	mg/L	None	33.2	20.5	28.5	24.5	41.6	50.8	67.7	61.0
Total dissolved solids (TDS)	mg/L	None	280	250	260	262	392	296	282	336
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0571	0.0525	0.0508	0.0495	0.0552	0.0634	0.0539	0.0575
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	0.00500 U	0.00500 U	0.0153	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.006 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	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 [a]	0.148	0.183	0.129	0.292	0.173	0.441	0.0626	0.224
Selenium	mg/L	0.05 [a]	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 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R
Sample ID:			MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R
Sample Date:			12/16/2015	3/8/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017
Parameters	**Units**	**MCL**								
Appendix III										
Boron	mg/L	None	0.0500 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	None	45.8	47.5	56.3	47.4	51.1	52.7	39.9	41.8
Chloride	mg/L	None	5.00 U	5.00 U	5.00 U	6.60	9.17	5.00 U	9.95	5.00 U
Fluoride	mg/L	4.0 [a]	0.500 U	0.500 U	0.500 U	0.793	1.74	0.500 U	1.58	0.500 U
pH, lab	s.u.	None	7.90	7.88	7.93	8.0	7.8	7.9	8.0	7.8
Sulfate	mg/L	None	30.0	33.1	43.2	29.0	31.5	31.3	26.4	21.2
Total dissolved solids (TDS)	mg/L	None	216	208	238	234	236	212	198	312
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0364	0.0311	0.0357	0.0310	0.0305	0.0402	0.0328	0.0346
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	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 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	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 [a]	0.611	-0.00637	0.150	0.188	0.631	0.235	0.381	0.275
Selenium	mg/L	0.05 [a]	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 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A
Sample ID:			MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A
Sample Date:			12/16/2015	3/7/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017
Parameters	**Units**	**MCL**								
Appendix III										
Boron	mg/L	None	0.350	0.200 U	0.200 U	0.200 U	0.210	0.263	0.268	0.310
Calcium	mg/L	None	41.2	30.7	37.1	32.3	51.7	60.4	47.5	44.4
Chloride	mg/L	None	7.29	5.00 U	5.00 U	5.00 U	7.06	5.00 U	7.58	5.53
Fluoride	mg/L	4.0 [a]	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.37	0.500 U
pH, lab	s.u.	None	7.84	7.11	7.11	6.9	6.9	6.9	7.0	6.7
Sulfate	mg/L	None	59.5	25.1	25.8	29.2	80.4	107	105	86.5
Total dissolved solids (TDS)	mg/L	None	214	160	194	206	314	338	336	314
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0502	0.0260	0.0287	0.0296	0.0398	0.0473	0.0343	0.0368
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00680	0.00648	0.00574
Cobalt	mg/L	0.006 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	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 [a]	0.311	0.108	0.231	0.228	0.260	0.235	0.183	0.639
Selenium	mg/L	0.05 [a]	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00559	0.00500 U	0.00500 U
Thallium	mg/L	0.002 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A
Sample ID:			MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A
Sample Date:			12/15/2015	3/7/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017
Parameters	**Units**	**MCL**								
Appendix III										
Boron	mg/L	None	0.0862	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Calcium	mg/L	None	45.5	46.4	57.9	47.7	51.4	57.3	61.1	62.8
Chloride	mg/L	None	15.7	17.0	16.4	17.2	23.0	33.8	34.1	36.4
Fluoride	mg/L	4.0 [a]	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	3.17	0.708	0.500 U
pH, lab	s.u.	None	7.91	6.76	8.08	7.2	6.7	6.7	6.8	6.6
Sulfate	mg/L	None	56.8	69.8	115	85.6	103	117	165	211
Total dissolved solids (TDS)	mg/L	None	286	308	400	372	368	380	462	580
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0488	0.0432	0.0595	0.0476	0.0521	0.0570	0.0694	0.0772
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00521	0.00500 U
Cobalt	mg/L	0.006 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	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 [a]	0.159	0.236	0.525	0.435	0.401	0.276	0.0869	-0.0348
Selenium	mg/L	0.05 [a]	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 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21
Sample ID:			MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21
Sample Date:			12/15/2015	3/8/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017
Parameters	**Units**	**MCL**								
Appendix III										
Boron	mg/L	None	0.184	0.311	0.224	0.346	0.200 U	0.200 U	0.200 U	0.200 U
Calcium	mg/L	None	70.5	71.9	64.9	69.9	49.2	51.0	63.7	54.1
Chloride	mg/L	None	5.51	14.0	16.8	21.6	9.04	7.63	14.8	9.41
Fluoride	mg/L	4.0 [a]	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.650	0.500 U
pH, lab	s.u.	None	7.90	7.66	7.94	7.7	7.7	7.7	7.7	7.6
Sulfate	mg/L	None	15.5	19.2	12.1	27.2	5.01	8.91	22.4	21.2
Total dissolved solids (TDS)	mg/L	None	268	272	260	284	232	262	286	282
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0616	0.0565	0.0489	0.0569	0.0388	0.0442	0.0550	0.0543
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	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 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	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 [a]	0.378	0.140	-0.162	0.259	0.0625	-0.0622	0.0439	0.0259
Selenium	mg/L	0.05 [a]	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 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22
Sample ID:			MW-22	DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	DP-02
Sample Date:			12/16/2015	12/16/2015	3/7/2016	3/7/2016	6/13/2016	6/13/2016	9/14/2016	9/14/2016
Parameters	**Units**	**MCL**		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)
Appendix III										
Boron	mg/L	None	0.477	0.457	0.708	0.697	0.588	0.551	0.535	0.570
Calcium	mg/L	None	66.4	70.6	64.2	63.5	55.4	56.5	58.8	65.1
Chloride	mg/L	None	9.72	10.4	10.1	10.1	10.3	10.7	10.8	10.7
Fluoride	mg/L	4.0 [a]	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.	None	8.10	6.65	6.78	6.70	6.72	6.74	6.8	6.8
Sulfate	mg/L	None	162	161	215	195	194	194	196	196
Total dissolved solids (TDS)	mg/L	None	438	406	484	458	440	482	456	482
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0885	0.0943	0.0713	0.0707	0.0640	0.0652	0.0556	0.0606
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	0.0109	0.0117	0.0281	0.0280	0.0277	0.0291	0.0558	0.0600
Cobalt	mg/L	0.006 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	0.00274	0.00292	0.00644	0.00644	0.00758	0.00765	0.00988	0.0103
Radium-226 & 228	pCi/L	5 [a]	0.255	0.335	0.459	0.692	0.161	0.366	0.249	0.449
Selenium	mg/L	0.05 [a]	0.00807	0.00889	0.0142	0.0145	0.0195	0.0204	0.0178	0.0206
Thallium	mg/L	0.002 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Table 4.1

Baseline Period Groundwater Monitoring Data
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22
Sample ID:			MW-22	DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	DP-02
Sample Date:			12/14/2016	12/14/2016	2/16/2017	2/16/2017	4/19/2017	4/19/2017	6/27/2017	6/27/2017
Parameters	Units	MCL		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)
Appendix III										
Boron	mg/L	None	0.542	0.533	0.511	0.508	0.384	0.384	0.380	0.375
Calcium	mg/L	None	44.6	46.2	47.8	43.8	34.1	32.0	32.3	32.3
Chloride	mg/L	None	9.08	9.27	7.34	8.89	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4.0 [a]	0.500 U	0.810	0.610	0.733	0.541	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	None	7.1	7.0	7.0	7.0	7.2	7.2	7.1	7.1
Sulfate	mg/L	None	118	119	133	136	108	108	71.5	78.0
Total dissolved solids (TDS)	mg/L	None	394	372	344	388	280	272	306	318
Appendix IV										
Antimony	mg/L	0.006 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01 [a]	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 [a]	0.0344	0.0336	0.0405	0.0387	0.0290	0.0266	0.0251	0.0252
Beryllium	mg/L	0.004 [a]	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 [a]	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1 [a]	0.0461	0.0475	0.0457	0.0437	0.0461	0.0435	0.0466	0.0469
Cobalt	mg/L	0.006 [b]	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 [b]	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	0.040 [b]	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002 [a]	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	0.100 [b]	0.0141	0.0143	0.0202	0.0195	0.0321	0.0289	0.0333	0.0340
Radium-226 & 228	pCi/L	5 [a]	0.0733	0.498	-0.0754	0.114	0.130	0.407	0.209	0.0320
Selenium	mg/L	0.05 [a]	0.0176	0.0175	0.0206	0.0205	0.0154	0.0148	0.00861	0.00848
Thallium	mg/L	0.002 [a]	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
UJ - Not detected; associated reporting limit is estimated.
[a] Maximum contaminant level (MCL).
[b] Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).
None - No MCL established.

Table 4.2

2025 Monitoring Analytical Results Summary
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:			MW-03	MW-03	MW-04	MW-04	MW-17R	MW-17R	MW-18A
Sample ID:			MW03-GW-0325	MW03-GW-0925	MW04-GW-0325	MW04-GW-0925	MW17R-GW-0325	MW17R-GW-0925	MW18A-GW-0325
Sample Date:			3/25/2025	9/3/2025	3/25/2025	9/3/2025	3/25/2025	9/3/2025	3/25/2025
Parameters	**Units**	**Site-Specific GWPS**							
Appendix III									
Boron	mg/L	None	0.100 U	0.100 U	0.434	0.300	0.100 U	0.100 U	0.125
Calcium	mg/L	None	23.4	29.6	46.1	45.5	40.6	37.9	43.1
Chloride	mg/L	None	5.00 U	5.00 U	5.00 U	6.31	5.00 U	5.00 U	8.50
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
pH, lab	s.u.	None	8.5 J	7.7 J	7.9 J	7.4 J	8.1 J	7.3 J	7.1 J
Sulfate	mg/L	None	5.38	5.09	11.6	26.0	24.5	15.5	27.8
Total dissolved solids (TDS)	mg/L	None	84.0	140	222	252	172	180	168
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
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
Barium	mg/L	2	0.0152	0.0177	0.0518	0.0441	0.0348	0.0302	0.0301
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
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
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00542	0.00500 U	0.00500 U	0.00539
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
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
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
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
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
Radium-226 & 228	pCi/L	5	-0.139	0.394	0.149	1.06	0.484	0.952	0.578
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
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

Table 4.2

2025 Monitoring Analytical Results Summary
MidAmerican Energy Company
Louisa Generating Station West Monofill - Muscatine, Iowa

Sample Location:		MW-18A	MW-20A	MW-20A	MW-21	MW-21	MW-22	MW-22	MW-22	MW-22
Sample ID:		MW18A-GW-0925	MW20A-GW-0325	MW20A-GW-0925	MW21-GW-0325	MW21-GW-0925	MW22-GW-0325	DP02-GW-0325	MW22-GW-0925	DP02-GW-0925
Sample Date:		9/3/2025	3/25/2025	9/3/2025	3/25/2025	9/3/2025	3/25/2025	3/25/2025 (Duplicate)	9/3/2025	9/3/2025 (Duplicate)
Parameters	**Units**									
Appendix III										
Boron	mg/L	0.288	0.171	0.153	0.100 U	0.122	0.483	0.474	0.397	0.390
Calcium	mg/L	40.2	41.2	23.9	53.0	100	40.7	40.6	31.3	31.0
Chloride	mg/L	5.00 U	10.1	5.00 U	10.5	13.6	11.5	11.8	7.50	7.51
Fluoride	mg/L	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
pH, lab	s.u.	6.8 J	7.2 J	6.6 J	7.7 J	7.8 J	7.2 J	7.2 J	7.3 J	7.3 J
Sulfate	mg/L	28.8	50.4	40.3	30.4	125	75.2	77.0	36.5	36.3
Total dissolved solids (TDS)	mg/L	202	228	178	230	510	258	264	226	220
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
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
Barium	mg/L	0.0332	0.0446	0.0242	0.0554	0.101	0.0296	0.0290	0.0255	0.0253
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	0.000200 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
Chromium	mg/L	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.0196	0.0194	0.0166	0.0165
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
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
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	0.0288	0.0291	0.0340	0.0341
Radium-226 & 228	pCi/L	0.602	0.172	0.562	0.231	1.03	0.385	0.672	0.519	1.19
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
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

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

Table 4.3

Inter-Well Comparisons for 2025 Monitoring Data vs. Upgradient Background Prediction Limits
MidAmerican Energy Company
Louisa Generating Station - West Monofill
Muscatine, Iowa

		Appendix III Analytes						
Well	**Observation**	**Boron mg/L**	**Calcium mg/L**	**Chloride mg/L**	**Fluoride mg/L**	**pH, lab s.u.**	**Sulfate mg/L**	**Total dissolved solids (TDS) mg/L**
Combined Upgradient	***Prediction Limit***	**0.588**	**73.1**	**9.95**	**1.74**	**7.53-8.29**	**63.6**	**389**
	MCL/GWPS	**None**	**None**	**None**	**4.0** [a]	**None**	**None**	**None**
MW-03 (Upgradient)	3/25/2025	0.100 U	23.4	5.00 U	1.00 U	8.5 J	5.38	84.0
	9/3/2025	0.100 U	29.6	5.00 U	1.00 U	7.7 J	5.09	140
MW-04 (Upgradient)	3/25/2025	0.434	46.1	5.00 U	1.00 U	7.9 J	11.6	222
	9/3/2025	0.300	45.5	6.31	1.00 U	7.4 J	26.0	252
MW-17R (Upgradient)	3/25/2025	0.100 U	40.6	5.00 U	1.00 U	8.1 J	24.5	172
	9/3/2025	0.100 U	37.9	5.00 U	1.00 U	7.3 J	15.5	180
MW-18A	3/25/2025	0.125	43.1	8.50	1.00 U	7.1 J	27.8	168
	9/3/2025	0.288	40.2	5.00 U	1.00 U	6.8 J	28.8	202
MW-20A	3/25/2025	0.171	41.2	10.1	1.00 U	7.2 J	50.4	228
	9/3/2025	0.153	23.9	5.00 U	1.00 U	6.6 J	40.3	178
MW-21	3/25/2025	0.100 U	53.0	10.5	1.00 U	7.7 J	30.4	230
	9/3/2025	0.122	100	13.6	1.00 U	7.8 J	125	510
MW-22	3/25/2025	0.483/0.474	40.7/40.6	11.5/11.8	1.00 U/1.00 U	7.2 J/	75.2/77.0	258/264
	9/3/2025	0.397/0.390	31.3/31.0	7.50/7.51	1.00 U/1.00 U	7.3 J/7.3 J	36.5/36.3	226/220

Table 4.3

Inter-Well Comparisons for 2025 Monitoring Data vs. Upgradient Background Prediction Limits
MidAmerican Energy Company
Louisa Generating Station - West Monofill
Muscatine, Iowa

		Appendix IV Analytes						
Well	**Observation**	**Antimony mg/L**	**Arsenic mg/L**	**Barium mg/L**	**Beryllium mg/L**	**Cadmium mg/L**	**Chromium mg/L**	**Cobalt mg/L**
Combined Upgradient	***Prediction Limit***	**0.00200 U**	**0.00200 U**	**0.0688**	**0.00100 U**	**0.000500 U**	**0.0153**	**0.000500 U**
	MCL/GWPS	**0.006** [a]	**0.01** [a]	**2.0** [a]	**0.004** [a]	**0.005** [a]	**0.1** [a]	**0.006** [b]
MW-03 (Upgradient)	3/25/2025	0.00200 U	0.00200 U	0.0152	0.00100 U	0.000200 U	0.00500 U	0.000500 U
	9/3/2025	0.00200 U	0.00200 U	0.0177	0.00100 U	0.000200 U	0.00500 U	0.000500 U
MW-04 (Upgradient)	3/25/2025	0.00200 U	0.00200 U	0.0518	0.00100 U	0.000200 U	0.00500 U	0.000500 U
	9/3/2025	0.00200 U	0.00200 U	0.0441	0.00100 U	0.000200 U	0.00542	0.000500 U
MW-17R (Upgradient)	3/25/2025	0.00200 U	0.00200 U	0.0348	0.00100 U	0.000200 U	0.00500 U	0.000500 U
	9/3/2025	0.00200 U	0.00200 U	0.0302	0.00100 U	0.000200 U	0.00500 U	0.000500 U
MW-18A	3/25/2025	0.00200 U	0.00200 U	0.0301	0.00100 U	0.000200 U	0.00539	0.000500 U
	9/3/2025	0.00200 U	0.00200 U	0.0332	0.00100 U	0.000200 U	0.00500 U	0.000500 U
MW-20A	3/25/2025	0.00200 U	0.00200 U	0.0446	0.00100 U	0.000200 U	0.00500 U	0.000500 U
	9/3/2025	0.00200 U	0.00200 U	0.0242	0.00100 U	0.000200 U	0.00500 U	0.000500 U
MW-21	3/25/2025	0.00200 U	0.00200 U	0.0554	0.00100 U	0.000200 U	0.00500 U	0.000500 U
	9/3/2025	0.00200 U	0.00200 U	0.101	0.00100 U	0.000200 U	0.00500 U	0.000500 U
MW-22	3/25/2025	0.00200 U/0.00200 U	0.00200 U/0.00200 U	0.0296/0.0290	0.00100 U/0.00100 U	0.000200 U/0.000200 U	0.0196/0.0194	0.000500 U/0.000500 U
	9/3/2025	0.00200 U/0.00200 U	0.00200 U/0.00200 U	0.0255/0.0253	0.00100 U/0.00100 U	0.000200 U/0.000200 U	0.0166/0.0165	0.000500 U/0.000500 U

Table 4.3

Inter-Well Comparisons for 2025 Monitoring Data vs. Upgradient Background Prediction Limits
MidAmerican Energy Company
Louisa Generating Station - West Monofill
Muscatine, Iowa

		Appendix IV Analytes						
Well	**Observation**	**Lead mg/L**	**Lithium mg/L**	**Mercury mg/L**	**Molybdenum mg/L**	**Radium-226 & 228 pCi/L**	**Selenium mg/L**	**Thallium mg/L**
Combined Upgradient	***Prediction Limit***	**0.000500 U**	**0.0100 U**	**0.000200 U**	**0.00200 U**	**0.640**	**0.00500 U**	**0.00100 U**
	MCL/GWPS	**0.015** [b]	**0.040** [b]	**0.002** [a]	**0.100** [b]	**5** [a]	**0.05** [a]	**0.002** [a]
MW-03 (Upgradient)	3/25/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	-0.139	0.00500 U	0.00100 U
	9/3/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.394 U	0.00500 U	0.00100 U
MW-04 (Upgradient)	3/25/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.149	0.00500 U	0.00100 U
	9/3/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	1.06	0.00500 U	0.00100 U
MW-17R (Upgradient)	3/25/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.484	0.00500 U	0.00100 U
	9/3/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.952	0.00500 U	0.00100 U
MW-18A	3/25/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.578	0.00500 U	0.00100 U
	9/3/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.602 U	0.00500 U	0.00100 U
MW-20A	3/25/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.172	0.00500 U	0.00100 U
	9/3/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.562 U	0.00500 U	0.00100 U
MW-21	3/25/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	0.231	0.00500 U	0.00100 U
	9/3/2025	0.000500 U	0.0100 U	0.000200 U	0.00200 U	1.03	0.00500 U	0.00100 U
MW-22	3/25/2025	0.000500 U/0.000500 U	0.0100 U/0.0100 U	0.000200 U/0.000200 U	0.0288/0.0291	0.385/0.672	0.00500 U/0.00500 U	0.00100 U/0.00100 U
	9/3/2025	0.000500 U/0.000500 U	0.0100 U/0.0100 U	0.000200 U/0.000200 U	0.0340/0.0341	0.519 U/1.19	0.00500 U/0.00500 U	0.00100 U/0.00100 U

Notes:
0.931/0.928 - Field duplicate results.
U - Not detected at the associated reporting limit.
J - Estimated concentration. Value exceeds inter-well prediction limit.
NS - Not sampled
1.68
† - Trend present during baseline period, no UTL values calculated (baseline range listed for comparison).
None - No MCL established.
[a] Maximum contaminant level (MCL).
[b] Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).
[c] An alternate source determiniation other than the CCR unit has been identified for statistically significant decreases of pH (GHD, 2019).

Table 4.4

Groundwater Protection Standards for West Monofill Groundwater
Louisa Generating Station - West 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	0.00200 U	0.006 [a]	0.00200 U	Below GWPS
Arsenic	mg/L	0.01 [a]	NA	0.00200 U	0.01 [a]	0.00200 U	Below GWPS
Barium	mg/L	2.0 [a]	NA	0.0688	2.0 [a]	0.101	Below GWPS
Beryllium	mg/L	0.004 [a]	NA	0.00100 U	0.004 [a]	0.00100 U	Below GWPS
Cadmium	mg/L	0.005 [a]	NA	0.000500 U	0.005 [a]	0.000200 U	Below GWPS
Chromium	mg/L	0.1 [a]	NA	0.0153	0.1 [a]	0.0196	Below GWPS
Cobalt	mg/L	NA	0.006 [b]	0.000500 U	0.006 [b]	0.000500 U	Below GWPS
Fluoride	mg/L	4.0 [a]	NA	1.74	4.0 [a]	0.000500 U	Below GWPS
Lead	mg/L	NA	0.015 [b]	0.000500 U	0.015 [b]	0.000500 U	Below GWPS
Lithium	mg/L	NA	0.040 [b]	0.0100 U	0.040 [b]	0.0100 U	Below GWPS
Mercury	mg/L	0.002 [a]	NA	0.000200 U	0.002 [a]	0.000200 U	Below GWPS
Molybdenum	mg/L	NA	0.100 [b]	0.00200 U	0.100 [b]	0.0341	Below GWPS
Radium-226 & 228	pCi/L	5 [a]	NA	0.640	5 [a]	1.19	Below GWPS
Selenium	mg/L	0.05 [a]	NA	0.00500 U	0.05 [a]	0.00500 U	Below GWPS
Thallium	mg/L	0.002 [a]	NA	0.00100 U	0.002 [a]	0.00100U	Below GWPS

Notes:

MCL - Maximum Contaminant Level.

NA - Not applicable.

U - Not detected at the associated reporting limit.

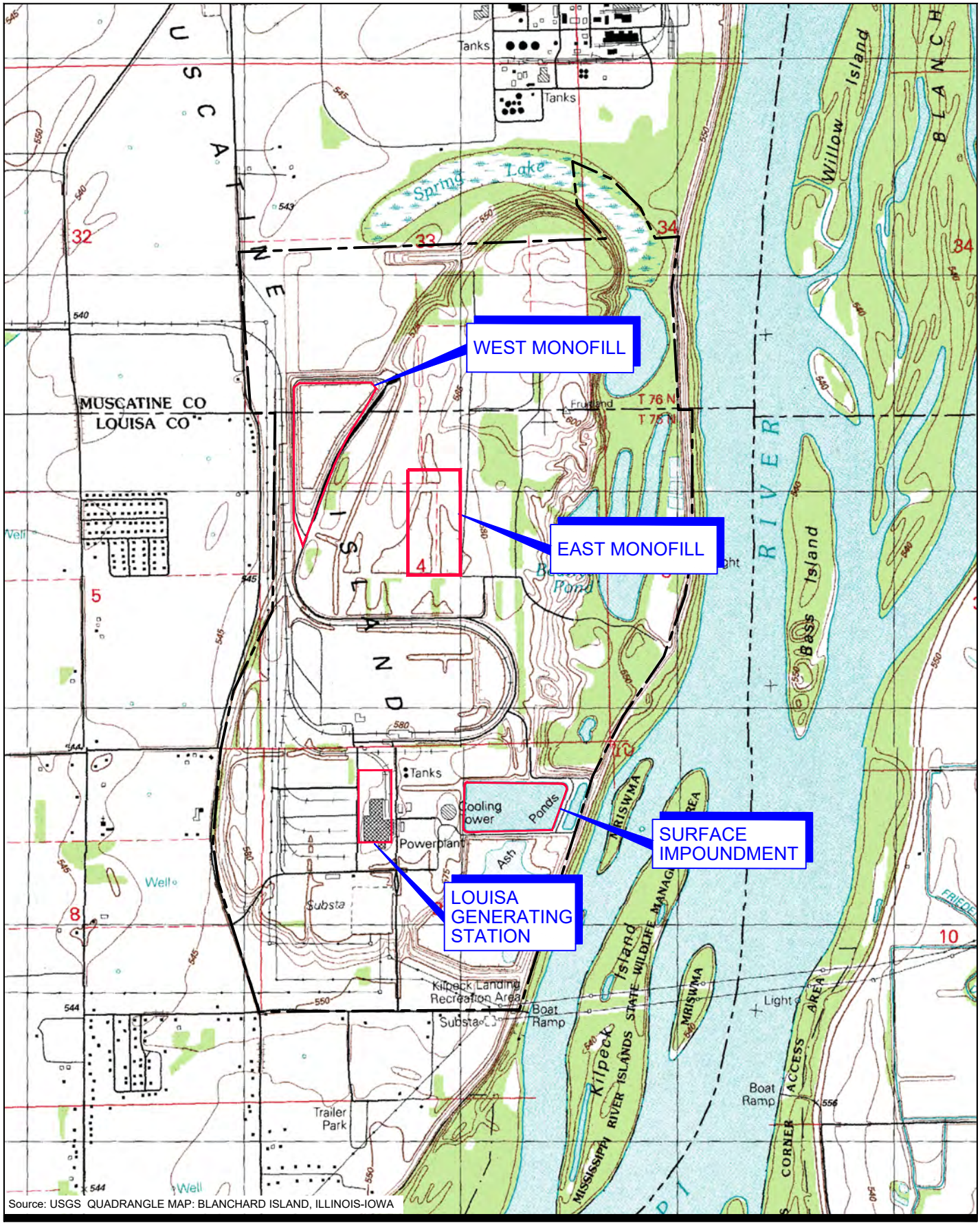
[a] Maximum contaminant level (MCL).

[b] Groundwater protection standard (GWPS) established under 40 CFR 257.95(h)(2).

[c] Determined from baseline data set for MW-3, MW-4, and MW-17R.

[d] Determined from downgradient wells data set for MW-18A, MW-20A, MW-21, and MW-22.

Figures



0 1000 2000 ft

1" = 2000 ft

Coordinate System:
NAD83 State PLane
Iowa South Feet

N

GHD

MIDAMERICAN ENERGY COMPANY
LOUISA GENERATING STATION
WEST MONOFILL
MUSCATINE, IOWA

SITE LOCATION MAP

Project No. **12575233**
Date **April 2024**

FIGURE 1.1

Filename: N:\US\Des Moines\Projects\563\12575233\Digital_Design\ACAD\Figures\RPT013\12575233-GHD-00-00-RPT-EN-D101_DE-013.dwg
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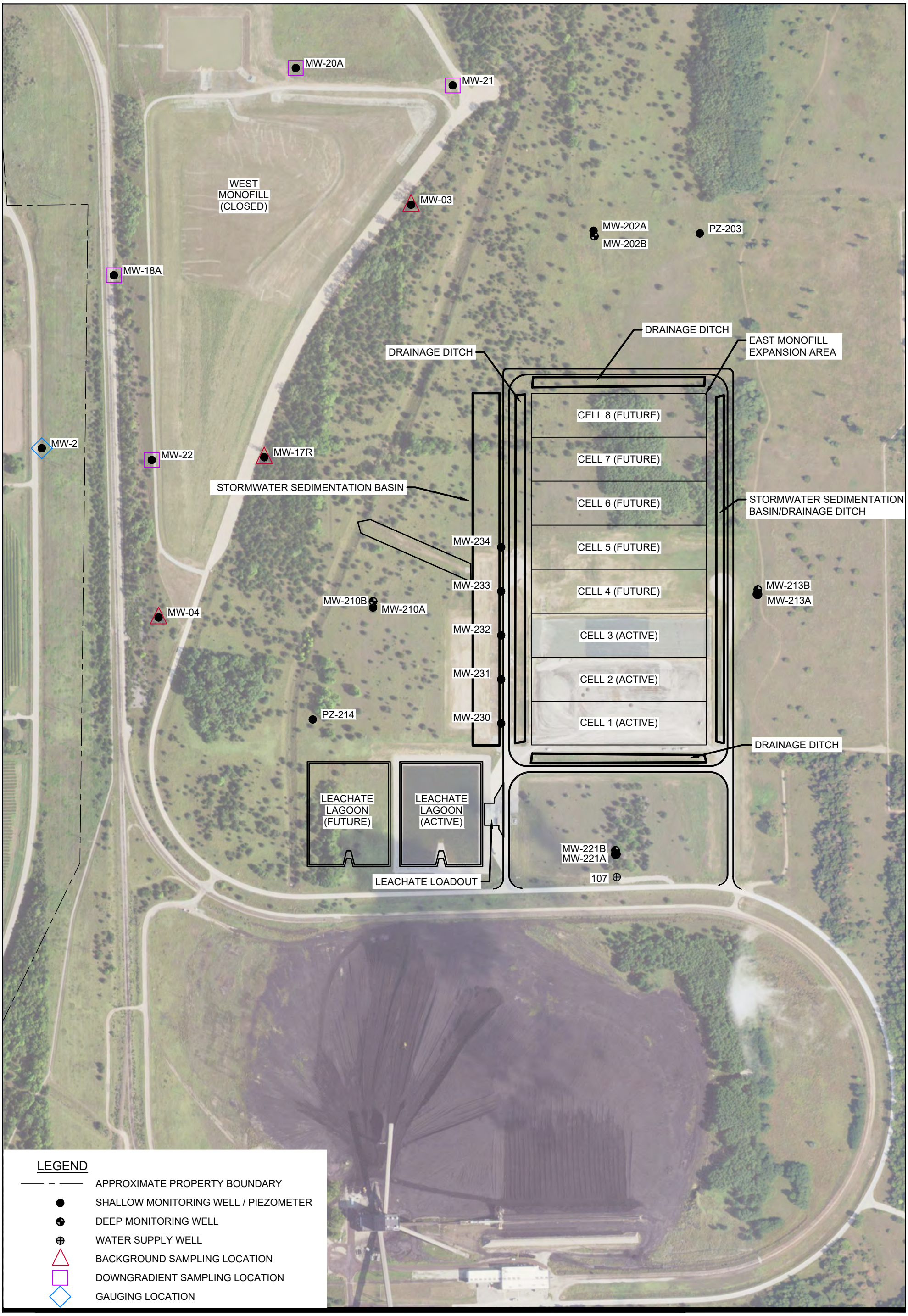

0 200 400 ft

1" = 400 ft

Coordinate System:
NAD83 State Plane
Iowa South Feet

N

GHD

MIDAMERICAN ENERGY COMPANY
LOUISA GENERATING STATION
WEST MONOFILL
MUSCATINE, IOWA

SITE MAP AND MONITORING NETWORK

Project No. **12575233**
Date **November 2024**

FIGURE 1.2

Filename: N:\US\Des Moines\Projects\563\12575233\Digital_Design\ACAD\Figures\RPT013\12575233-GHD-00-00-RPT-EN-D102_DE-013.dwg
Plot Date: 20 November 2024 5:47 PM

MW-20A
532.66

MW-21
532.80

533.0

533.0

WEST
MONOFILL
(CLOSED)

MW-03
532.98

MW-202A
533.20

MW-202B
533.24*

PZ-203
533.44

MW-18A
533.42

533.5

DRAINAGE DITCH

DRAINAGE DITCH

EAST MONOFILL
EXPANSION AREA

MW-02
533.01

MW-22
533.06

MW-17R
533.06

CELL 8 (FUTURE)

CELL 7 (FUTURE)

STORMWATER SEDIMENTATION BASIN

CELL 6 (FUTURE)

STORMWATER SEDIMENTATION
BASIN/DRAINAGE DITCH

MW-234
533.44

CELL 5 (FUTURE)

534.0

MW-213B
534.17*

MW-213A
534.07

MW-233
533.41

MW-210B
533.30*

MW-210A
533.34

CELL 4 (FUTURE)

MW-04
533.13

MW-232
533.64

CELL 3 (ACTIVE)

534.0

533.5

MW-231
533.66

CELL 2 (ACTIVE)

PZ-214
533.84

MW-230
533.44

CELL 1 (ACTIVE)

533.5

DRAINAGE DITCH

LEACHATE
LAGOON
(FUTURE)

LEACHATE
LAGOON
(ACTIVE)

MW-221B
533.88*

MW-221A
533.83

107

LEACHATE LOADOUT

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
- DOWNGRADIENT SAMPLING LOCATION
- GAUGING LOCATION

0 200 400 ft

1" = 400 ft

Coordinate System:
NAD83 State Plane
Iowa South Feet

N

GHD

MIDAMERICAN ENERGY COMPANY
LOUISA GENERATING STATION
WEST MONOFILL
MUSCATINE, IOWA

GROUNDWATER FLOW MAP
MARCH 24, 2025

Project No. **12575233**
Date **January 2026**

FIGURE 3.1

Filename: C:\ADSK\ACCDocs\GHD Services Pty Ltd\11230862-Enviro Projs\Project Files\12575233\01 WIP\Env\Figures\RPT019\12575233-GHD-00-00-RPT-EN-D101_019.dwg
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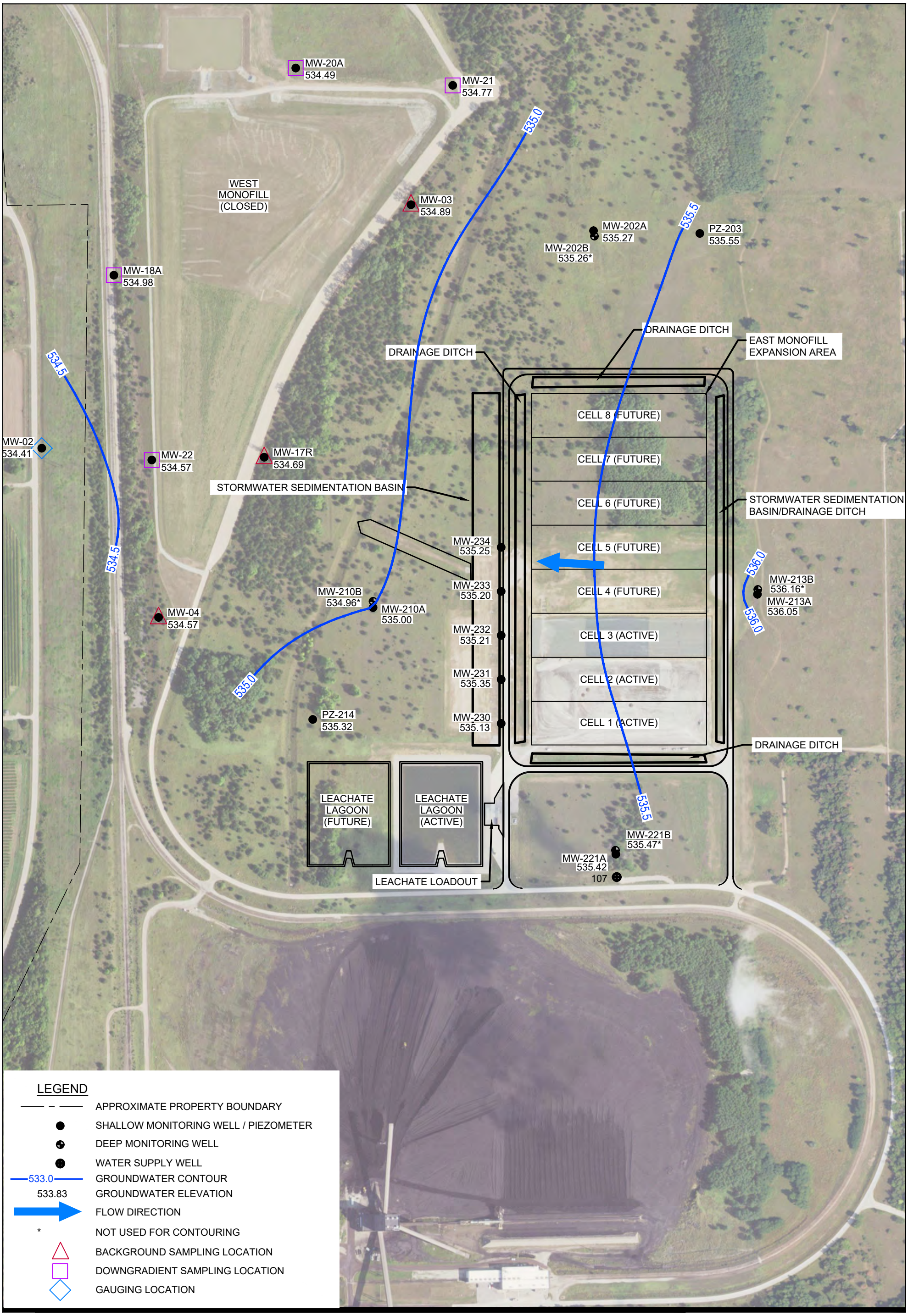

