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Doc # 116366

BMC AGGREGATES
END USER REPORT
FOR 2025
AS REQUIRED BY
IDNR SPECIAL USE PERMIT
07-BUD-20-02
SUBMITTED: MARCH 1ST 2026

SHERMAN LUNDY
GEOLOGIST AND PROJECTS MANAGER
BMC AGGREGATES
101 BMC DRIVE
ELK RUN HEIGHTS, IA 50707

DNR SPECIAL USE PERMIT 07-BUD-20-02
BMC AGGREGATES, END USER REPORT
MARCH 1, 2026
IN COMPLIANCE WITH SPECIAL CONDITION #7
AS PROSCRIBED IN THE PERMIT

CONTENTS

RECEIVED

FEB 27 2026

Section 1: Certified By Product Generators Laboratory Results.

All of the Quarterly Certified Laboratory Reports for 2025, from the By-Product Generators have been furnished to BMC Aggregates (as the End-User) and the IDNR Solid Waste Division. As a result, only the DNR Form for Analytical Testing Results accompanies this report. **Notice: UNI (University of Northern Iowa) and ISU (Iowa State University) have discontinued bringing fly ash and coal residue products to the BUD site for the last several years. In addition, as of October , 2025, the University of Iowa will no longer Be permitted to bring ash to the BMC Aggregates BUD site**
Only the University of Iowa and Deere Foundry (Waterloo) brought materials to the Beneficial Use Site during the calendar year of 2025.
The IDNR Certified Analytical Test Reports for each quarter of the year, 2025, for the University of Iowa and Deere Foundry can be found in this section. As noted above, all of these reports were formerly filed with IDNR Solid Waste Division and BMC Aggregates for review prior to this submission.

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Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 2/23/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: WEST PELLETIZER

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0324 mg/L	31 mg/kg	4.55	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0204 mg/L	17 mg/kg	19	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.064 mg/L	15,000 mg/kg	10.5	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	0.0068 mg/L	110 mg/kg	0.187	mg/kg
☒	Boron				16,000 mg/kg	23.4	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	0.0028 mg/L	70 mg/kg	0.178	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.044 mg/L	**(Total)	1040	mg/kg
					(Hexavalent - VI) 210 mg/kg	0.165	mg/kg
					(Trivalent - III) 97,000 mg/kg	1040	mg/kg
☒	Cobalt				23 mg/kg	30.2	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.036 mg/L	15,000 mg/kg	998	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	1.53 mg/L	4,700 mg/kg	10.8	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0076 mg/L	400 mg/kg	4.91	mg/kg
☒	Lithium				160 mg/kg	1.35	mg/kg
☒	Manganese				10,000 mg/kg	4000	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.0011 mg/L	23 mg/kg	0.0063	mg/kg
☒	Molybdenum				390 mg/kg	225	mg/kg
☒	Nickel				1,500 mg/kg	433	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.0332 mg/L	390 mg/kg	1.4	mg/kg
☒	Silver				370 mg/kg	0.303	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.0116 mg/L	0.78 mg/kg	0.234	mg/kg
☒	Vanadium				350 mg/kg	57.2	mg/kg
☒	Zinc				23,000 mg/kg	65.8	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.04	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	0.0011	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 2/23/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: EAST PELLETIZER

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0324 mg/L	31 mg/kg	0.728	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0204 mg/L	17 mg/kg	4.98	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0640 mg/L	15,000 mg/kg	50	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	0.0068 mg/L	110 mg/kg	0.324	mg/kg
☒	Boron				16,000 mg/kg	23.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	0.0028 mg/L	70 mg/kg	0.18	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.044 mg/L	**(Total)	181	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	8.06	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.147 mg/L	15,000 mg/kg	491	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	4.56 mg/L	4,700 mg/kg	31.9	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0107 mg/L	400 mg/kg	10.3	mg/kg
☒	Lithium				160 mg/kg	3.99	mg/kg
☒	Manganese				10,000 mg/kg	1160	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.0011 mg/L	23 mg/kg	0.00719	mg/kg
☒	Molybdenum				390 mg/kg	23.9	mg/kg
☒	Nickel				1,500 mg/kg	67.9	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.0332 mg/L	390 mg/kg	0.711	mg/kg
☒	Silver				370 mg/kg	0.209	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.0116 mg/L	0.78 mg/kg	0.237	mg/kg
☒	Vanadium				350 mg/kg	9.93	mg/kg
☒	Zinc				23,000 mg/kg	129	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	0.06	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	0.377	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	0.00780	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	0.0120	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	0.0011	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L

Pesticides					Semi-Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 2/23/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 802

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0324 mg/L	31 mg/kg	0.390	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0204 mg/L	17 mg/kg	3.49	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.134 mg/L	15,000 mg/kg	82	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	0.0068 mg/L	110 mg/kg	0.676	mg/kg
☒	Boron				16,000 mg/kg	21.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	0.0028 mg/L	70 mg/kg	0.165	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.044 mg/L	**(Total)	6.48	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	2.09	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.0418 mg/L	15,000 mg/kg	35.4	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.72 mg/L	4,700 mg/kg	16.5	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0266 mg/L	400 mg/kg	16.3	mg/kg
☒	Lithium				160 mg/kg	6.25	mg/kg
☒	Manganese				10,000 mg/kg	144	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.0011 mg/L	23 mg/kg	0.00753	mg/kg
☒	Molybdenum				390 mg/kg	3.78	mg/kg
☒	Nickel				1,500 mg/kg	8.83	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.0332 mg/L	390 mg/kg	1.62	mg/kg
☒	Silver				370 mg/kg	0.191	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.0116 mg/L	0.78 mg/kg	0.217	mg/kg
☒	Vanadium				350 mg/kg	4.37	mg/kg
☒	Zinc				23,000 mg/kg	119	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.0576	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.00608	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	0.0011	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 2/23/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 850

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0324 mg/L	31 mg/kg	2.58	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0204 mg/L	17 mg/kg	14.8	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.064 mg/L	15,000 mg/kg	25.3	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	0.0068 mg/L	110 mg/kg	0.247	mg/kg
☒	Boron				16,000 mg/kg	20.2	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	0.0028 mg/L	70 mg/kg	0.154	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.044 mg/L	**(Total)	700	mg/kg
					(Hexavalent - VI) 210 mg/kg	0.138	mg/kg
					(Trivalent - III) 97,000 mg/kg	700	mg/kg
☒	Cobalt				23 mg/kg	22	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.036 mg/L	15,000 mg/kg	1150	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.1 mg/L	4,700 mg/kg	20.3	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0076 mg/L	400 mg/kg	4.71	mg/kg
☒	Lithium				160 mg/kg	2.83	mg/kg
☒	Manganese				10,000 mg/kg	3450	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.0011 mg/L	23 mg/kg	0.00806	mg/kg
☒	Molybdenum				390 mg/kg	131	mg/kg
☒	Nickel				1,500 mg/kg	271	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.0332 mg/L	390 mg/kg	1.21	mg/kg
☒	Silver				370 mg/kg	0.243	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.0116 mg/L	0.78 mg/kg	0.202	mg/kg
☒	Vanadium				350 mg/kg	30.6	mg/kg
☒	Zinc				23,000 mg/kg	68.3	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	0.0600	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.418	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.012	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	0.0011	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 2/23/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 804