0 200 400 ft

1" = 400 ft

Coordinate System:
NAD83 State Plane
Iowa South Feet

N

GHD

MIDAMERICAN ENERGY COMPANY
LOUISA GENERATING STATION
WEST MONOFILL
MUSCATINE, IOWA

GROUNDWATER FLOW MAP
SEPTEMBER 3, 2025

Project No. **12575233**
Date **January 2026**

FIGURE 3.2

Filename: C:\ADSK\ACCDocs\GHD Services Pty Ltd\11230862-Enviro Projs\Project Files\12575233\01 WIP\Env\Figures\RPT019\12575233-GHD-00-00-RPT-EN-D102_019.dwg
Plot Date: 21 January 2026 1:50 PM

Appendices

Appendix A

Groundwater Sample Collection Records

Low-Flow Test Report:

Test Date / Time: 3/25/2025 12:41:07 PM
Project: LGS West Monofill MW-03
Operator Name: Brooke Wasson

Location Name: MW-03 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 48.2 ft** **Total Depth: 58.2 ft** **Initial Depth to Water: 47.37 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: 55 ft** **Pump Intake From TOC: 57 ft** **Estimated Total Volume Pumped: 2354.167 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**

Test Notes:
Sampled 1250

Weather Conditions:
50 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	
3/25/2025 12:41 PM	00:00	7.71 pH	13.74 °C	0.15 mS/cm	9.26 mg/L	0.00 NTU	38.4 mV	47.37 ft	250.00 ml/min
3/25/2025 12:43 PM	01:53	7.68 pH	12.25 °C	0.18 mS/cm	10.23 mg/L	0.00 NTU	9.6 mV	47.37 ft	250.00 ml/min
3/25/2025 12:44 PM	03:46	7.90 pH	12.21 °C	0.17 mS/cm	10.58 mg/L	0.00 NTU	6.4 mV	47.37 ft	250.00 ml/min
3/25/2025 12:46 PM	05:39	7.95 pH	12.30 °C	0.17 mS/cm	10.67 mg/L	0.00 NTU	4.4 mV	47.37 ft	250.00 ml/min
3/25/2025 12:48 PM	07:32	8.03 pH	12.11 °C	0.17 mS/cm	10.70 mg/L	0.00 NTU	5.7 mV	47.37 ft	250.00 ml/min
3/25/2025 12:50 PM	09:25	7.99 pH	12.06 °C	0.17 mS/cm	10.72 mg/L	0.00 NTU	6.7 mV	47.37 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW03-GW-0325	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 8:38:25 AM
Project: LGS West Monofill MW-04
Operator Name: Brooke Wasson

Location Name: MW-04 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 40.3 ft** **Total Depth: 50.3 ft** **Initial Depth to Water: 44.9 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: 47 ft** **Pump Intake From TOC: 49 ft** **Estimated Total Volume Pumped: 1813.333 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: -1 ft**	**Instrument Used: Aqua TROLL 500** **Serial Number: 1194835**

Test Notes:
Sampled 0850

Weather Conditions:
42 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 8:38 AM	00:00	7.79 pH	9.81 °C	0.34 mS/cm	10.94 mg/L	0.00 NTU	68.9 mV	43.90 ft	200.00 ml/min
3/25/2025 8:40 AM	02:16	7.32 pH	11.68 °C	0.39 mS/cm	10.61 mg/L	0.27 NTU	27.2 mV	43.90 ft	200.00 ml/min
3/25/2025 8:42 AM	04:32	7.25 pH	11.92 °C	0.39 mS/cm	10.63 mg/L	0.00 NTU	15.5 mV	43.90 ft	200.00 ml/min
3/25/2025 8:45 AM	06:48	7.23 pH	11.97 °C	0.38 mS/cm	10.65 mg/L	0.00 NTU	9.1 mV	43.90 ft	200.00 ml/min
3/25/2025 8:47 AM	09:04	7.23 pH	12.02 °C	0.38 mS/cm	10.69 mg/L	0.00 NTU	5.0 mV	43.90 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-04_25_03	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 12:02:48 PM
Project: LGS West Monofill MW-17R
Operator Name: Brooke Wasson

Location Name: MW-17R **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 42.7 ft** **Total Depth: 52.7 ft** **Initial Depth to Water: 46.86 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: 2283.333 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**

Test Notes:
Sampled 1215

Weather Conditions:
49 degrees F 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	
3/25/2025 12:02 PM	00:00	6.48 pH	17.88 °C	0.00 mS/cm	8.94 mg/L	0.00 NTU	96.9 mV	46.86 ft	250.00 ml/min
3/25/2025 12:05 PM	02:17	7.57 pH	11.95 °C	0.28 mS/cm	10.43 mg/L	0.00 NTU	16.8 mV	46.86 ft	250.00 ml/min
3/25/2025 12:07 PM	04:34	7.64 pH	11.99 °C	0.28 mS/cm	10.49 mg/L	0.00 NTU	11.3 mV	46.86 ft	250.00 ml/min
3/25/2025 12:09 PM	06:51	7.68 pH	12.01 °C	0.27 mS/cm	10.50 mg/L	0.00 NTU	8.3 mV	46.86 ft	250.00 ml/min
3/25/2025 12:11 PM	09:08	7.68 pH	12.03 °C	0.27 mS/cm	10.52 mg/L	0.00 NTU	8.3 mV	46.86 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW-17R-GW-0325	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 2:33:25 PM
Project: LGS West Monofill MW-18A
Operator Name: Brooke Wasson

Location Name: MW-18A **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 12.2 ft** **Total Depth: 22.3 ft** **Initial Depth to Water: 15.91 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: 19 ft** **Pump Intake From TOC: 21 ft** **Estimated Total Volume Pumped: 1533.333 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**

Test Notes:
Sampled 1445
Collected MS/MSD

Weather Conditions:
52 degrees F 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	
3/25/2025 2:33 PM	00:00	6.62 pH	12.96 °C	0.27 mS/cm	9.23 mg/L	0.00 NTU	38.5 mV	15.91 ft	200.00 ml/min
3/25/2025 2:35 PM	01:55	6.49 pH	12.33 °C	0.28 mS/cm	8.65 mg/L	0.26 NTU	38.5 mV	15.91 ft	200.00 ml/min
3/25/2025 2:37 PM	03:50	6.51 pH	11.90 °C	0.28 mS/cm	8.72 mg/L	0.00 NTU	35.3 mV	15.91 ft	200.00 ml/min
3/25/2025 2:39 PM	05:45	6.36 pH	11.83 °C	0.28 mS/cm	8.71 mg/L	0.00 NTU	37.7 mV	15.91 ft	200.00 ml/min
3/25/2025 2:41 PM	07:40	6.33 pH	11.71 °C	0.28 mS/cm	8.64 mg/L	0.00 NTU	39.9 mV	15.91 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW18A-GW-0325	
MW18A-GW-0325 MS1	

MW18A-GW-0325 MSD1	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 1:48:24 PM
Project: LGS West Monofill MW-20A
Operator Name: Brooke Wasson

Location Name: MW-20A **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 12.4 ft** **Total Depth: 22.5 ft** **Initial Depth to Water: 14.55 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: 19.2 ft** **Pump Intake From TOC: 21.2 ft** **Estimated Total Volume Pumped: 3066.667 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 0.01 ft**	**Instrument Used: Aqua TROLL 500** **Serial Number: 1194835**

Test Notes:
Sampled 1405

Weather Conditions:
51 degrees partly 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	
3/25/2025 1:48 PM	00:00	7.43 pH	13.16 °C	0.30 mS/cm	9.46 mg/L	0.00 NTU	77.7 mV	14.55 ft	250.00 ml/min
3/25/2025 1:49 PM	01:32	6.56 pH	11.94 °C	0.38 mS/cm	5.65 mg/L	8.83 NTU	63.9 mV	14.56 ft	250.00 ml/min
3/25/2025 1:51 PM	03:04	6.37 pH	12.09 °C	0.38 mS/cm	5.22 mg/L	5.59 NTU	60.8 mV	14.56 ft	250.00 ml/min
3/25/2025 1:53 PM	04:36	6.33 pH	12.23 °C	0.38 mS/cm	4.98 mg/L	3.79 NTU	58.7 mV	14.56 ft	250.00 ml/min
3/25/2025 1:54 PM	06:08	6.29 pH	12.32 °C	0.38 mS/cm	4.86 mg/L	3.61 NTU	57.4 mV	14.56 ft	250.00 ml/min
3/25/2025 1:56 PM	07:40	6.25 pH	12.39 °C	0.38 mS/cm	4.69 mg/L	2.52 NTU	59.2 mV	14.56 ft	250.00 ml/min
3/25/2025 1:57 PM	09:12	6.27 pH	12.34 °C	0.38 mS/cm	4.62 mg/L	0.75 NTU	57.6 mV	14.56 ft	250.00 ml/min
3/25/2025 1:59 PM	10:44	6.30 pH	12.25 °C	0.38 mS/cm	4.59 mg/L	0.31 NTU	56.4 mV	14.56 ft	250.00 ml/min
3/25/2025 2:00 PM	12:16	6.28 pH	12.24 °C	0.38 mS/cm	4.59 mg/L	0.00 NTU	55.4 mV	14.56 ft	250.00 ml/min

Samples

Sample ID:	Description:
MW20A-GW-0325	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 1:15:55 PM
Project: LGS West Monofill MW-21
Operator Name: Brooke Wasson

Location Name: MW-21 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 40.9 ft** **Total Depth: 50.9 ft** **Initial Depth to Water: 42.76 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: 47.6 ft** **Pump Intake From TOC: 49.6 ft** **Estimated Total Volume Pumped: 2180 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**

Test Notes:
Sampled 1330

Weather Conditions:
50 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	
3/25/2025 1:15 PM	00:00	7.62 pH	14.23 °C	0.37 mS/cm	9.26 mg/L	0.00 NTU	40.6 mV	42.76 ft	200.00 ml/min
3/25/2025 1:17 PM	01:49	7.30 pH	13.34 °C	0.37 mS/cm	10.38 mg/L	0.00 NTU	22.0 mV	42.76 ft	200.00 ml/min
3/25/2025 1:19 PM	03:38	7.25 pH	13.35 °C	0.36 mS/cm	10.44 mg/L	0.00 NTU	17.7 mV	42.76 ft	200.00 ml/min
3/25/2025 1:21 PM	05:27	7.27 pH	12.79 °C	0.36 mS/cm	10.53 mg/L	0.00 NTU	15.0 mV	42.76 ft	200.00 ml/min
3/25/2025 1:23 PM	07:16	7.25 pH	12.66 °C	0.36 mS/cm	10.52 mg/L	0.00 NTU	12.2 mV	42.76 ft	200.00 ml/min
3/25/2025 1:25 PM	09:05	7.26 pH	13.21 °C	0.36 mS/cm	10.51 mg/L	0.00 NTU	9.6 mV	42.76 ft	200.00 ml/min
3/25/2025 1:26 PM	10:54	7.23 pH	12.91 °C	0.37 mS/cm	10.47 mg/L	0.00 NTU	11.4 mV	42.76 ft	200.00 ml/min

Samples

Sample ID:	Description:

MW21-GW-0325	

Low-Flow Test Report:

Test Date / Time: 3/25/2025 9:11:08 AM
Project: LGS West Monofill MW-22
Operator Name: Brooke Wasson

Location Name: MW-22 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 40.4 ft** **Total Depth: 50.3 ft** **Initial Depth to Water: 41.52 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: 47.1 ft** **Pump Intake From TOC: 49.1 ft** **Estimated Total Volume Pumped: 3173.333 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**

Test Notes:
Sampled 0930
Collected Dup 2

Weather Conditions:
44 degrees F overcast drizzle

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 9:11 AM	00:00	7.01 pH	10.27 °C	0.35 mS/cm	6.65 mg/L	1.63 NTU	33.7 mV	41.52 ft	200.00 ml/min
3/25/2025 9:13 AM	02:16	6.60 pH	11.97 °C	0.43 mS/cm	6.07 mg/L	12.29 NTU	23.3 mV	41.53 ft	200.00 ml/min
3/25/2025 9:15 AM	04:32	6.48 pH	12.16 °C	0.43 mS/cm	6.11 mg/L	18.39 NTU	18.8 mV	41.53 ft	200.00 ml/min
3/25/2025 9:17 AM	06:48	6.43 pH	12.14 °C	0.43 mS/cm	6.18 mg/L	6.33 NTU	16.5 mV	41.53 ft	200.00 ml/min
3/25/2025 9:20 AM	09:04	6.34 pH	12.09 °C	0.43 mS/cm	5.94 mg/L	2.21 NTU	16.0 mV	41.53 ft	200.00 ml/min
3/25/2025 9:22 AM	11:20	6.29 pH	12.07 °C	0.43 mS/cm	5.76 mg/L	0.00 NTU	15.8 mV	41.53 ft	200.00 ml/min
3/25/2025 9:24 AM	13:36	6.27 pH	12.11 °C	0.43 mS/cm	5.70 mg/L	0.00 NTU	15.5 mV	41.53 ft	200.00 ml/min
3/25/2025 9:27 AM	15:52	6.27 pH	12.13 °C	0.43 mS/cm	5.74 mg/L	0.00 NTU	15.0 mV	41.53 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW22-GW-0325	
DP02-GW-0325	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 4:08:31 PM
Project: LGS West Monofill MW-03
Operator Name: Brooke Wasson

Location Name: MW-03 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 48.2 ft** **Total Depth: 58.2 ft** **Initial Depth to Water: 45.55 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: 55 ft** **Pump Intake From TOC: 57 ft** **Estimated Total Volume Pumped: 1883.333 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 809048**

Test Notes:
Sampled 1620

Weather Conditions:
70 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	
9/3/2025 4:08 PM	00:00	7.809 pH	21.03 °C	0.000 mS/cm	8.509 mg/L	0.000 NTU	174.4 mV	45.55 ft	200.0 ml/min
9/3/2025 4:10 PM	01:53	7.947 pH	15.85 °C	0.251 mS/cm	9.275 mg/L	0.000 NTU	160.4 mV	45.55 ft	200.0 ml/min
9/3/2025 4:12 PM	03:46	8.270 pH	14.56 °C	0.240 mS/cm	9.675 mg/L	0.000 NTU	158.5 mV	45.55 ft	200.0 ml/min
9/3/2025 4:14 PM	05:39	8.246 pH	14.40 °C	0.237 mS/cm	9.859 mg/L	0.000 NTU	160.7 mV	45.55 ft	200.0 ml/min
9/3/2025 4:16 PM	07:32	8.227 pH	14.21 °C	0.233 mS/cm	9.973 mg/L	0.000 NTU	161.7 mV	45.55 ft	200.0 ml/min
9/3/2025 4:17 PM	09:25	8.216 pH	14.28 °C	0.233 mS/cm	10.03 mg/L	0.000 NTU	161.7 mV	45.55 ft	200.0 ml/min

Samples

Sample ID:	Description:
MW03-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 1:41:32 PM
Project: LGS West Monofill MW-04
Operator Name: Brooke Wasson

Location Name: MW-04 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 40.3 ft** **Total Depth: 50.3 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: 47 ft** **Pump Intake From TOC: 49 ft** **Estimated Total Volume Pumped: 2040 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**

Test Notes:
Sampled 1350

Weather Conditions:
71 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	
9/3/2025 1:41 PM	00:00	7.785 pH	15.61 °C	0.384 mS/cm	9.988 mg/L	0.000 NTU	175.1 mV	42.45 ft	300.0 ml/min
9/3/2025 1:43 PM	02:16	7.672 pH	15.30 °C	0.384 mS/cm	10.12 mg/L	0.000 NTU	180.2 mV	42.45 ft	300.0 ml/min
9/3/2025 1:46 PM	04:32	7.616 pH	15.16 °C	0.381 mS/cm	10.14 mg/L	0.000 NTU	184.1 mV	42.45 ft	300.0 ml/min
9/3/2025 1:48 PM	06:48	7.599 pH	15.05 °C	0.379 mS/cm	10.17 mg/L	0.000 NTU	184.5 mV	42.45 ft	300.0 ml/min

Samples

Sample ID:	Description:
MW04-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 4:40:53 PM
Project: LGS West Monofill MW-17R (4)
Operator Name: Brooke Wasson

Location Name: MW-17R **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 42.7 ft** **Total Depth: 52.7 ft** **Initial Depth to Water: 45.28 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: 1826.667 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 809048**

Test Notes:
Sampled 1700

Weather Conditions:
70 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	
9/3/2025 4:40 PM	00:00	8.120 pH	19.20 °C	0.000 mS/cm	8.866 mg/L	0.000 NTU	158.8 mV	45.28 ft	200.0 ml/min
9/3/2025 4:43 PM	02:17	7.991 pH	15.00 °C	0.280 mS/cm	9.749 mg/L	0.000 NTU	164.5 mV	45.28 ft	200.0 ml/min
9/3/2025 4:45 PM	04:34	7.986 pH	15.49 °C	0.280 mS/cm	9.862 mg/L	0.000 NTU	164.1 mV	45.28 ft	200.0 ml/min
9/3/2025 4:47 PM	06:51	7.973 pH	15.49 °C	0.279 mS/cm	9.872 mg/L	0.000 NTU	164.7 mV	45.28 ft	200.0 ml/min
9/3/2025 4:50 PM	09:08	7.993 pH	15.48 °C	0.276 mS/cm	9.844 mg/L	0.000 NTU	163.9 mV	45.28 ft	200.0 ml/min

Samples

Sample ID:	Description:
MW17R-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 5:24:06 PM
Project: LGS West Monofill MW-18A
Operator Name: Brooke Wasson

Location Name: MW-18A **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 12.2 ft** **Total Depth: 22.3 ft** **Initial Depth to Water: 14.36 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: 19 ft** **Pump Intake From TOC: 21 ft** **Estimated Total Volume Pumped: 2300 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 809048**

Test Notes:
Sampled 1740

Weather Conditions:
69 degrees F partly 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	
9/3/2025 5:24 PM	00:00	7.008 pH	17.78 °C	0.355 mS/cm	9.118 mg/L	0.000 NTU	176.4 mV	14.36 ft	200.0 ml/min
9/3/2025 5:26 PM	01:55	6.861 pH	17.01 °C	0.367 mS/cm	8.836 mg/L	0.000 NTU	189.2 mV	14.36 ft	200.0 ml/min
9/3/2025 5:27 PM	03:50	6.854 pH	16.90 °C	0.362 mS/cm	8.860 mg/L	0.000 NTU	191.4 mV	14.36 ft	200.0 ml/min
9/3/2025 5:29 PM	05:45	6.844 pH	16.96 °C	0.354 mS/cm	8.859 mg/L	0.000 NTU	192.2 mV	14.36 ft	200.0 ml/min
9/3/2025 5:31 PM	07:40	6.842 pH	17.07 °C	0.347 mS/cm	8.861 mg/L	0.000 NTU	192.2 mV	14.36 ft	200.0 ml/min
9/3/2025 5:33 PM	09:35	6.843 pH	17.00 °C	0.341 mS/cm	8.869 mg/L	0.000 NTU	192.3 mV	14.36 ft	200.0 ml/min
9/3/2025 5:35 PM	11:30	6.847 pH	16.99 °C	0.340 mS/cm	8.860 mg/L	0.000 NTU	192.6 mV	14.36 ft	200.0 ml/min

Samples

Sample ID:	Description:

MW18A-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 2:57:33 PM
Project: LGS West Monofill MW-20A
Operator Name: Brooke Wasson

Location Name: MW-20A **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 12.4 ft** **Total Depth: 22.5 ft** **Initial Depth to Water: 12.74 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: 19.2 ft** **Pump Intake From TOC: 21.2 ft** **Estimated Total Volume Pumped: 4140 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**

Test Notes:
Sampled 1505

Weather Conditions:
71 degrees F overcast drizzling

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	
9/3/2025 2:57 PM	00:00	7.117 pH	17.45 °C	0.433 mS/cm	4.417 mg/L	0.000 NTU	181.5 mV	12.74 ft	300.0 ml/min
9/3/2025 2:59 PM	01:32	7.067 pH	17.07 °C	0.371 mS/cm	2.533 mg/L	0.000 NTU	184.2 mV	12.74 ft	300.0 ml/min
9/3/2025 3:00 PM	03:04	6.975 pH	17.06 °C	0.364 mS/cm	2.726 mg/L	0.000 NTU	187.6 mV	12.74 ft	300.0 ml/min
9/3/2025 3:02 PM	04:36	6.858 pH	17.10 °C	0.324 mS/cm	4.417 mg/L	0.000 NTU	189.4 mV	12.74 ft	300.0 ml/min
9/3/2025 3:03 PM	06:08	6.801 pH	17.14 °C	0.302 mS/cm	5.490 mg/L	0.000 NTU	190.5 mV	12.74 ft	300.0 ml/min
9/3/2025 3:05 PM	07:40	6.782 pH	17.11 °C	0.282 mS/cm	5.672 mg/L	0.000 NTU	191.5 mV	12.74 ft	300.0 ml/min
9/3/2025 3:06 PM	09:12	6.781 pH	17.03 °C	0.274 mS/cm	5.766 mg/L	0.000 NTU	191.7 mV	12.74 ft	300.0 ml/min
9/3/2025 3:08 PM	10:44	6.783 pH	17.12 °C	0.253 mS/cm	5.801 mg/L	0.000 NTU	191.4 mV	12.74 ft	300.0 ml/min
9/3/2025 3:09 PM	12:16	6.790 pH	17.09 °C	0.254 mS/cm	5.843 mg/L	0.000 NTU	191.0 mV	12.74 ft	300.0 ml/min
9/3/2025 3:11 PM	13:48	6.799 pH	17.26 °C	0.246 mS/cm	5.796 mg/L	0.000 NTU	190.4 mV	12.74 ft	300.0 ml/min

Samples

Sample ID:	Description:
MW20A-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 3:29:41 PM
Project: LGS West Monofill MW-21
Operator Name: Brooke Wasson

Location Name: MW-21 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 40.9 ft** **Total Depth: 50.9 ft** **Initial Depth to Water: 40.8 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: 47.6 ft** **Pump Intake From TOC: 49.6 ft** **Estimated Total Volume Pumped: 1453.333 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 809048**

Test Notes:
Sampled 1540

Weather Conditions:
70 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	
9/3/2025 3:29 PM	00:00	6.955 pH	19.59 °C	0.318 mS/cm	6.208 mg/L	0.000 NTU	180.3 mV	40.80 ft	200.0 ml/min
9/3/2025 3:31 PM	01:49	7.255 pH	16.79 °C	0.588 mS/cm	8.577 mg/L	0.000 NTU	179.4 mV	40.80 ft	200.0 ml/min
9/3/2025 3:33 PM	03:38	7.264 pH	15.09 °C	0.738 mS/cm	8.949 mg/L	0.000 NTU	180.3 mV	40.80 ft	200.0 ml/min
9/3/2025 3:35 PM	05:27	7.238 pH	14.55 °C	0.741 mS/cm	9.113 mg/L	0.000 NTU	181.6 mV	40.80 ft	200.0 ml/min
9/3/2025 3:36 PM	07:16	7.217 pH	14.54 °C	0.739 mS/cm	9.124 mg/L	0.000 NTU	182.8 mV	40.80 ft	200.0 ml/min

Samples

Sample ID:	Description:
MW21-GW-0925	

Low-Flow Test Report:

Test Date / Time: 9/3/2025 2:11:08 PM
Project: LGS West Monofill MW-22
Operator Name: Brooke Wasson

Location Name: MW-22 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 40.4 ft** **Total Depth: 50.3 ft** **Initial Depth to Water: 40 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: 47.1 ft** **Pump Intake From TOC: 49.1 ft** **Estimated Total Volume Pumped: 1360 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 809048**

Test Notes:
Sampled 1420

Weather Conditions:
71 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	
9/3/2025 2:11 PM	00:00	7.643 pH	20.99 °C	0.000 mS/cm	8.568 mg/L	56.19 NTU	175.5 mV	40.00 ft	200.0 ml/min
9/3/2025 2:13 PM	02:16	6.543 pH	16.78 °C	0.320 mS/cm	5.631 mg/L	0.000 NTU	187.9 mV	40.00 ft	200.0 ml/min
9/3/2025 2:15 PM	04:32	6.503 pH	15.73 °C	0.325 mS/cm	5.624 mg/L	0.000 NTU	193.0 mV	40.00 ft	200.0 ml/min
9/3/2025 2:17 PM	06:48	6.462 pH	15.54 °C	0.323 mS/cm	5.655 mg/L	0.000 NTU	196.4 mV	40.00 ft	200.0 ml/min

Samples

Sample ID:	Description:
MW22-GW-0925	
DP02-GW-0925	

Appendix B

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 4/24/2025 3:36:15 PM

JOB DESCRIPTION

MEC Louisa West CCR Monofill

JOB NUMBER

310-302684-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
4/24/2025 3:36:15 PM

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

Table of Contents

Job ID: 310-302684-1 Eurofins Cedar Falls

Job Narrative
310-302684-1

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 9:39 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 1.8°C, 2.3°C and 3.1°C.

HPLC/IC
Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW03-GW-0325 (310-302684-1). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW04-GW-0325 (310-302684-2), MW17R-GW-0325 (310-302684-3), MW18A-GW-0325 (310-302684-4), MW20A-GW-0325 (310-302684-5) and MW21-GW-0325 (310-302684-6). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW22-GW-0325 (310-302684-7) and DP02-GW-0325 (310-302684-8). 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.

Job ID: 310-302684-2 Eurofins Cedar Falls

Job Narrative
310-302684-2

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 9:39 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 1.8°C, 2.3°C and 3.1°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.

Sample Summary

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-302684-1	MW03-GW-0325	Water	03/25/25 12:50	03/26/25 09:39
310-302684-2	MW04-GW-0325	Water	03/25/25 08:50	03/26/25 09:39
310-302684-3	MW17R-GW-0325	Water	03/25/25 12:15	03/26/25 09:39
310-302684-4	MW18A-GW-0325	Water	03/25/25 14:45	03/26/25 09:39
310-302684-5	MW20A-GW-0325	Water	03/25/25 14:05	03/26/25 09:39
310-302684-6	MW21-GW-0325	Water	03/25/25 13:30	03/26/25 09:39
310-302684-7	MW22-GW-0325	Water	03/25/25 09:30	03/26/25 09:39
310-302684-8	DP02-GW-0325	Water	03/25/25 00:00	03/26/25 09:39

Detection Summary

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

Job ID: 310-302684-1

Client Sample ID: MW03-GW-0325 — Lab Sample ID: 310-302684-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.38		5.00		mg/L	5		9056A	Total/NA
Barium	0.0152		0.00200		mg/L	1		6020B	Total/NA
Calcium	23.4		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	84.0		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.5	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW04-GW-0325 — Lab Sample ID: 310-302684-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	11.6		5.00		mg/L	5		9056A	Total/NA
Barium	0.0518		0.00200		mg/L	1		6020B	Total/NA
Boron	0.434		0.100		mg/L	1		6020B	Total/NA
Calcium	46.1		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	222		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: MW17R-GW-0325 — Lab Sample ID: 310-302684-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	24.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.0348		0.00200		mg/L	1		6020B	Total/NA
Calcium	40.6		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	172		50.0		mg/L	1		SM 2540C	Total/NA
pH	8.1	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW18A-GW-0325 — Lab Sample ID: 310-302684-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.50	F1	5.00		mg/L	5		9056A	Total/NA
Sulfate	27.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0301		0.00200		mg/L	1		6020B	Total/NA
Boron	0.125		0.100		mg/L	1		6020B	Total/NA
Calcium	43.1		0.500		mg/L	1		6020B	Total/NA
Chromium	0.00539		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	168		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.1	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW20A-GW-0325 — Lab Sample ID: 310-302684-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.1		5.00		mg/L	5		9056A	Total/NA
Sulfate	50.4		5.00		mg/L	5		9056A	Total/NA
Barium	0.0446		0.00200		mg/L	1		6020B	Total/NA
Boron	0.171		0.100		mg/L	1		6020B	Total/NA
Calcium	41.2		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	228		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW21-GW-0325 — Lab Sample ID: 310-302684-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	30.4		5.00		mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW21-GW-0325 (Continued)
Lab Sample ID: 310-302684-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0554		0.00200		mg/L	1		6020B	Total/NA
Calcium	53.0		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	230		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: MW22-GW-0325
Lab Sample ID: 310-302684-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	75.2		5.00		mg/L	5		9056A	Total/NA
Barium	0.0296		0.00200		mg/L	1		6020B	Total/NA
Boron	0.483		0.100		mg/L	1		6020B	Total/NA
Calcium	40.7		0.500		mg/L	1		6020B	Total/NA
Chromium	0.0196		0.00500		mg/L	1		6020B	Total/NA
Molybdenum	0.0288		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	258		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: DP02-GW-0325
Lab Sample ID: 310-302684-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	77.0		5.00		mg/L	5		9056A	Total/NA
Barium	0.0290		0.00200		mg/L	1		6020B	Total/NA
Boron	0.474		0.100		mg/L	1		6020B	Total/NA
Calcium	40.6		0.500		mg/L	1		6020B	Total/NA
Chromium	0.0194		0.00500		mg/L	1		6020B	Total/NA
Molybdenum	0.0291		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	264		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW03-GW-0325
Lab Sample ID: 310-302684-1

Date Collected: 03/25/25 12:50
Matrix: Water
Date Received: 03/26/25 09:39

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 17:18	5
Fluoride	<1.00		1.00		mg/L			03/27/25 17:18	5
Sulfate	**5.38**		5.00		mg/L			03/27/25 17:18	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:11	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:11	1
Barium	**0.0152**		0.00200		mg/L		03/28/25 09:00	03/31/25 17:11	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:11	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 12:57	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 17:11	1
Calcium	**23.4**		0.500		mg/L		03/28/25 09:00	03/31/25 17:11	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:11	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:11	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:11	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 17:11	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:11	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:11	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:11	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 12:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**84.0**		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)	**8.5**	**HF**	1.0		SU			03/26/25 11:31	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	0.0813	0.0819	1.00	0.255	pCi/L	03/28/25 07:20	04/23/25 06:02	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*92.9*		*30 - 110*	*03/28/25 07:20*	*04/23/25 06:02*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.572	U	0.302	0.302	1.00	0.572	pCi/L	03/28/25 07:27	04/22/25 14:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*92.9*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*
Y Carrier	*77.8*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*

Client Sample Results

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

Job ID: 310-302684-1

Client Sample ID: MW03-GW-0325

Date Collected: 03/25/25 12:50
Date Received: 03/26/25 09:39

Lab Sample ID: 310-302684-1

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	<0.572	U	0.313	0.313	5.00	0.572	pCi/L		04/24/25 14:29	1

Client Sample ID: MW04-GW-0325

Date Collected: 03/25/25 08:50
Date Received: 03/26/25 09:39

Lab Sample ID: 310-302684-2

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			04/01/25 14:14	5
Fluoride	<1.00		1.00		mg/L			04/01/25 14:14	5
Sulfate	**11.6**		5.00		mg/L			04/01/25 14:14	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 16:48	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 16:48	1
Barium	**0.0518**		0.00200		mg/L		03/28/25 09:00	03/31/25 16:48	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 16:48	1
Boron	**0.434**		0.100		mg/L		03/28/25 09:00	04/01/25 12:39	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 16:48	1
Calcium	**46.1**		0.500		mg/L		03/28/25 09:00	03/31/25 16:48	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 16:48	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 16:48	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 16:48	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 16:48	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 16:48	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 16:48	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 16:48	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 12:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**222**		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 11:32	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	<0.290	U	0.137	0.137	1.00	0.290	pCi/L	03/28/25 07:20	04/23/25 06:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*85.1*		*30 - 110*	*03/28/25 07:20*	*04/23/25 06:03*	*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	<0.540	U	0.309	0.310	1.00	0.540	pCi/L	03/28/25 07:27	04/22/25 14:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*85.1*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*
Y Carrier	*78.1*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*

Client Sample Results

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

Job ID: 310-302684-1

Client Sample ID: MW04-GW-0325

Date Collected: 03/25/25 08:50
Date Received: 03/26/25 09:39

Lab Sample ID: 310-302684-2

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	<0.540	U	0.338	0.339	5.00	0.540	pCi/L		04/24/25 14:29	1

Client Sample ID: MW17R-GW-0325
Lab Sample ID: 310-302684-3

Date Collected: 03/25/25 12:15
Matrix: Water
Date Received: 03/26/25 09:39

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			04/01/25 14:24	5
Fluoride	<1.00		1.00		mg/L			04/01/25 14:24	5
Sulfate	**24.5**		5.00		mg/L			04/01/25 14:24	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		03/27/25 09:00	04/01/25 17:10	1
Arsenic	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 17:10	1
Barium	**0.0348**		0.00200		mg/L		03/27/25 09:00	04/01/25 17:10	1
Beryllium	<0.00100		0.00100		mg/L		03/27/25 09:00	04/01/25 17:10	1
Boron	<0.100		0.100		mg/L		03/27/25 09:00	04/02/25 12:14	1
Cadmium	<0.000200		0.000200		mg/L		03/27/25 09:00	04/01/25 17:10	1
Calcium	**40.6**		0.500		mg/L		03/27/25 09:00	04/01/25 17:10	1
Chromium	<0.00500		0.00500		mg/L		03/27/25 09:00	04/01/25 17:10	1
Cobalt	<0.000500		0.000500		mg/L		03/27/25 09:00	04/01/25 17:10	1
Lead	<0.000500		0.000500		mg/L		03/27/25 09:00	04/01/25 17:10	1
Lithium	<0.0100		0.0100		mg/L		03/27/25 09:00	04/01/25 17:10	1
Molybdenum	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 17:10	1
Selenium	<0.00500		0.00500		mg/L		03/27/25 09:00	04/01/25 17:10	1
Thallium	<0.00100		0.00100		mg/L		03/27/25 09:00	04/01/25 17:10	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 12:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**172**		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)	**8.1**	**HF**	1.0		SU			03/26/25 11:33	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	<0.287	U	0.174	0.175	1.00	0.287	pCi/L	03/28/25 07:20	04/23/25 06:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*92.7*		*30 - 110*	*03/28/25 07:20*	*04/23/25 06:03*	*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	<0.512	U	0.322	0.324	1.00	0.512	pCi/L	03/28/25 07:27	04/22/25 14:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*92.7*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*
Y Carrier	*79.6*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW17R-GW-0325
Lab Sample ID: 310-302684-3
Date Collected: 03/25/25 12:15
Matrix: Water
Date Received: 03/26/25 09:39

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	<0.512	U	0.366	0.368	5.00	0.512	pCi/L		04/24/25 14:29	1

Client Sample ID: MW18A-GW-0325
Lab Sample ID: 310-302684-4

Date Collected: 03/25/25 14:45
Matrix: Water

Date Received: 03/26/25 09:39

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.50**	**F1**	5.00		mg/L			04/01/25 14:34	5
Fluoride	<1.00		1.00		mg/L			04/01/25 14:34	5
Sulfate	**27.8**		5.00		mg/L			04/01/25 14:34	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	03/28/25 17:11	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/28/25 17:11	1
Barium	**0.0301**		0.00200		mg/L		03/28/25 09:00	03/28/25 17:11	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/28/25 17:11	1
Boron	**0.125**		0.100		mg/L		03/28/25 09:00	04/01/25 12:15	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/28/25 17:11	1
Calcium	**43.1**		0.500		mg/L		03/28/25 09:00	03/28/25 17:11	1
Chromium	**0.00539**		0.00500		mg/L		03/28/25 09:00	03/28/25 17:11	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/28/25 17:11	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/28/25 17:11	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/28/25 17:11	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/28/25 17:11	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/28/25 17:11	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 12:57	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/02/25 09:16	04/02/25 14:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**168**		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)	**7.1**	**HF**	1.0		SU			03/26/25 11:29	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	<0.328	U	0.191	0.191	1.00	0.328	pCi/L	03/28/25 07:20	04/23/25 06:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*92.9*		*30 - 110*	*03/28/25 07:20*	*04/23/25 06:03*	*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	<0.606	U	0.386	0.388	1.00	0.606	pCi/L	03/28/25 07:27	04/22/25 14:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*92.9*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*
Y Carrier	*75.1*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:13*	*1*

Client Sample Results

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

Job ID: 310-302684-1

Client Sample ID: MW18A-GW-0325

Date Collected: 03/25/25 14:45
Date Received: 03/26/25 09:39

Lab Sample ID: 310-302684-4

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	<0.606	U	0.431	0.432	5.00	0.606	pCi/L		04/24/25 14:29	1

Client Sample ID: MW20A-GW-0325
Lab Sample ID: 310-302684-5

Date Collected: 03/25/25 14:05
Matrix: Water
Date Received: 03/26/25 09:39

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10.1**		5.00		mg/L			04/01/25 15:05	5
Fluoride	<1.00		1.00		mg/L			04/01/25 15:05	5
Sulfate	**50.4**		5.00		mg/L			04/01/25 15:05	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		03/27/25 09:00	04/01/25 17:17	1
Arsenic	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 17:17	1
Barium	**0.0446**		0.00200		mg/L		03/27/25 09:00	04/01/25 17:17	1
Beryllium	<0.00100		0.00100		mg/L		03/27/25 09:00	04/01/25 17:17	1
Boron	**0.171**		0.100		mg/L		03/27/25 09:00	04/02/25 12:17	1
Cadmium	<0.000200		0.000200		mg/L		03/27/25 09:00	04/01/25 17:17	1
Calcium	**41.2**		0.500		mg/L		03/27/25 09:00	04/01/25 17:17	1
Chromium	<0.00500		0.00500		mg/L		03/27/25 09:00	04/01/25 17:17	1
Cobalt	<0.000500		0.000500		mg/L		03/27/25 09:00	04/01/25 17:17	1
Lead	<0.000500		0.000500		mg/L		03/27/25 09:00	04/01/25 17:17	1
Lithium	<0.0100		0.0100		mg/L		03/27/25 09:00	04/01/25 17:17	1
Molybdenum	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 17:17	1
Selenium	<0.00500		0.00500		mg/L		03/27/25 09:00	04/01/25 17:17	1
Thallium	<0.00100		0.00100		mg/L		03/27/25 09:00	04/01/25 17:17	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 10:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**228**		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)	**7.2**	**HF**	1.0		SU			03/26/25 11:34	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	**0.266**		0.184	0.186	1.00	0.253	pCi/L	03/28/25 07:20	04/23/25 07:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*85.8*		*30 - 110*	*03/28/25 07:20*	*04/23/25 07:52*	*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	<0.652	U	0.338	0.338	1.00	0.652	pCi/L	03/28/25 07:27	04/22/25 14:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*85.8*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*
Y Carrier	*75.9*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*

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

Job ID: 310-302684-1

Client Sample ID: MW20A-GW-0325
Date Collected: 03/25/25 14:05
Date Received: 03/26/25 09:39

Lab Sample ID: 310-302684-5
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	<0.652	U	0.385	0.386	5.00	0.652	pCi/L		04/24/25 14:29	1

Client Sample ID: MW21-GW-0325
Lab Sample ID: 310-302684-6

Date Collected: 03/25/25 13:30
Matrix: Water
Date Received: 03/26/25 09:39

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10.5**		5.00		mg/L			04/01/25 15:15	5
Fluoride	<1.00		1.00		mg/L			04/01/25 15:15	5
Sulfate	**30.4**		5.00		mg/L			04/01/25 15:15	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 17:08	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:08	1
Barium	**0.0554**		0.00200		mg/L		03/28/25 09:00	03/31/25 17:08	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:08	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	04/01/25 12:54	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 17:08	1
Calcium	**53.0**		0.500		mg/L		03/28/25 09:00	03/31/25 17:08	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:08	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:08	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:08	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 17:08	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:08	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:08	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:08	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 10:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**230**		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 11:35	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	**0.265**		0.162	0.164	1.00	0.195	pCi/L	03/28/25 07:20	04/23/25 07:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*91.2*		*30 - 110*	*03/28/25 07:20*	*04/23/25 07:52*	*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	<0.597	U	0.313	0.313	1.00	0.597	pCi/L	03/28/25 07:27	04/22/25 14:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*91.2*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*
Y Carrier	*74.4*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW21-GW-0325
Lab Sample ID: 310-302684-6
Date Collected: 03/25/25 13:30
Matrix: Water
Date Received: 03/26/25 09:39

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	<0.597	U	0.352	0.353	5.00	0.597	pCi/L		04/24/25 14:29	1

Client Sample ID: MW22-GW-0325
Lab Sample ID: 310-302684-7

Date Collected: 03/25/25 09:30
Matrix: Water
Date Received: 03/26/25 09:39

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.5**		5.00		mg/L			04/02/25 18:04	5
Fluoride	<1.00		1.00		mg/L			04/02/25 18:04	5
Sulfate	**75.2**		5.00		mg/L			04/02/25 18:04	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		03/28/25 09:00	03/31/25 17:17	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:17	1
Barium	**0.0296**		0.00200		mg/L		03/28/25 09:00	03/31/25 17:17	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:17	1
Boron	**0.483**		0.100		mg/L		03/28/25 09:00	04/01/25 13:02	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 17:17	1
Calcium	**40.7**		0.500		mg/L		03/28/25 09:00	03/31/25 17:17	1
Chromium	**0.0196**		0.00500		mg/L		03/28/25 09:00	03/31/25 17:17	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:17	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:17	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 17:17	1
Molybdenum	**0.0288**		0.00200		mg/L		03/28/25 09:00	03/31/25 17:17	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:17	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:17	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 10:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**258**		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)	**7.2**	**HF**	1.0		SU			03/26/25 11:36	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	<0.231	U	0.112	0.112	1.00	0.231	pCi/L	03/28/25 07:20	04/23/25 07:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*87.3*		*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	<0.628	U	0.387	0.388	1.00	0.628	pCi/L	03/28/25 07:27	04/22/25 14:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*87.3*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*
Y Carrier	*75.9*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW22-GW-0325
Lab Sample ID: 310-302684-7
Date Collected: 03/25/25 09:30
Matrix: Water
Date Received: 03/26/25 09:39

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	<0.628	U	0.403	0.404	5.00	0.628	pCi/L		04/24/25 14:29	1

Client Sample ID: DP02-GW-0325

Date Collected: 03/25/25 00:00
Date Received: 03/26/25 09:39

Lab Sample ID: 310-302684-8

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.8**		5.00		mg/L			04/02/25 18:51	5
Fluoride	<1.00		1.00		mg/L			04/02/25 18:51	5
Sulfate	**77.0**		5.00		mg/L			04/02/25 18:51	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 17:14	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/31/25 17:14	1
Barium	**0.0290**		0.00200		mg/L		03/28/25 09:00	03/31/25 17:14	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:14	1
Boron	**0.474**		0.100		mg/L		03/28/25 09:00	04/01/25 12:59	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/31/25 17:14	1
Calcium	**40.6**		0.500		mg/L		03/28/25 09:00	03/31/25 17:14	1
Chromium	**0.0194**		0.00500		mg/L		03/28/25 09:00	03/31/25 17:14	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:14	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/31/25 17:14	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/31/25 17:14	1
Molybdenum	**0.0291**		0.00200		mg/L		03/28/25 09:00	03/31/25 17:14	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/31/25 17:14	1
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 17:14	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/31/25 14:25	04/01/25 10:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**264**		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)	**7.2**	**HF**	1.0		SU			03/26/25 11:37	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	<0.273	U	0.151	0.151	1.00	0.273	pCi/L	03/28/25 07:20	04/23/25 07:53	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*87.8*		*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**		0.384	0.388	1.00	0.562	pCi/L	03/28/25 07:27	04/22/25 14:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*87.8*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*
Y Carrier	*75.1*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:15*	*1*

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: DP02-GW-0325
Lab Sample ID: 310-302684-8
Date Collected: 03/25/25 00:00
Matrix: Water
Date Received: 03/26/25 09:39

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	0.672		0.413	0.416	5.00	0.562	pCi/L		04/24/25 14:29	1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Metals

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

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

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

Lab Sample ID: MB 310-450674/3
Matrix: Water
Analysis Batch: 450674

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/01/25 13:44	1
Fluoride	<0.200		0.200		mg/L			04/01/25 13:44	1
Sulfate	<1.00		1.00		mg/L			04/01/25 13:44	1

Lab Sample ID: LCS 310-450674/4
Matrix: Water
Analysis Batch: 450674

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	9.613		mg/L		96	90 - 110
Fluoride	2.00	1.967		mg/L		98	90 - 110
Sulfate	10.0	9.555		mg/L		96	90 - 110

Lab Sample ID: 310-302684-4 MS
Matrix: Water
Analysis Batch: 450674

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	8.50	F1	25.0	27.98	F1	mg/L		78	80 - 120
Fluoride	<1.00		5.00	4.828		mg/L		97	80 - 120
Sulfate	27.8		25.0	51.65		mg/L		95	80 - 120

Lab Sample ID: 310-302684-4 MSD
Matrix: Water
Analysis Batch: 450674

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8.50	F1	25.0	28.24	F1	mg/L		79	80 - 120	1	15
Fluoride	<1.00		5.00	4.813		mg/L		96	80 - 120	0	15
Sulfate	27.8		25.0	52.99		mg/L		101	80 - 120	3	15

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-302684-7 MS
Matrix: Water
Analysis Batch: 450731

Client Sample ID: MW22-GW-0325
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	11.5		25.0	33.52		mg/L		88	80 - 120
Fluoride	<1.00		5.00	5.041		mg/L		101	80 - 120
Sulfate	75.2		25.0	97.81		mg/L		91	80 - 120

Lab Sample ID: 310-302684-7 MSD
Matrix: Water
Analysis Batch: 450731

Client Sample ID: MW22-GW-0325
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	11.5		25.0	33.80		mg/L		89	80 - 120	1	15
Fluoride	<1.00		5.00	4.892		mg/L		98	80 - 120	3	15
Sulfate	75.2		25.0	97.68		mg/L		90	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-449830/1-A
Matrix: Water
Analysis Batch: 450427

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 449830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 16:49	1
Arsenic	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 16:49	1
Barium	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 16:49	1
Beryllium	<0.00100		0.00100		mg/L		03/27/25 09:00	04/01/25 16:49	1
Cadmium	<0.000200		0.000200		mg/L		03/27/25 09:00	04/01/25 16:49	1
Calcium	<0.500		0.500		mg/L		03/27/25 09:00	04/01/25 16:49	1
Chromium	<0.00500		0.00500		mg/L		03/27/25 09:00	04/01/25 16:49	1
Cobalt	<0.000500		0.000500		mg/L		03/27/25 09:00	04/01/25 16:49	1
Lead	<0.000500		0.000500		mg/L		03/27/25 09:00	04/01/25 16:49	1
Lithium	<0.0100		0.0100		mg/L		03/27/25 09:00	04/01/25 16:49	1
Molybdenum	<0.00200		0.00200		mg/L		03/27/25 09:00	04/01/25 16:49	1
Selenium	<0.00500		0.00500		mg/L		03/27/25 09:00	04/01/25 16:49	1
Thallium	<0.00100		0.00100		mg/L		03/27/25 09:00	04/01/25 16:49	1

Lab Sample ID: MB 310-449830/1-A
Matrix: Water
Analysis Batch: 450493

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 449830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		03/27/25 09:00	04/02/25 12:00	1

Lab Sample ID: LCS 310-449830/2-A
Matrix: Water
Analysis Batch: 450427

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2272		mg/L		114	80 - 120
Arsenic	0.200	0.2102		mg/L		105	80 - 120
Barium	0.100	0.1048		mg/L		105	80 - 120
Beryllium	0.100	0.09689		mg/L		97	80 - 120

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

Lab Sample ID: LCS 310-449830/2-A
Matrix: Water
Analysis Batch: 450427

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.100	0.1009		mg/L		101	80 - 120
Calcium	2.00	1.972		mg/L		99	80 - 120
Chromium	0.100	0.1026		mg/L		103	80 - 120
Cobalt	0.100	0.1087		mg/L		109	80 - 120
Lead	0.200	0.2109		mg/L		105	80 - 120
Lithium	0.200	0.2100		mg/L		105	80 - 120
Molybdenum	0.200	0.2004		mg/L		100	80 - 120
Selenium	0.400	0.3962		mg/L		99	80 - 120
Thallium	0.100	0.09194		mg/L		92	80 - 120

Lab Sample ID: LCS 310-449830/2-A
Matrix: Water
Analysis Batch: 450493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.1917		mg/L		96	80 - 120

Lab Sample ID: MB 310-449942/1-A
Matrix: Water
Analysis Batch: 450182

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 449942

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	03/28/25 17:01	1
Arsenic	<0.00200		0.00200		mg/L		03/28/25 09:00	03/28/25 17:01	1
Barium	<0.00200		0.00200		mg/L		03/28/25 09:00	03/28/25 17:01	1
Beryllium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/28/25 17:01	1
Boron	<0.100		0.100		mg/L		03/28/25 09:00	03/28/25 17:01	1
Cadmium	<0.000200		0.000200		mg/L		03/28/25 09:00	03/28/25 17:01	1
Calcium	<0.500		0.500		mg/L		03/28/25 09:00	03/28/25 17:01	1
Chromium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/28/25 17:01	1
Cobalt	<0.000500		0.000500		mg/L		03/28/25 09:00	03/28/25 17:01	1
Lead	<0.000500		0.000500		mg/L		03/28/25 09:00	03/28/25 17:01	1
Lithium	<0.0100		0.0100		mg/L		03/28/25 09:00	03/28/25 17:01	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/25 09:00	03/28/25 17:01	1
Selenium	<0.00500		0.00500		mg/L		03/28/25 09:00	03/28/25 17:01	1

Lab Sample ID: MB 310-449942/1-A
Matrix: Water
Analysis Batch: 450313

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 449942

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.00100		0.00100		mg/L		03/28/25 09:00	03/31/25 12:51	1

Lab Sample ID: LCS 310-449942/2-A
Matrix: Water
Analysis Batch: 450182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2006		mg/L		100	80 - 120
Arsenic	0.200	0.1963		mg/L		98	80 - 120

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

Lab Sample ID: LCS 310-449942/2-A
Matrix: Water
Analysis Batch: 450182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.100	0.09681		mg/L		97	80 - 120
Beryllium	0.100	0.09049		mg/L		90	80 - 120
Boron	0.200	0.2181		mg/L		109	80 - 120
Cadmium	0.100	0.09489		mg/L		95	80 - 120
Calcium	2.00	1.805		mg/L		90	80 - 120
Chromium	0.100	0.09199		mg/L		92	80 - 120
Cobalt	0.100	0.09968		mg/L		100	80 - 120
Lead	0.200	0.1956		mg/L		98	80 - 120
Lithium	0.200	0.1925		mg/L		96	80 - 120
Molybdenum	0.200	0.1833		mg/L		92	80 - 120
Selenium	0.400	0.3644		mg/L		91	80 - 120

Lab Sample ID: LCS 310-449942/2-A
Matrix: Water
Analysis Batch: 450313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	0.100	0.09515		mg/L		95	80 - 120

Lab Sample ID: 310-302684-4 MS
Matrix: Water
Analysis Batch: 450182

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2089		mg/L		104	75 - 125
Arsenic	<0.00200		0.200	0.2043		mg/L		102	75 - 125
Barium	0.0301		0.100	0.1266		mg/L		97	75 - 125
Beryllium	<0.00100		0.100	0.09139		mg/L		91	75 - 125
Cadmium	<0.000200		0.100	0.09656		mg/L		97	75 - 125
Calcium	43.1		2.00	42.34	4	mg/L		-38	75 - 125
Chromium	0.00539		0.100	0.09813		mg/L		93	75 - 125
Cobalt	<0.000500		0.100	0.09829		mg/L		98	75 - 125
Lead	<0.000500		0.200	0.1979		mg/L		99	75 - 125
Lithium	<0.0100		0.200	0.1893		mg/L		95	75 - 125
Molybdenum	<0.00200		0.200	0.1871		mg/L		94	75 - 125
Selenium	<0.00500		0.400	0.3842		mg/L		95	75 - 125
Thallium	<0.00100	*- F1	0.100	0.07400	F1	mg/L		74	75 - 125

Lab Sample ID: 310-302684-4 MS
Matrix: Water
Analysis Batch: 450398

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.125		0.200	0.3143		mg/L		95	75 - 125

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

Lab Sample ID: 310-302684-4 MSD
Matrix: Water
Analysis Batch: 450182

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2327		mg/L		116	75 - 125	11	20
Arsenic	<0.00200		0.200	0.2239		mg/L		112	75 - 125	9	20
Barium	0.0301		0.100	0.1403		mg/L		110	75 - 125	10	20
Beryllium	<0.00100		0.100	0.1001		mg/L		100	75 - 125	9	20
Cadmium	<0.000200		0.100	0.1051		mg/L		105	75 - 125	9	20
Calcium	43.1		2.00	46.34	4	mg/L		162	75 - 125	9	20
Chromium	0.00539		0.100	0.1079		mg/L		103	75 - 125	9	20
Cobalt	<0.000500		0.100	0.1077		mg/L		107	75 - 125	9	20
Lead	<0.000500		0.200	0.2158		mg/L		108	75 - 125	9	20
Lithium	<0.0100		0.200	0.2097		mg/L		105	75 - 125	10	20
Molybdenum	<0.00200		0.200	0.2095		mg/L		105	75 - 125	11	20
Selenium	<0.00500		0.400	0.4260		mg/L		106	75 - 125	10	20
Thallium	<0.00100	*- F1	0.100	0.08441		mg/L		84	75 - 125	13	20

Lab Sample ID: 310-302684-4 MSD
Matrix: Water
Analysis Batch: 450398

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 449942

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.125		0.200	0.3342		mg/L		105	75 - 125	6	20

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

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
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
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: 310-302684-2 MS
Matrix: Water
Analysis Batch: 450313

Client Sample ID: MW04-GW-0325
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2047		mg/L		102	75 - 125
Arsenic	<0.00200		0.200	0.2006		mg/L		100	75 - 125
Barium	0.0518		0.100	0.1540		mg/L		102	75 - 125
Beryllium	<0.00100		0.100	0.09996		mg/L		100	75 - 125
Boron	0.435	*+	0.200	0.6174		mg/L		91	75 - 125
Cadmium	<0.000200		0.100	0.09790		mg/L		98	75 - 125
Calcium	46.1		2.00	48.20	4	mg/L		105	75 - 125
Chromium	<0.00500		0.100	0.1043		mg/L		102	75 - 125
Cobalt	<0.000500		0.100	0.1021		mg/L		102	75 - 125
Lead	<0.000500		0.200	0.1964		mg/L		98	75 - 125
Lithium	<0.0100		0.200	0.2020		mg/L		101	75 - 125
Molybdenum	<0.00200		0.200	0.1909		mg/L		95	75 - 125
Selenium	<0.00500		0.400	0.4045		mg/L		101	75 - 125
Thallium	<0.00100		0.100	0.09349		mg/L		93	75 - 125

Lab Sample ID: 310-302684-2 MS
Matrix: Water
Analysis Batch: 450398

Client Sample ID: MW04-GW-0325
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.434		0.200	0.6439		mg/L		105	75 - 125

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

Lab Sample ID: 310-302684-2 MSD
Matrix: Water
Analysis Batch: 450313

Client Sample ID: MW04-GW-0325
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2119		mg/L		106	75 - 125	3	20
Arsenic	<0.00200		0.200	0.2044		mg/L		102	75 - 125	2	20
Barium	0.0518		0.100	0.1557		mg/L		104	75 - 125	1	20
Beryllium	<0.00100		0.100	0.1002		mg/L		100	75 - 125	0	20
Cadmium	<0.000200		0.100	0.1023		mg/L		102	75 - 125	4	20
Calcium	46.1		2.00	46.99	4	mg/L		44	75 - 125	3	20
Chromium	<0.00500		0.100	0.1067		mg/L		104	75 - 125	2	20
Cobalt	<0.000500		0.100	0.1057		mg/L		106	75 - 125	3	20
Lead	<0.000500		0.200	0.2049		mg/L		102	75 - 125	4	20
Lithium	<0.0100		0.200	0.2103		mg/L		105	75 - 125	4	20
Molybdenum	<0.00200		0.200	0.1944		mg/L		97	75 - 125	2	20
Selenium	<0.00500		0.400	0.4137		mg/L		103	75 - 125	2	20
Thallium	<0.00100		0.100	0.09317		mg/L		93	75 - 125	0	20

Lab Sample ID: 310-302684-2 MSD
Matrix: Water
Analysis Batch: 450398

Client Sample ID: MW04-GW-0325
Prep Type: Total/NA
Prep Batch: 449947

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.434		0.200	0.6509		mg/L		108	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-450144/1-A
Matrix: Water
Analysis Batch: 450371

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 450144

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 09:40	1

Lab Sample ID: LCS 310-450144/2-A
Matrix: Water
Analysis Batch: 450371

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 450144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001670		mg/L		100	80 - 120

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

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-450322/1-A
Matrix: Water
Analysis Batch: 450514

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 450322

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/02/25 09:16	04/02/25 13:56	1

Lab Sample ID: LCS 310-450322/2-A
Matrix: Water
Analysis Batch: 450514

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 450322

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001625		mg/L		98	80 - 120

Lab Sample ID: 310-302684-4 MS
Matrix: Water
Analysis Batch: 450514

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 450322

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000200		0.00167	0.001720		mg/L		103	80 - 120

Lab Sample ID: 310-302684-4 MSD
Matrix: Water
Analysis Batch: 450514

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 450322

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001696		mg/L		102	80 - 120	1	20

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

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

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 310-302684-4 DU
Matrix: Water
Analysis Batch: 449833

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.1	HF	7.1		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*

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: 310-302684-4 MS
Matrix: Water
Analysis Batch: 713902

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 709793

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	<0.328	U	9.58	9.409		1.21	1.00	0.300	pCi/L	97	60 - 140

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Barium	*86.8*		*30 - 110*

Lab Sample ID: 310-302684-4 MSD
Matrix: Water
Analysis Batch: 713893

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 709793

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	<0.328	U	9.56	9.094		1.17	1.00	0.356	pCi/L	94	60 - 140	0.13	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Barium	*90.7*		*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*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*89.0*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:14*	*1*
Y Carrier	*84.1*		*30 - 110*	*03/28/25 07:27*	*04/22/25 14:14*	*1*

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		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Barium	*87.3*		*30 - 110*
Y Carrier	*82.2*		*30 - 110*

Lab Sample ID: 310-302684-4 MS
Matrix: Water
Analysis Batch: 713839

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 709794

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228	<0.606	U	9.51	10.69		1.45	1.00	0.592	pCi/L	108	60 - 140		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Barium	*86.8*		*30 - 110*
Y Carrier	*75.1*		*30 - 110*

Lab Sample ID: 310-302684-4 MSD
Matrix: Water
Analysis Batch: 713839

Client Sample ID: MW18A-GW-0325
Prep Type: Total/NA
Prep Batch: 709794

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	<0.606	U	9.50	10.95		1.49	1.00	0.663	pCi/L	110	60 - 140	0.09	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Barium	*90.7*		*30 - 110*
Y Carrier	*74.8*		*30 - 110*

HPLC/IC

Analysis Batch: 450049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	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: 450674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-2	MW04-GW-0325	Total/NA	Water	9056A	
310-302684-3	MW17R-GW-0325	Total/NA	Water	9056A	
310-302684-4	MW18A-GW-0325	Total/NA	Water	9056A	
310-302684-5	MW20A-GW-0325	Total/NA	Water	9056A	
310-302684-6	MW21-GW-0325	Total/NA	Water	9056A	
MB 310-450674/3	Method Blank	Total/NA	Water	9056A	
LCS 310-450674/4	Lab Control Sample	Total/NA	Water	9056A	
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	9056A	
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	9056A	

Analysis Batch: 450731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-7	MW22-GW-0325	Total/NA	Water	9056A	
310-302684-8	DP02-GW-0325	Total/NA	Water	9056A	
310-302684-7 MS	MW22-GW-0325	Total/NA	Water	9056A	
310-302684-7 MSD	MW22-GW-0325	Total/NA	Water	9056A	

Metals

Prep Batch: 449830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-3	MW17R-GW-0325	Total/NA	Water	3005A	
310-302684-5	MW20A-GW-0325	Total/NA	Water	3005A	
MB 310-449830/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-449830/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 449942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-4	MW18A-GW-0325	Total/NA	Water	3005A	
MB 310-449942/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-449942/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	3005A	
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	3005A	

Prep Batch: 449947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	3005A	
310-302684-2	MW04-GW-0325	Total/NA	Water	3005A	
310-302684-6	MW21-GW-0325	Total/NA	Water	3005A	
310-302684-7	MW22-GW-0325	Total/NA	Water	3005A	
310-302684-8	DP02-GW-0325	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	
310-302684-2 MS	MW04-GW-0325	Total/NA	Water	3005A	
310-302684-2 MSD	MW04-GW-0325	Total/NA	Water	3005A	

Metals

Prep Batch: 450144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-5	MW20A-GW-0325	Total/NA	Water	7470A	
310-302684-6	MW21-GW-0325	Total/NA	Water	7470A	
310-302684-7	MW22-GW-0325	Total/NA	Water	7470A	
310-302684-8	DP02-GW-0325	Total/NA	Water	7470A	
MB 310-450144/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-450144/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 450154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	7470A	
310-302684-2	MW04-GW-0325	Total/NA	Water	7470A	
310-302684-3	MW17R-GW-0325	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	

Analysis Batch: 450182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-4	MW18A-GW-0325	Total/NA	Water	6020B	449942
MB 310-449942/1-A	Method Blank	Total/NA	Water	6020B	449942
LCS 310-449942/2-A	Lab Control Sample	Total/NA	Water	6020B	449942
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	6020B	449942
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	6020B	449942

Analysis Batch: 450313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	6020B	449947
310-302684-2	MW04-GW-0325	Total/NA	Water	6020B	449947
310-302684-4	MW18A-GW-0325	Total/NA	Water	6020B	449942
310-302684-6	MW21-GW-0325	Total/NA	Water	6020B	449947
310-302684-7	MW22-GW-0325	Total/NA	Water	6020B	449947
310-302684-8	DP02-GW-0325	Total/NA	Water	6020B	449947
MB 310-449942/1-A	Method Blank	Total/NA	Water	6020B	449942
MB 310-449947/1-A	Method Blank	Total/NA	Water	6020B	449947
LCS 310-449942/2-A	Lab Control Sample	Total/NA	Water	6020B	449942
LCS 310-449947/2-A	Lab Control Sample	Total/NA	Water	6020B	449947
310-302684-2 MS	MW04-GW-0325	Total/NA	Water	6020B	449947
310-302684-2 MSD	MW04-GW-0325	Total/NA	Water	6020B	449947

Prep Batch: 450322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-4	MW18A-GW-0325	Total/NA	Water	7470A	
MB 310-450322/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-450322/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	7470A	
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	7470A	

Analysis Batch: 450371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	7470A	450154
310-302684-2	MW04-GW-0325	Total/NA	Water	7470A	450154
310-302684-3	MW17R-GW-0325	Total/NA	Water	7470A	450154

Metals (Continued)

Analysis Batch: 450371 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-5	MW20A-GW-0325	Total/NA	Water	7470A	450144
310-302684-6	MW21-GW-0325	Total/NA	Water	7470A	450144
310-302684-7	MW22-GW-0325	Total/NA	Water	7470A	450144
310-302684-8	DP02-GW-0325	Total/NA	Water	7470A	450144
MB 310-450144/1-A	Method Blank	Total/NA	Water	7470A	450144
MB 310-450154/1-A	Method Blank	Total/NA	Water	7470A	450154
LCS 310-450144/2-A	Lab Control Sample	Total/NA	Water	7470A	450144
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
310-302684-1	MW03-GW-0325	Total/NA	Water	6020B	449947
310-302684-2	MW04-GW-0325	Total/NA	Water	6020B	449947
310-302684-4	MW18A-GW-0325	Total/NA	Water	6020B	449942
310-302684-6	MW21-GW-0325	Total/NA	Water	6020B	449947
310-302684-7	MW22-GW-0325	Total/NA	Water	6020B	449947
310-302684-8	DP02-GW-0325	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
310-302684-2 MS	MW04-GW-0325	Total/NA	Water	6020B	449947
310-302684-2 MSD	MW04-GW-0325	Total/NA	Water	6020B	449947
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	6020B	449942
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	6020B	449942

Analysis Batch: 450427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-3	MW17R-GW-0325	Total/NA	Water	6020B	449830
310-302684-5	MW20A-GW-0325	Total/NA	Water	6020B	449830
MB 310-449830/1-A	Method Blank	Total/NA	Water	6020B	449830
LCS 310-449830/2-A	Lab Control Sample	Total/NA	Water	6020B	449830

Analysis Batch: 450493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-3	MW17R-GW-0325	Total/NA	Water	6020B	449830
310-302684-5	MW20A-GW-0325	Total/NA	Water	6020B	449830
MB 310-449830/1-A	Method Blank	Total/NA	Water	6020B	449830
LCS 310-449830/2-A	Lab Control Sample	Total/NA	Water	6020B	449830

Analysis Batch: 450514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-4	MW18A-GW-0325	Total/NA	Water	7470A	450322
MB 310-450322/1-A	Method Blank	Total/NA	Water	7470A	450322
LCS 310-450322/2-A	Lab Control Sample	Total/NA	Water	7470A	450322
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	7470A	450322
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	7470A	450322

General Chemistry

Analysis Batch: 449833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	SM 4500 H+ B	

General Chemistry (Continued)

Analysis Batch: 449833 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-2	MW04-GW-0325	Total/NA	Water	SM 4500 H+ B	
310-302684-3	MW17R-GW-0325	Total/NA	Water	SM 4500 H+ B	
310-302684-4	MW18A-GW-0325	Total/NA	Water	SM 4500 H+ B	
310-302684-5	MW20A-GW-0325	Total/NA	Water	SM 4500 H+ B	
310-302684-6	MW21-GW-0325	Total/NA	Water	SM 4500 H+ B	
310-302684-7	MW22-GW-0325	Total/NA	Water	SM 4500 H+ B	
310-302684-8	DP02-GW-0325	Total/NA	Water	SM 4500 H+ B	
LCS 310-449833/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-302684-4 DU	MW18A-GW-0325	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 449987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	SM 2540C	
310-302684-2	MW04-GW-0325	Total/NA	Water	SM 2540C	
310-302684-3	MW17R-GW-0325	Total/NA	Water	SM 2540C	
310-302684-4	MW18A-GW-0325	Total/NA	Water	SM 2540C	
310-302684-5	MW20A-GW-0325	Total/NA	Water	SM 2540C	
310-302684-6	MW21-GW-0325	Total/NA	Water	SM 2540C	
310-302684-7	MW22-GW-0325	Total/NA	Water	SM 2540C	
310-302684-8	DP02-GW-0325	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	

Rad

Prep Batch: 709793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-2	MW04-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-3	MW17R-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-4	MW18A-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-5	MW20A-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-6	MW21-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-7	MW22-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-8	DP02-GW-0325	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	
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	PrecSep-21	
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	PrecSep-21	

Prep Batch: 709794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-302684-1	MW03-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-2	MW04-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-3	MW17R-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-4	MW18A-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-5	MW20A-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-6	MW21-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-7	MW22-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-8	DP02-GW-0325	Total/NA	Water	PrecSep_0	
MB 160-709794/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 709794 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-709794/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-302684-4 MS	MW18A-GW-0325	Total/NA	Water	PrecSep_0	
310-302684-4 MSD	MW18A-GW-0325	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW03-GW-0325
Lab Sample ID: 310-302684-1
Date Collected: 03/25/25 12:50
Matrix: Water
Date Received: 03/26/25 09:39

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 17:18
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 12:57
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 17:11
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 12:37
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 11:31
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713902	SWS	EET SL	04/23/25 06:02
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713839	SWS	EET SL	04/22/25 14:13
Total/NA	Analysis	Ra226_Ra228		1	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: MW04-GW-0325
Lab Sample ID: 310-302684-2
Date Collected: 03/25/25 08:50
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450674	WZC8	EET CF	04/01/25 14:14
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 12:39
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 16:48
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 12:39
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 11:32
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713902	SWS	EET SL	04/23/25 06:03
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713839	SWS	EET SL	04/22/25 14:13
Total/NA	Analysis	Ra226_Ra228		1	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: MW17R-GW-0325
Lab Sample ID: 310-302684-3
Date Collected: 03/25/25 12:15
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450674	WZC8	EET CF	04/01/25 14:24
Total/NA	Prep	3005A			449830	Y3EC	EET CF	03/27/25 09:00
Total/NA	Analysis	6020B		1	450427	NFT2	EET CF	04/01/25 17:10

Lab Chronicle

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW17R-GW-0325
Lab Sample ID: 310-302684-3
Date Collected: 03/25/25 12:15
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			449830	Y3EC	EET CF	03/27/25 09:00
Total/NA	Analysis	6020B		1	450493	NFT2	EET CF	04/02/25 12:14
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 12:46
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 11:33
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713902	SWS	EET SL	04/23/25 06:03
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713839	SWS	EET SL	04/22/25 14:13
Total/NA	Analysis	Ra226_Ra228		1	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: MW18A-GW-0325
Lab Sample ID: 310-302684-4
Date Collected: 03/25/25 14:45
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450674	WZC8	EET CF	04/01/25 14:34
Total/NA	Prep	3005A			449942	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450182	NFT2	EET CF	03/28/25 17:11
Total/NA	Prep	3005A			449942	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450398	NFT2	EET CF	04/01/25 12:15
Total/NA	Prep	3005A			449942	Y3EC	EET CF	03/28/25 09:00
Total/NA	Analysis	6020B		1	450313	NFT2	EET CF	03/31/25 12:57
Total/NA	Prep	7470A			450322	F5MW	EET CF	04/02/25 09:16
Total/NA	Analysis	7470A		1	450514	F5MW	EET CF	04/02/25 14:01
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 11:29
Total/NA	Prep	PrecSep-21			709793	OGC	EET SL	03/28/25 07:20
Total/NA	Analysis	9315		1	713902	SWS	EET SL	04/23/25 06:03
Total/NA	Prep	PrecSep_0			709794	OGC	EET SL	03/28/25 07:27
Total/NA	Analysis	9320		1	713839	SWS	EET SL	04/22/25 14:13
Total/NA	Analysis	Ra226_Ra228		1	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: MW20A-GW-0325
Lab Sample ID: 310-302684-5
Date Collected: 03/25/25 14:05
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450674	WZC8	EET CF	04/01/25 15:05
Total/NA	Prep	3005A			449830	Y3EC	EET CF	03/27/25 09:00
Total/NA	Analysis	6020B		1	450427	NFT2	EET CF	04/01/25 17:17
Total/NA	Prep	3005A			449830	Y3EC	EET CF	03/27/25 09:00
Total/NA	Analysis	6020B		1	450493	NFT2	EET CF	04/02/25 12:17

Client Sample ID: MW20A-GW-0325
Lab Sample ID: 310-302684-5
Date Collected: 03/25/25 14:05
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	7470A			450144	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 10:31
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 11:34
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 07:52
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	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: MW21-GW-0325
Lab Sample ID: 310-302684-6
Date Collected: 03/25/25 13:30
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	450674	WZC8	EET CF	04/01/25 15:15
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 12:54
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 17:08
Total/NA	Prep	7470A			450144	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 10:38
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 11:35
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 07:52
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	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: MW22-GW-0325
Lab Sample ID: 310-302684-7
Date Collected: 03/25/25 09:30
Matrix: Water
Date Received: 03/26/25 09:39

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 18:04
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 13:02
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 17:17
Total/NA	Prep	7470A			450144	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 10:40
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 11:36

Lab Chronicle

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW22-GW-0325
Lab Sample ID: 310-302684-7
Date Collected: 03/25/25 09:30
Matrix: Water
Date Received: 03/26/25 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
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	714290	CAH	EET SL	04/24/25 14:29

Client Sample ID: DP02-GW-0325
Lab Sample ID: 310-302684-8
Date Collected: 03/25/25 00:00
Matrix: Water
Date Received: 03/26/25 09:39

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 18:51
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 12:59
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 17:14
Total/NA	Prep	7470A			450144	QTZ5	EET CF	03/31/25 14:25
Total/NA	Analysis	7470A		1	450371	F5MW	EET CF	04/01/25 10:42
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 11:37
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	714290	CAH	EET SL	04/24/25 14:29

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. Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

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.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

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

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310-302684 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: CITY Des Moines STATE IA Project: MCEC Mec Louisa West

Receipt Information

Date/Time Received: DATE 3-26-25 TIME 0905 Received By: CC

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 # 1 of 3

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 Y Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.3 Corrected Temp (°C): 2.3

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
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

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: CITY Des Moines STATE IA Project: MCE Mec Louisa West

Receipt Information

Date/Time Received: DATE 3-26-25 TIME 0905 Received By: CC

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 # 2 of 3
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: Y | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.9 | Corrected Temp (°C): 1.8

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
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

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD

City/State: CITY Des Moines | STATE IA | Project: MCEC Mec Louisa West

Receipt Information

Date/Time Received: DATE 3-26-25 | TIME 0905 | Received By: CC

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 # 3 of 3

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: Y | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 3.1 | Corrected Temp (°C): 3.1

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
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

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Phone (319) 277-2425

Chain of Custody Record

DSM 214

eurofins

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: Za t Binder@el t us.com	State of Origin: Iowa	Page: Page 1 of 1
Company: GHD Services Inc.	PWSID:			Job #:
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
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 West CCR Monofill	Project #: 31007299			
Site: MEC Louisa West CCR Monofill	SSOW#: 12575233-003			

Analysis Requested

Preservation Codes.