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0324 mg/L	31 mg/kg	0.371	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0224 mg/L	17 mg/kg	5.92	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0708 mg/L	15,000 mg/kg	176	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	0.0068 mg/L	110 mg/kg	1.07	mg/kg
☒	Boron				16,000 mg/kg	27.8	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	0.0028 mg/L	70 mg/kg	0.3	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.044 mg/L	**(Total)	12	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	3.53	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.036 mg/L	15,000 mg/kg	71	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	6.41 mg/L	4,700 mg/kg	20.5	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0115 mg/L	400 mg/kg	30.3	mg/kg
☒	Lithium				160 mg/kg	13.8	mg/kg
☒	Manganese				10,000 mg/kg	177	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.0011 mg/L	23 mg/kg	0.0175	mg/kg
☒	Molybdenum				390 mg/kg	3.2	mg/kg
☒	Nickel				1,500 mg/kg	14.6	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.0332 mg/L	390 mg/kg	2.97	mg/kg
☒	Silver				370 mg/kg	0.254	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.0116 mg/L	0.78 mg/kg	0.215	mg/kg
☒	Vanadium				350 mg/kg	7.67	mg/kg
☒	Zinc				23,000 mg/kg	196	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.04	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	0.0011	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

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Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 . - 02

DNR Certified Lab: Eurofins

Lab Report Date: 2/26/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 871

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0324 mg/L	31 mg/kg	3.1	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0204 mg/L	17 mg/kg	14.6	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.064 mg/L	15,000 mg/kg	25.1	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	0.0068 mg/L	110 mg/kg	0.195	mg/kg
☒	Boron				16,000 mg/kg	24.3	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	0.0028 mg/L	70 mg/kg	0.185	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	0.044 mg/L	**(Total)	792	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	25.1	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.036 mg/L	15,000 mg/kg	1200	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	1.14 mg/L	4,700 mg/kg	5.43	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0076 mg/L	400 mg/kg	1.67	mg/kg
☒	Lithium				160 mg/kg	3.1	mg/kg
☒	Manganese				10,000 mg/kg	3910	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	0.0011 mg/L	23 mg/kg	0.00617	mg/kg
☒	Molybdenum				390 mg/kg	136	mg/kg
☒	Nickel				1,500 mg/kg	292	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	0.0332 mg/L	390 mg/kg	2.92	mg/kg
☒	Silver				370 mg/kg	0.214	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	0.0116 mg/L	0.78 mg/kg	0.243	mg/kg
☒	Vanadium				350 mg/kg	37.8	mg/kg
☒	Zinc				23,000 mg/kg	41.5	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	0.03	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	0.273	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	0.006	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	0.0011	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L
Pesticides					**Semi-Volatile Organic Compounds**			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

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Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Deere 2ND Q

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 802

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	<0.446	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0116 mg/L	17 mg/kg	2.89	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.164 mg/L	15,000 mg/kg	76.3	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.535	mg/kg
☒	Boron				16,000 mg/kg	<42.6	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.188	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	4.96	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	1.77	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	24.5	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.03 mg/L	4,700 mg/kg	6.72	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0256 mg/L	400 mg/kg	13	mg/kg
☒	Lithium				160 mg/kg	5.24	mg/kg
☒	Manganese				10,000 mg/kg	95.6	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00893	mg/kg
☒	Molybdenum				390 mg/kg	2.52	mg/kg
☒	Nickel				1,500 mg/kg	5.95	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.45	mg/kg
☒	Silver				370 mg/kg	<0.188	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.188	mg/kg
☒	Vanadium				350 mg/kg	4.08	mg/kg
☒	Zinc				23,000 mg/kg	60.5	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.237	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	0.734	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

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Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 804

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	<0.442	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0151 mg/L	17 mg/kg	4	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0655 mg/L	15,000 mg/kg	118	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.76	mg/kg
☒	Boron				16,000 mg/kg	<42.2	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.187	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	10.5	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	3.01	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	64.8	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	4.65 mg/L	4,700 mg/kg	8.88	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.00912 mg/L	400 mg/kg	22.4	mg/kg
☒	Lithium				160 mg/kg	9.59	mg/kg
☒	Manganese				10,000 mg/kg	137	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	0.0101	mg/kg
☒	Molybdenum				390 mg/kg	2.58	mg/kg
☒	Nickel				1,500 mg/kg	11.2	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.93	mg/kg
☒	Silver				370 mg/kg	<0.187	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.187	mg/kg
☒	Vanadium				350 mg/kg	6.43	mg/kg
☒	Zinc				23,000 mg/kg	145	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.226	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 850- Cleaning Room

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.638	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	4.09	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	13.2	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.153	mg/kg
☒	Boron				16,000 mg/kg	<32.8	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.145	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	200	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	6.81	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	281	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.37 mg/L	4,700 mg/kg	16.2	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	3.05	mg/kg
☒	Lithium				160 mg/kg	1.16	mg/kg
☒	Manganese				10,000 mg/kg	977	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00621	mg/kg
☒	Molybdenum				390 mg/kg	33.6	mg/kg
☒	Nickel				1,500 mg/kg	82	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.572	mg/kg
☒	Silver				370 mg/kg	<0.145	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.145	mg/kg
☒	Vanadium				350 mg/kg	8.98	mg/kg
☒	Zinc				23,000 mg/kg	28.6	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.522	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 871

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0259 mg/L	31 mg/kg	<0.386	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	1.59	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	1.77	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.172	mg/kg
☒	Boron				16,000 mg/kg	<36.9	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.163	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	94.5	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	3.39	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	125	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.921 mg/L	4,700 mg/kg	4.17	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	<0.67	mg/kg
☒	Lithium				160 mg/kg	<0.85	mg/kg
☒	Manganese				10,000 mg/kg	357	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00754	mg/kg
☒	Molybdenum				390 mg/kg	14.2	mg/kg
☒	Nickel				1,500 mg/kg	37.9	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.644	mg/kg
☒	Silver				370 mg/kg	<0.163	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.163	mg/kg
☒	Vanadium				350 mg/kg	4.55	mg/kg
☒	Zinc				23,000 mg/kg	4.75	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	0.179	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	<0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	<0.012	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L

Pesticides					Semi-Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: East Pelletizer

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.577	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	3.31	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0538 mg/L	15,000 mg/kg	56.4	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.359	mg/kg
☒	Boron				16,000 mg/kg	<37.4	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.165	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	79	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	5.2	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.116 mg/L	15,000 mg/kg	276	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	4.79 mg/L	4,700 mg/kg	24.3	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0144 mg/L	400 mg/kg	14.6	mg/kg
☒	Lithium				160 mg/kg	4.93	mg/kg
☒	Manganese				10,000 mg/kg	637	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00839	mg/kg
☒	Molybdenum				390 mg/kg	12	mg/kg
☒	Nickel				1,500 mg/kg	37	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	0.710	mg/kg
☒	Silver				370 mg/kg	<0.165	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.165	mg/kg
☒	Vanadium				350 mg/kg	6.89	mg/kg
☒	Zinc				23,000 mg/kg	151	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.253	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.0095	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: West Pelletizer

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	<0.381	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0150 mg/L	17 mg/kg	3.78	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0587 mg/L	15,000 mg/kg	95	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.719	mg/kg
☒	Boron				16,000 mg/kg	<36.4	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.161	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	6.76	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	2.32	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	38.3	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	3.03 mg/L	4,700 mg/kg	6.27	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.00954 mg/L	400 mg/kg	19.6	mg/kg
☒	Lithium				160 mg/kg	6.87	mg/kg
☒	Manganese				10,000 mg/kg	136	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	0.00921	mg/kg
☒	Molybdenum				390 mg/kg	3.44	mg/kg
☒	Nickel				1,500 mg/kg	8.74	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.35	mg/kg
☒	Silver				370 mg/kg	<0.161	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.161	mg/kg
☒	Vanadium				350 mg/kg	5.11	mg/kg
☒	Zinc				23,000 mg/kg	83.5	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals				
*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L
☒	Barium	100.0 mg/L	0.238	mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L

Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result	
☐	Benzene	0.5 mg/L		mg/L
☐	Carbon tetrachloride	0.5 mg/L		mg/L
☐	Chlorobenzene	100.0 mg/L		mg/L
☐	Chloroform	6.0 mg/L		mg/L
☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☐	Tetrachloroethylene	0.7 mg/L		mg/L
☐	Trichloroethylene	0.5 mg/L		mg/L
☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides				
*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L

Herbicides				
*	Contaminant	Regulatory Limit	Test Result	
☐	2,4-D	10.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L

Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result	
☐	o-Cresol	200.0 mg/L		mg/L
☐	m-Cresol	200.0 mg/L		mg/L
☐	p-Cresol	200.0 mg/L		mg/L
☐	Cresol	200.0 mg/L		mg/L
☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
☐	Hexachlorobenzene	0.13 mg/L		mg/L
☐	Hexachlorobutadiene	0.5 mg/L		mg/L
☐	Hexachloroethane	3.0 mg/L		mg/L
☐	Nitrobenzene	2.0 mg/L		mg/L
☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 4/7/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: Refractory Brick

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	<0.328	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	0.327	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.165 mg/L	15,000 mg/kg	366	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.396	mg/kg
☒	Boron				16,000 mg/kg	<125	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.138	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	16.1	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	0.224	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	4.79	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.106 mg/L	4,700 mg/kg	0.564	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	0.983	mg/kg
☒	Lithium				160 mg/kg	6.44	mg/kg
☒	Manganese				10,000 mg/kg	2340	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00801	mg/kg
☒	Molybdenum				390 mg/kg	<0.298	mg/kg
☒	Nickel				1,500 mg/kg	0.923	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.25	mg/kg
☒	Silver				370 mg/kg	<0.138	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.138	mg/kg
☒	Vanadium				350 mg/kg	6.18	mg/kg
☒	Zinc				23,000 mg/kg	21.3	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.765	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** _____

Printed Name: Lynette Telleen **Title:** Plant Manager

Deere 3rd Q

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: East Pelletizer

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.877	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	4.41	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0543 mg/L	15,000 mg/kg	63.3	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.36	mg/kg
☒	Boron				16,000 mg/kg	<83.5	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.184	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	95.9	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	5.85	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.0752 mg/L	15,000 mg/kg	327	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	3.96 mg/L	4,700 mg/kg	24	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0147 mg/L	400 mg/kg	13.1	mg/kg
☒	Lithium				160 mg/kg	4.5	mg/kg
☒	Manganese				10,000 mg/kg	745	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00894	mg/kg
☒	Molybdenum				390 mg/kg	15.8	mg/kg
☒	Nickel				1,500 mg/kg	43.8	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.728	mg/kg
☒	Silver				370 mg/kg	<0.184	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.0369	mg/kg
☒	Vanadium				350 mg/kg	8.09	mg/kg
☒	Zinc				23,000 mg/kg	90.9	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	0.298	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	0.0177	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L
Pesticides					**Semi-Volatile Organic Compounds**			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 8/26/25

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 802

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	<0.427	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0175 mg/L	17 mg/kg	2.71	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.277 mg/L	15,000 mg/kg	58.6	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.487	mg/kg
☒	Boron				16,000 mg/kg	<81.5	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.180	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	4.46	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	1.53	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	0.0695 mg/L	15,000 mg/kg	33	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.19 mg/L	4,700 mg/kg	9.23	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0457 mg/L	400 mg/kg	12.2	mg/kg
☒	Lithium				160 mg/kg	4.02	mg/kg
☒	Manganese				10,000 mg/kg	80.1	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.00120 mg/L	23 mg/kg	<0.00821	mg/kg
☒	Molybdenum				390 mg/kg	2.38	mg/kg
☒	Nickel				1,500 mg/kg	6.6	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.711	mg/kg
☒	Silver				370 mg/kg	<0.180	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.36	mg/kg
☒	Vanadium				350 mg/kg	2.95	mg/kg
☒	Zinc				23,000 mg/kg	73.5	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.232	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: Lynette Telleen **Date:** 8/26/21

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: Refractory brick

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.676	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	5.96	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0781 mg/L	15,000 mg/kg	23.1	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.299	mg/kg
☒	Boron				16,000 mg/kg	<129	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.142	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	408	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.387	mg/kg
					(Trivalent - III) 97,000 mg/kg	408	mg/kg
☒	Cobalt				23 mg/kg	9.4	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	1280	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	<0.079 mg/L	4,700 mg/kg	<0.466	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	<0.584	mg/kg
☒	Lithium				160 mg/kg	<1.48	mg/kg
☒	Manganese				10,000 mg/kg	1390	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00793	mg/kg
☒	Molybdenum				390 mg/kg	26.3	mg/kg
☒	Nickel				1,500 mg/kg	98.3	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.561	mg/kg
☒	Silver				370 mg/kg	<0.142	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.569	mg/kg
☒	Vanadium				350 mg/kg	14.2	mg/kg
☒	Zinc				23,000 mg/kg	22.6	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.101	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.0387	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 8/26/25

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 850

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	1.44	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	5.49	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	13.3	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.168	mg/kg
☒	Boron				16,000 mg/kg	<72.2	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.159	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	309	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.388	mg/kg
					(Trivalent - III) 97,000 mg/kg	309	mg/kg
☒	Cobalt				23 mg/kg	8.97	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	430	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.69 mg/L	4,700 mg/kg	16.2	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	3.39	mg/kg
☒	Lithium				160 mg/kg	1.34	mg/kg
☒	Manganese				10,000 mg/kg	1420	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00711	mg/kg
☒	Molybdenum				390 mg/kg	55	mg/kg
☒	Nickel				1,500 mg/kg	115	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.629	mg/kg
☒	Silver				370 mg/kg	<0.159	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.319	mg/kg
☒	Vanadium				350 mg/kg	12.4	mg/kg
☒	Zinc				23,000 mg/kg	38.3	mg/kg

*Required contaminant

**If Total Chromium ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	<0.12	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	0.405	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	<0.0156	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	<0.024	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	<0.148	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	<0.116	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	<0.064	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L
Pesticides					**Semi-Volatile Organic Compounds**			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 9/26/25

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 871

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.8	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	3.51	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	3.39	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.149	mg/kg
☒	Boron				16,000 mg/kg	<63.9	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.141	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	203	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	5.73	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	258	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	3.27 mg/L	4,700 mg/kg	1.11	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	<0.58	mg/kg
☒	Lithium				160 mg/kg	<0.736	mg/kg
☒	Manganese				10,000 mg/kg	800	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00654	mg/kg
☒	Molybdenum				390 mg/kg	36.8	mg/kg
☒	Nickel				1,500 mg/kg	76.9	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.558	mg/kg
☒	Silver				370 mg/kg	<0.141	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.283	mg/kg
☒	Vanadium				350 mg/kg	9.44	mg/kg
☒	Zinc				23,000 mg/kg	10.2	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.162	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.00780	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.0120	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 1/26/23