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 - Standard Target List	9320_Ra228 - Standard Target List	9056A_ORGFM_28D - Chloride, Fluoride, Sulfate	6020B, 7470A - CCR Metals List	2540C_Calcd, SM4500_H+	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	D	N		
MW03-GW-0325	3/25/25	1250	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW04-GW-0325	3/25/25	0850	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW17R-GW-0325	3/25/25	1215	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW18A-GW-0325	3/25/25	1445	G	W	N	Y	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW20A-GW-0325	3/25/25	1405	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW21-GW-0325	3/25/25	1330	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents
MW22-GW-0325	3/25/25	0930	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents
DP02-GW-0325	3/25/25	—	G	W	N	N	X	X	X	X	X		All Appendix III and Appendix IV constituents

Brooke Wasson

Possible Hazard Identification
Non-Hazard, Flammable, Skin Irritant, Poison B, Unknown ■, Radiological

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

Deliverable Requested I, II, III, IV, Other (specify)

Special Instructions/QC Requirements. Database Facility Code 11114676-GD-MidAmeri

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Brooke Wasson	3/25/25 16:00	GHD	Fedex	3/25/25 1600	
2						
3					3/26/25 0905	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-302684-1

Login Number: 302684
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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

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

Tracer/Carrier Summary

Client: GHD Services Inc.
Job ID: 310-302684-1
Project/Site: MEC Louisa West CCR Monofill

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
310-302684-1	MW03-GW-0325	92.9
310-302684-2	MW04-GW-0325	85.1
310-302684-3	MW17R-GW-0325	92.7
310-302684-4	MW18A-GW-0325	92.9
310-302684-4 MS	MW18A-GW-0325	86.8
310-302684-4 MSD	MW18A-GW-0325	90.7
310-302684-5	MW20A-GW-0325	85.8
310-302684-6	MW21-GW-0325	91.2
310-302684-7	MW22-GW-0325	87.3
310-302684-8	DP02-GW-0325	87.8
LCS 160-709793/2-A	Lab Control Sample	87.3
MB 160-709793/1-A	Method Blank	89.0

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)
310-302684-1	MW03-GW-0325	92.9	77.8
310-302684-2	MW04-GW-0325	85.1	78.1
310-302684-3	MW17R-GW-0325	92.7	79.6
310-302684-4	MW18A-GW-0325	92.9	75.1
310-302684-4 MS	MW18A-GW-0325	86.8	75.1
310-302684-4 MSD	MW18A-GW-0325	90.7	74.8
310-302684-5	MW20A-GW-0325	85.8	75.9
310-302684-6	MW21-GW-0325	91.2	74.4
310-302684-7	MW22-GW-0325	87.3	75.9
310-302684-8	DP02-GW-0325	87.8	75.1
LCS 160-709794/2-A	Lab Control Sample	87.3	82.2
MB 160-709794/1-A	Method Blank	89.0	84.1

Tracer/Carrier Legend

Ba = Barium
Y = Y Carrier

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/8/2025 1:41:10 PM

JOB DESCRIPTION

MEC Louisa West CCR Monofill

JOB NUMBER

310-315056-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

Job Notes

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

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

Authorization

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

Table of Contents

Job ID: 310-315056-1 Eurofins Cedar Falls

Job Narrative
310-315056-1

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 9/8/2025 7:11 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 0.6°C, 0.8°C and 4.6°C.

HPLC/IC
Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW03-GW-0925 (310-315056-1), MW04-GW-0925 (310-315056-2), MW17R-GW-0925 (310-315056-3), MW18A-GW-0925 (310-315056-4), MW20A-GW-0925 (310-315056-5), MW21-GW-0925 (310-315056-6), MW22-GW-0925 (310-315056-7) and DP02-GW-0925 (310-315056-8). 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.

Job ID: 310-315056-2 Eurofins Cedar Falls

Job Narrative
310-315056-2

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 9/8/2025 7:11 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 0.6°C, 0.8°C and 4.6°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.

Sample Summary

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
310-315056-1	MW03-GW-0925	Water	09/03/25 16:20	09/08/25 07:11	Iowa
310-315056-2	MW04-GW-0925	Water	09/03/25 13:50	09/08/25 07:11	Iowa
310-315056-3	MW17R-GW-0925	Water	09/03/25 17:00	09/08/25 07:11	Iowa
310-315056-4	MW18A-GW-0925	Water	09/03/25 17:40	09/08/25 07:11	Iowa
310-315056-5	MW20A-GW-0925	Water	09/03/25 15:05	09/08/25 07:11	Iowa
310-315056-6	MW21-GW-0925	Water	09/03/25 15:40	09/08/25 07:11	Iowa
310-315056-7	MW22-GW-0925	Water	09/03/25 14:20	09/08/25 07:11	Iowa
310-315056-8	DP02-GW-0925	Water	09/03/25 00:00	09/08/25 07:11	Iowa

Detection Summary

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

Job ID: 310-315056-1

Client Sample ID: MW03-GW-0925 — Lab Sample ID: 310-315056-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	5.09		5.00		mg/L	5		9056A	Total/NA
Barium	0.0177		0.00200		mg/L	1		6020B	Total/NA
Calcium	29.6		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	140		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.7		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW04-GW-0925 — Lab Sample ID: 310-315056-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.31		5.00		mg/L	5		9056A	Total/NA
Sulfate	26.0		5.00		mg/L	5		9056A	Total/NA
Barium	0.0441		0.00200		mg/L	1		6020B	Total/NA
Boron	0.300		0.100		mg/L	1		6020B	Total/NA
Calcium	45.5		0.500		mg/L	1		6020B	Total/NA
Chromium	0.00542		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	252		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.4		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW17R-GW-0925 — Lab Sample ID: 310-315056-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	15.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.0302		0.00200		mg/L	1		6020B	Total/NA
Calcium	37.9		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	180		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.3		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW18A-GW-0925 — Lab Sample ID: 310-315056-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	28.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0332		0.00200		mg/L	1		6020B	Total/NA
Boron	0.288		0.100		mg/L	1		6020B	Total/NA
Calcium	40.2		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	202		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.8		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW20A-GW-0925 — Lab Sample ID: 310-315056-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	40.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.0242		0.00200		mg/L	1		6020B	Total/NA
Boron	0.153		0.100		mg/L	1		6020B	Total/NA
Calcium	23.9		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	178		50.0		mg/L	1		SM 2540C	Total/NA
pH	6.6		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW21-GW-0925 — Lab Sample ID: 310-315056-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	125		5.00		mg/L	5		9056A	Total/NA
Barium	0.101		0.00200		mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample ID: MW21-GW-0925 (Continued)
Lab Sample ID: 310-315056-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.122		0.100		mg/L	1		6020B	Total/NA
Calcium	100		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	510		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.8		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: MW22-GW-0925
Lab Sample ID: 310-315056-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.50		5.00		mg/L	5		9056A	Total/NA
Sulfate	36.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.0255		0.00200		mg/L	1		6020B	Total/NA
Boron	0.397		0.100		mg/L	1		6020B	Total/NA
Calcium	31.3		0.500		mg/L	1		6020B	Total/NA
Chromium	0.0166		0.00500		mg/L	1		6020B	Total/NA
Molybdenum	0.0340		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	226		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.3		1.0		SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: DP02-GW-0925
Lab Sample ID: 310-315056-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.51		5.00		mg/L	5		9056A	Total/NA
Sulfate	36.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.0253		0.00200		mg/L	1		6020B	Total/NA
Boron	0.390		0.100		mg/L	1		6020B	Total/NA
Calcium	31.0		0.500		mg/L	1		6020B	Total/NA
Chromium	0.0165		0.00500		mg/L	1		6020B	Total/NA
Molybdenum	0.0341		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	220		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.3		1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW03-GW-0925
Lab Sample ID: 310-315056-1

Date Collected: 09/03/25 16:20
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/17/25 10:55	5
Fluoride	<1.00		1.00		mg/L			09/17/25 10:55	5
Sulfate	**5.09**		5.00		mg/L			09/17/25 10:55	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		09/12/25 09:00	09/16/25 13:44	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/15/25 14:04	1
Barium	**0.0177**		0.00200		mg/L		09/12/25 09:00	09/15/25 14:04	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 14:04	1
Boron	<0.100		0.100		mg/L		09/12/25 09:00	09/15/25 14:04	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/15/25 14:04	1
Calcium	**29.6**		0.500		mg/L		09/12/25 09:00	09/15/25 14:04	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 14:04	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 14:04	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 14:04	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/15/25 14:04	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/16/25 13:44	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 14:04	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 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		09/15/25 15:55	09/16/25 10:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**140**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.7**		1.0		SU			09/06/25 04:10	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	<0.424	U	0.257	0.257	1.00	0.424	pCi/L	09/12/25 06:41	10/06/25 08:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*74.1*		*30 - 110*	*09/12/25 06:41*	*10/06/25 08:13*	*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	<0.727	U	0.416	0.416	1.00	0.727	pCi/L	09/12/25 06:48	10/05/25 11:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*74.1*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*
Y Carrier	*80.0*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*

Client Sample Results

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

Job ID: 310-315056-1

Client Sample ID: MW03-GW-0925

Date Collected: 09/03/25 16:20
Date Received: 09/08/25 07:11

Lab Sample ID: 310-315056-1

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	<0.727	U	0.489	0.489	5.00	0.727	pCi/L		10/06/25 15:20	1

Client Sample ID: MW04-GW-0925
Lab Sample ID: 310-315056-2

Date Collected: 09/03/25 13:50
Matrix: Water

Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.31**		5.00		mg/L			09/17/25 11:09	5
Fluoride	<1.00		1.00		mg/L			09/17/25 11:09	5
Sulfate	**26.0**		5.00		mg/L			09/17/25 11:09	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		09/12/25 09:00	09/16/25 13:47	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/15/25 14:07	1
Barium	**0.0441**		0.00200		mg/L		09/12/25 09:00	09/15/25 14:07	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 14:07	1
Boron	**0.300**		0.100		mg/L		09/12/25 09:00	09/15/25 14:07	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/15/25 14:07	1
Calcium	**45.5**		0.500		mg/L		09/12/25 09:00	09/15/25 14:07	1
Chromium	**0.00542**		0.00500		mg/L		09/12/25 09:00	09/15/25 14:07	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 14:07	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 14:07	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/15/25 14:07	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/16/25 13:47	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 14:07	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 14:07	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 10:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**252**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.4**		1.0		SU			09/06/25 03:13	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	**0.320**		0.211	0.213	1.00	0.286	pCi/L	09/12/25 06:41	10/06/25 08:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*75.1*		*30 - 110*	*09/12/25 06:41*	*10/06/25 08:08*	*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	**0.737**		0.452	0.457	1.00	0.662	pCi/L	09/12/25 06:48	10/05/25 11:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*75.1*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*
Y Carrier	*82.6*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*

Client Sample Results

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

Job ID: 310-315056-1

Client Sample ID: MW04-GW-0925

Date Collected: 09/03/25 13:50
Date Received: 09/08/25 07:11

Lab Sample ID: 310-315056-2

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	1.06		0.499	0.504	5.00	0.662	pCi/L		10/06/25 15:20	1

Client Sample ID: MW17R-GW-0925
Lab Sample ID: 310-315056-3

Date Collected: 09/03/25 17:00
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/17/25 11:22	5
Fluoride	<1.00		1.00		mg/L			09/17/25 11:22	5
Sulfate	**15.5**		5.00		mg/L			09/17/25 11:22	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		09/12/25 09:00	09/16/25 13:56	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/15/25 14:09	1
Barium	**0.0302**		0.00200		mg/L		09/12/25 09:00	09/15/25 14:09	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 14:09	1
Boron	<0.100		0.100		mg/L		09/12/25 09:00	09/15/25 14:09	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/15/25 14:09	1
Calcium	**37.9**		0.500		mg/L		09/12/25 09:00	09/15/25 14:09	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 14:09	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 14:09	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 14:09	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/15/25 14:09	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/16/25 13:56	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 14:09	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 14:09	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 10:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**180**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.3**		1.0		SU			09/06/25 01:17	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	**0.320**		0.201	0.203	1.00	0.264	pCi/L	09/12/25 06:41	10/06/25 08:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*78.0*		*30 - 110*	*09/12/25 06:41*	*10/06/25 08:09*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.675	U	0.447	0.450	1.00	0.675	pCi/L	09/12/25 06:48	10/05/25 11:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*78.0*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*
Y Carrier	*76.6*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW17R-GW-0925
Lab Sample ID: 310-315056-3
Date Collected: 09/03/25 17:00
Matrix: Water
Date Received: 09/08/25 07:11

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	0.952		0.490	0.494	5.00	0.675	pCi/L		10/06/25 15:20	1

Client Sample ID: MW18A-GW-0925
Lab Sample ID: 310-315056-4

Date Collected: 09/03/25 17:40
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/17/25 11:36	5
Fluoride	<1.00		1.00		mg/L			09/17/25 11:36	5
Sulfate	**28.8**		5.00		mg/L			09/17/25 11:36	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		09/12/25 09:00	09/18/25 14:11	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:11	1
Barium	**0.0332**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:11	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/17/25 12:11	1
Boron	**0.288**		0.100		mg/L		09/12/25 09:00	09/17/25 12:11	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/17/25 12:11	1
Calcium	**40.2**		0.500		mg/L		09/12/25 09:00	09/17/25 12:11	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:11	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:11	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:11	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:11	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:11	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:11	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/18/25 14:11	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 10:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**202**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.8**		1.0		SU			09/06/25 02:36	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	<0.328	U	0.172	0.172	1.00	0.328	pCi/L	09/12/25 06:41	10/06/25 08:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*74.1*		*30 - 110*	*09/12/25 06:41*	*10/06/25 08:09*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.758	U	0.482	0.485	1.00	0.758	pCi/L	09/12/25 06:48	10/05/25 11:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*74.1*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*
Y Carrier	*75.5*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:04*	*1*

Client Sample Results

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

Job ID: 310-315056-1

Client Sample ID: MW18A-GW-0925

Date Collected: 09/03/25 17:40
Date Received: 09/08/25 07:11

Lab Sample ID: 310-315056-4

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	<0.758	U	0.512	0.515	5.00	0.758	pCi/L		10/06/25 15:20	1

Client Sample ID: MW20A-GW-0925
Lab Sample ID: 310-315056-5

Date Collected: 09/03/25 15:05
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			09/17/25 12:17	5
Fluoride	<1.00		1.00		mg/L			09/17/25 12:17	5
Sulfate	**40.3**		5.00		mg/L			09/17/25 12:17	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		09/12/25 09:00	09/18/25 14:25	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:27	1
Barium	**0.0242**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:27	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/17/25 12:27	1
Boron	**0.153**		0.100		mg/L		09/12/25 09:00	09/17/25 12:27	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/17/25 12:27	1
Calcium	**23.9**		0.500		mg/L		09/12/25 09:00	09/17/25 12:27	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:27	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:27	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:27	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:27	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:27	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:27	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/18/25 14:25	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 10:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**178**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**6.6**		1.0		SU			09/06/25 02:23	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	0.153	0.153	1.00	0.306	pCi/L	09/12/25 06:41	10/06/25 09:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*70.7*		*30 - 110*	*09/12/25 06:41*	*10/06/25 09:56*	*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	<0.813	U	0.510	0.512	1.00	0.813	pCi/L	09/12/25 06:48	10/05/25 11:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*70.7*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*
Y Carrier	*72.1*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW20A-GW-0925
Lab Sample ID: 310-315056-5
Date Collected: 09/03/25 15:05
Matrix: Water
Date Received: 09/08/25 07:11

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	<0.813	U	0.532	0.534	5.00	0.813	pCi/L		10/06/25 15:20	1

Client Sample ID: MW21-GW-0925
Lab Sample ID: 310-315056-6

Date Collected: 09/03/25 15:40
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13.6**		5.00		mg/L			09/17/25 12:30	5
Fluoride	<1.00		1.00		mg/L			09/17/25 12:30	5
Sulfate	**125**		5.00		mg/L			09/17/25 12:30	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		09/12/25 09:00	09/18/25 14:28	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:29	1
Barium	**0.101**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:29	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/17/25 12:29	1
Boron	**0.122**		0.100		mg/L		09/12/25 09:00	09/17/25 12:29	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/17/25 12:29	1
Calcium	**100**		0.500		mg/L		09/12/25 09:00	09/17/25 12:29	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:29	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:29	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:29	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:29	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:29	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:29	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/18/25 14:28	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 10:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**510**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.8**		1.0		SU			09/06/25 03:18	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.310	U	0.156	0.156	1.00	0.310	pCi/L	09/12/25 06:41	10/06/25 09:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*80.7*		*30 - 110*	*09/12/25 06:41*	*10/06/25 09:56*	*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	**1.03**		0.446	0.456	1.00	0.595	pCi/L	09/12/25 06:48	10/05/25 11:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*80.7*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*
Y Carrier	*88.2*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW21-GW-0925
Lab Sample ID: 310-315056-6
Date Collected: 09/03/25 15:40
Matrix: Water
Date Received: 09/08/25 07:11

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		0.472	0.482	5.00	0.595	pCi/L		10/06/25 15:20	1

Client Sample ID: MW22-GW-0925
Lab Sample ID: 310-315056-7

Date Collected: 09/03/25 14:20
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.50**		5.00		mg/L			09/17/25 13:11	5
Fluoride	<1.00		1.00		mg/L			09/17/25 13:11	5
Sulfate	**36.5**		5.00		mg/L			09/17/25 13:11	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/12/25 09:00	09/18/25 14:31	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:32	1
Barium	**0.0255**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:32	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/17/25 12:32	1
Boron	**0.397**		0.100		mg/L		09/12/25 09:00	09/17/25 12:32	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/17/25 12:32	1
Calcium	**31.3**		0.500		mg/L		09/12/25 09:00	09/17/25 12:32	1
Chromium	**0.0166**		0.00500		mg/L		09/12/25 09:00	09/17/25 12:32	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:32	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:32	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:32	1
Molybdenum	**0.0340**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:32	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:32	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/18/25 14:31	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 11:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**226**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.3**		1.0		SU			09/06/25 04:07	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	<0.321	U	0.147	0.147	1.00	0.321	pCi/L	09/12/25 06:41	10/06/25 09:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*76.1*		*30 - 110*	*09/12/25 06:41*	*10/06/25 09:56*	*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	**0.565**		0.369	0.372	1.00	0.532	pCi/L	09/12/25 06:48	10/05/25 11:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*76.1*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*
Y Carrier	*82.6*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW22-GW-0925
Lab Sample ID: 310-315056-7
Date Collected: 09/03/25 14:20
Matrix: Water
Date Received: 09/08/25 07:11

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	<0.532	U	0.397	0.400	5.00	0.532	pCi/L		10/06/25 15:20	1

Client Sample ID: DP02-GW-0925
Lab Sample ID: 310-315056-8

Date Collected: 09/03/25 00:00
Matrix: Water
Date Received: 09/08/25 07:11

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.51**		5.00		mg/L			09/17/25 13:25	5
Fluoride	<1.00		1.00		mg/L			09/17/25 13:25	5
Sulfate	**36.3**		5.00		mg/L			09/17/25 13:25	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		09/12/25 09:00	09/18/25 14:34	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:34	1
Barium	**0.0253**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:34	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/17/25 12:34	1
Boron	**0.390**		0.100		mg/L		09/12/25 09:00	09/17/25 12:34	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/17/25 12:34	1
Calcium	**31.0**		0.500		mg/L		09/12/25 09:00	09/17/25 12:34	1
Chromium	**0.0165**		0.00500		mg/L		09/12/25 09:00	09/17/25 12:34	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:34	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:34	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:34	1
Molybdenum	**0.0341**		0.00200		mg/L		09/12/25 09:00	09/17/25 12:34	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:34	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/18/25 14:34	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 11:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**220**		50.0		mg/L			09/09/25 12:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	**7.3**		1.0		SU			09/06/25 02:13	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	<0.370	U	0.205	0.206	1.00	0.370	pCi/L	09/12/25 06:41	10/06/25 09:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*73.9*		*30 - 110*	*09/12/25 06:41*	*10/06/25 09:56*	*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	**1.10**		0.563	0.572	1.00	0.802	pCi/L	09/12/25 06:48	10/05/25 11:05	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*73.9*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*
Y Carrier	*80.7*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:05*	*1*

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: DP02-GW-0925
Lab Sample ID: 310-315056-8
Date Collected: 09/03/25 00:00
Matrix: Water
Date Received: 09/08/25 07:11

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	1.19		0.599	0.608	5.00	0.802	pCi/L		10/06/25 15:20	1

Qualifiers

Metals

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

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-467134/3
Matrix: Water
Analysis Batch: 467134

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			09/17/25 10:28	1
Fluoride	<0.200		0.200		mg/L			09/17/25 10:28	1
Sulfate	<1.00		1.00		mg/L			09/17/25 10:28	1

Lab Sample ID: LCS 310-467134/4
Matrix: Water
Analysis Batch: 467134

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.07		mg/L		101	90 - 110
Fluoride	2.00	2.049		mg/L		102	90 - 110
Sulfate	10.0	10.17		mg/L		102	90 - 110

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 467134

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<5.00		25.0	23.74		mg/L		95	80 - 120
Fluoride	<1.00		5.00	4.964		mg/L		99	80 - 120
Sulfate	28.8		25.0	53.50		mg/L		99	80 - 120

Lab Sample ID: 310-315056-4 MSD
Matrix: Water
Analysis Batch: 467134

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<5.00		25.0	23.87		mg/L		95	80 - 120	1	15
Fluoride	<1.00		5.00	4.980		mg/L		100	80 - 120	0	15
Sulfate	28.8		25.0	53.22		mg/L		98	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-466362/1-A
Matrix: Water
Analysis Batch: 466789

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466362

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/12/25 09:00	09/15/25 12:55	1
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/15/25 12:55	1
Barium	<0.00200		0.00200		mg/L		09/12/25 09:00	09/15/25 12:55	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 12:55	1
Boron	<0.100		0.100		mg/L		09/12/25 09:00	09/15/25 12:55	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/15/25 12:55	1
Calcium	<0.500		0.500		mg/L		09/12/25 09:00	09/15/25 12:55	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 12:55	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 12:55	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/15/25 12:55	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/15/25 12:55	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/15/25 12:55	1

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

Lab Sample ID: MB 310-466362/1-A
Matrix: Water
Analysis Batch: 466789

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466362

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 12:55	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/15/25 12:55	1

Lab Sample ID: MB 310-466362/1-A
Matrix: Water
Analysis Batch: 466875

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466362

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/16/25 12:36	1

Lab Sample ID: LCS 310-466362/2-A
Matrix: Water
Analysis Batch: 466789

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466362

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.1893		mg/L		95	80 - 120
Arsenic	0.200	0.1885		mg/L		94	80 - 120
Barium	0.100	0.08971		mg/L		90	80 - 120
Beryllium	0.100	0.09042		mg/L		90	80 - 120
Boron	0.200	0.2104		mg/L		105	80 - 120
Cadmium	0.100	0.09345		mg/L		93	80 - 120
Calcium	2.00	1.749		mg/L		87	80 - 120
Chromium	0.100	0.09392		mg/L		94	80 - 120
Cobalt	0.100	0.09260		mg/L		93	80 - 120
Lead	0.200	0.1926		mg/L		96	80 - 120
Lithium	0.200	0.1882		mg/L		94	80 - 120
Selenium	0.400	0.3616		mg/L		90	80 - 120
Thallium	0.100	0.09192		mg/L		92	80 - 120

Lab Sample ID: LCS 310-466362/2-A
Matrix: Water
Analysis Batch: 466875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466362

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Molybdenum	0.200	0.1956		mg/L		98	80 - 120

Lab Sample ID: MB 310-466414/1-A
Matrix: Water
Analysis Batch: 467078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:06	1
Barium	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:06	1
Beryllium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/17/25 12:06	1
Boron	<0.100		0.100		mg/L		09/12/25 09:00	09/17/25 12:06	1
Cadmium	<0.000200		0.000200		mg/L		09/12/25 09:00	09/17/25 12:06	1
Calcium	<0.500		0.500		mg/L		09/12/25 09:00	09/17/25 12:06	1
Chromium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:06	1
Cobalt	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:06	1
Lead	<0.000500		0.000500		mg/L		09/12/25 09:00	09/17/25 12:06	1

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

Lab Sample ID: MB 310-466414/1-A
Matrix: Water
Analysis Batch: 467078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:06	1
Lithium	<0.0100		0.0100		mg/L		09/12/25 09:00	09/17/25 12:06	1
Molybdenum	<0.00200		0.00200		mg/L		09/12/25 09:00	09/17/25 12:06	1
Selenium	<0.00500		0.00500		mg/L		09/12/25 09:00	09/17/25 12:06	1

Lab Sample ID: MB 310-466414/1-A
Matrix: Water
Analysis Batch: 467231

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/12/25 09:00	09/18/25 14:05	1
Thallium	<0.00100		0.00100		mg/L		09/12/25 09:00	09/18/25 14:05	1

Lab Sample ID: LCS 310-466414/2-A
Matrix: Water
Analysis Batch: 467078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.1900		mg/L		95	80 - 120
Barium	0.100	0.09289		mg/L		93	80 - 120
Beryllium	0.100	0.09590		mg/L		96	80 - 120
Boron	0.200	0.1981		mg/L		99	80 - 120
Cadmium	0.100	0.09348		mg/L		93	80 - 120
Calcium	2.00	1.962		mg/L		98	80 - 120
Chromium	0.100	0.09473		mg/L		95	80 - 120
Cobalt	0.100	0.09565		mg/L		96	80 - 120
Lead	0.200	0.1860		mg/L		93	80 - 120
Lithium	0.200	0.1955		mg/L		98	80 - 120
Molybdenum	0.200	0.1952		mg/L		98	80 - 120
Selenium	0.400	0.3602		mg/L		90	80 - 120

Lab Sample ID: LCS 310-466414/2-A
Matrix: Water
Analysis Batch: 467231

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.1901		mg/L		95	80 - 120
Thallium	0.100	0.1008		mg/L		101	80 - 120

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 467078

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.00200		0.200	0.1915		mg/L		96	75 - 125
Barium	0.0332		0.100	0.1251		mg/L		92	75 - 125
Beryllium	<0.00100		0.100	0.09787		mg/L		98	75 - 125
Boron	0.288		0.200	0.5027		mg/L		107	75 - 125
Cadmium	<0.000200		0.100	0.09365		mg/L		94	75 - 125
Calcium	40.2		2.00	43.62	4	mg/L		171	75 - 125

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

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 467078

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	<0.00500		0.100	0.09453		mg/L		92	75 - 125
Cobalt	<0.000500		0.100	0.09342		mg/L		93	75 - 125
Lead	<0.000500		0.200	0.1848		mg/L		92	75 - 125
Lithium	<0.0100		0.200	0.1968		mg/L		98	75 - 125
Molybdenum	<0.00200		0.200	0.1930		mg/L		96	75 - 125
Selenium	<0.00500		0.400	0.3695		mg/L		92	75 - 125

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 467231

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.1918		mg/L		96	75 - 125
Thallium	<0.00100		0.100	0.09453		mg/L		95	75 - 125

Lab Sample ID: 310-315056-4 MSD
Matrix: Water
Analysis Batch: 467078

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<0.00200		0.200	0.1948		mg/L		97	75 - 125	2	20
Barium	0.0332		0.100	0.1268		mg/L		94	75 - 125	1	20
Beryllium	<0.00100		0.100	0.09831		mg/L		98	75 - 125	0	20
Boron	0.288		0.200	0.5080		mg/L		110	75 - 125	1	20
Cadmium	<0.000200		0.100	0.09491		mg/L		95	75 - 125	1	20
Calcium	40.2		2.00	42.94	4	mg/L		137	75 - 125	2	20
Chromium	<0.00500		0.100	0.09669		mg/L		95	75 - 125	2	20
Cobalt	<0.000500		0.100	0.09527		mg/L		95	75 - 125	2	20
Lead	<0.000500		0.200	0.1881		mg/L		94	75 - 125	2	20
Lithium	<0.0100		0.200	0.1975		mg/L		99	75 - 125	0	20
Molybdenum	<0.00200		0.200	0.1971		mg/L		99	75 - 125	2	20
Selenium	<0.00500		0.400	0.3726		mg/L		93	75 - 125	1	20

Lab Sample ID: 310-315056-4 MSD
Matrix: Water
Analysis Batch: 467231

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.1981		mg/L		99	75 - 125	3	20
Thallium	<0.00100		0.100	0.09401		mg/L		94	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-466705/1-A
Matrix: Water
Analysis Batch: 466848

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 466705

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/15/25 15:55	09/16/25 10:34	1

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

Lab Sample ID: LCS 310-466705/2-A
Matrix: Water
Analysis Batch: 466848

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466705

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00167	0.001711		mg/L		103	80 - 120		

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 466848

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466705

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	<0.000200		0.00167	0.001739		mg/L		104	80 - 120		

Lab Sample ID: 310-315056-4 MSD
Matrix: Water
Analysis Batch: 466848

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 466705

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001753		mg/L		105	80 - 120	1	20

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

Lab Sample ID: MB 310-466114/1
Matrix: Water
Analysis Batch: 466114

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			09/09/25 12:35	1

Lab Sample ID: LCS 310-466114/2
Matrix: Water
Analysis Batch: 466114

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		

Lab Sample ID: 310-315056-4 DU
Matrix: Water
Analysis Batch: 466114

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	202			194.0		mg/L				4	13

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-465881/1
Matrix: Water
Analysis Batch: 465881

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		

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: LCS 310-465881/29
Matrix: Water
Analysis Batch: 465881

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: 310-315056-4 DU
Matrix: Water
Analysis Batch: 465881

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.8			7.1		SU				5	20

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-735742/1-A
Matrix: Water
Analysis Batch: 739345

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 735742

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.267	U	0.165	0.166	1.00	0.267	pCi/L	09/12/25 06:41	10/06/25 08:11	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*85.4*		*30 - 110*	*09/12/25 06:41*	*10/06/25 08:11*	*1*

Lab Sample ID: LCS 160-735742/2-A
Matrix: Water
Analysis Batch: 739345

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 735742

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			9.57	8.795		1.12	1.00	0.282	pCi/L	92	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Barium	*92.9*		*30 - 110*

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 739337

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 735742

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226	<0.328	U	9.59	9.841		1.29	1.00	0.341	pCi/L	102	60 - 140		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Barium	*70.5*		*30 - 110*

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

Lab Sample ID: 310-315056-4 MSD
Matrix: Water
Analysis Batch: 739337

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 735742

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	<0.328	U	9.57	10.10		1.28	1.00	0.299	pCi/L	105	60 - 140	0.10	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Barium	*78.5*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-735743/1-A
Matrix: Water
Analysis Batch: 739146

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 735743

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7111		0.398	0.403	1.00	0.569	pCi/L	09/12/25 06:48	10/05/25 11:03	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Barium	*85.4*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:03*	*1*
Y Carrier	*83.7*		*30 - 110*	*09/12/25 06:48*	*10/05/25 11:03*	*1*

Lab Sample ID: LCS 160-735743/2-A
Matrix: Water
Analysis Batch: 739146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 735743

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			9.01	9.246		1.28	1.00	0.551	pCi/L	103	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Barium	*92.9*		*30 - 110*
Y Carrier	*81.9*		*30 - 110*

Lab Sample ID: 310-315056-4 MS
Matrix: Water
Analysis Batch: 739147

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 735743

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228	<0.758	U	9.02	10.53		1.55	1.00	0.775	pCi/L	110	60 - 140		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Barium	*70.5*		*30 - 110*
Y Carrier	*77.4*		*30 - 110*

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

Lab Sample ID: 310-315056-4 MSD
Matrix: Water
Analysis Batch: 739147

Client Sample ID: MW18A-GW-0925
Prep Type: Total/NA
Prep Batch: 735743

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	<0.758	U	9.00	10.21		1.46	1.00	0.618	pCi/L	107	60 - 140	0.11	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Barium	*78.5*		*30 - 110*
Y Carrier	*80.7*		*30 - 110*

HPLC/IC

Analysis Batch: 467134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	9056A	
310-315056-2	MW04-GW-0925	Total/NA	Water	9056A	
310-315056-3	MW17R-GW-0925	Total/NA	Water	9056A	
310-315056-4	MW18A-GW-0925	Total/NA	Water	9056A	
310-315056-5	MW20A-GW-0925	Total/NA	Water	9056A	
310-315056-6	MW21-GW-0925	Total/NA	Water	9056A	
310-315056-7	MW22-GW-0925	Total/NA	Water	9056A	
310-315056-8	DP02-GW-0925	Total/NA	Water	9056A	
MB 310-467134/3	Method Blank	Total/NA	Water	9056A	
LCS 310-467134/4	Lab Control Sample	Total/NA	Water	9056A	
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	9056A	
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	9056A	

Metals

Prep Batch: 466362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	3005A	
310-315056-2	MW04-GW-0925	Total/NA	Water	3005A	
310-315056-3	MW17R-GW-0925	Total/NA	Water	3005A	
MB 310-466362/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-466362/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 466414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-4	MW18A-GW-0925	Total/NA	Water	3005A	
310-315056-5	MW20A-GW-0925	Total/NA	Water	3005A	
310-315056-6	MW21-GW-0925	Total/NA	Water	3005A	
310-315056-7	MW22-GW-0925	Total/NA	Water	3005A	
310-315056-8	DP02-GW-0925	Total/NA	Water	3005A	
MB 310-466414/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-466414/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	3005A	
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	3005A	

Prep Batch: 466705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	7470A	
310-315056-2	MW04-GW-0925	Total/NA	Water	7470A	
310-315056-3	MW17R-GW-0925	Total/NA	Water	7470A	
310-315056-4	MW18A-GW-0925	Total/NA	Water	7470A	
310-315056-5	MW20A-GW-0925	Total/NA	Water	7470A	
310-315056-6	MW21-GW-0925	Total/NA	Water	7470A	
310-315056-7	MW22-GW-0925	Total/NA	Water	7470A	
310-315056-8	DP02-GW-0925	Total/NA	Water	7470A	
MB 310-466705/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-466705/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	7470A	
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	7470A	

Metals

Analysis Batch: 466789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	6020B	466362
310-315056-2	MW04-GW-0925	Total/NA	Water	6020B	466362
310-315056-3	MW17R-GW-0925	Total/NA	Water	6020B	466362
MB 310-466362/1-A	Method Blank	Total/NA	Water	6020B	466362
LCS 310-466362/2-A	Lab Control Sample	Total/NA	Water	6020B	466362

Analysis Batch: 466848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	7470A	466705
310-315056-2	MW04-GW-0925	Total/NA	Water	7470A	466705
310-315056-3	MW17R-GW-0925	Total/NA	Water	7470A	466705
310-315056-4	MW18A-GW-0925	Total/NA	Water	7470A	466705
310-315056-5	MW20A-GW-0925	Total/NA	Water	7470A	466705
310-315056-6	MW21-GW-0925	Total/NA	Water	7470A	466705
310-315056-7	MW22-GW-0925	Total/NA	Water	7470A	466705
310-315056-8	DP02-GW-0925	Total/NA	Water	7470A	466705
MB 310-466705/1-A	Method Blank	Total/NA	Water	7470A	466705
LCS 310-466705/2-A	Lab Control Sample	Total/NA	Water	7470A	466705
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	7470A	466705
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	7470A	466705

Analysis Batch: 466875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	6020B	466362
310-315056-2	MW04-GW-0925	Total/NA	Water	6020B	466362
310-315056-3	MW17R-GW-0925	Total/NA	Water	6020B	466362
MB 310-466362/1-A	Method Blank	Total/NA	Water	6020B	466362
LCS 310-466362/2-A	Lab Control Sample	Total/NA	Water	6020B	466362

Analysis Batch: 467078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-4	MW18A-GW-0925	Total/NA	Water	6020B	466414
310-315056-5	MW20A-GW-0925	Total/NA	Water	6020B	466414
310-315056-6	MW21-GW-0925	Total/NA	Water	6020B	466414
310-315056-7	MW22-GW-0925	Total/NA	Water	6020B	466414
310-315056-8	DP02-GW-0925	Total/NA	Water	6020B	466414
MB 310-466414/1-A	Method Blank	Total/NA	Water	6020B	466414
LCS 310-466414/2-A	Lab Control Sample	Total/NA	Water	6020B	466414
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	6020B	466414
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	6020B	466414

Analysis Batch: 467231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-4	MW18A-GW-0925	Total/NA	Water	6020B	466414
310-315056-5	MW20A-GW-0925	Total/NA	Water	6020B	466414
310-315056-6	MW21-GW-0925	Total/NA	Water	6020B	466414
310-315056-7	MW22-GW-0925	Total/NA	Water	6020B	466414
310-315056-8	DP02-GW-0925	Total/NA	Water	6020B	466414
MB 310-466414/1-A	Method Blank	Total/NA	Water	6020B	466414
LCS 310-466414/2-A	Lab Control Sample	Total/NA	Water	6020B	466414
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	6020B	466414

Metals (Continued)

Analysis Batch: 467231 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	6020B	466414

General Chemistry

Analysis Batch: 465881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-2	MW04-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-3	MW17R-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-4	MW18A-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-5	MW20A-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-6	MW21-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-7	MW22-GW-0925	Total/NA	Water	SM 4500 H+ B	
310-315056-8	DP02-GW-0925	Total/NA	Water	SM 4500 H+ B	
LCS 310-465881/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCS 310-465881/29	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-315056-4 DU	MW18A-GW-0925	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 466114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	SM 2540C	
310-315056-2	MW04-GW-0925	Total/NA	Water	SM 2540C	
310-315056-3	MW17R-GW-0925	Total/NA	Water	SM 2540C	
310-315056-4	MW18A-GW-0925	Total/NA	Water	SM 2540C	
310-315056-5	MW20A-GW-0925	Total/NA	Water	SM 2540C	
310-315056-6	MW21-GW-0925	Total/NA	Water	SM 2540C	
310-315056-7	MW22-GW-0925	Total/NA	Water	SM 2540C	
310-315056-8	DP02-GW-0925	Total/NA	Water	SM 2540C	
MB 310-466114/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-466114/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-315056-4 DU	MW18A-GW-0925	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 735742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-2	MW04-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-3	MW17R-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-4	MW18A-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-5	MW20A-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-6	MW21-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-7	MW22-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-8	DP02-GW-0925	Total/NA	Water	PrecSep-21	
MB 160-735742/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-735742/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	PrecSep-21	
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	PrecSep-21	

Prep Batch: 735743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-1	MW03-GW-0925	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 735743 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-315056-2	MW04-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-3	MW17R-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-4	MW18A-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-5	MW20A-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-6	MW21-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-7	MW22-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-8	DP02-GW-0925	Total/NA	Water	PrecSep_0	
MB 160-735743/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-735743/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
310-315056-4 MS	MW18A-GW-0925	Total/NA	Water	PrecSep_0	
310-315056-4 MSD	MW18A-GW-0925	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW03-GW-0925
Lab Sample ID: 310-315056-1
Date Collected: 09/03/25 16:20
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 10:55
Total/NA	Prep	3005A			466362	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	466789	NFT2	EET CF	09/15/25 14:04
Total/NA	Prep	3005A			466362	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	466875	NFT2	EET CF	09/16/25 13:44
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 10:49
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 04:10
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739345	SWS	EET SL	10/06/25 08:13
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:04
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: MW04-GW-0925
Lab Sample ID: 310-315056-2
Date Collected: 09/03/25 13:50
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 11:09
Total/NA	Prep	3005A			466362	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	466789	NFT2	EET CF	09/15/25 14:07
Total/NA	Prep	3005A			466362	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	466875	NFT2	EET CF	09/16/25 13:47
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 10:51
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 03:13
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739337	SWS	EET SL	10/06/25 08:08
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:04
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: MW17R-GW-0925
Lab Sample ID: 310-315056-3
Date Collected: 09/03/25 17:00
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 11:22
Total/NA	Prep	3005A			466362	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	466789	NFT2	EET CF	09/15/25 14:09

Lab Chronicle

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW17R-GW-0925
Lab Sample ID: 310-315056-3
Date Collected: 09/03/25 17:00
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			466362	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	466875	NFT2	EET CF	09/16/25 13:56
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 10:53
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 01:17
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739337	SWS	EET SL	10/06/25 08:09
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:04
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: MW18A-GW-0925
Lab Sample ID: 310-315056-4
Date Collected: 09/03/25 17:40
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 11:36
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467078	NFT2	EET CF	09/17/25 12:11
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467231	NFT2	EET CF	09/18/25 14:11
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 10:39
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 02:36
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739337	SWS	EET SL	10/06/25 08:09
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:04
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: MW20A-GW-0925
Lab Sample ID: 310-315056-5
Date Collected: 09/03/25 15:05
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 12:17
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467078	NFT2	EET CF	09/17/25 12:27
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467231	NFT2	EET CF	09/18/25 14:25
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 10:56

Client Sample ID: MW20A-GW-0925
Lab Sample ID: 310-315056-5
Date Collected: 09/03/25 15:05
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 02:23
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739345	SWS	EET SL	10/06/25 09:56
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:05
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: MW21-GW-0925
Lab Sample ID: 310-315056-6
Date Collected: 09/03/25 15:40
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 12:30
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467078	NFT2	EET CF	09/17/25 12:29
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467231	NFT2	EET CF	09/18/25 14:28
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 10:58
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 03:18
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739345	SWS	EET SL	10/06/25 09:56
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:05
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: MW22-GW-0925
Lab Sample ID: 310-315056-7
Date Collected: 09/03/25 14:20
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 13:11
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467078	NFT2	EET CF	09/17/25 12:32
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467231	NFT2	EET CF	09/18/25 14:31
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 11:00
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 04:07
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739345	SWS	EET SL	10/06/25 09:56

Lab Chronicle

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Client Sample ID: MW22-GW-0925
Lab Sample ID: 310-315056-7
Date Collected: 09/03/25 14:20
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:05
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

Client Sample ID: DP02-GW-0925
Lab Sample ID: 310-315056-8
Date Collected: 09/03/25 00:00
Matrix: Water
Date Received: 09/08/25 07:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	467134	QTZ5	EET CF	09/17/25 13:25
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467078	NFT2	EET CF	09/17/25 12:34
Total/NA	Prep	3005A			466414	WK2X	EET CF	09/12/25 09:00
Total/NA	Analysis	6020B		1	467231	NFT2	EET CF	09/18/25 14:34
Total/NA	Prep	7470A			466705	RLT9	EET CF	09/15/25 15:55
Total/NA	Analysis	7470A		1	466848	RLT9	EET CF	09/16/25 11:02
Total/NA	Analysis	SM 2540C		1	466114	HE7K	EET CF	09/09/25 12:35
Total/NA	Analysis	SM 4500 H+ B		1	465881	ZJX4	EET CF	09/06/25 02:13
Total/NA	Prep	PrecSep-21			735742	MLT	EET SL	09/12/25 06:41
Total/NA	Analysis	9315		1	739345	SWS	EET SL	10/06/25 09:56
Total/NA	Prep	PrecSep_0			735743	MLT	EET SL	09/12/25 06:48
Total/NA	Analysis	9320		1	739147	SWS	EET SL	10/05/25 11:05
Total/NA	Analysis	Ra226_Ra228		1	739388	SCB	EET SL	10/06/25 15:20

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. Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

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.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

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

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310-315056 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client	GHD Services		
City/State	CITY	STATE	Project
Receipt Information			
Date/Time Received	DATE 9/8/25	TIME 1605	Received By:
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 # 1 of 3	
Cooler Custody Seals Present? No	☐ Yes ☑ No	*If yes* Cooler custody seals intact? ☐ Yes ☐ No	
Sample Custody Seals Present? No	☐ 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:	AA	Correction Factor (°C).	0
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C).	0.8	Corrected Temp (°C)	0.8
• **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			

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD Services

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 9/5/25 | TIME 1645 | Received By: SA

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 # 2 of 3

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: AA | Correction Factor (°C): 0

• **Temp Blank Temperature** – *If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature*

Uncorrected Temp (°C): 4.6 | Corrected Temp (°C): 4.6

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
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

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: GHD Services

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 9/5/25 | TIME 1645 | Received By: SA

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 # 3 of 3

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: AA | Correction Factor (°C): 0

• Temp Blank Temperature – *If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature*

Uncorrected Temp (°C): 0.6 | Corrected Temp (°C): 0.6

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
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

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Phone (319) 277-2425

Chain of Custody Record

DSM 214

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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@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: GHD Services Inc.	PWSID:			Job #:
Address: 11228 Aurora Avenue	Due Date Requested:			
City: Des Moines	TAT Requested (days): Standard			
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 West CCR Monofill	Project #: 31007299			
Site: MEC Louisa West CCR Monofill	SSOW#: 12575233-003			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 - Standard Target List	9320_Ra228 - Standard Target List	9056A_ORGFM_28D - Chloride, Fluoride, Sulfate	6020B, 7470A - CCR Metals List	2540C_Calcd, SM4500_H+	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N	D	N		
MW03-GW-0925	9/3/25	1620	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents
MW04-GW-0925		1350	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents
MW17R-GW-0925		1700	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents
MW18A-GW-0925		1740	G	W	N	Y	X	X	X	X	X	15	All Appendix III and Appendix IV constituents
MW20A-GW-0925		1505	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents
MW21-GW-0925		1540	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents
MW22-GW-0925		1420	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents
DP02-GW-0925		—	G	W	N	N	X	X	X	X	X	5	All Appendix III and Appendix IV constituents

Possible Hazard Identification
Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ■ Radiological ☐

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

Deliverable Requested I, II, III, IV, Other (specify)

Special Instructions/QC Requirements Database Facility Code. 11114676-GD-MidAmeri

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Brooke Wasson	9/5/25 1100	GHD	GC	9.5.25 1645	Eurofins
2						
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-315056-1
SDG Number:

Login Number: 315056
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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

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

Tracer/Carrier Summary

Client: GHD Services Inc.
Job ID: 310-315056-1
Project/Site: MEC Louisa West CCR Monofill

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
310-315056-1	MW03-GW-0925	74.1
310-315056-2	MW04-GW-0925	75.1
310-315056-3	MW17R-GW-0925	78.0
310-315056-4	MW18A-GW-0925	74.1
310-315056-4 MS	MW18A-GW-0925	70.5
310-315056-4 MSD	MW18A-GW-0925	78.5
310-315056-5	MW20A-GW-0925	70.7
310-315056-6	MW21-GW-0925	80.7
310-315056-7	MW22-GW-0925	76.1
310-315056-8	DP02-GW-0925	73.9
LCS 160-735742/2-A	Lab Control Sample	92.9
MB 160-735742/1-A	Method Blank	85.4

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)
310-315056-1	MW03-GW-0925	74.1	80.0
310-315056-2	MW04-GW-0925	75.1	82.6
310-315056-3	MW17R-GW-0925	78.0	76.6
310-315056-4	MW18A-GW-0925	74.1	75.5
310-315056-4 MS	MW18A-GW-0925	70.5	77.4
310-315056-4 MSD	MW18A-GW-0925	78.5	80.7
310-315056-5	MW20A-GW-0925	70.7	72.1
310-315056-6	MW21-GW-0925	80.7	88.2
310-315056-7	MW22-GW-0925	76.1	82.6
310-315056-8	DP02-GW-0925	73.9	80.7
LCS 160-735743/2-A	Lab Control Sample	92.9	81.9
MB 160-735743/1-A	Method Blank	85.4	83.7

Tracer/Carrier Legend

Ba = Barium
Y = Y Carrier

Appendix C

Time Series Plots

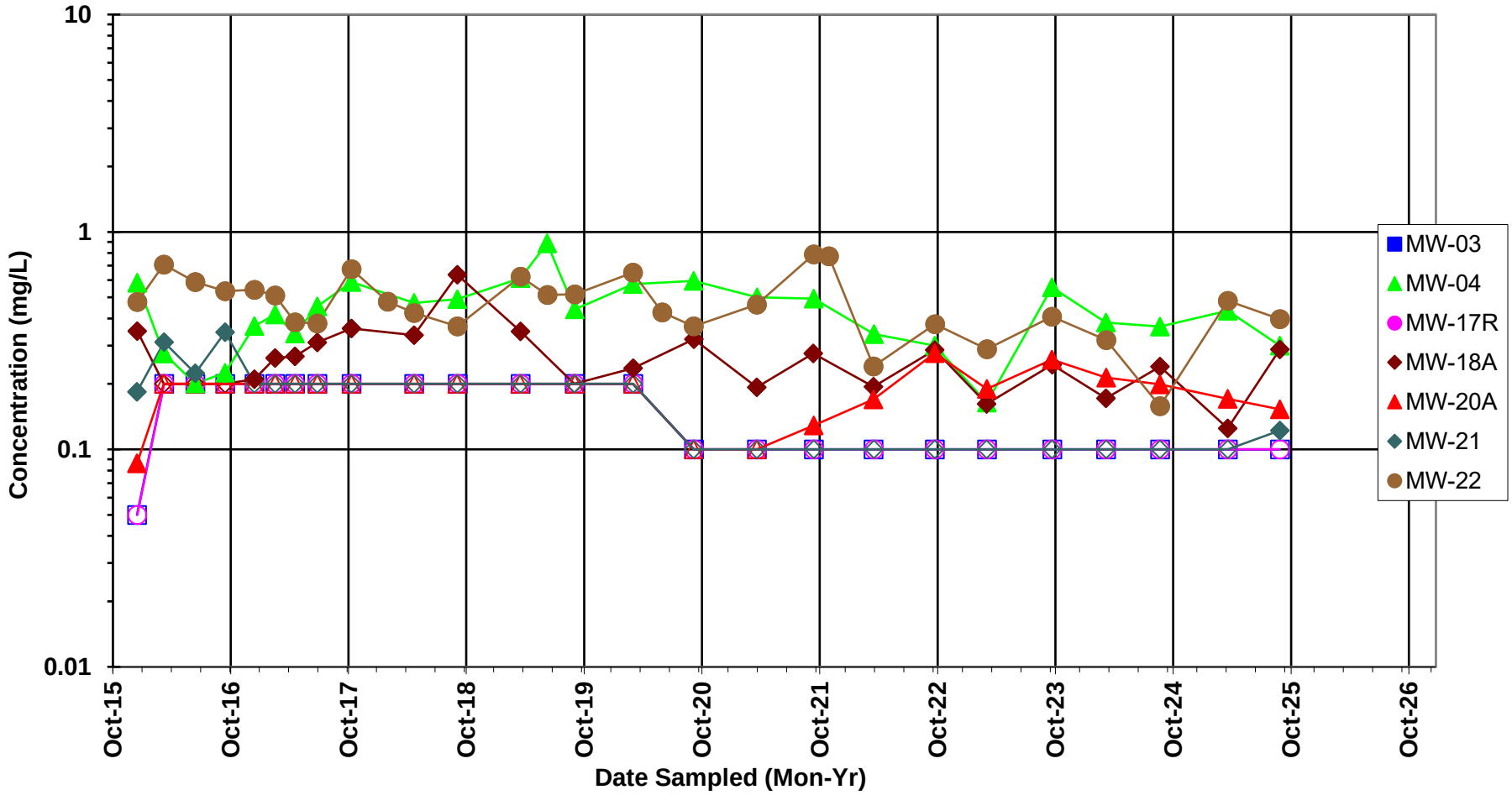

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FIGURE 1 - BORON

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04 and MW-17R

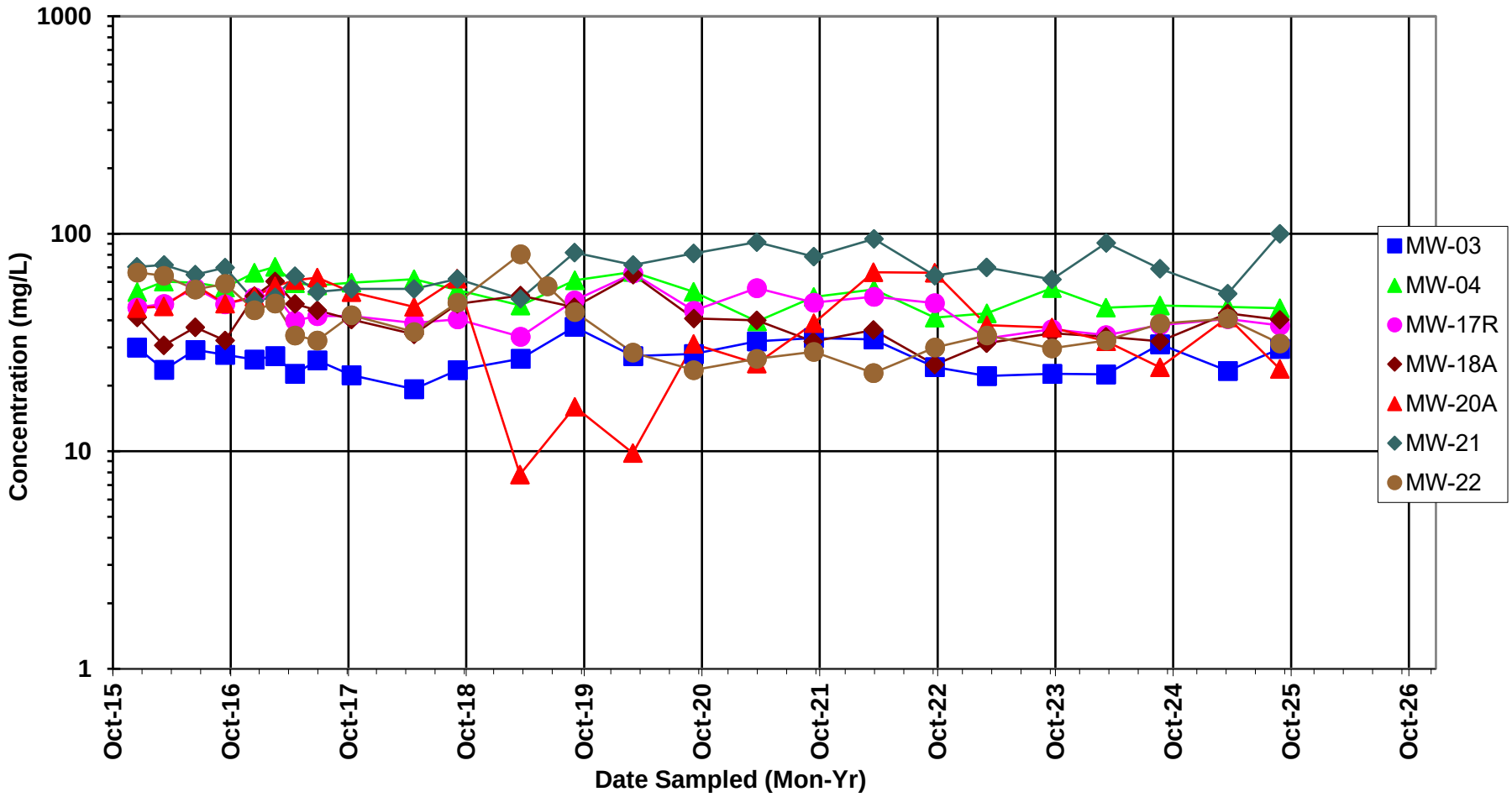

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FIGURE 2 - CALCIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04 and MW-17R