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: West Pelletizer

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	1.78	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	5.17	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	1.78	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.186	mg/kg
☒	Boron				16,000 mg/kg	<80	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.177	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	265	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.387	mg/kg
					(Trivalent - III) 97,000 mg/kg	265	mg/kg
☒	Cobalt				23 mg/kg	8.25	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	427	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	4.98 mg/L	4,700 mg/kg	0.7	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	0.838	mg/kg
☒	Lithium				160 mg/kg	<0.921	mg/kg
☒	Manganese				10,000 mg/kg	982	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.0077	mg/kg
☒	Molybdenum				390 mg/kg	55.3	mg/kg
☒	Nickel				1,500 mg/kg	107	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.698	mg/kg
☒	Silver				370 mg/kg	<0.177	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.354	mg/kg
☒	Vanadium				350 mg/kg	12.9	mg/kg
☒	Zinc				23,000 mg/kg	15	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	<0.08	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.012	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0120	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 8/26/25

Printed Name: Lynette Telleen **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 8/18/2025

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 804

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	0.0308 mg/L	31 mg/kg	0.427	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0124 mg/L	17 mg/kg	5.58	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0527 mg/L	15,000 mg/kg	150	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.988	mg/kg
☒	Boron				16,000 mg/kg	<40.2	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	0.228	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	14.3	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	3.36	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	74.9	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.129 mg/L	4,700 mg/kg	10.2	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.00804 mg/L	400 mg/kg	25.8	mg/kg
☒	Lithium				160 mg/kg	10.6	mg/kg
☒	Manganese				10,000 mg/kg	195	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	0.0171	mg/kg
☒	Molybdenum				390 mg/kg	3.75	mg/kg
☒	Nickel				1,500 mg/kg	14.9	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.58	mg/kg
☒	Silver				370 mg/kg	<0.2	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.178	mg/kg
☒	Vanadium				350 mg/kg	7.42	mg/kg
☒	Zinc				23,000 mg/kg	176	mg/kg

*Required contaminant

**If Total Chromium ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.222	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 8/26/25

Printed Name: Lynette Telleen **Title:** Plant Manager

Deere 4th Q

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: East Pelletizer

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.494	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	3.23	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.0305 mg/L	15,000 mg/kg	77.6	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.459	mg/kg
☒	Boron				16,000 mg/kg	<41.1	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.181	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.0360 mg/L	**(Total)	43.2	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	3.35	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	141	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	4.11 mg/L	4,700 mg/kg	10	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	14.2	mg/kg
☒	Lithium				160 mg/kg	5.65	mg/kg
☒	Manganese				10,000 mg/kg	436	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	0.0094	mg/kg
☒	Molybdenum				390 mg/kg	6.28	mg/kg
☒	Nickel				1,500 mg/kg	23.7	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.03	mg/kg
☒	Silver				370 mg/kg	<0.181	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.181	mg/kg
☒	Vanadium				350 mg/kg	5.88	mg/kg
☒	Zinc				23,000 mg/kg	115	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.273	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	0.011	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: West Pelletizer

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	4.78	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	15	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	6.58	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.0163	mg/kg
☒	Boron				16,000 mg/kg	<35.1	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.155	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	1020	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.386	mg/kg
					(Trivalent - III) 97,000 mg/kg	1020	mg/kg
☒	Cobalt				23 mg/kg	28.6	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	1080	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.484 mg/L	4,700 mg/kg	3.3	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	2.48	mg/kg
☒	Lithium				160 mg/kg	<0.809	mg/kg
☒	Manganese				10,000 mg/kg	3730	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00791	mg/kg
☒	Molybdenum				390 mg/kg	158	mg/kg
☒	Nickel				1,500 mg/kg	251	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.613	mg/kg
☒	Silver				370 mg/kg	0.313	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.155	mg/kg
☒	Vanadium				350 mg/kg	50.4	mg/kg
☒	Zinc				23,000 mg/kg	49	mg/kg

High - No Exceeds

Exceeds

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.126	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.012	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L

Pesticides					Semi-Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: Refractory Brick

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	1.19	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	7.83	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	63	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.164	mg/kg
☒	Boron				16,000 mg/kg	456	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.156	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	218	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.386	mg/kg
					(Trivalent - III) 97,000 mg/kg	218	mg/kg
☒	Cobalt				23 mg/kg	6.98	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	407	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.174 mg/L	4,700 mg/kg	1.59	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	12.1	mg/kg
☒	Lithium				160 mg/kg	1.59	mg/kg
☒	Manganese				10,000 mg/kg	757	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00808	mg/kg
☒	Molybdenum				390 mg/kg	11.6	mg/kg
☒	Nickel				1,500 mg/kg	35.6	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.615	mg/kg
☒	Silver				370 mg/kg	<0.156	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.156	mg/kg
☒	Vanadium				350 mg/kg	9.52	mg/kg
☒	Zinc				23,000 mg/kg	1480	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	0.0728	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	0.0511	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L
Pesticides					**Semi-Volatile Organic Compounds**			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 802

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	0.42	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	0.0132 mg/L	17 mg/kg	4.34	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.114 mg/L	15,000 mg/kg	99.9	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.783	mg/kg
☒	Boron				16,000 mg/kg	<37	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.163	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	9.13	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	2.39	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	43.6	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	2.68 mg/L	4,700 mg/kg	22	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0207 mg/L	400 mg/kg	19.2	mg/kg
☒	Lithium				160 mg/kg	6.17	mg/kg
☒	Manganese				10,000 mg/kg	160	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	0.0135	mg/kg
☒	Molybdenum				390 mg/kg	3.43	mg/kg
☒	Nickel				1,500 mg/kg	9.36	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	1.64	mg/kg
☒	Silver				370 mg/kg	<0.163	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.0011 mg/L	0.78 mg/kg	<0.163	mg/kg
☒	Vanadium				350 mg/kg	5.31	mg/kg
☒	Zinc				23,000 mg/kg	93.7	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.209	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 804

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	<0.369	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	2.09	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	0.176 mg/L	15,000 mg/kg	48.7	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	0.334	mg/kg
☒	Boron				16,000 mg/kg	<35.2	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.156	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	4.09	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				23 mg/kg	1.01	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	22	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	1.28 mg/L	4,700 mg/kg	12.5	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	0.0233 mg/L	400 mg/kg	9.24	mg/kg
☒	Lithium				160 mg/kg	3.31	mg/kg
☒	Manganese				10,000 mg/kg	64.9	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00737	mg/kg
☒	Molybdenum				390 mg/kg	1.29	mg/kg
☒	Nickel				1,500 mg/kg	3.77	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	0.93	mg/kg
☒	Silver				370 mg/kg	<0.156	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.156	mg/kg
☒	Vanadium				350 mg/kg	2.4	mg/kg
☒	Zinc				23,000 mg/kg	31.4	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.03	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.222	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0039	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.006	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.037	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.029	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.016	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 850 Cleaning Room

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	2.63	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	11.2	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	36	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	.19	mg/kg
☒	Boron				16,000 mg/kg	<34.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.453	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	682	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.386	mg/kg
					(Trivalent - III) 97,000 mg/kg	682	mg/kg
☒	Cobalt				23 mg/kg	18.6	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	913	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	1.68 mg/L	4,700 mg/kg	22.6	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	7.01	mg/kg
☒	Lithium				160 mg/kg	1.97	mg/kg
☒	Manganese				10,000 mg/kg	2570	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.008	mg/kg
☒	Molybdenum				390 mg/kg	83.3	mg/kg
☒	Nickel				1,500 mg/kg	182	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.605	mg/kg
☒	Silver				370 mg/kg	0.309	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.153	mg/kg
☒	Vanadium				350 mg/kg	19.4	mg/kg
☒	Zinc				23,000 mg/kg	59.4	mg/kg