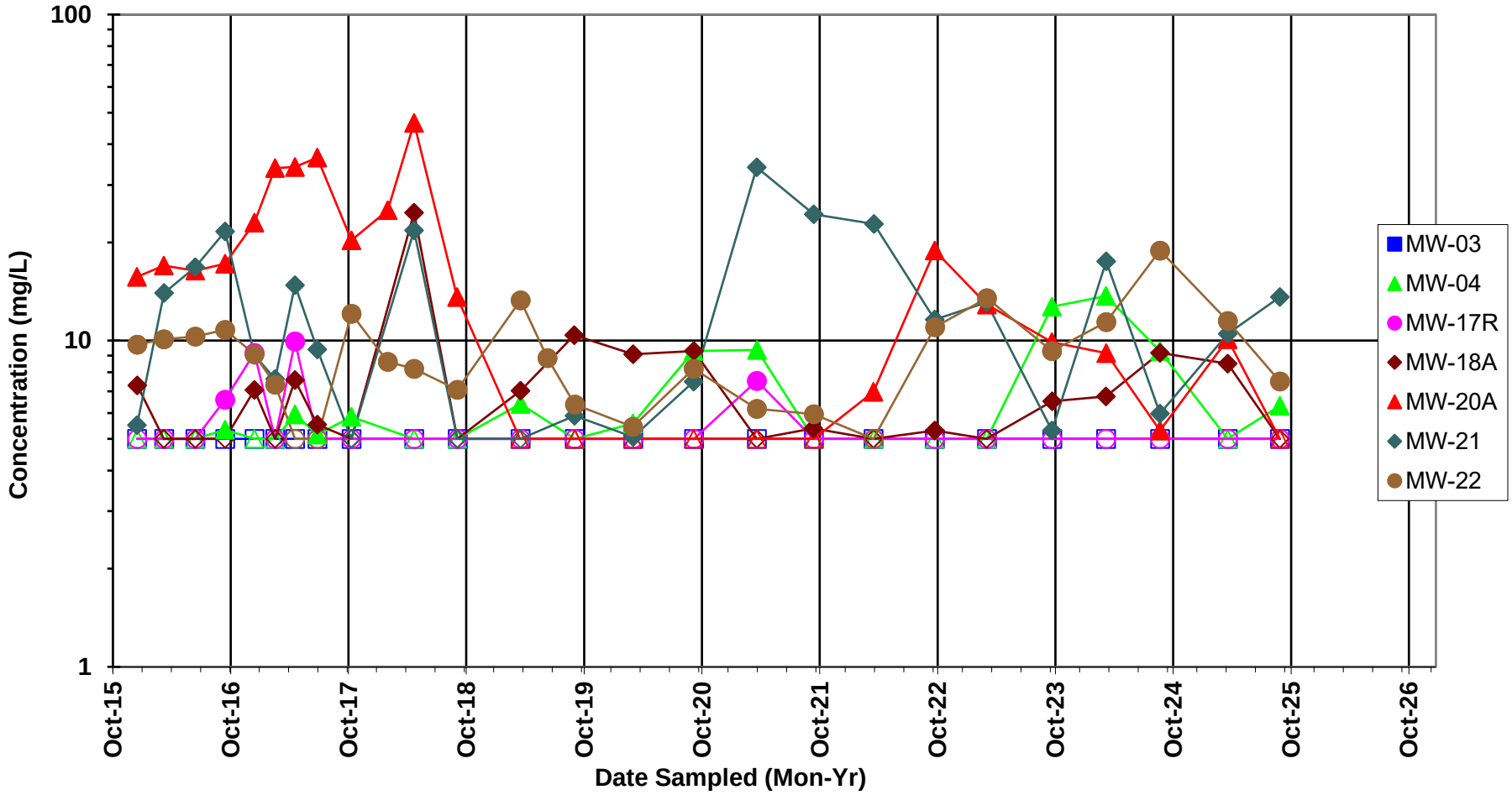

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FIGURE 3 - CHLORIDE

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04 and MW-17R

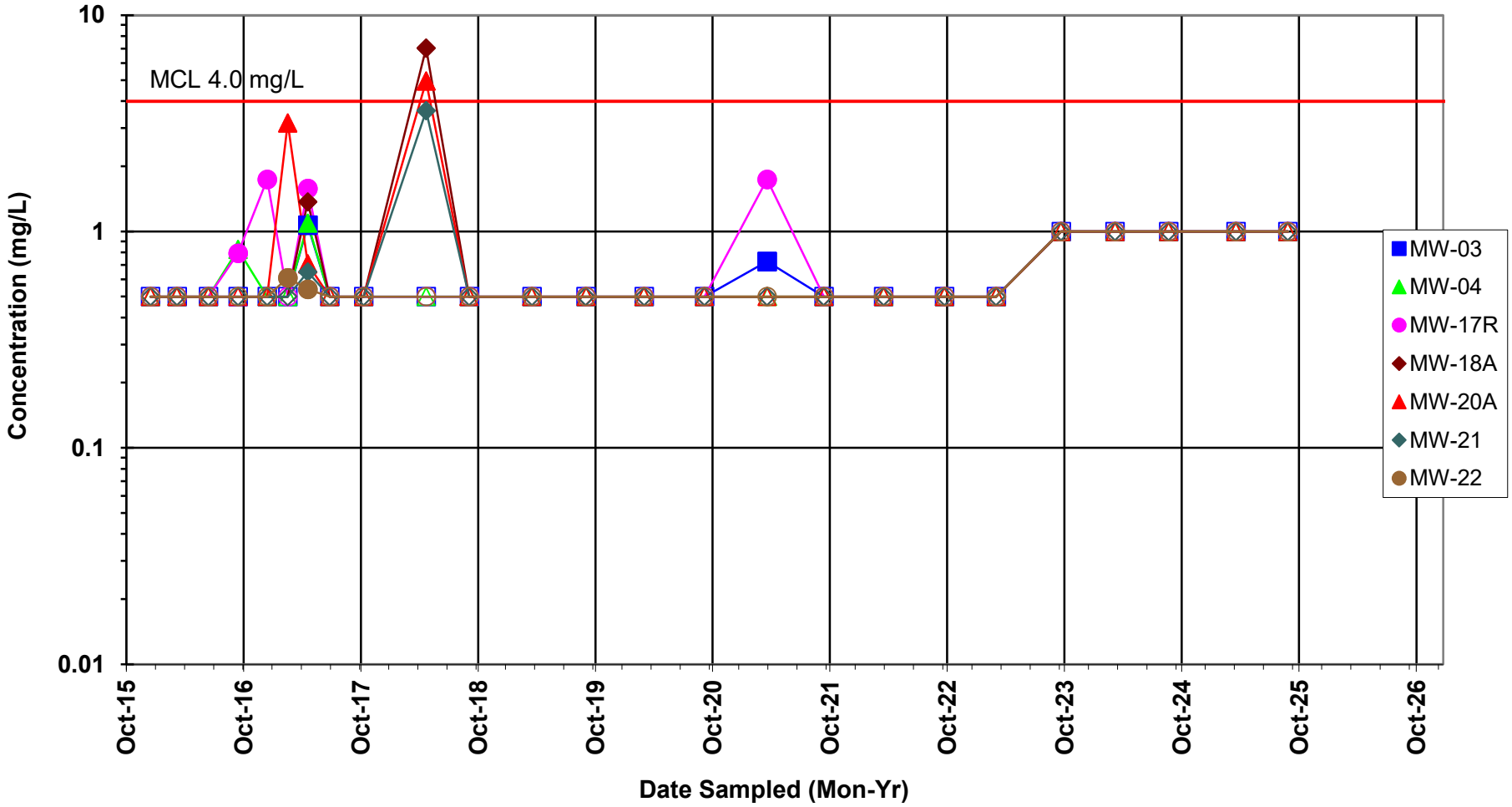

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FIGURE 4 - FLUORIDE

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

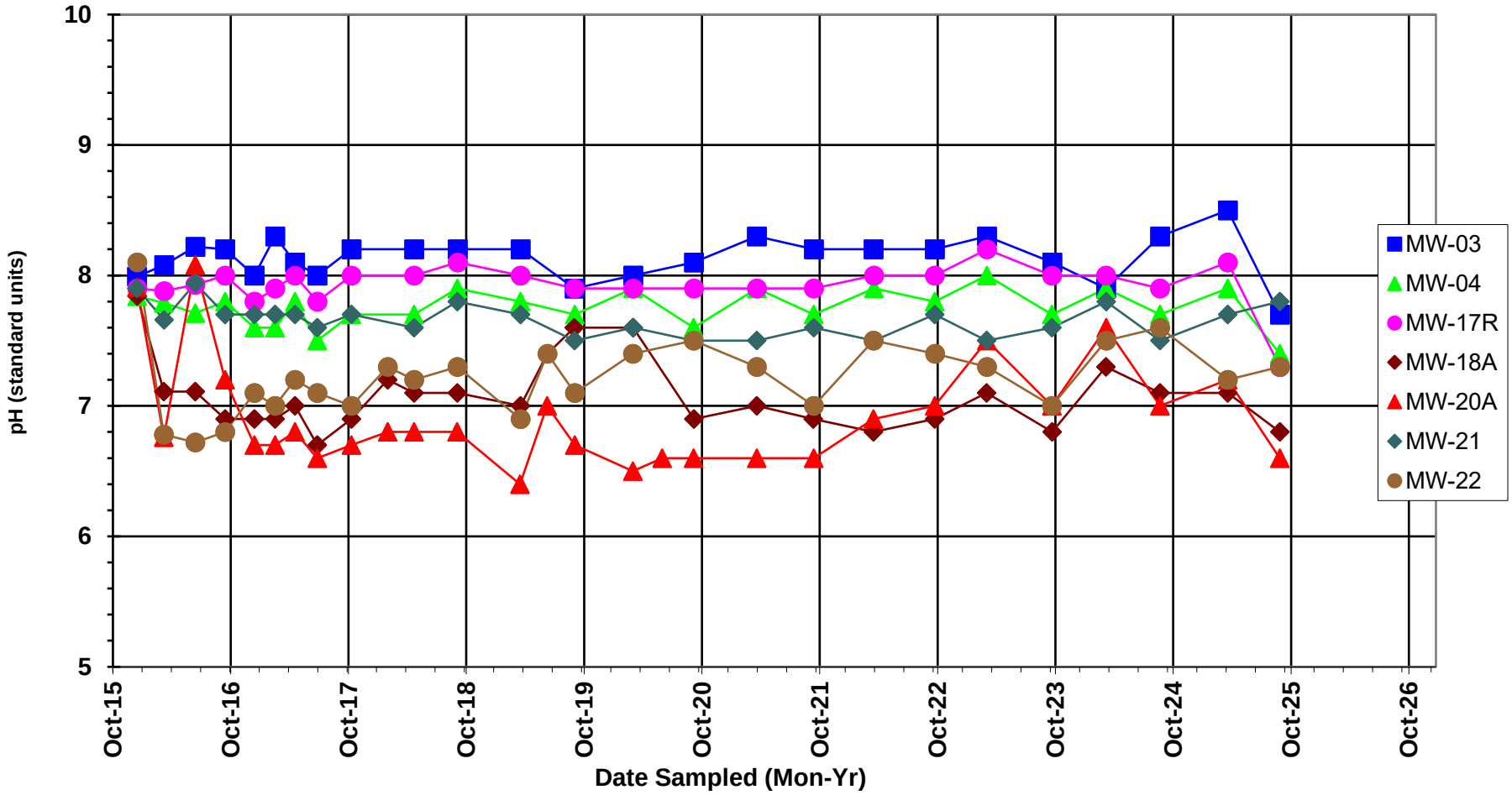

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FIGURE 5 - PH, LAB

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04 and MW-17R

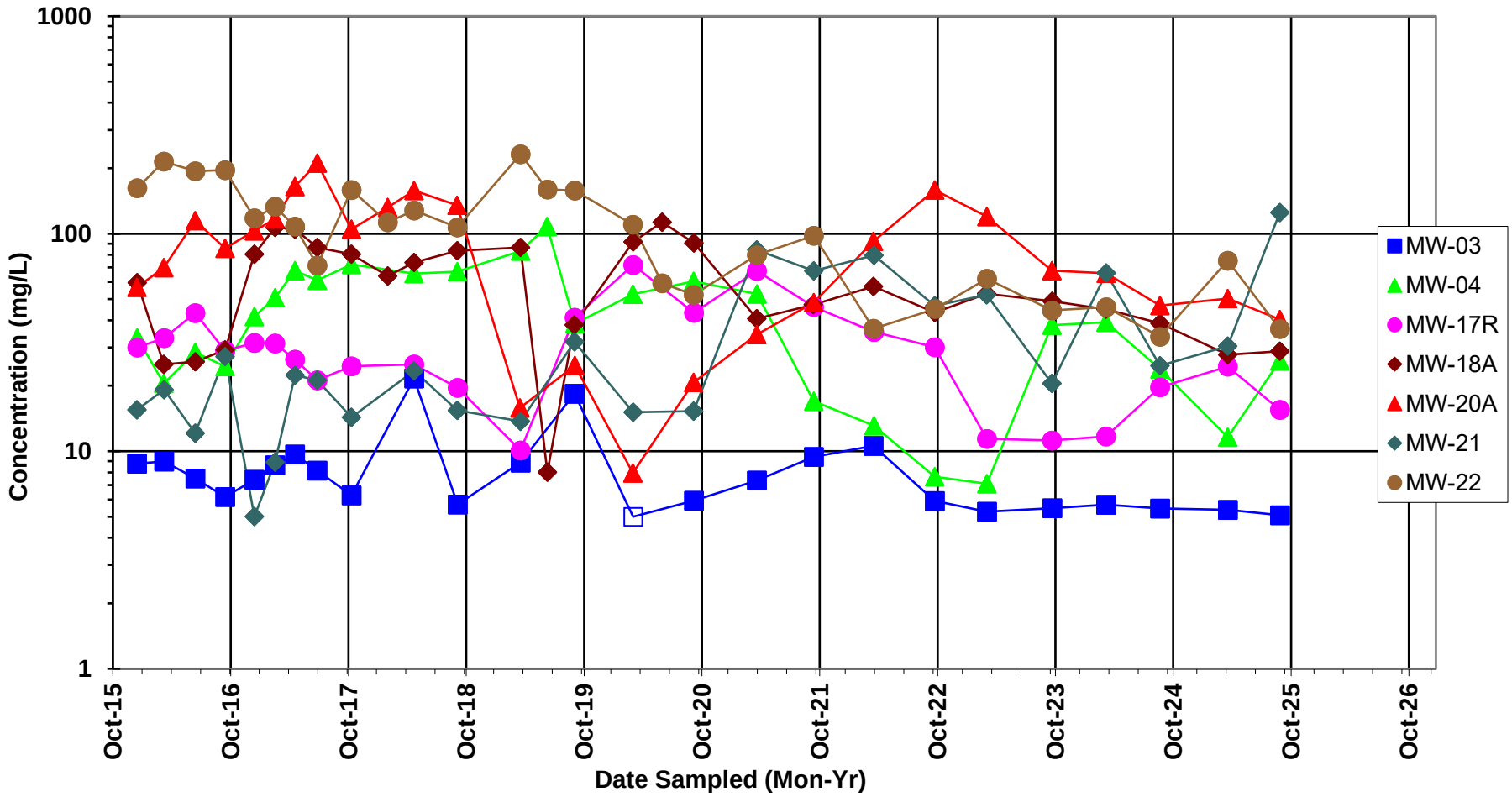

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FIGURE 6 - SULFATE

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04 and MW-17R

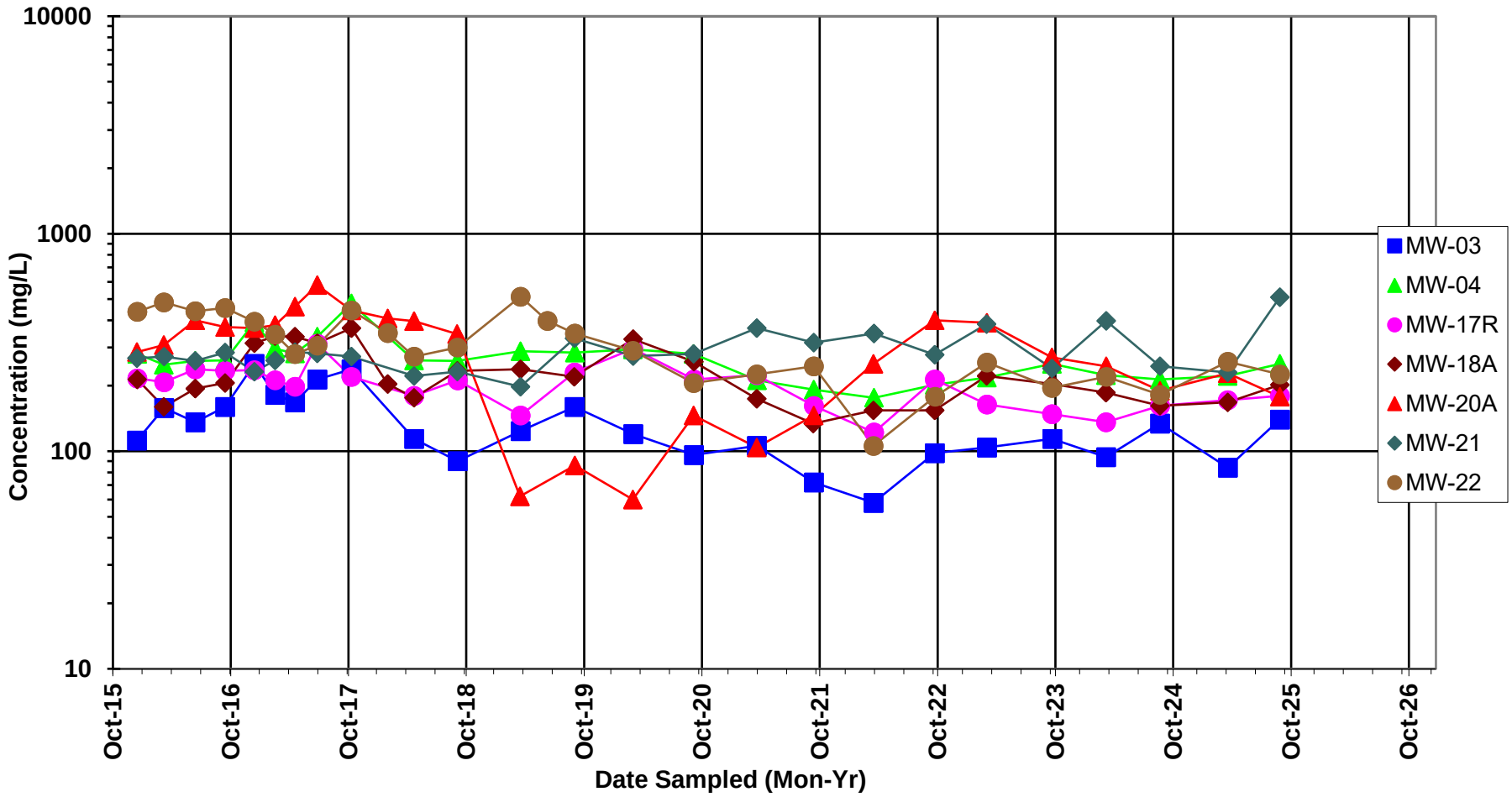

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FIGURE 7 - TOTAL DISSOLVED SOLIDS (TDS)

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04 and MW-17R

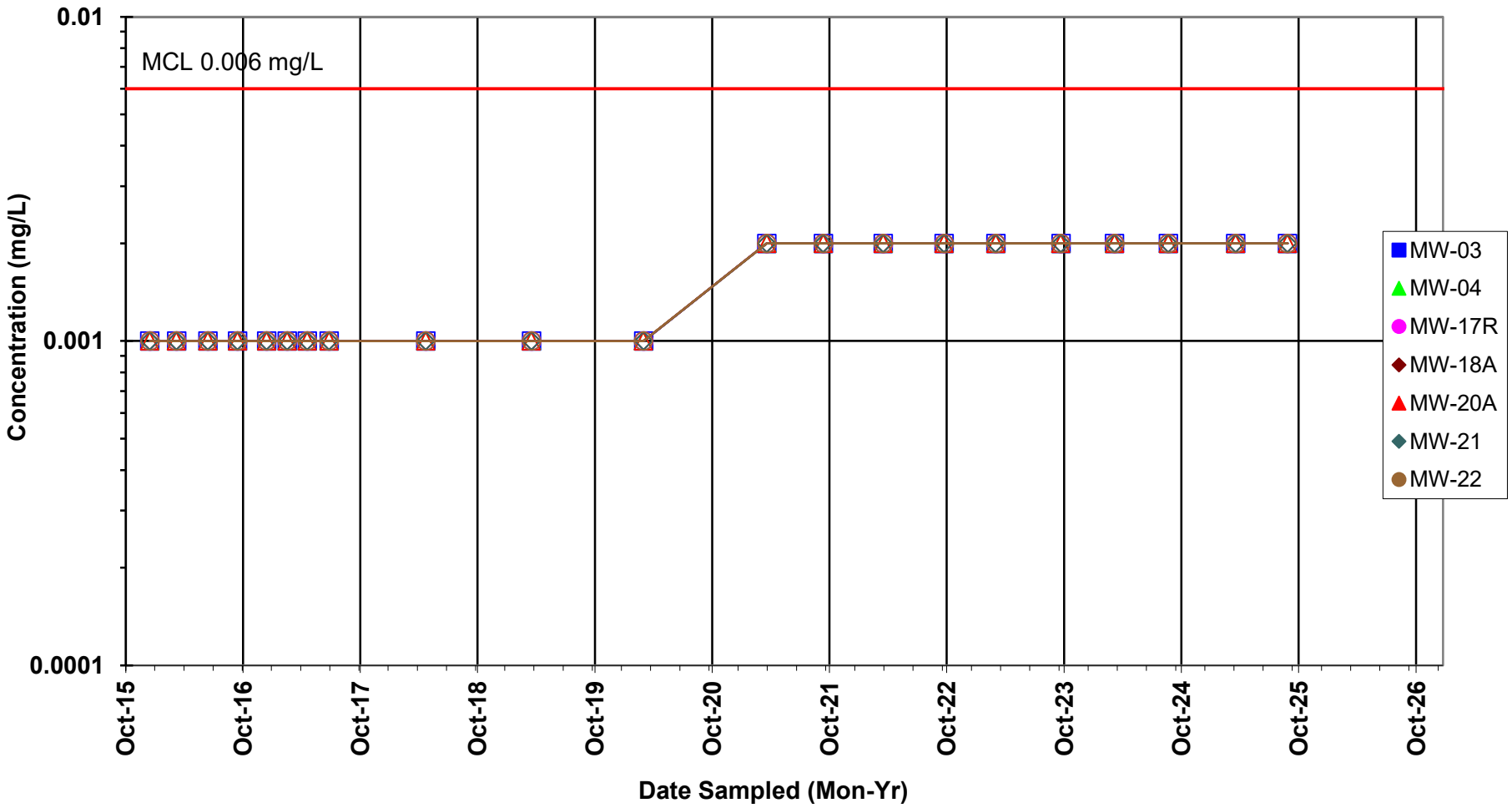

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FIGURE 8 - ANTIMONY

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

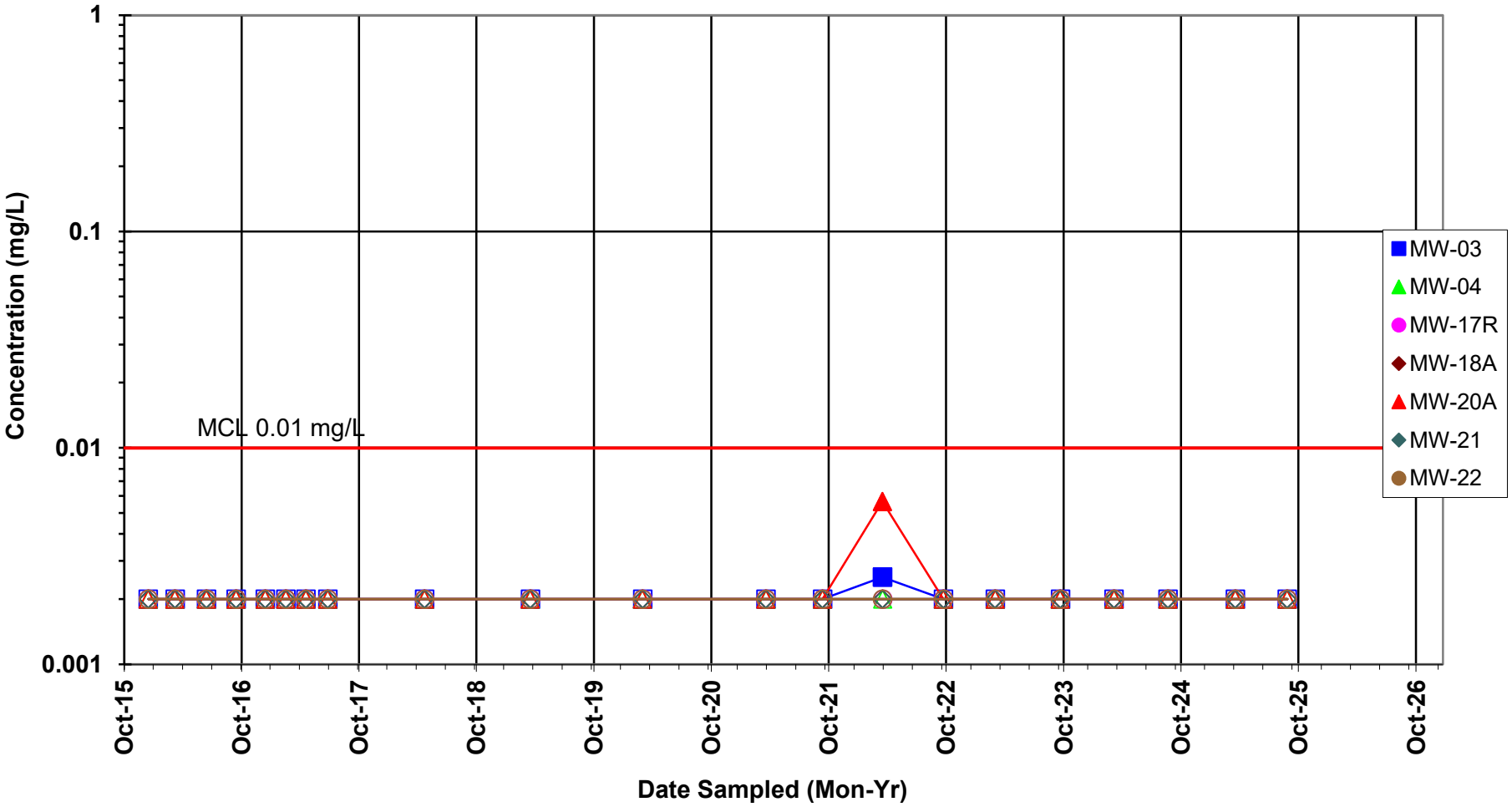

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FIGURE 9 - ARSENIC

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

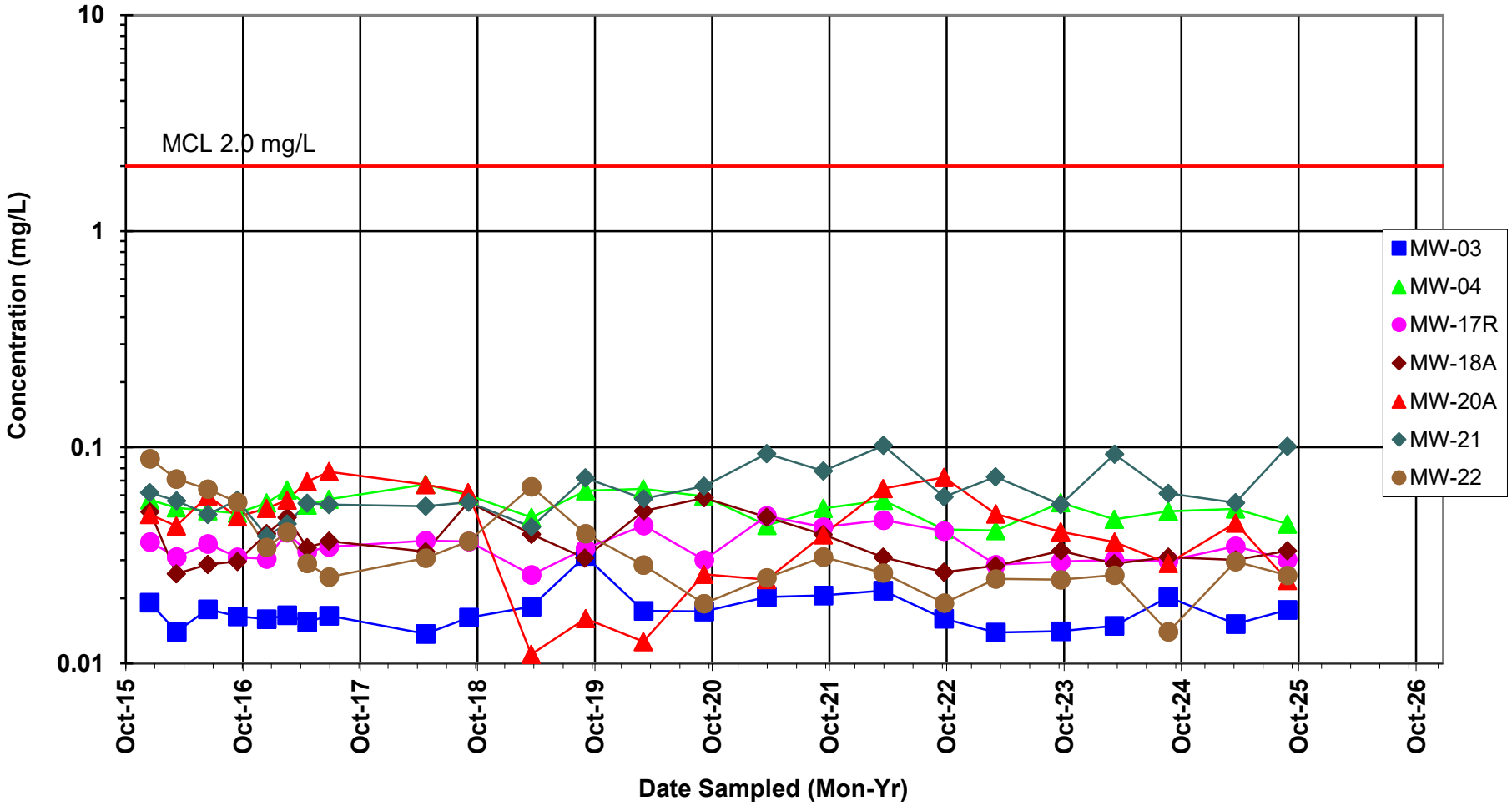

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FIGURE 10 - BARIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

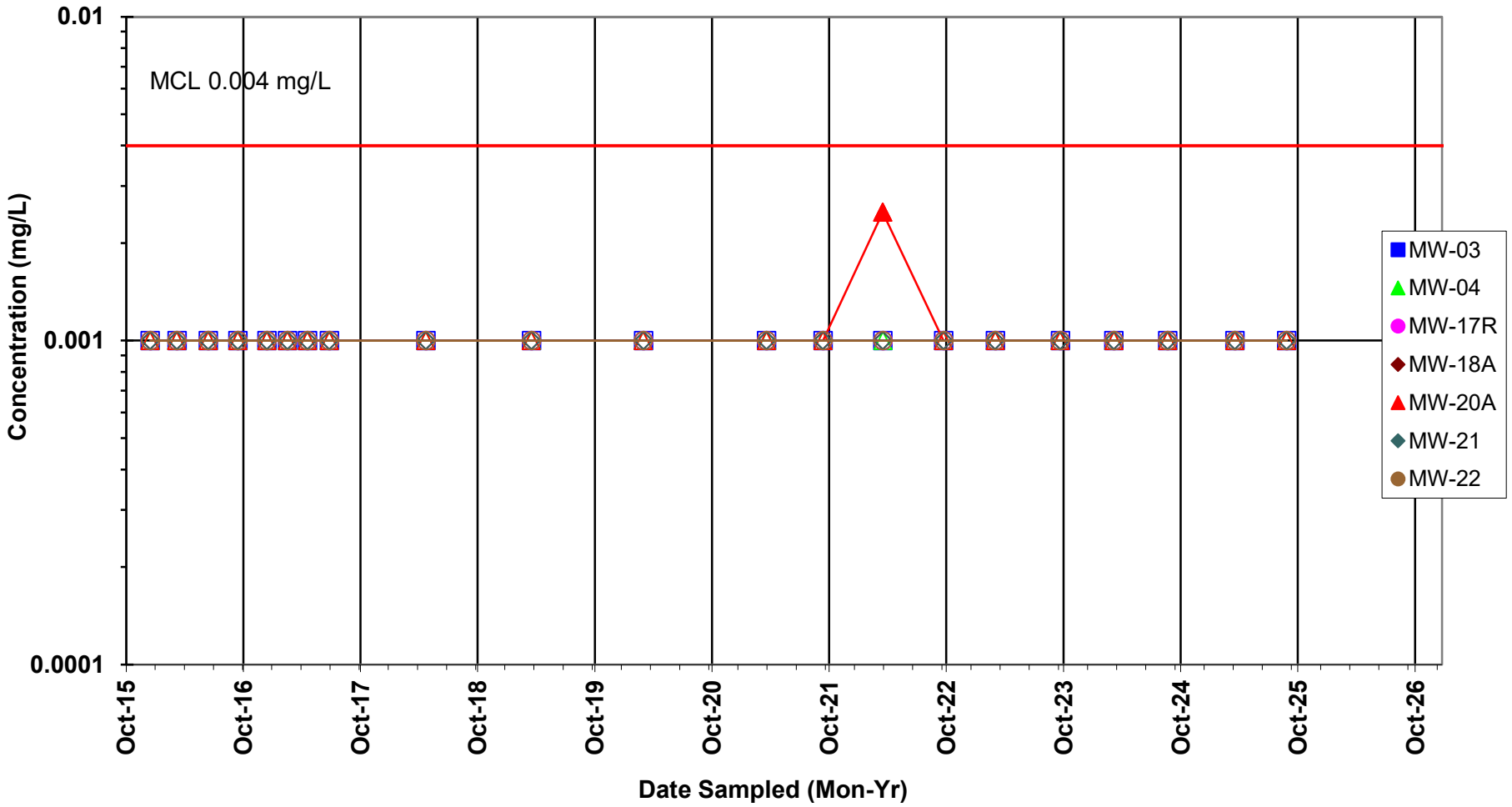

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FIGURE 11 - BERYLLIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

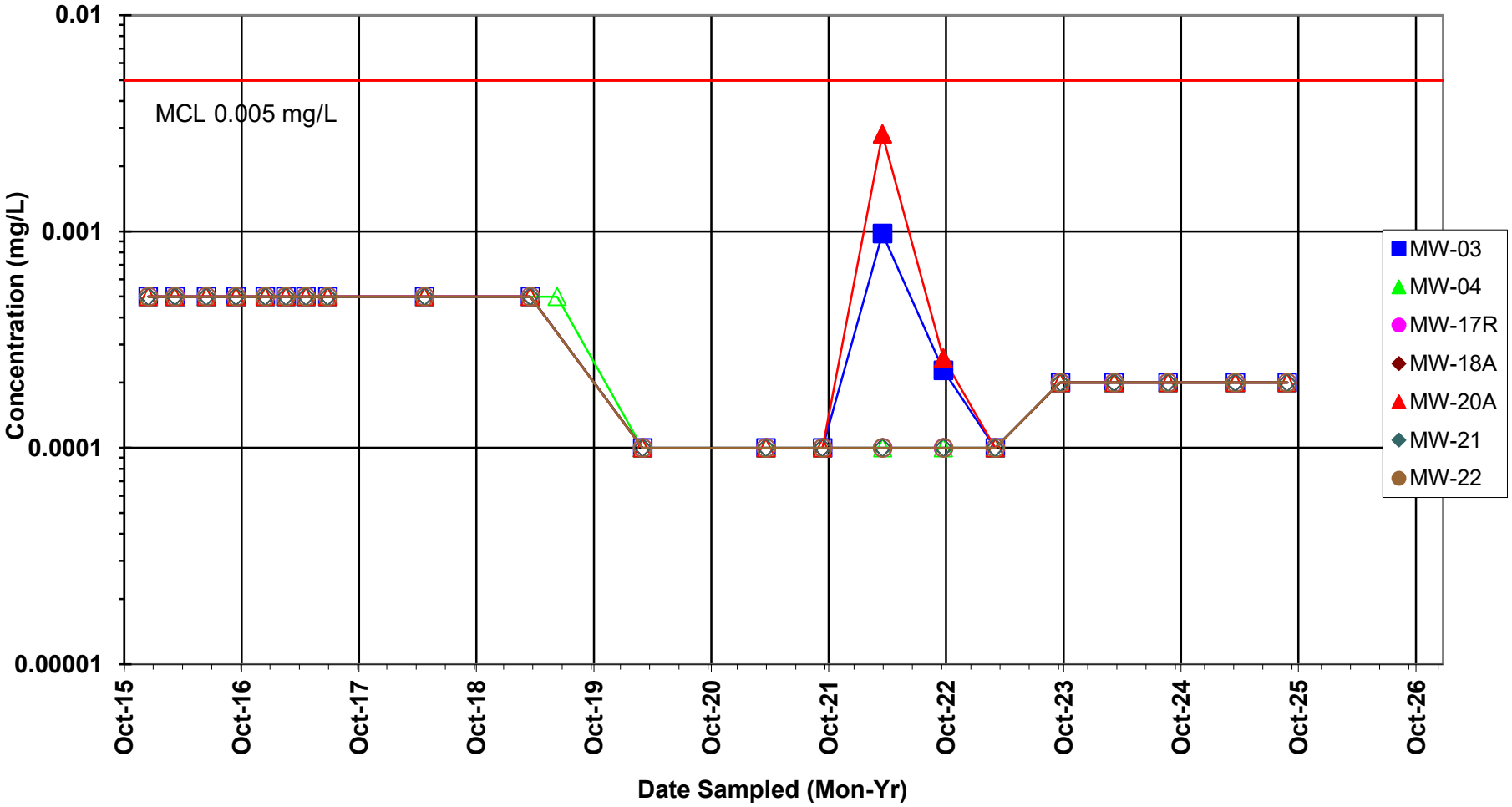

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FIGURE 12 - CADMIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

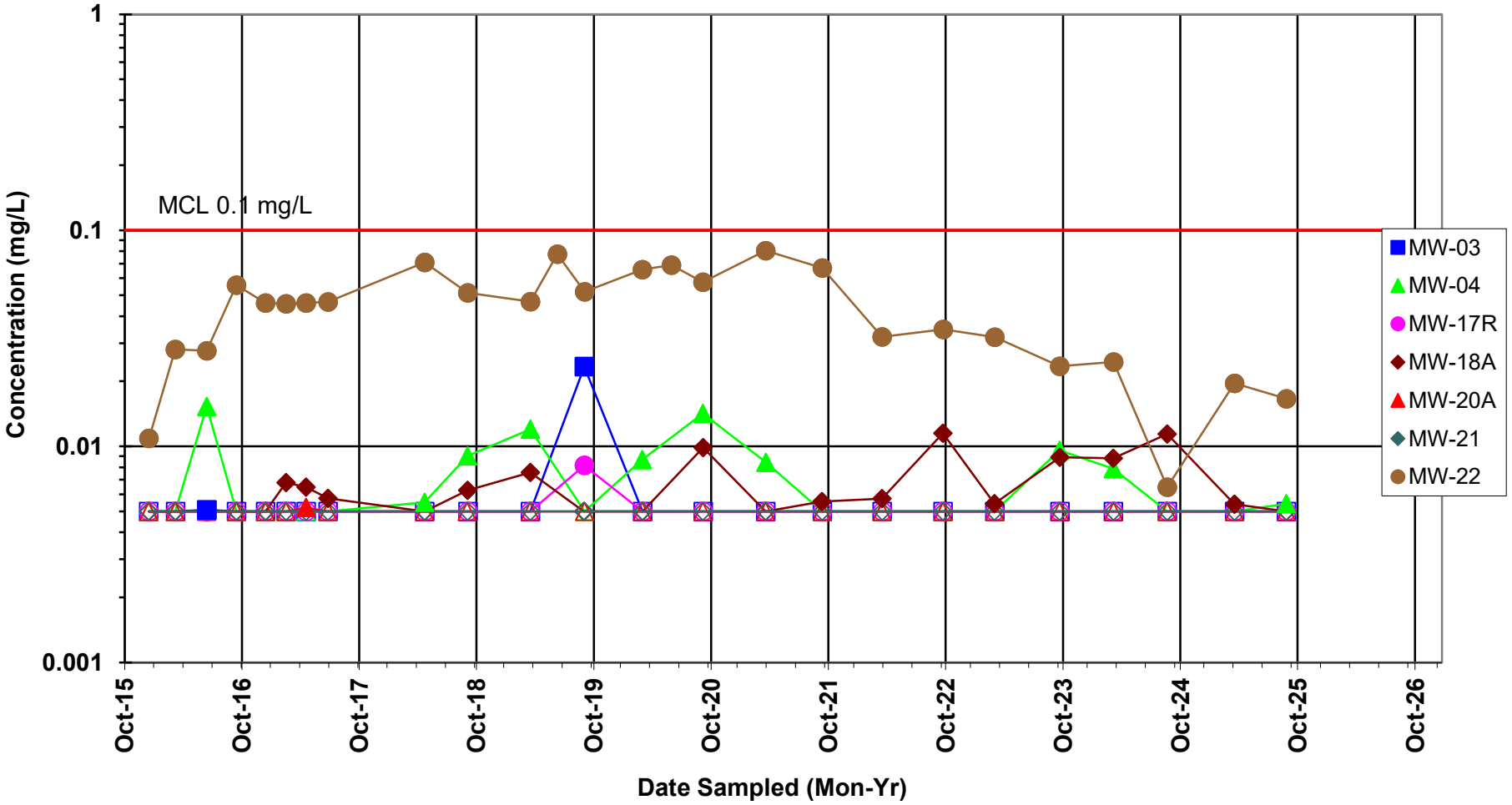

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FIGURE 13 - CHROMIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

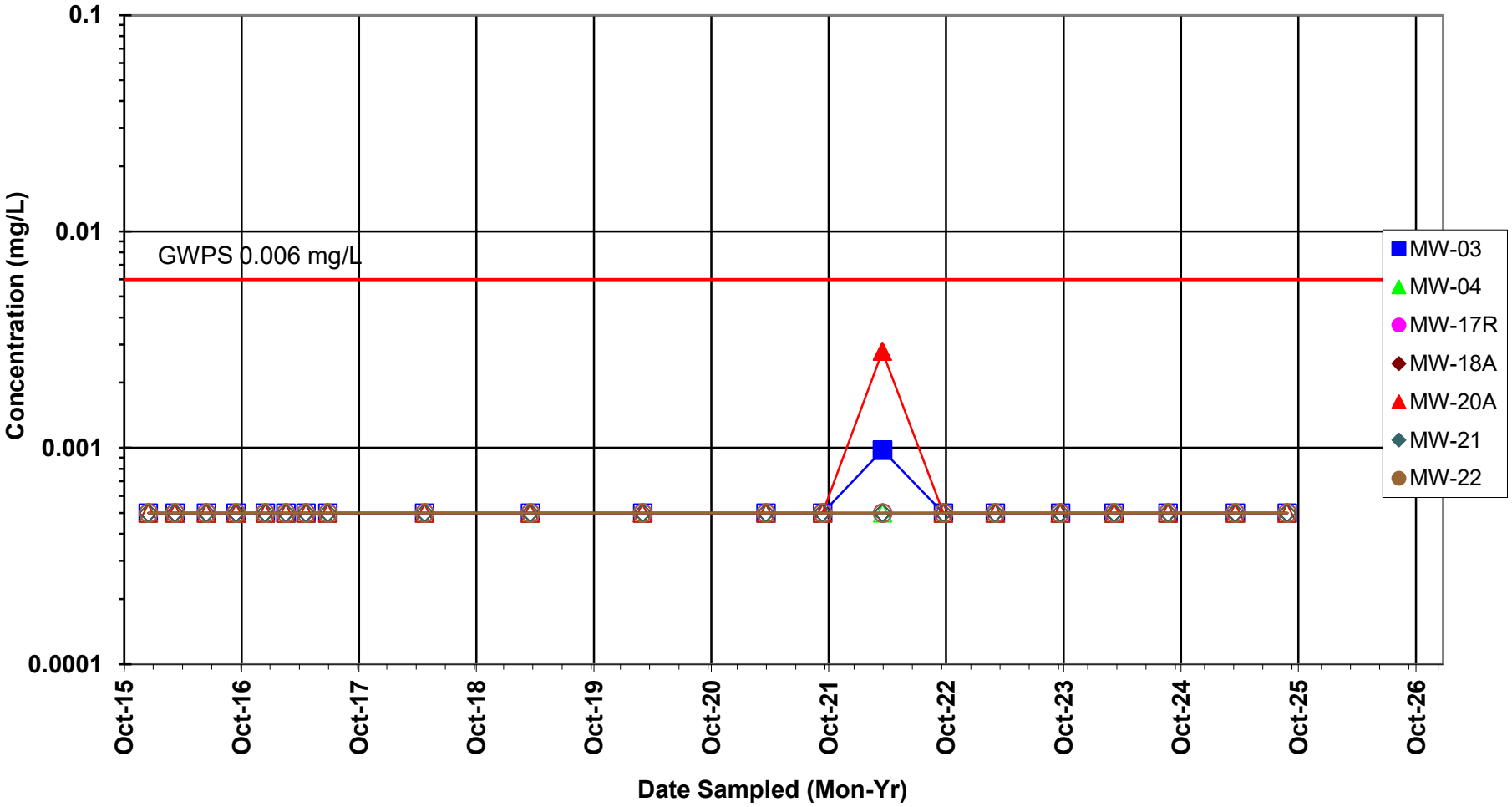

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FIGURE 14 - COBALT

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

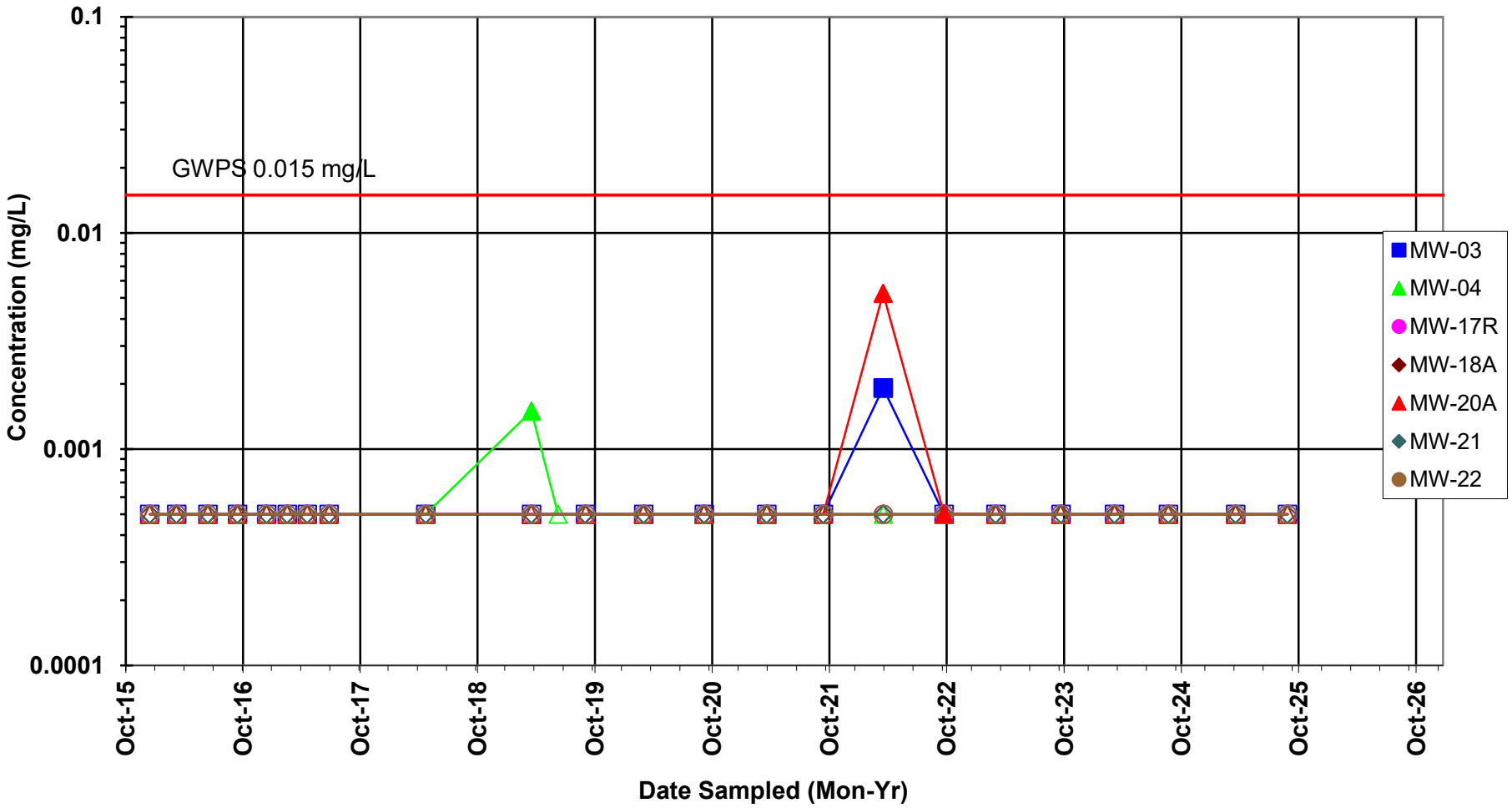

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FIGURE 15 - LEAD

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

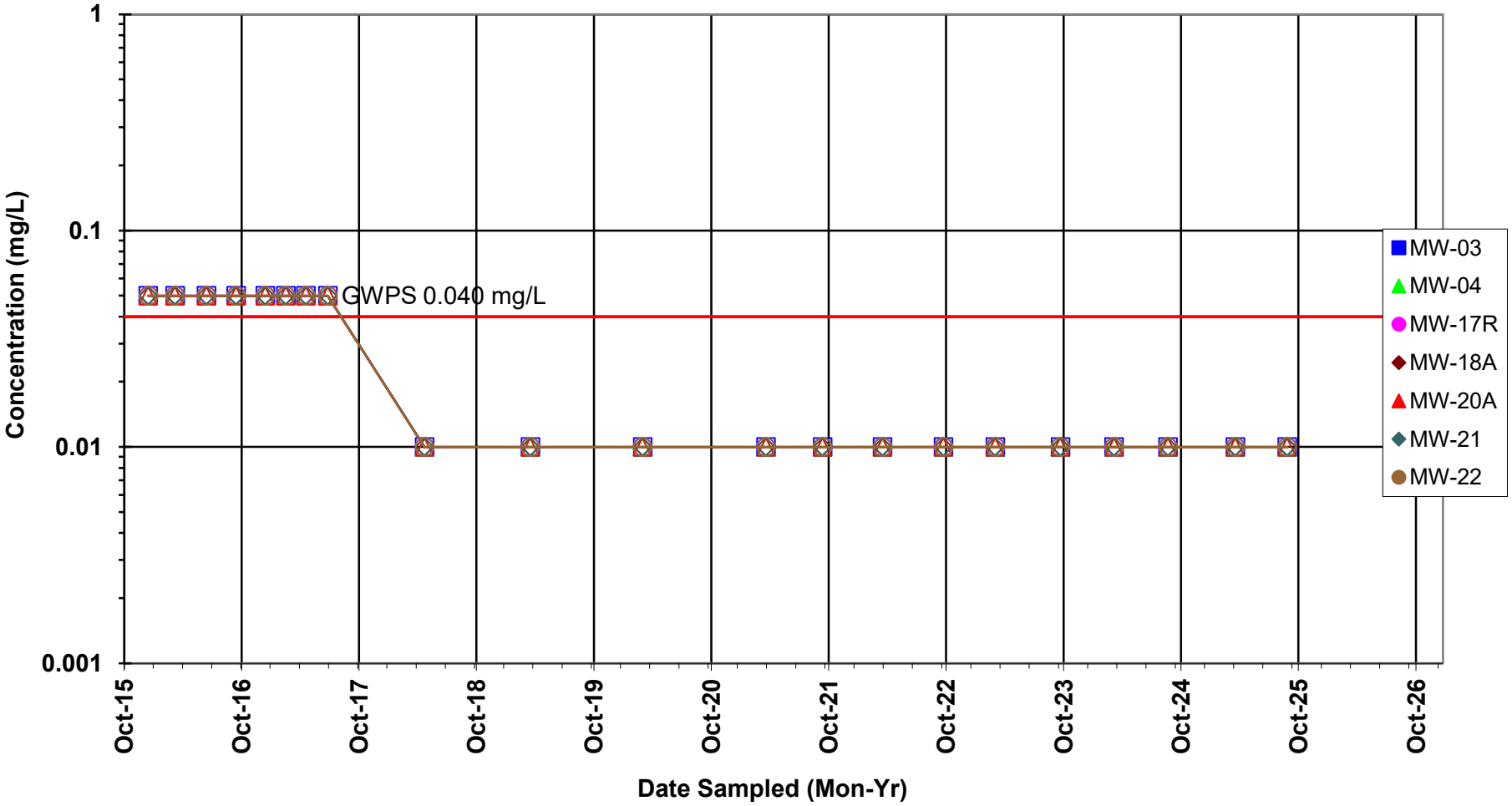

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FIGURE 16 - LITHIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

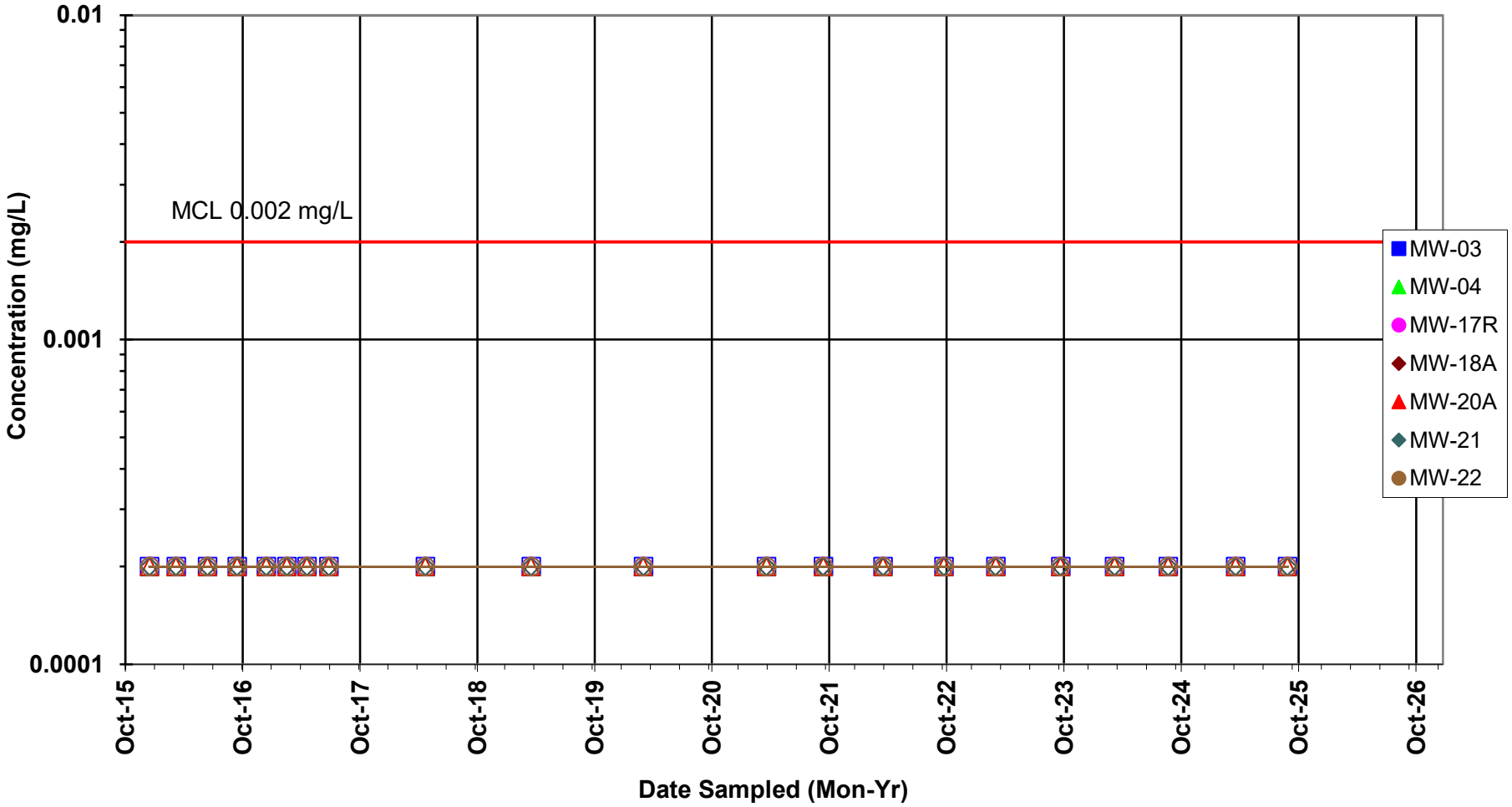

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FIGURE 17 - MERCURY

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

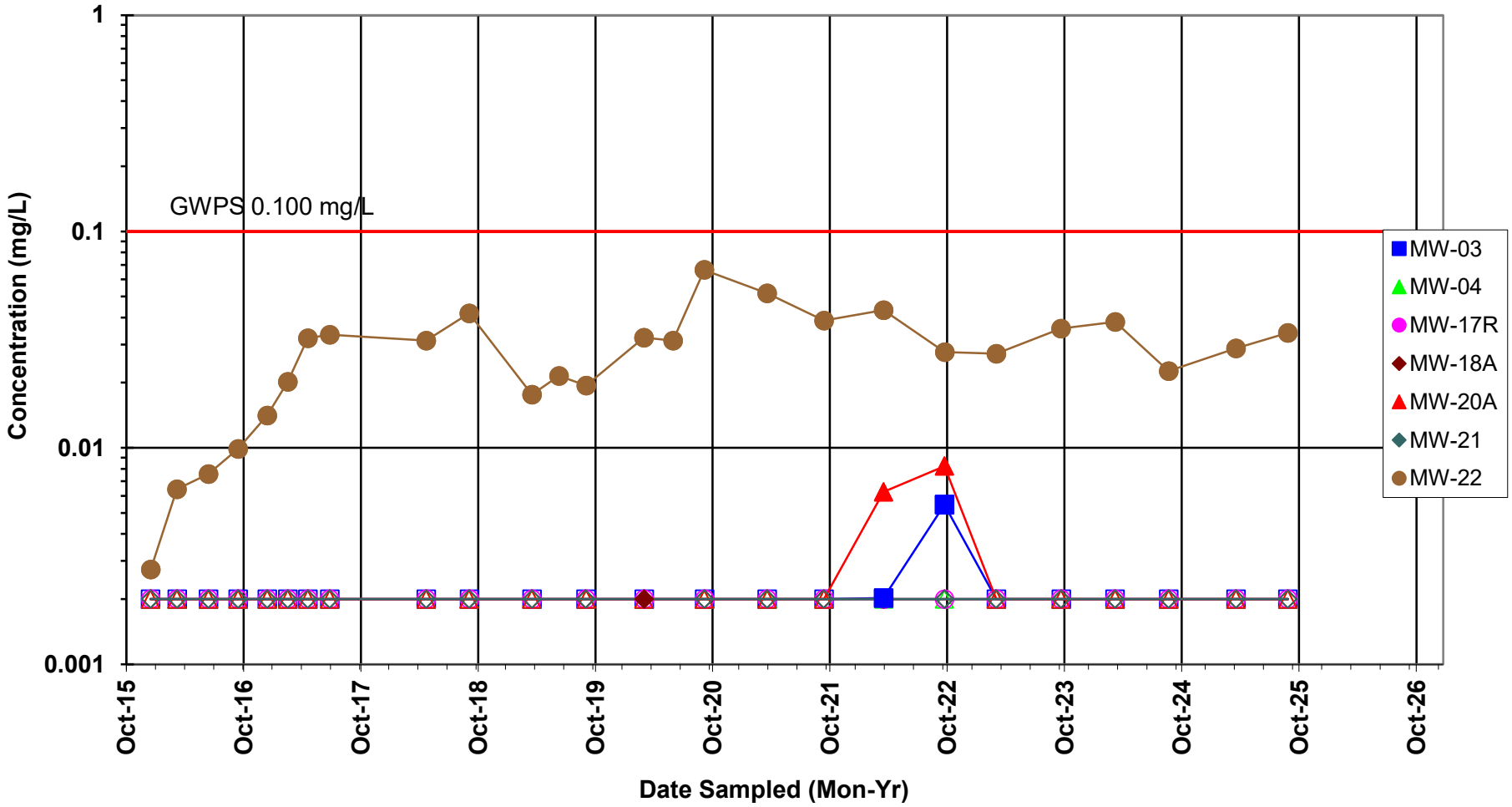

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FIGURE 18 - MOLYBDENUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

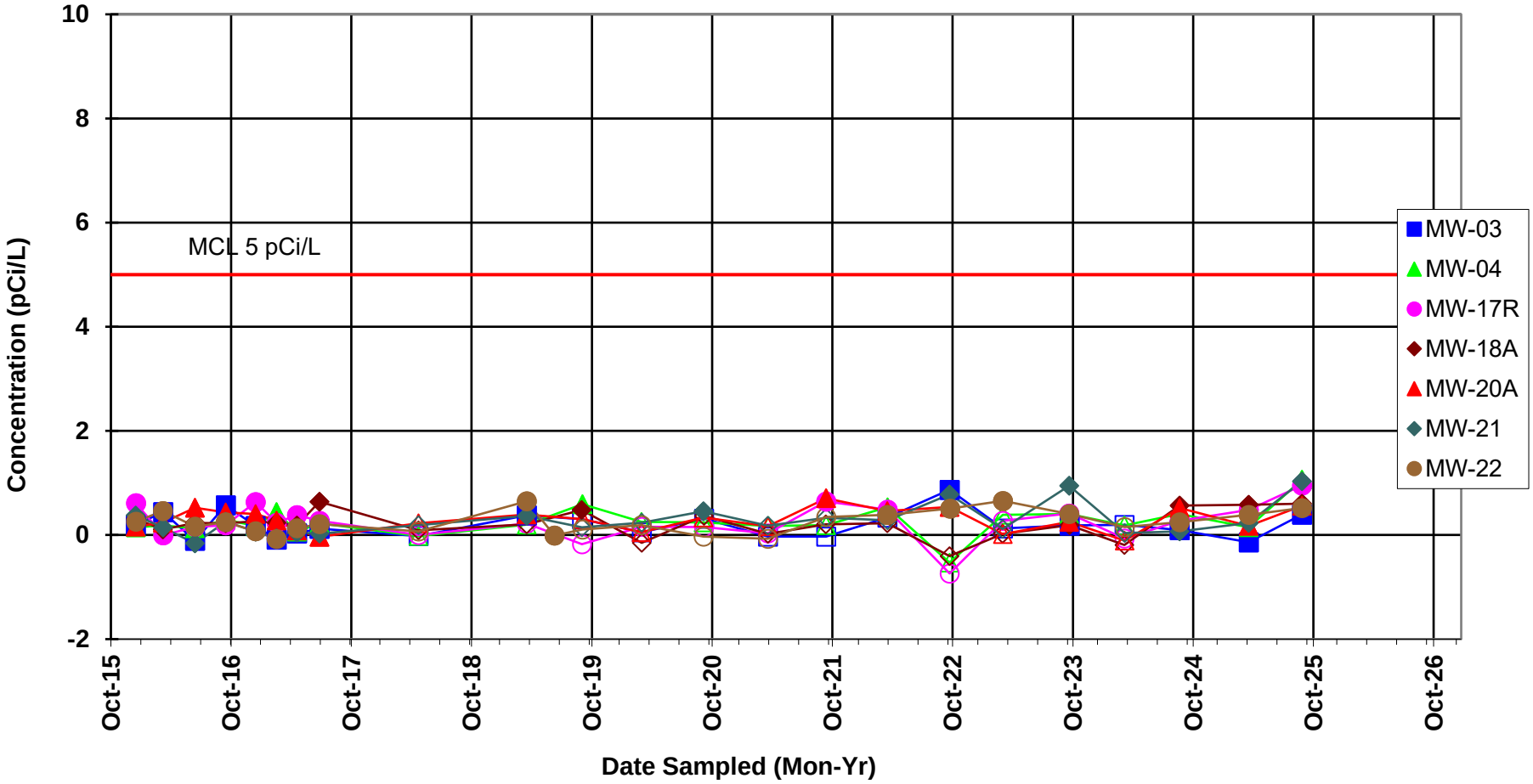

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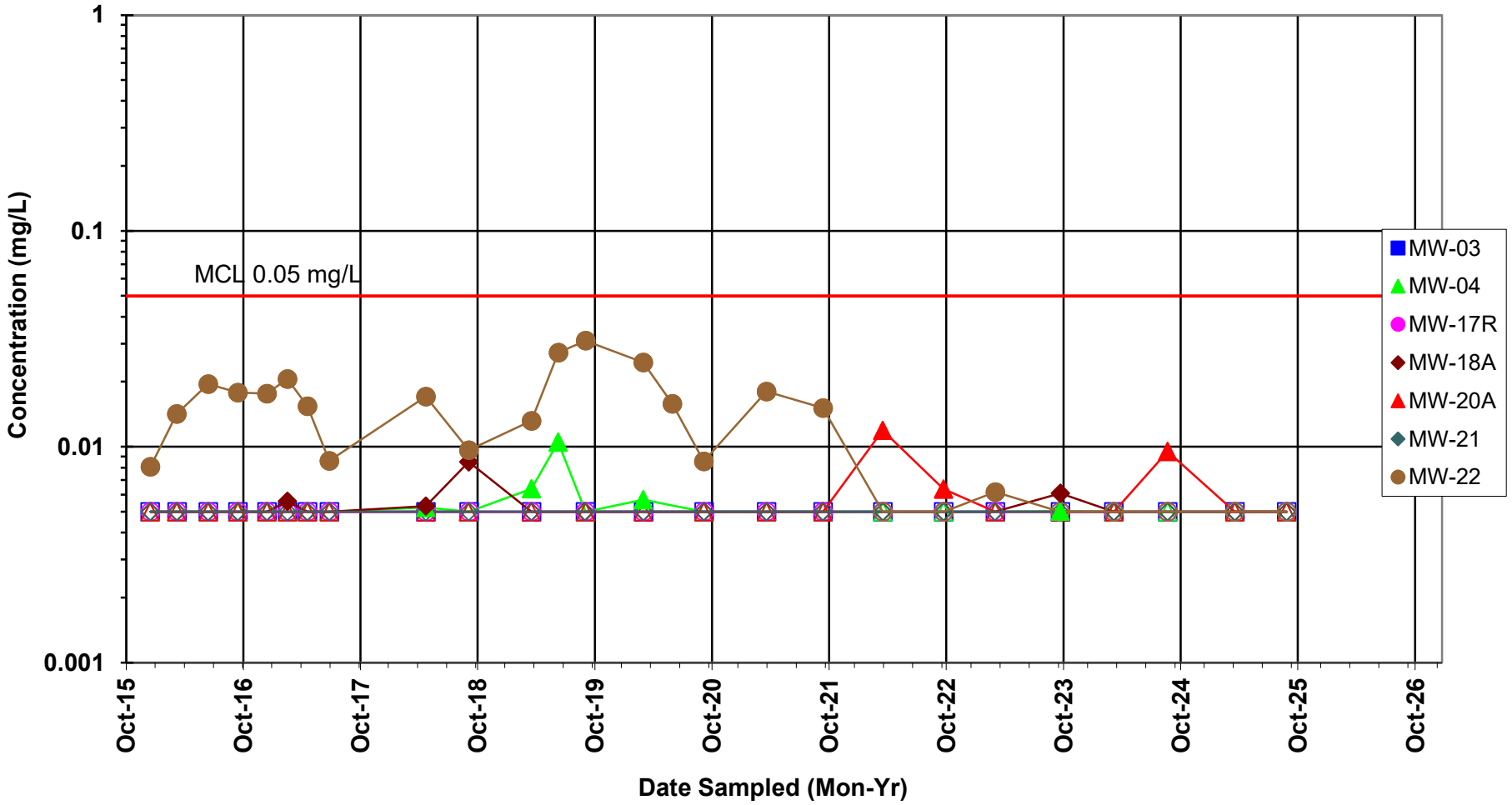
FIGURE 19 - RADIUM-226 & 228

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R



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MUSCATINE, IOWA

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FIGURE 20 - SELENIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

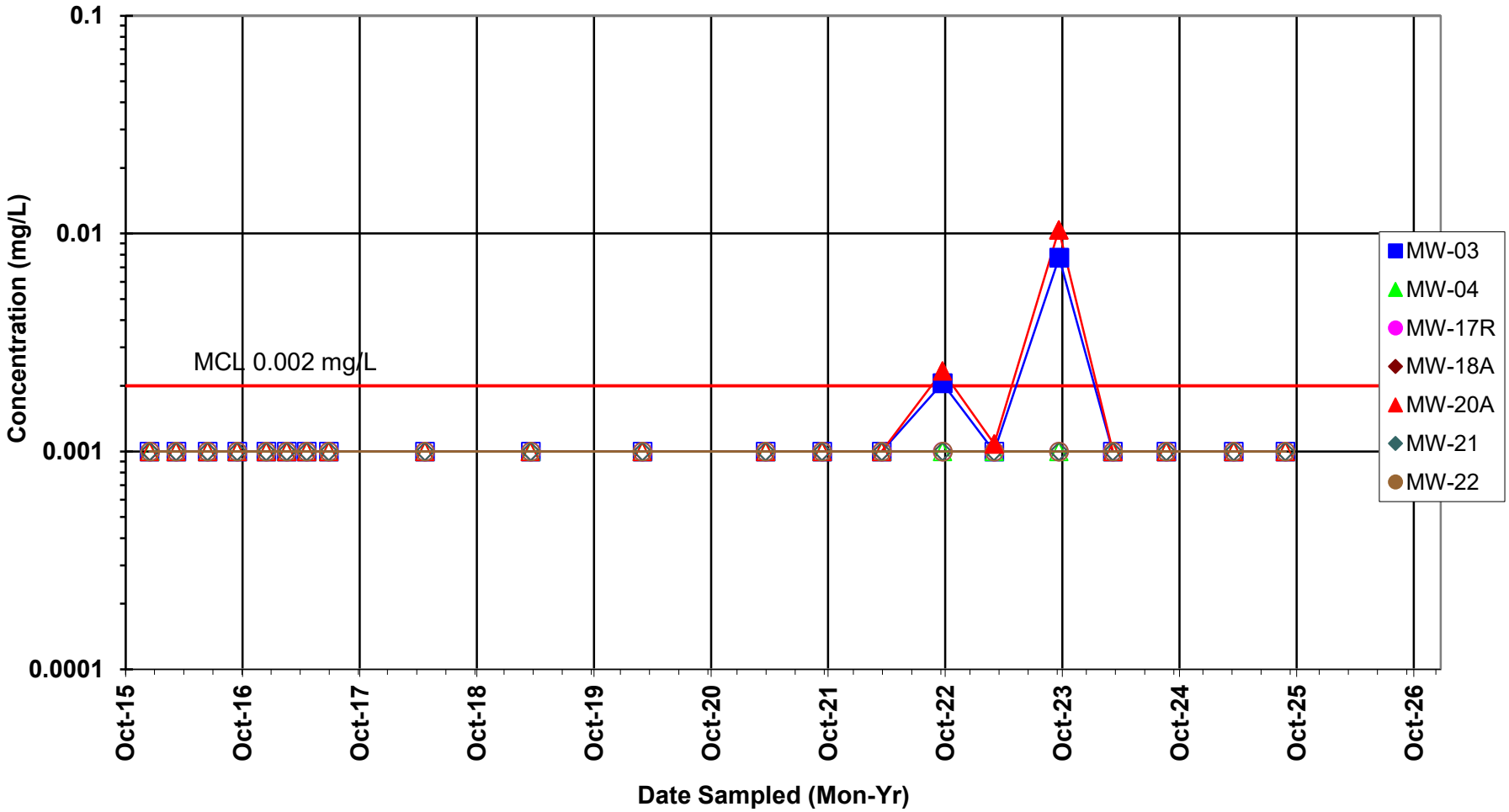

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FIGURE 21 - THALLIUM

Open symbols denote a non-detect at reporting detection limit value

Upgradient Wells: MW-03, MW-04, and MW-17R

Appendix D

Groundwater Analytical Data
(December 2015 through 2025)

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03
Sample ID:			MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-3	MW-03	MW03-GW-0919	MW-03-GW-0320
Sample Date:			12/15/2015	3/8/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017	10/11/2017	4/24/2018	9/6/2018	3/20/2019	9/4/2019	3/4/2020
Parameters	**Units**	**Site-Specific GWPS**														
Appendix III																
Boron	mg/L	NA	0.0500 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	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Calcium	mg/L	NA	30.0	23.7	29.2	27.8	26.4	27.4	22.7	26.2	22.4	19.3	23.6	26.6	37.3	27.4
Chloride	mg/L	NA	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 UJ	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.07	0.500 U	0.500 U	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	NA	7.99 J	8.08 J	8.22 J	8.2 J	8.0 J	8.3 J	8.1 J	8.0 J	8.2 J	8.2 J	8.2 J	8.2 J	7.9 J	8.0 J
Sulfate	mg/L	NA	8.78	8.97	7.50	6.16	7.39	8.63	9.67	8.16	6.27	21.6	5.69	8.89	18.4	5.00 U
Total dissolved solids (TDS)	mg/L	NA	112	158	136	160	252	182	168	214	238	114	90.0	124	160	120
Appendix IV																
Antimony	mg/L	0.006	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
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	--	0.00200 U	--	0.00200 U	--	0.00200 U
Barium	mg/L	2	0.0191	0.0140	0.0178	0.0165	0.0160	0.0167	0.0155	0.0166	--	0.0137	0.0163 J	0.0183	0.0314	0.0175
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	--	0.00100 U	--	0.00100 U	--	0.00100 U
Cadmium	mg/L	0.005	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	--	0.000100 U
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00508	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.0234	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	--	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	--	0.000500 U	--	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.04	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 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	--	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	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.194	0.439	-0.110	0.572	0.174	-0.0899	0.0316	0.120	--	-0.0210 U	--	0.376	0.303 U	0.0529 U
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	--	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	--	0.00100 U	--	0.00100 U	--	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03	MW-03
Sample ID:			MW03-GW-0920	MW03-GW-0321	MW03-GW-0921	MW03-GW-0322	MW03-GW-0922	MW3-GW-0323	MW03-GW-0923	MW03-GW-0324	MW03-GW-0824	MW03-GW-0325
Sample Date:			9/9/2020	3/23/2021	9/16/2021	3/21/2022	9/27/2022	3/8/2023	9/27/2023	3/12/2024	8/27/2024	3/25/2025
		Site-Specific GWPS										
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	0.100 U	0.100 U	0.100 U
Calcium	mg/L	NA	28.0	32.0	33.1	32.7	24.4	22.2	22.7	22.6	31.0	23.4
Chloride	mg/L	NA	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4	0.500 U	0.727	0.500 U	0.500 UJ	0.500 U	0.500 U	1.00	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	NA	8.1 J	8.3 J	8.2 J	8.2 J	8.2 J	8.3 J	8.1	7.9 J	8.3 J	8.5 J
Sulfate	mg/L	NA	5.92	7.34	9.43	10.6	5.91	5.28	5.48	5.68	5.46	5.38
Total dissolved solids (TDS)	mg/L	NA	96.0	106	72.0	58.0	98.0	104	114	94.0	134	84.0
Appendix IV												
Antimony	mg/L	0.006	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.01	--	0.00200 U	0.00200 U	0.00253	0.00200 U	0.00200 U	0.00200	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	2	0.0174	0.0203	0.0206	0.0217	0.0161	0.0139	0.0141	0.0149	0.0203	0.0152
Beryllium	mg/L	0.004	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	--	0.000100 U	0.000100 U	0.000979	0.000228	0.000100 U	0.000200	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	0.00500 U	0.00500 U	0.00500 U
Cobalt	mg/L	0.006	--	0.000500 U	0.000500 U	0.000977	0.000500 U	0.000500 U	0.000500	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.015	0.000500 U	0.000500 U	0.000500 U	0.00192	0.000500 U	0.000500 U	0.000500	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	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	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.1	0.00200 U	0.00200 U	0.00200 U	0.00202	0.00547	0.00200 U	0.00200	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.315 U	-0.0301 U	-0.0313 U	0.333 U	0.869	0.128 U	0.184	0.194 U	0.0975	-0.139
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	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.002	--	0.00100 U	0.00100 U	0.00100 U	0.00206	0.00100 U	0.00775	0.00100 U	0.00100 U	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-03	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04
Sample ID:			MW03-GW-0925	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-4	MW-04	MW-04-GW-0619
Sample Date:			9/3/2025	12/16/2015	3/7/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017	10/11/2017	4/24/2018	9/5/2018	3/20/2019	6/11/2019
Parameters	**Units**	**Site-Specific GWPS**														
Appendix III																
Boron	mg/L	NA	0.100 U	0.584	0.276	0.201	0.225	0.369	0.417	0.341	0.454	0.588	0.471	0.491	0.612	0.887
Calcium	mg/L	NA	29.6	53.9	60.2	59.6	56.5	66.2	70.4	59.2	57.9	59.5	61.7	55.2	46.8	--
Chloride	mg/L	NA	5.00 U	5.00 U	5.00 U	5.00 U	5.33	5.00 U	5.00 U	5.94	5.15	5.84	5.00 UJ	5.00 U	6.40	--
Fluoride	mg/L	4	1.00 U	0.500 U	0.500 U	0.500 U	0.825	0.500 U	0.500 U	1.09	0.500 U	0.500 U	0.500 UJ	0.500 U	0.500 U	--
pH, lab	s.u.	NA	7.7 J	7.84 J	7.79 J	7.71 J	7.8 J	7.6 J	7.6 J	7.8 J	7.5 J	7.7 J	7.7 J	7.9 J	7.8 J	--
Sulfate	mg/L	NA	5.09	33.2	20.5	28.5	24.5	41.6	50.8	67.7	61.0	72.3	65.6	66.9	83.2	108
Total dissolved solids (TDS)	mg/L	NA	140	280	250	260	262	392	296	282	336	478	262	260	288	--
Appendix IV																
Antimony	mg/L	0.006	0.00200 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	--
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	0.00200 U	--	0.00200 U	--	0.00200 U	--
Barium	mg/L	2	0.0177	0.0571	0.0525	0.0508	0.0495	0.0552	0.0634	0.0539	0.0575	--	0.0674	0.0599 J	0.0474	--
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	0.00100 U	--	0.00100 U	--	0.00100 U	--
Cadmium	mg/L	0.005	0.000200 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
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.0153	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	--	0.00550	0.00903	0.0120	--
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	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	0.000500 U	--	0.000500 U	--	0.00150	0.000500 U
Lithium	mg/L	0.04	0.0100 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 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	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	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	--
Radium-226 & 228	pCi/L	5	0.394	0.148	0.183	0.129	0.292	0.173	0.441	0.0626	0.224	--	-0.0191 U	--	0.201 U	--
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	0.00500 U	--	0.00523	0.00500 U	0.00639	0.0105
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	0.00100 U	--	0.00100 U	--	0.00100 U	--

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04	MW-04
Sample ID:			DP-01-GW-0619	MW04-GW-0919	DP02-GW-0919	MW-04-GW-0320	MW04-GW-0920	MW04-GW-0321	MW04-GW-0921	MW04-GW-0322	MW04-GW-0922	MW4-GW-0323
Sample Date:			6/11/2019	9/5/2019	9/5/2019	3/3/2020	9/8/2020	3/24/2021	9/16/2021	3/22/2022	9/27/2022	3/8/2023
		Site-Specific GWPS	(Duplicate)		(Duplicate)							
Parameters	**Units**											
Appendix III												
Boron	mg/L	NA	1.03	0.441	0.464	0.575	0.595	0.500	0.493	0.339	0.300	0.164
Calcium	mg/L	NA	--	61.0	60.6	66.8	54.1	39.5	51.2	55.4	41.1	43.1
Chloride	mg/L	NA	--	5.00 U	5.00 U	5.57	9.30	9.36	5.00 U	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4	--	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 UJ	0.500 U	0.500 U
pH, lab	s.u.	NA	--	7.7 J	7.8 J	7.9 J	7.6 J	7.9 J	7.7 J	7.9 J	7.8 J	8.0 J
Sulfate	mg/L	NA	108	38.5	44.2	52.7	60.4	52.8	17.0	13.1	7.64	7.09
Total dissolved solids (TDS)	mg/L	NA	--	284	312	294	280	212	192	176	202	218
Appendix IV												
Antimony	mg/L	0.006	--	--	--	0.00100 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
Barium	mg/L	2	--	0.0629	0.0628	0.0642	0.0593	0.0435	0.0522	0.0568	0.0416	0.0412
Beryllium	mg/L	0.004	--	--	--	0.00100 U	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.000500 U	--	--	0.000100 U	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000100 U
Chromium	mg/L	0.1	--	0.00500 U	0.00535	0.00868	0.0142	0.00843	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
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	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
Mercury	mg/L	0.002	--	--	--	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	0.00200 U
Radium-226 & 228	pCi/L	5	--	0.592	-0.0514 U	0.250 U	0.240 U	0.173 U	0.190 U	0.534 U	-0.529 U	0.389 U
Selenium	mg/L	0.05	0.0109	0.00500 U	0.00500 U	0.00568	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

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-04	MW-04	MW-04	MW-04	MW-04	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R
Sample ID:			MW04-GW-0923	MW04-GW-0324	MW04-GW-0824	MW04-GW-0325	MW04-GW-0925	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R
Sample Date:			9/26/2023	3/12/2024	8/27/2024	3/25/2025	9/3/2025	12/16/2015	3/8/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017
Parameters	**Units**	**Site-Specific GWPS**												
Appendix III														
Boron	mg/L	NA	0.556	0.383	0.367	0.434	0.300	0.0500 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Calcium	mg/L	NA	56.3	45.7	46.8	46.1	45.5	45.8	47.5	56.3	47.4	51.1	52.7	39.9
Chloride	mg/L	NA	12.7	13.7	9.29	5.00 U	6.31	5.00 U	5.00 U	5.00 U	6.60	9.17	5.00 U	9.95
Fluoride	mg/L	4	1.00	1.00 U	1.00 U	1.00 U	1.00 U	0.500 U	0.500 U	0.500 U	0.793	1.74	0.500 U	1.58
pH, lab	s.u.	NA	7.7	7.9 J	7.7 J	7.9 J	7.4 J	7.90 J	7.88 J	7.93 J	8.0 J	7.8 J	7.9 J	8.0 J
Sulfate	mg/L	NA	38.0	39.2	23.9	11.6	26.0	30.0	33.1	43.2	29.0	31.5	31.3	26.4
Total dissolved solids (TDS)	mg/L	NA	252	224	214	222	252	216	208	238	234	236	212	198
Appendix IV														
Antimony	mg/L	0.006	0.00200	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01	0.00200	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	2	0.0553	0.0464	0.0505	0.0518	0.0441	0.0364	0.0311	0.0357	0.0310	0.0305	0.0402	0.0328
Beryllium	mg/L	0.004	0.00100	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
Cadmium	mg/L	0.005	0.000200	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1	0.00958	0.00788	0.00500 U	0.00500 U	0.00542	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	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	0.015	0.000500	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	0.04	0.0100	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002	0.000200	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
Molybdenum	mg/L	0.1	0.00200	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
Radium-226 & 228	pCi/L	5	0.404	0.184 U	0.401	0.149	1.06	0.611	-0.00637	0.150	0.188	0.631	0.235	0.381
Selenium	mg/L	0.05	0.00502	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	0.002	0.00100	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