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.363	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.012	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 871

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	2.59	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	14	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	25.2	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	<0.148	mg/kg
☒	Boron				16,000 mg/kg	<31.9	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.141	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	817	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.387	mg/kg
					(Trivalent - III) 97,000 mg/kg	817	mg/kg
☒	Cobalt				23 mg/kg	25.2	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	945	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	1.2 mg/L	4,700 mg/kg	13.7	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	2.44	mg/kg
☒	Lithium				160 mg/kg	2.32	mg/kg
☒	Manganese				10,000 mg/kg	3290	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.00789	mg/kg
☒	Molybdenum				390 mg/kg	136	mg/kg
☒	Nickel				1,500 mg/kg	239	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.557	mg/kg
☒	Silver				370 mg/kg	0.274	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.141	mg/kg
☒	Vanadium				350 mg/kg	42	mg/kg
☒	Zinc				23,000 mg/kg	46.5	mg/kg

High - No Exceeds

Exceeds

*Required contaminant

**If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.318	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.012	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

Add'l Round Change for Deere 850

Iowa Department of Natural Resources

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

Beneficial Use ID#: 07 -BUD- 20 - 02

DNR Certified Lab: Eurofins

Lab Report Date: 11/12/25

By-Product Generator: John Deere Foundry

City: Waterloo State: IA Zip: 50701

By-Product Name: 850 Cleaning Room

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 201-8272.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	<0.02 mg/L	31 mg/kg	2.63	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.011 mg/L	17 mg/kg	11.2	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	<0.028 mg/L	15,000 mg/kg	36	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.0066 mg/L	110 mg/kg	.19	mg/kg
☒	Boron				16,000 mg/kg	<34.7	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.002 mg/L	70 mg/kg	<0.153	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.036 mg/L	**(Total)	682	mg/kg
					(Hexavalent - VI) 210 mg/kg	<0.386	mg/kg
					(Trivalent - III) 97,000 mg/kg	682	mg/kg
☒	Cobalt				23 mg/kg	18.6	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<0.064 mg/L	15,000 mg/kg	913	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	1.68 mg/L	4,700 mg/kg	22.6	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.0066 mg/L	400 mg/kg	7.01	mg/kg
☒	Lithium				160 mg/kg	1.97	mg/kg
☒	Manganese				10,000 mg/kg	2570	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.0012 mg/L	23 mg/kg	<0.008	mg/kg
☒	Molybdenum				390 mg/kg	83.3	mg/kg
☒	Nickel				1,500 mg/kg	182	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.028 mg/L	390 mg/kg	<0.605	mg/kg
☒	Silver				370 mg/kg	0.309	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.011 mg/L	0.78 mg/kg	<0.153	mg/kg
☒	Vanadium				350 mg/kg	19.4	mg/kg
☒	Zinc				23,000 mg/kg	59.4	mg/kg

*Required contaminant

**If Total Chromium ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☒	Arsenic	5.0 mg/L	<0.06	mg/L	☐	Benzene	0.5 mg/L		mg/L
☒	Barium	100.0 mg/L	0.363	mg/L	☐	Carbon tetrachloride	0.5 mg/L		mg/L
☒	Cadmium	1.0 mg/L	<0.0078	mg/L	☐	Chlorobenzene	100.0 mg/L		mg/L
☒	Chromium	5.0 mg/L	<0.012	mg/L	☐	Chloroform	6.0 mg/L		mg/L
☒	Lead	5.0 mg/L	<0.074	mg/L	☐	1,2-Dichloroethane	0.5 mg/L		mg/L
☒	Mercury	0.2 mg/L	<0.0012	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L		mg/L
☒	Selenium	1.0 mg/L	<0.058	mg/L	☐	Methyl ethyl ketone	200.0 mg/L		mg/L
☒	Silver	5.0 mg/L	<0.032	mg/L	☐	Tetrachloroethylene	0.7 mg/L		mg/L
					☐	Trichloroethylene	0.5 mg/L		mg/L
					☐	Vinyl chloride	0.2 mg/L		mg/L
Pesticides					**Semi-Volatile Organic Compounds**				
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result	
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L		mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L		mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L		mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L		mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L		mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L		mg/L
					☐	Hexachlorobenzene	0.13 mg/L		mg/L
					☐	Hexachlorobutadiene	0.5 mg/L		mg/L
					☐	Hexachloroethane	3.0 mg/L		mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L		mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L		mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L		mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L		mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L		mg/L

*Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ **Date:** 11/21/25

Printed Name: Casey Kann **Title:** Plant Manager

UofI 1st Quarter 2025

Beneficial Use ID# 07 -BUD- 20 -02

IOWA DEPARTMENT OF NATURAL RESOURCES

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

DNR Certified Lab: 95

Lab Report Date: 02/25/2025

By-Product Generator: Univerisity of Iowa Power Plant

City: Iowa City **State:** IA **Zip:** 52242

By-Product Name: Combined Boiler Ash

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

Risk Calculator used

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	**0.0102** mg/L	31 mg/kg	**32.7**	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	**<0.0200** mg/L	17 mg/kg	**4.28**	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	**6.81** mg/L	15,000 mg/kg	**1080**	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	**<0.0200** mg/L	110 mg/kg	**<1.0**	mg/kg
☒	Boron				16,000 mg/kg	**153**	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	**<0.0100** mg/L	70 mg/kg	**<1.0**	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	**<0.0500** mg/L	**(Total)	**22.8**	mg/kg
					(Hexavalent - VI) 210 mg/kg	**<5.0**	mg/kg
					(Trivalent - III) 97,000 mg/kg	**22.8**	mg/kg
☒	Cobalt				31 mg/kg	**6.51**	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	**<0.0200** mg/L	15,000 mg/kg	**91.9**	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	**0.5** mg/L	4,700 mg/kg	**22.7**	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	**<0.0200** mg/L	400 mg/kg	**10.7**	mg/kg
☒	Lithium				160 mg/kg	**12**	mg/kg
☒	Manganese				10,000 mg/kg	**277**	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	**<0.00050** mg/L	23 mg/kg	**<0.05**	mg/kg
☒	Molybdenum				390 mg/kg	**5.9**	mg/kg
☒	Nickel				1,500 mg/kg	**9.8**	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	**<0.0200** mg/L	390 mg/kg	**<3.0**	mg/kg
☒	Silver				370 mg/kg	**<1.0**	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	**<0.0200** mg/L	0.78 mg/kg	**<0.5**	mg/kg
☒	Vanadium				350 mg/kg	**18.1**	mg/kg
☒	Zinc				23,000 mg/kg	**221**	mg/kg

Required contaminant

****If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.***

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals				Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result	*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	**<0.030** mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	**7.57** mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	**<0.005** mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	**<0.010** mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	**<0.020** mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	**<0.010 0** mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	**<0.050** mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	**<0.010** mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
				☐	Trichloroethylene	0.5 mg/L	mg/L
				☐	Vinyl chloride	0.2 mg/L	mg/L

Pesticides				Semi-Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result	*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L	mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L	mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L	mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L	mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L	mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
				☐	Hexachlorobenzene	0.13 mg/L	mg/L
				☐	Hexachlorobutadiene	0.5 mg/L	mg/L
				☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides				☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result	☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L	mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L	mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
				☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: Mark Maxwell **Date:** 02/28/2025