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R
Sample ID:			**MW-17R**	**MW-17R**	**MW-17R**	**MW-17R**	**MW-17R**	**MW17R-GW-0919**	**MW-17R-GW-0320**	**MW17R-GW-0920**	**MW17R-GW-0321**	**MW17R-GW-0921**	**MW17R-GW-0322**
Sample Date:			**6/27/2017**	**10/11/2017**	**4/24/2018**	**9/6/2018**	**3/20/2019**	**9/4/2019**	**3/4/2020**	**9/9/2020**	**3/23/2021**	**9/16/2021**	**3/22/2022**
Parameters	**Units**	**Site-Specific GWPS**											
Appendix III													
Boron	mg/L	NA	0.200 U	0.200 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
Calcium	mg/L	NA	41.8	41.8	38.9	40.4	33.6	49.4	65.7	44.3	56.2	48.2	51.3
Chloride	mg/L	NA	5.00 U	5.00 U	5.00 UJ	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	7.53	5.00 U	5.00 U
Fluoride	mg/L	4	0.500 U	0.500 U	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.74	0.500 U	0.500 UJ
pH, lab	s.u.	NA	7.8 J	8.0 J	8.0 J	8.1 J	8.0 J	7.9 J	7.9 J	7.9 J	7.9 J	7.9 J	8.0 J
Sulfate	mg/L	NA	21.2	24.6	25.1	19.6	10.1	41.1	71.9	43.3	67.4	46.1	35.4
Total dissolved solids (TDS)	mg/L	NA	312	220	180	212	146	230	296	214	224	162	122
Appendix IV													
Antimony	mg/L	0.006	0.00100 U	--	0.00100 U	--	0.00100 U	--	0.00100 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
Barium	mg/L	2	0.0346	--	0.0370	0.0366 J	0.0257	0.0339	0.0435	0.0301	0.0481	0.0427	0.0460
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
Cadmium	mg/L	0.005	0.000500 U	--	0.000500 U	--	0.000500 U	--	0.000100 U	--	0.000100 U	0.000100 U	0.000100 U
Chromium	mg/L	0.1	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.00817	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
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	0.000500 U
Lithium	mg/L	0.04	0.0500 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
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	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.275	--	0.000965 U	--	0.218 U	-0.175 U	0.159 U	0.152 U	0.0313 U	0.642	0.485
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	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

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-17R	MW-18A	MW-18A	MW-18A	MW-18A
Sample ID:			MW17R-GW-0922	MW17R-GW-0323	MW17R-GW-0923	MW17R-GW-0324	MW17R-GW-0824	MW17R-GW-0325	MW17R-GW-0925	MW-18A	MW-18A	MW-18A	MW-18A
Sample Date:			9/27/2022	3/8/2023	9/26/2023	3/12/2024	8/27/2024	3/25/2025	9/3/2025	12/16/2015	3/7/2016	6/13/2016	9/14/2016
Parameters	**Units**	**Site-Specific GWPS**											
Appendix III													
Boron	mg/L	NA	0.100 U	0.100 U	0.100	0.100 U	0.100 U	0.100 U	0.100 U	0.350	0.200 U	0.200 U	0.200 U
Calcium	mg/L	NA	47.9	33.0	36.4	34.2	38.0	40.6	37.9	41.2	30.7	37.1	32.3
Chloride	mg/L	NA	5.00 U	5.00 U	5.00	5.00 U	5.00 U	5.00 U	5.00 U	7.29	5.00 U	5.00 U	5.00 U
Fluoride	mg/L	4	0.500 U	0.500 U	1.00	1.00 U	1.00 U	1.00 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	NA	8.0 J	8.2 J	8.0	8.0 J	7.9 J	8.1 J	7.3 J	7.84 J	7.11 J	7.11 J	6.9 J
Sulfate	mg/L	NA	30.1	11.4	11.2	11.7	19.7	24.5	15.5	59.5	25.1	25.8	29.2
Total dissolved solids (TDS)	mg/L	NA	214	164	148	136	162	172	180	214	160	194	206
Appendix IV													
Antimony	mg/L	0.006	0.00200 U	0.00200 U	0.00200	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01	0.00200 U	0.00200 U	0.00200	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	0.0410	0.0286	0.0296	0.0301	0.0299	0.0348	0.0302	0.0502	0.0260	0.0287	0.0296
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100	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	0.000100 U	0.000100 U	0.000200	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500	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	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	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	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002	0.000200 U	0.000200 U	0.000200	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	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	-0.738 U	0.272 U	0.411	-0.0678 U	0.273	0.484	0.952	0.311	0.108	0.231	0.228
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500	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	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A
Sample ID:			**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A**	**MW-18A-GW-0619**	**MW18A-GW-0919**	**MW-18A-GW-0320**	**MW-18A-GW-0620**
Sample Date:			**12/14/2016**	**2/16/2017**	**4/19/2017**	**6/27/2017**	**10/11/2017**	**2/1/2018**	**4/24/2018**	**9/5/2018**	**3/20/2019**	**6/12/2019**	**9/3/2019**	**3/4/2020**	**6/2/2020**
Parameters	**Units**	**Site-Specific GWPS**													
Appendix III															
Boron	mg/L	NA	0.210	0.263	0.268	0.310	0.360	--	0.335	0.635	0.349	--	0.200 U	0.236	--
Calcium	mg/L	NA	51.7	60.4	47.5	44.4	40.3	--	34.5	47.5	51.9	--	45.9	64.9	--
Chloride	mg/L	NA	7.06	5.00 U	7.58	5.53	5.00 U	--	24.7 J-	5.00 U	7.02	--	10.4	9.09	--
Fluoride	mg/L	4	0.500 U	0.500 U	1.37	0.500 U	0.500 U	--	7.04 J-	0.500 U	0.500 U	--	0.500 U	0.500 U	--
pH, lab	s.u.	NA	6.9 J	6.9 J	7.0 J	6.7 J	6.9 J	7.2 J	7.1 J	7.1 J	7.0 J	7.4 J	7.6 J	7.6 J	--
Sulfate	mg/L	NA	80.4	107	105	86.5	80.4	64.0	73.7	83.6	86.4	8.01	38.1	91.7	113
Total dissolved solids (TDS)	mg/L	NA	314	338	336	314	368	204	176	234	238	--	220	328	--
Appendix IV															
Antimony	mg/L	0.006	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	--	0.00100 U	--	0.00100 U	--	--	0.00100 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	--
Barium	mg/L	2	0.0398	0.0473	0.0343	0.0368	--	--	0.0329	0.0558 J	0.0396	--	0.0307	0.0507	--
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	--
Cadmium	mg/L	0.005	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--	--	0.000500 U	--	0.000500 U	--	--	0.000100 U	--
Chromium	mg/L	0.1	0.00500 U	0.00680	0.00648	0.00574	--	--	0.00500 U	0.00625	0.00756	--	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	--
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	0.0500 U	0.0500 U	0.0500 U	0.0500 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	--
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	0.00200	--
Radium-226 & 228	pCi/L	5	0.260	0.235	0.183	0.639	--	--	0.0874 U	--	0.206 U	--	0.479	-0.148 U	--
Selenium	mg/L	0.05	0.00500 U	0.00559	0.00500 U	0.00500 U	--	--	0.00530	0.00851	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	--

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A	MW-18A
Sample ID:			MW18A-GW-0920	MW18A-GW-0321	MW18A-GW-0921	MW18A-GW-0322	MW18A-GW-0922	MW18A-GW-0323	MW18A-GW-0923	MW18A-GW-0324	MW18A-GW-0824
Sample Date:			9/9/2020	3/23/2021	9/15/2021	3/21/2022	9/27/2022	3/7/2023	9/27/2023	3/12/2024	8/27/2024
		Site-Specific GWPS									
Parameters	**Units**										
Appendix III											
Boron	mg/L	NA	0.321	0.193	0.276	0.194	0.287	0.162	0.245	0.172	0.240
Calcium	mg/L	NA	40.8	40.0	31.9	36.1	25.0	31.4	34.9	33.6	32.0
Chloride	mg/L	NA	9.29	5.00 U	5.38	5.00 U	5.30	5.00 U	6.52	6.75	9.17
Fluoride	mg/L	4	0.500 U	0.500 U	0.500 U	0.500 UJ	0.500 U	0.500 U	1.00	1.00 U	1.00 U
pH, lab	s.u.	NA	6.9 J	7.0 J	6.9 J	6.8 J	6.9 J	7.1 J	6.8	7.3 J	7.1 J
Sulfate	mg/L	NA	90.8	40.7	47.2	57.2	43.4	53.0	48.9	44.9	38.8
Total dissolved solids (TDS)	mg/L	NA	258	174	134	154	154	222	204	186	162
Appendix IV											
Antimony	mg/L	0.006	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200	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	0.00200 U	0.00200 U
Barium	mg/L	2	0.0584	0.0475	0.0395	0.0310	0.0264	0.0283	0.0332	0.0289	0.0310
Beryllium	mg/L	0.004	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000200	0.000200 U	0.000200 U
Chromium	mg/L	0.1	0.00985	0.00500 U	0.00555	0.00573	0.0115	0.00543	0.00890	0.00879	0.0114
Cobalt	mg/L	0.006	--	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500	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	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	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	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	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.368 U	0.0206 U	0.206 U	0.225 U	-0.405 U	0.0230 U	0.189	-0.190 U	0.564
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00608	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	0.00100 U	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-18A	MW-18A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A
Sample ID:			MW18A-GW-0325	MW18A-GW-0925	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A
Sample Date:			3/25/2025	9/3/2025	12/15/2015	3/7/2016	6/13/2016	9/14/2016	12/14/2016	2/16/2017	4/19/2017	6/27/2017	10/11/2017	2/1/2018	4/24/2018	9/4/2018
Parameters	**Units**	**Site-Specific GWPS**														
Appendix III																
Boron	mg/L	NA	0.125	0.288	0.0862	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	0.200 U
Calcium	mg/L	NA	43.1	40.2	45.5	46.4	57.9	47.7	51.4	57.3	61.1	62.8	53.9	--	46.1	62.2
Chloride	mg/L	NA	8.50	5.00 U	15.7	17.0	16.4	17.2	23.0	33.8	34.1	36.4	20.3	25.1	46.5 J-	13.6
Fluoride	mg/L	4	1.00 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	3.17	0.708	0.500 U	0.500 U	--	4.95 J-	0.500 U
pH, lab	s.u.	NA	7.1 J	6.8 J	7.91 J	6.76 J	8.08 J	7.2 J	6.7 J	6.7 J	6.8 J	6.6 J	6.7 J	6.8 J	6.8 J	6.8 J
Sulfate	mg/L	NA	27.8	28.8	56.8	69.8	115	85.6	103	117	165	211	105	132	158	135
Total dissolved solids (TDS)	mg/L	NA	168	202	286	308	400	372	368	380	462	580	444	408	396	346
Appendix IV																
Antimony	mg/L	0.006	0.00200 U	0.00200 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	--
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	0.00200 U	0.00200 U	--	--	0.00200 U	--
Barium	mg/L	2	0.0301	0.0332	0.0488	0.0432	0.0595	0.0476	0.0521	0.0570	0.0694	0.0772	--	--	0.0672	0.0616
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	0.00100 U	0.00100 U	--	--	0.00100 U	--
Cadmium	mg/L	0.005	0.000200 U	0.000200 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	--
Chromium	mg/L	0.1	0.00539	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00521	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	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	0.000500 U	0.000500 U	--	--	0.000500 U	--
Lithium	mg/L	0.04	0.0100 U	0.0100 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 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	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	0.00200 U	0.00200 U	--	--	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	0.578	0.602	0.159	0.236	0.525	0.435	0.401	0.276	0.0869	-0.0348	--	--	0.228 U	--
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	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	0.00100 U	0.00100 U	--	--	0.00100 U	--

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A
Sample ID:			MW-20A	MW-20A-GW-0619	MW20A-GW-0919	MW-20A-GW-0320	MW-20A-GW-0620	MW20A-GW-0920	MW20A-GW-0321	MW20A-GW-0921	MW20A-GW-0322	MW-20-GW-0922
Sample Date:			3/19/2019	6/11/2019	9/5/2019	3/3/2020	6/2/2020	9/8/2020	3/23/2021	9/16/2021	3/21/2022	9/27/2022
		Site-Specific GWPS										
Parameters	**Units**											
Appendix III												
Boron	mg/L	NA	0.200 U	--	0.200 U	0.200 U	--	0.100 U	0.100 U	0.129	0.170	0.277
Calcium	mg/L	NA	7.82	--	16.0	9.82	--	31.1	25.3	38.7	66.5	66.2
Chloride	mg/L	NA	5.00 U	--	5.00 U	5.00 U	--	5.00 U	5.00 U	5.00 U	6.97	18.9
Fluoride	mg/L	4	0.500 U	--	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U	0.500 UJ	0.500 U
pH, lab	s.u.	NA	6.4 J	7.0 J	6.7 J	6.5 J	6.6 J	6.6 J	6.6 J	6.6 J	6.9 J	7.0 J
Sulfate	mg/L	NA	15.8	--	24.8	7.95	--	20.7	34.4	48.2	92.3	159
Total dissolved solids (TDS)	mg/L	NA	62.0	--	86.0	60.0	--	146	104	146	252	400
Appendix IV												
Antimony	mg/L	0.006	0.00100 U	--	--	0.00100 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	0.00565	0.00200 U
Barium	mg/L	2	0.0110	--	0.0161	0.0126	--	0.0258	0.0244	0.0393	0.0643	0.0725
Beryllium	mg/L	0.004	0.00100 U	--	--	0.00100 U	--	--	0.00100 U	0.00100 U	0.00249	0.00100 U
Cadmium	mg/L	0.005	0.000500 U	--	--	0.000100 U	--	--	0.000100 U	0.000100 U	0.00282	0.000260
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	0.00279	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	0.00526	0.000503
Lithium	mg/L	0.04	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
Molybdenum	mg/L	0.1	0.00200 U	--	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U	0.00200 U	0.00625	0.00824
Radium-226 & 228	pCi/L	5	0.393	--	0.302 U	0.0543 U	--	0.336 U	0.166 U	0.704	0.461	0.539
Selenium	mg/L	0.05	0.00500 U	--	0.00500 U	0.00500 U	--	0.00500 U	0.00500 U	0.00500 U	0.0119	0.00637
Thallium	mg/L	0.002	0.00100 U	--	--	0.00100 U	--	--	0.00100 U	0.00100 U	0.00100 U	0.00234

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-20A	MW-21	MW-21	MW-21	MW-21	MW-21
Sample ID:			MW20A-GW-0323	MW20A-GW-0923	MW20A-GW-0324	MW20A-GW-0824	MW20A-GW-0325	MW20A-GW-0925	MW-21	MW-21	MW-21	MW-21	MW-21
Sample Date:			3/8/2023	9/26/2023	3/13/2024	8/27/2024	3/25/2025	9/3/2025	12/15/2015	3/8/2016	6/13/2016	9/14/2016	12/14/2016
Parameters	Units	Site-Specific GWPS											
Appendix III													
Boron	mg/L	NA	0.190	0.259	0.214	0.199	0.171	0.153	0.184	0.311	0.224	0.346	0.200 U
Calcium	mg/L	NA	38.0	37.0	32.0	24.3	41.2	23.9	70.5	71.9	64.9	69.9	49.2
Chloride	mg/L	NA	12.9	9.89	9.16	5.30	10.1	5.00 U	5.51	14.0	16.8	21.6	9.04
Fluoride	mg/L	4	0.500 U	1.00	1.00 U	1.00 U	1.00 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	NA	7.5 J	7.0	7.6 J	7.0 J	7.2 J	6.6 J	7.90 J	7.66 J	7.94 J	7.7 J	7.7 J
Sulfate	mg/L	NA	120	67.7	65.7	46.7	50.4	40.3	15.5	19.2	12.1	27.2	5.01
Total dissolved solids (TDS)	mg/L	NA	390	270	246	190	228	178	268	272	260	284	232
Appendix IV													
Antimony	mg/L	0.006	0.00200 U	0.00200	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01	0.00200 U	0.00200	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	2	0.0491	0.0406	0.0364	0.0290	0.0446	0.0242	0.0616	0.0565	0.0489	0.0569	0.0388
Beryllium	mg/L	0.004	0.00100 U	0.00100	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	0.005	0.000100 U	0.000200	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1	0.00500 U	0.00500	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	0.006	0.000500 U	0.000500	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	0.015	0.000500 U	0.000500	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	0.04	0.0100 U	0.0100	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002	0.000200 U	0.000200	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	0.1	0.00200 U	0.00200	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	5	0.0193 U	0.253	-0.109 U	0.516	0.172	0.562	0.378	0.140	-0.162	0.259	0.0625
Selenium	mg/L	0.05	0.00500 U	0.00500	0.00500 U	0.00950	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	0.00108	0.0104	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

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21
Sample ID:			MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	DP-02	MW-21	MW21-GW-0919	MW-21-GW-0320	MW21-GW-0920	MW21-GW-0321	MW21-GW-0921
Sample Date:			2/16/2017	4/19/2017	6/27/2017	10/11/2017	4/24/2018	9/5/2018	9/5/2018 (Duplicate)	3/20/2019	9/4/2019	3/4/2020	9/8/2020	3/23/2021	9/16/2021
Parameters	**Units**	**Site-Specific GWPS**													
Appendix III															
Boron	mg/L	NA	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	0.200 U	0.100 U	0.100 U	0.100 U
Calcium	mg/L	NA	51.0	63.7	54.1	55.7	55.8	61.9	64.1	50.2	81.9	71.9	81.1	91.5	78.5
Chloride	mg/L	NA	7.63	14.8	9.41	5.00 U	21.8 J-	5.00 U	5.00 U	5.00 U	5.88	5.07	7.49	34.0	24.4
Fluoride	mg/L	4	0.500 U	0.650	0.500 U	0.500 U	3.61 J-	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.	NA	7.7 J	7.7 J	7.6 J	7.7 J	7.6 J	7.8 J	7.8 J	7.7 J	7.5 J	7.6 J	7.5 J	7.5 J	7.6 J
Sulfate	mg/L	NA	8.91	22.4	21.2	14.3	23.4	15.4	15.4	13.7	31.8	15.1	15.3	84.3	67.4
Total dissolved solids (TDS)	mg/L	NA	262	286	282	272	222	232	214	198	330	274	280	368	316
Appendix IV															
Antimony	mg/L	0.006	0.00100 U	0.00100 U	0.00100 U	--	0.00100 U	--	--	0.00100 U	--	0.00100 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	0.0442	0.0550	0.0543	--	0.0533	0.0556 J	0.0575 J	0.0427	0.0722	0.0578	0.0661	0.0934	0.0776
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	0.000500 U	0.000500 U	0.000500 U	--	0.000500 U	--	--	0.000500 U	--	0.000100 U	--	0.000100 U	0.000100 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	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	0.000500 U	0.000500 U
Lithium	mg/L	0.04	0.0500 U	0.0500 U	0.0500 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	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Radium-226 & 228	pCi/L	5	-0.0622	0.0439	0.0259	--	0.187 U	--	--	0.367	0.145 U	0.238 U	0.457	0.179 U	0.330 U
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	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

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-21	MW-22	MW-22	MW-22
Sample ID:			MW21-GW-0322	MW21-GW-0922	MW21-GW-0323	MW21-GW-0923	MW21-GW-0324	MW21-GW-0824	MW21-GW-0325	MW21-GW-0925	MW-22	DP-02	MW-22
Sample Date:			3/22/2022	9/27/2022	3/7/2023	9/26/2023	3/13/2024	8/27/2024	3/25/2025	9/3/2025	12/16/2015	12/16/2015 (Duplicate)	3/7/2016
Parameters	**Units**	**Site-Specific GWPS**											
Appendix III													
Boron	mg/L	NA	0.100 U	0.100 U	0.100 U	0.100	0.100 U	0.100 U	0.100 U	0.122	0.477	0.457	0.708
Calcium	mg/L	NA	94.6	64.1	70.1	61.6	90.6	69.0	53.0	100	66.4	70.6	64.2
Chloride	mg/L	NA	22.8	11.6	13.1	5.30	17.5	5.98	10.5	13.6	9.72	10.4	10.1
Fluoride	mg/L	4	0.500 UJ	0.500 U	0.500 U	1.00	1.00 U	1.00 U	1.00 U	1.00 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	NA	7.5 J	7.7 J	7.5 J	7.6	7.8 J	7.5 J	7.7 J	7.8 J	8.10 J	6.65 J	6.78 J
Sulfate	mg/L	NA	79.5	46.6	52.4	20.5	66.0	24.7	30.4	125	162	161	215
Total dissolved solids (TDS)	mg/L	NA	348	278	384	240	398	246	230	510	438	406	484
Appendix IV													
Antimony	mg/L	0.006	0.00200 U	0.00200 U	0.00200 U	0.00200	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.01	0.00200 U	0.00200 U	0.00200 U	0.00200	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	0.102	0.0589	0.0730	0.0542	0.0929	0.0612	0.0554	0.101	0.0885	0.0943	0.0713
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100 U	0.00100	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	0.000100 U	0.000100 U	0.000100 U	0.000200	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000500 U	0.000500 U	0.000500 U
Chromium	mg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.0109	0.0117	0.0281
Cobalt	mg/L	0.006	0.000500 U	0.000500 U	0.000500 U	0.000500	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	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	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0500 U	0.0500 U	0.0500 U
Mercury	mg/L	0.002	0.000200 U	0.000200 U	0.000200 U	0.000200	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	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00274	0.00292	0.00644
Radium-226 & 228	pCi/L	5	0.281 U	0.777	0.118 U	0.944	0.0380 U	0.0668	0.231	1.03	0.255	0.335	0.459
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500 U	0.00500	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00807	0.00889	0.0142
Thallium	mg/L	0.002	0.00100 U	0.00100 U	0.00100 U	0.00100	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22
Sample ID:			DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	DP-02	MW-22
Sample Date:			3/7/2016	6/13/2016	6/13/2016	9/14/2016	9/14/2016	12/14/2016	12/14/2016	2/16/2017	2/16/2017	4/19/2017	4/19/2017	6/27/2017	6/27/2017	10/11/2017
		Site-Specific GWPS	(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)	
Parameters	**Units**															
Appendix III																
Boron	mg/L	NA	0.697	0.588	0.551	0.535	0.570	0.542	0.533	0.511	0.508	0.384	0.384	0.380	0.375	0.675
Calcium	mg/L	NA	63.5	55.4	56.5	58.8	65.1	44.6	46.2	47.8	43.8	34.1	32.0	32.3	32.3	42.2
Chloride	mg/L	NA	10.1	10.3	10.7	10.8	10.7	9.08	9.27	7.34	8.89	5.00 U	5.00 U	5.00 U	5.00 U	12.1
Fluoride	mg/L	4	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.810	0.610	0.733	0.541	0.500 U	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	NA	6.70 J	6.72 J	6.74 J	6.8 J	6.8 J	7.1 J	7.0 J	7.0 J	7.0 J	7.2 J	7.2 J	7.1 J	7.1 J	7.0 J
Sulfate	mg/L	NA	195	194	194	196	196	118	119	133	136	108	108	71.5	78.0	159
Total dissolved solids (TDS)	mg/L	NA	458	440	482	456	482	394	372	344	388	280	272	306	318	444
Appendix IV																
Antimony	mg/L	0.006	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	0.00100 U	0.00100 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	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--
Barium	mg/L	2	0.0707	0.0640	0.0652	0.0556	0.0606	0.0344	0.0336	0.0405	0.0387	0.0290	0.0266	0.0251	0.0252	--
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	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--
Cadmium	mg/L	0.005	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	0.000500 U	--
Chromium	mg/L	0.1	0.0280	0.0277	0.0291	0.0558	0.0600	0.0461	0.0475	0.0457	0.0437	0.0461	0.0435	0.0466	0.0469	--
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	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	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	--
Lithium	mg/L	0.04	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 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	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--
Molybdenum	mg/L	0.1	0.00644	0.00758	0.00765	0.00988	0.0103	0.0141	0.0143	0.0202	0.0195	0.0321	0.0289	0.0333	0.0340	--
Radium-226 & 228	pCi/L	5	0.692	0.161	0.366	0.249	0.449	0.0733	0.498	-0.0754	0.114	0.130	0.407	0.209	0.0320	--
Selenium	mg/L	0.05	0.0145	0.0195	0.0204	0.0178	0.0206	0.0176	0.0175	0.0206	0.0205	0.0154	0.0148	0.00861	0.00848	--
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	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22
Sample ID:			DP-02	MW-22	DP-02	MW-22	DP-02	MW-22	MW-22	DP-02	MW-22-GW-0619	DP-02-GW-0619	MW22-GW-0919	MW-22-GW-0320	DP-02-GW-0320
Sample Date:			10/11/2017	2/1/2018	2/1/2018	4/24/2018	4/24/2018	9/5/2018	3/20/2019	3/20/2019	6/12/2019	6/12/2019	9/5/2019	3/3/2020	3/3/2020
		Site-Specific GWPS	(Duplicate)		(Duplicate)		(Duplicate)			(Duplicate)		(Duplicate)			(Duplicate)
Parameters	**Units**														
Appendix III															
Boron	mg/L	NA	0.673	0.478	0.527	0.425	0.411	0.368	0.623	0.603	0.514	0.439	0.516	0.650	0.634
Calcium	mg/L	NA	41.6	--	--	35.4	34.7	48.2	80.5	76.8	57.4	50.6	43.7	28.4	27.5
Chloride	mg/L	NA	9.26	8.62	7.77	8.20 J-	8.06 J-	7.07	13.3	13.6	8.85	9.03	6.37	5.44	5.42
Fluoride	mg/L	4	0.500 U	--	--	0.500 UJ	0.500 UJ	0.500 U	0.500 U	0.500 U	--	--	0.500 U	0.500 U	0.500 U
pH, lab	s.u.	NA	6.9 J	7.3 J	7.3 J	7.2 J	7.2 J	7.3 J	6.9 J	6.8 J	7.4 J	7.3 J	7.1 J	7.4 J	7.2 J
Sulfate	mg/L	NA	159	113	111	128	124	107	232	238	160	165	158	110	108
Total dissolved solids (TDS)	mg/L	NA	428	350	278	272	296	300	514	510	398	404	348	290	308
Appendix IV															
Antimony	mg/L	0.006	--	--	--	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	--	--	--	0.00100 U	0.00100 U
Arsenic	mg/L	0.01	--	--	--	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U	--	--	--	0.00200 U	0.00200 U
Barium	mg/L	2	--	--	--	0.0307	0.0307	0.0368 J	0.0657	0.0627	--	--	0.0398	0.0285	0.0279
Beryllium	mg/L	0.004	--	--	--	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	--	--	--	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	--	--	--	0.000500 U	0.000500 U	--	0.000500 U	0.000500 U	--	--	--	0.000100 U	0.000100 U
Chromium	mg/L	0.1	--	--	--	0.0710	0.0702	0.0513	0.0467	0.0455	0.0776	0.0664	0.0520	0.0657	0.0640
Cobalt	mg/L	0.006	--	--	--	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
Lithium	mg/L	0.04	--	--	--	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
Molybdenum	mg/L	0.1	--	--	--	0.0313	0.0312	0.0418	0.0176	0.0166	0.0215	0.0194	0.0194	0.0323	0.0313
Radium-226 & 228	pCi/L	5	--	--	--	0.0696 U	0.102 U	--	0.649	0.288 U	-0.0105	0.132	0.103 U	0.187 U	0.190 U
Selenium	mg/L	0.05	--	--	--	0.0171	0.0166	0.00963	0.0132	0.0128	0.0273	0.0249	0.0310	0.0246	0.0238
Thallium	mg/L	0.002	--	--	--	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U	--	--	--	0.00100 U	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22
Sample ID:			MW-22-GW-0620	DP-01-GW-0620	MW22-GW-0920	DP02-GW-0920	MW22-GW-0321	DP02-GW-0321	MW22-GW-0921	DP02-GW-0921	MW22-GW-1121	MW22-GW-0322	DP02-GW-0322
Sample Date:			6/2/2020	6/2/2020	9/8/2020	9/8/2020	3/23/2021	3/23/2021	9/16/2021	9/16/2021	11/2/2021	3/21/2022	3/21/2022
		Site-Specific GWPS		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)			(Duplicate)
Parameters	**Units**												
Appendix III													
Boron	mg/L	NA	0.427	0.411	0.368	0.369	0.463	0.484	0.789	0.818	0.773	0.241	0.244
Calcium	mg/L	NA	--	--	23.6	23.5	26.6	26.4	28.7	29.2	--	22.9	20.3
Chloride	mg/L	NA	--	--	8.20	8.13	6.18	6.15	5.95	6.40	--	5.00 U	5.00 U
Fluoride	mg/L	4	--	--	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.500 UJ	0.500 UJ
pH, lab	s.u.	NA	--	--	7.5 J	7.5 J	7.3 J	7.3 J	7.0 J	7.0 J	--	7.5 J	7.5 J
Sulfate	mg/L	NA	59.2	58.6	52.4	53.2	79.7	80.2	98.0	97.3	--	36.6	36.1
Total dissolved solids (TDS)	mg/L	NA	--	--	206	208	226	216	246	228	--	106	112
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
Arsenic	mg/L	0.01	--	--	--	--	0.00200 U	0.00200 U	0.00200 U	0.00200 U	--	0.00200 U	0.00200 U
Barium	mg/L	2	--	--	0.0189	0.0191	0.0249	0.0255	0.0311	0.0312	--	0.0262	0.0229
Beryllium	mg/L	0.004	--	--	--	--	0.00100 U	0.00100 U	0.00100 U	0.00100 U	--	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	--	--	--	--	0.000100 U	0.000100 U	0.000100 U	0.000100 U	--	0.000100 U	0.000100 U
Chromium	mg/L	0.1	0.0690	0.0689	0.0576	0.0573	0.0805	0.0818	0.0669	0.0700	--	0.0321	0.0321
Cobalt	mg/L	0.006	--	--	--	--	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
Mercury	mg/L	0.002	--	--	--	--	0.000200 U	0.000200 U	0.000200 U	0.000200 U	--	0.000200 U	0.000200 U
Molybdenum	mg/L	0.1	0.0313	0.0308	0.0665	0.0667	0.0518	0.0526	0.0387	0.0409	--	0.0433	0.0447
Radium-226 & 228	pCi/L	5	--	--	-0.0304 U	0.255 U	-0.0709 U	0.167 U	0.347 U	0.670	--	0.389	0.718
Selenium	mg/L	0.05	0.0158	0.0160	0.00856	0.00891	0.0180	0.0190	0.0151	0.0163	--	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

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22	MW-22
Sample ID:			MW22-GW-0922	DP02-GW-0922	MW22-GW-0323	DP02-GW-0323	MW22-GW-0923	DP02-GW-0923	MW22-GW-0324	DP02-GW-0324	MW22-GW-0824	DP02-GW-0824	MW22-GW-0325
Sample Date:			9/28/2022	9/28/2022	3/8/2023	3/8/2023	9/26/2023	9/26/2023	3/13/2024	3/13/2024	8/27/2024	8/27/2024	3/25/2025
		Site-Specific GWPS		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)		(Duplicate)	
Parameters	**Units**												
Appendix III													
Boron	mg/L	NA	0.377	0.375	0.289	0.290	0.408	0.405	0.318	0.331	0.158	0.158	0.483
Calcium	mg/L	NA	30.0	29.5	34.1	32.1	29.7	30.3	32.3	32.3	38.6	38.7	40.7
Chloride	mg/L	NA	11.0	10.9	13.5	13.5	9.30	9.45	11.4	11.4	18.9	19.0	11.5
Fluoride	mg/L	4	0.500 U	0.500 U	0.500 U	0.500 U	1.00	1.00	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	NA	7.4 J	7.4 J	7.3 J	7.2 J	7.0	7.0	7.5 J	7.5 J	7.6 J	7.5 J	7.2 J
Sulfate	mg/L	NA	45.0	43.9	62.2	62.2	44.4	44.5	46.0	46.4	33.6	33.7	75.2
Total dissolved solids (TDS)	mg/L	NA	178	196	256	292	196	218	220	218	182	172	258
Appendix IV													
Antimony	mg/L	0.006	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200	0.00200	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	0.00200	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	2	0.0190	0.0183	0.0246	0.0239	0.0244	0.0244	0.0256	0.0256	0.0140	0.0141	0.0296
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100	0.00100	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.000100 U	0.000100 U	0.000100 U	0.000100 U	0.000200	0.000200	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.1	0.0348	0.0347	0.0320	0.0306	0.0235	0.0233	0.0246	0.0249	0.00648	0.00665	0.0196
Cobalt	mg/L	0.006	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500	0.000500	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	0.000500	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	0.0100	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	0.000200	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.1	0.0277	0.0280	0.0272	0.0263	0.0356	0.0360	0.0382	0.0392	0.0226	0.0227	0.0288
Radium-226 & 228	pCi/L	5	0.507	0.143 U	0.656	0.443 U	0.401	0.425	0.150 U	-0.0904 U	0.245	0.692	0.385
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00616	0.00546	0.00500	0.00500	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	0.00100	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Footnotes:
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.

Groundwater Analytical Results (March 2018 through 2025)
Louisa Generating Station - West Monofill
Muscatine, Iowa

Sample Location:			MW-22	MW-22	MW-22
Sample ID:			DP02-GW-0325	MW22-GW-0925	DP02-GW-0925
Sample Date:			3/25/2025	9/3/2025	9/3/2025
		Site-Specific GWPS	(Duplicate)		(Duplicate)
Parameters	**Units**				
Appendix III					
Boron	mg/L	NA	0.474	0.397	0.390
Calcium	mg/L	NA	40.6	31.3	31.0
Chloride	mg/L	NA	11.8	7.50	7.51
Fluoride	mg/L	4	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	NA	7.2 J	7.3 J	7.3 J
Sulfate	mg/L	NA	77.0	36.5	36.3
Total dissolved solids (TDS)	mg/L	NA	264	226	220
Appendix IV					
Antimony	mg/L	0.006	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.01	0.00200 U	0.00200 U	0.00200 U
Barium	mg/L	2	0.0290	0.0255	0.0253
Beryllium	mg/L	0.004	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.005	0.000200 U	0.000200 U	0.000200 U
Chromium	mg/L	0.1	0.0194	0.0166	0.0165
Cobalt	mg/L	0.006	0.000500 U	0.000500 U	0.000500 U
Lead	mg/L	0.015	0.000500 U	0.000500 U	0.000500 U
Lithium	mg/L	0.04	0.0100 U	0.0100 U	0.0100 U
Mercury	mg/L	0.002	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.1	0.0291	0.0340	0.0341
Radium-226 & 228	pCi/L	5	0.672	0.519	1.19
Selenium	mg/L	0.05	0.00500 U	0.00500 U	0.00500 U
Thallium	mg/L	0.002	0.00100 U	0.00100 U	0.00100 U

Footnotes:
J - Estimated concentration.
U - Not detected at the associated reporting limit.
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