Printed Name: Mark Maxwell **Title:** Environmental Engineer

Final 2ND Quarter 01/01/2025

Beneficial Use ID# 07 -BUD- 20 -02

IOWA DEPARTMENT OF NATURAL RESOURCES

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

DNR Certified Lab: 027

Lab Report Date: 07/31/2025

By-Product Generator: Univerisity of Iowa Power Plant

City: Iowa City State: IA Zip: 52242

By-Product Name: Combined Boiler Ash

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals		
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result	
☒	Antimony	0.006 mg/L	0.06 mg/L	**0.024** mg/L	31 mg/kg	**32**	mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	**<0.01** mg/L	17 mg/kg	**4.6**	mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	**19** mg/L	15,000 mg/kg	**2300**	mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	**<0.004** mg/L	110 mg/kg	**<2.0**	mg/kg
☒	Boron				16,000 mg/kg	**160**	mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	**<0.005** mg/L	70 mg/kg	**<2.0**	mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	**<0.1** mg/L	**(Total)	**19**	mg/kg
					(Hexavalent - VI) 210 mg/kg		mg/kg
					(Trivalent - III) 97,000 mg/kg		mg/kg
☒	Cobalt				31 mg/kg	**6.0**	mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	**<1.0** mg/L	15,000 mg/kg	**190**	mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	**1.1** mg/L	4,700 mg/kg	**13**	mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	**<0.015** mg/L	400 mg/kg	**14**	mg/kg
☒	Lithium				160 mg/kg	**19**	mg/kg
☒	Manganese				10,000 mg/kg	**170**	mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	**<0.002** mg/L	23 mg/kg	**<1.0**	mg/kg
☒	Molybdenum				390 mg/kg	**8.0**	mg/kg
☒	Nickel				1,500 mg/kg	**19**	mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	**<0.05** mg/L	390 mg/kg	**<1.0**	mg/kg
☒	Silver				370 mg/kg	**<1.0**	mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	**<0.002** mg/L	0.78 mg/kg	**<0.5**	mg/kg
☒	Vanadium				350 mg/kg	**17**	mg/kg
☒	Zinc				23,000 mg/kg	**380**	mg/kg

Required contaminant

****If Total Chromiun ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.***

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	**<0.5**	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	**24**	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	**<0.1**	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	**<0.5**	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	**<0.5**	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	**<0.02**	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	**<0.1**	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	**<0.5**	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L

Pesticides				Semi-Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result	*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L	mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L	mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L	mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L	mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L	mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L	mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
				☐	Hexachlorobenzene	0.13 mg/L	mg/L
				☐	Hexachlorobutadiene	0.5 mg/L	mg/L
				☐	Hexachloroethane	3.0 mg/L	mg/L
				☐	Nitrobenzene	2.0 mg/L	mg/L

Herbicides							
*	Contaminant	Regulatory Limit	Test Result				
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L
					☐	Pentachlorophenol	100.0 mg/L	mg/L

Required contaminant

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____ Date: 10/06/2023

Printed Name: Mark Maxwell Title: Environmental Engineer

2 of I 3rd Quarter

Beneficial Use ID# 07 -BUD- 20 -02

IOWA DEPARTMENT OF NATURAL RESOURCES

Beneficial Use Determination: Solid By-Product Management Plan

Analytical Testing Report

DNR Certified Lab: 397

Lab Report Date: 10/08/2025

By-Product Generator: Univerisity of Iowa Power Plant

City: Iowa City State: IA Zip: 52242

By-Product Name: Combined Boiler Ash

Send completed report form(s), laboratory analytics, and supplemental Solid By-Product Management Plan (SBMP) documentation to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 E 9th St
Des Moines, IA 50319-0034

For questions concerning this report form please contact the DNR at (515) 725-8351.

ANALYTICAL TESTING RESULTS

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846).

Required		Synthetic Precipitation Leaching Procedure (EPA Test Method 1312)			Total Metals	
*	Contaminant	MCL	10 X MCL	Test Result	Regulatory Limit	Test Result
☒	Antimony	0.006 mg/L	0.06 mg/L	0.030 mg/L	31 mg/kg	33 mg/kg
☒	Arsenic	0.010 mg/L	0.10 mg/L	<0.01 mg/L	17 mg/kg	6.4 mg/kg
☒	Barium	2.0 mg/L	20.0 mg/L	23 mg/L	15,000 mg/kg	2200 mg/kg
☒	Beryllium	0.004 mg/L	0.04 mg/L	<0.004 mg/L	110 mg/kg	<2.0 mg/kg
☒	Boron				16,000 mg/kg	160 mg/kg
☒	Cadmium	0.005 mg/L	0.05 mg/L	<0.005 mg/L	70 mg/kg	<2.0 mg/kg
☒	Chromium	0.1 mg/L	1.0 mg/L	<0.1 mg/L	**(Total)	26 mg/kg
					(Hexavalent - VI) 210 mg/kg	mg/kg
					(Trivalent - III) 97,000 mg/kg	mg/kg
☒	Cobalt				31 mg/kg	<5.0 mg/kg
☒	Copper	1.3 mg/L	13.0 mg/L	<1.0 mg/L	15,000 mg/kg	180 mg/kg
☒	Fluoride	4.0 mg/L	40.0 mg/L	0.53 mg/L	4,700 mg/kg	5.5 mg/kg
☒	Lead	0.015 mg/L	0.15 mg/L	<0.015 mg/L	400 mg/kg	18 mg/kg
☒	Lithium				160 mg/kg	18 mg/kg
☒	Manganese				10,000 mg/kg	92 mg/kg
☒	Mercury	0.002 mg/L	0.02 mg/L	<0.002 mg/L	23 mg/kg	<1.0 mg/kg
☒	Molybdenum				390 mg/kg	8.9 mg/kg
☒	Nickel				1,500 mg/kg	14 mg/kg
☒	Selenium	0.05 mg/L	0.5 mg/L	<0.05 mg/L	390 mg/kg	<1.0 mg/kg
☒	Silver				370 mg/kg	<1.0 mg/kg
☒	Thallium	0.002 mg/L	0.02 mg/L	<0.002 mg/L	0.78 mg/kg	<0.5 mg/kg
☒	Vanadium				350 mg/kg	14 mg/kg
☒	Zinc				23,000 mg/kg	470 mg/kg

Required contaminant

***If Total Chromium ≥210 mg/kg, further analysis shall be conducted to determine hexavalent and trivalent results.*

Toxicity Characteristic Leaching Procedure (EPA Test Method 1311) - Regulatory Limits

Metals					Volatile Organic Compounds			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☒	Arsenic	5.0 mg/L	<0.5	mg/L	☐	Benzene	0.5 mg/L	mg/L
☒	Barium	100.0 mg/L	27	mg/L	☐	Carbon tetrachloride	0.5 mg/L	mg/L
☒	Cadmium	1.0 mg/L	<0.1	mg/L	☐	Chlorobenzene	100.0 mg/L	mg/L
☒	Chromium	5.0 mg/L	<0.5	mg/L	☐	Chloroform	6.0 mg/L	mg/L
☒	Lead	5.0 mg/L	<0.5	mg/L	☐	1,2-Dichloroethane	0.5 mg/L	mg/L
☒	Mercury	0.2 mg/L	<0.02	mg/L	☐	1,1-Dichloroethylene	0.7 mg/L	mg/L
☒	Selenium	1.0 mg/L	<0.1	mg/L	☐	Methyl ethyl ketone	200.0 mg/L	mg/L
☒	Silver	5.0 mg/L	<0.5	mg/L	☐	Tetrachloroethylene	0.7 mg/L	mg/L
					☐	Trichloroethylene	0.5 mg/L	mg/L
					☐	Vinyl chloride	0.2 mg/L	mg/L
Pesticides					**Semi-Volatile Organic Compounds**			
*	Contaminant	Regulatory Limit	Test Result		*	Contaminant	Regulatory Limit	Test Result
☐	Chlordane	0.03 mg/L		mg/L	☐	o-Cresol	200.0 mg/L	mg/L
☐	Endrin	0.02 mg/L		mg/L	☐	m-Cresol	200.0 mg/L	mg/L
☐	Heptachlor (and its epoxide)	0.008 mg/L		mg/L	☐	p-Cresol	200.0 mg/L	mg/L
☐	Lindane	0.4 mg/L		mg/L	☐	Cresol	200.0 mg/L	mg/L
☐	Methoxychlor	10.0 mg/L		mg/L	☐	1,4-Dichlorobenzene	7.5 mg/L	mg/L
☐	Toxaphene	0.5 mg/L		mg/L	☐	2,4-Dinitrotoluene	0.13 mg/L	mg/L
					☐	Hexachlorobenzene	0.13 mg/L	mg/L
					☐	Hexachlorobutadiene	0.5 mg/L	mg/L
					☐	Hexachloroethane	3.0 mg/L	mg/L
Herbicides					☐	Nitrobenzene	2.0 mg/L	mg/L
*	Contaminant	Regulatory Limit	Test Result		☐	Pentachlorophenol	100.0 mg/L	mg/L
☐	2,4-D	10.0 mg/L		mg/L	☐	Pyridine	5.0 mg/L	mg/L
☐	2,4,5-TP (Silvex)	1.0 mg/L		mg/L	☐	2,4,5-Trichlorophenol	400.0 mg/L	mg/L
					☐	2,4,6-Trichlorophenol	2.0 mg/L	mg/L

**Required contaminant*

BY-PRODUCT GENERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: Mark Maxwell Date: 10/8/2025

Printed Name: Mark Maxwell Title: Environmental Engineer

4 of I 4th Quarter 2025

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IJ1112

Analytical Testing Parameters

Client Sample ID:	Composite Ash	**Collected By:**	Maxwell, Mark
Sample Matrix:	Bulk-Solid	**Collection Date:**	10/09/2025 13:30
Lab Sample ID:	1IJ1112-01		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9045D							
pH, Soils	12.3	0.1	pH	H4	10/14/25 1327	10/14/25 1532	BSS
pH, Temperature	18.4	0.1	°C	H4	10/14/25 1327	10/14/25 1532	BSS

Determination of Total Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010B							
Barium	3040	10.0	mg/kg		10/15/25 1513	10/17/25 0951	JAR
Boron	216	10.0	mg/kg	M6	10/15/25 1513	10/17/25 0352	JAR
Cadmium	<1.0	1.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Chromium	27.8	3.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Copper	160	3.0	mg/kg	M1	10/15/25 1513	10/17/25 0352	JAR
Lead	8.95	5.00	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Lithium	21	5	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Manganese	134	1.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Molybdenum	7.1	1.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Nickel	10.3	5.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Selenium	<3.0	3.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Silver	<1.0	1.0	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Vanadium	22.5	5.00	mg/kg		10/15/25 1513	10/17/25 0352	JAR
Zinc	270	30.0	mg/kg		10/15/25 1513	10/17/25 0951	JAR
EPA 3050B/EPA 6020A							
Antimony	27.5	10.0	mg/kg		10/15/25 1513	10/16/25 2003	RVV
Arsenic	<10.0	10.0	mg/kg		10/15/25 1513	10/16/25 2003	RVV
Beryllium	<10.0	10.0	mg/kg		10/15/25 1513	10/16/25 2003	RVV
Cobalt	<10.0	10.0	mg/kg		10/15/25 1513	10/16/25 2003	RVV
Thallium	<0.5	0.5	mg/kg		10/15/25 1513	10/16/25 2003	RVV
EPA 7196A							
Chromium, hexavalent	<5.0	5.0	mg/kg	M2		10/21/25 0808	AKK
EPA 7471A							
Mercury	0.06	0.05	mg/kg		10/14/25 0836	10/15/25 0817	JAR
EPA 9056A							
Fluoride	51.0	10.0	mg/kg			10/21/25 0016	MID

Determination of TCLP Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010B							
Arsenic	<0.030	0.030	mg/L		10/16/25 0029	10/16/25 0029	JAR
Barium	26.0	0.100	mg/L		10/16/25 0029	10/16/25 0840	JAR
Cadmium	<0.005	0.005	mg/L		10/16/25 0029	10/16/25 0029	JAR
Chromium	<0.010	0.010	mg/L		10/16/25 0029	10/16/25 0029	JAR
Lead	<0.020	0.020	mg/L		10/16/25 0029	10/16/25 0029	JAR
Selenium	<0.050	0.050	mg/L		10/16/25 0029	10/16/25 0029	JAR

CERTIFICATE OF ANALYSIS

1IJ1112

Client Sample ID:	Composite Ash		
Sample Matrix:	Bulk-Solid	**Collected By:**	Maxwell, Mark
Lab Sample ID:	1IJ1112-01	**Collection Date:**	10/09/2025 13:30

Determination of TCLP Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Silver	<0.010	0.010	mg/L		10/16/25 0029	10/16/25 0029	JAR
EPA 7470A							
Mercury	<0.00050	0.00050	mg/L		10/15/25 1435	10/15/25 1435	JAR

TCLP Extraction	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 1311/EPA 1311							
pH Inital Leachate	2.9		pH		10/14/25 1523	10/14/25 1523	JAR
pH Final Leachate	11.9		pH		10/14/25 1523	10/14/25 1523	JAR

Determination of SPLP Metals	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A							
Antimony	0.0122	0.0100	mg/L		10/10/25 1523	10/15/25 1958	RVV
Arsenic	<0.0200	0.0200	mg/L		10/10/25 1523	10/15/25 1958	RVV
Barium	22.7	0.200	mg/L		10/10/25 1523	10/16/25 1046	RVV
Beryllium	<0.0200	0.0200	mg/L		10/10/25 1523	10/15/25 1958	RVV
Cadmium	<0.0100	0.0100	mg/L		10/10/25 1523	10/15/25 1958	RVV
Chromium	<0.0500	0.0500	mg/L		10/10/25 1523	10/15/25 1958	RVV
Copper	<0.0200	0.0200	mg/L		10/10/25 1523	10/15/25 1958	RVV
Lead	<0.0200	0.0200	mg/L		10/10/25 1523	10/15/25 1958	RVV
Selenium	<0.0200	0.0200	mg/L		10/10/25 1523	10/15/25 1958	RVV
Thallium	<0.0200	0.0200	mg/L		10/10/25 1523	10/15/25 1958	RVV
EPA 7470A							
Mercury	<0.00050	0.00050	mg/L		10/15/25 1200	10/16/25 1405	JAR
EPA 9056A							
Fluoride (SPLP)	1.6	0.1	mg/L		10/22/25 0000	10/23/25 0421	MID

SPLP Extraction	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 1312/EPA 1312							
pH Inital Leachate	5.0		pH		10/09/25 1330	10/15/25 1037	TJA
pH Final Leachate	12.0		pH		10/09/25 1330	10/15/25 1037	TJA

Determination of Total Metals	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Calculation								
Chromium, trivalent	27.8	0.862	3.00	mg/kg			10/21/25 0808	AKK

Section 2: Exceedances and Risk Calculator Results.

Any "Exceedances" in the Test Results from the By Product Generator products were either hilited by the By Product Generators or uncovered by BMC at the time of submission of the test results to the End-User. Any such concerns were also immediately reported to the IDNR by either the By Product Generator or BMC Aggregates. If an exceedance in the acceptable or thresh-hold values for any contaminant in the material did occur, the Risk Calculator computation was utilized by the By Product Generator to determine if the product could continue to be brought to the BMC, BUD Location. Attached to this report for the reporting year March 1, 2025, through February 2026, are references to any exceedances to the acceptable threshold values from Deere Foundry and University of Iowa Ash products. With one very significant exception, for all exceedance occurrences, the Cumulative Risk Calculator was applied to the reported exceedance values and with one exception, all Risks values were determined to be <1 and acceptable for placement in the reclamation site.

The exceedances were reported to IDNR and BMC Aggregates by the By Product Generators, along with the results from the computed Risk Calculator Values for determination of placement of the material at the BUD location (South Quarry)

The single exception to acceptability for placement in the reclamation site was initially the high concentration of Barium in the U of I, coal ash (University of Iowa) which occurred in July of 2025 as a Laboratory error. After subsequent testing, in August 2025, the ash was approved for placement at the BUD location until another test sampling in late September of 2025, indicated an exceedance of the EPA, SPLP threshold for Barium. Following that report to IDNR Solid Waste, BMC received notice to halt acceptance of U of I ash on October 8th, 2025, to the BMC BUD site. The IDNR Solid Waste Division then requested U of I, contract with an approved consultant to sample the area at the BMC BUD location where the U of I ash between early August and late September had been placed to determine the impact of the dilution factor on the Barium concentration in combination with previously placed U of I ash materials. Consultant test results indicated the positive impact of dilution factor thereby reducing any negative concerns with the Barium concentrations. We are still waiting for final review of those test results by IDNR Solid Waste Division.

However, as a result of the Barium issues with the U of I coal combustion products, BMC notified both the University of Iowa, and the IDNR Solid Waste Division that the U of I , coal combustion products will no longer be accepted by BMC and the BUD location as of October 8th, 2025. Henceforth, only Deere foundry products approved by IDNR will continue to be accepted at the BMC BUD location.

EXCEEDANCES FOR 2025

DEERE FOUNDRY EXCEEDANCES:

1ST Quarter: Arsenic; risk factor utilized; no issues with health

4th Quarter: Cobalt; risk factor utilized; no issues with health.

UNIVERSITY OF IOWA EXCEEDANCES:

1st Quarter: Antimony; risk factor utilized; no issues with health.

2nd Quarter: Barium; the extremely large [Ba] could not be addressed with the Risk factor; it was determined that concentration was a laboratory Error (late July into August). Subsequent testing permitted the resumption of Placement of the ash at the BMC BUD location.

3rd and 4th Quarters: Barium exceedance results in the SPLP test; could not use the risk Factor and on site testing by an IDNR approved consultant was required for Possible dilution placement or excavation. (Late September through October 8th) Placement of ash was permanently suspended at BMC BUD location.

VIA ELECTRONIC MAIL

Chad Stobbe
Iowa Department of Natural Resources
Chad.Stobbe@dnr.iowa.gov

February 28, 2025

RE: Notification of Antimony Exceedance in Boiler Ash Sample, University of Iowa Power Plant

Dear Mr. Stobbe:

As required in Special Condition 6) a. of Beneficial Use Determination 07-BUD-20-02, UI is required to submit a written notification within 10 business days for any results that exceed regulatory limits.

A composite sample of the power plant's combined boiler ash was submitted to Microbac Laboratories Inc, 01/29/2025. The results from the testing show antimony exceeded the total Metals regulatory limit of 31 mg/kg for the composite sample. The tested antimony value was 32.7 mg/kg.

The analytical results were entered in the Iowa Department of Natural Resources Cumulative Risk Calculator, and the resultant values are below 1.0 for Site Worker. The analytical reports and risk calculations have been enclosed for your review.

Please contact me at 319-631-1950, or mark.maxwell@engie.com with any questions regarding this report.

Sincerely,

Mark Maxwell

Mark Maxwell
Environmental Advisor

Enclosures:
BUD_LabSampleReport_UniversityOfIowaAsh_2025Q1.pdf
Cumulative_Risk_Results_2025Q1.xlsx
BUD_AnalyticalTestingReport_UniversityOfIowaAsh_2025Q1.pdf

CC:
BMC Aggregates, L.C., Sherman Lundy, sherml@bmcaggregates.com
ENGIE, Melissa Gilmartin, melissa.gilmartin@engie.com
University of Iowa, Jenna Wischmeyer, jenna-wischmeyer@uiowa.edu

Engie North America, Inc.
1 West Prentiss Street
Iowa City, IA 52242
USA
+1 319 800 2052

Receipt of Materials stopped 7/7/25 Due to Barium exceedance

VIA ELECTRONIC MAIL

Chad Stobbe
Iowa Department of Natural Resources
Chad.Stobbe@dnr.iowa.gov

July 7, 2025

RE: Notification of Barium SPLP Exceedance in Boiler Ash Sample, University of Iowa Power Plant

Dear Mr. Stobbe:

As required in Special Condition 6) a. of Beneficial Use Determination 07-BUD-20-02, UI is required to submit a written notification within 10 business days for any results that exceed regulatory limits.

A composite sample of the power plant's combined boiler ash was submitted to Microbac Laboratories Inc, on May 30, 2025. The test results were received back from the lab on July 3, 2025. The results indicate barium exceeded the SPLP (10 X MCL) limit of 20 mg/L for the composite sample. The tested barium value was 76.5 mg/L.

In response, we have halted shipments of ash to the BMC Aggregates Beneficial Use site, and we will be collecting another ash sample this week. In addition, I have contacted Microbac Labs and asked them to review the analytical records of the sample testing. The lab contact I spoke to could see that barium was initially measured to be approximately 16 mg/L, but the chemist extracted the sample a second time and got the 76.5 mg/L result. It was not immediately clear why the sample was analyzed twice.

We will be in contact with you as we receive more information regarding the high barium result and we will not resume disposal of ash at the BMC facility until we receive your approval.

Please contact me at 319-631-1950, or mark.maxwell@engie.com with any questions regarding this report.

Sincerely,

Mark Maxwell

Mark Maxwell
Environmental Advisor

Enclosures:
BUD_LabSampleReport_UniversityOfIowaAsh_2025Q2.pdf
BUD_AnalyticalTestingReport_UniversityOfIowaAsh_2025Q1.pdf

CC:
BMC Aggregates, L.C., Sherman Lundy, sherml@bmcaggregates.com
ENGIE, Melissa Gilmartin, melissa.gilmartin@engie.com
University of Iowa, Jenna Wischmeyer, jenna-wischmeyer@uiowa.edu

Engie North America, Inc.
1 West Prentiss Street
Iowa City, IA 52242
USA
+1 319 800 2052

From: Stobbe, Chad <chad.stobbe@dnr.iowa.gov>
Sent: Friday, July 25, 2025 10:20 AM
To: MAXWELL Mark (Engie North America) <mark.maxwell@engie.com>
Cc: Sherm Lundy <sherml@bmcaggregates.com>; GILMARTIN Melissa (Engie North America) <melissa.gilmartin@engie.com>; ENGIENA-UIOWA-ENV (ENGIE North America) <uiowa-env.engiena@engie.com>; Becky Jolly <becky.jolly@dnr.iowa.gov>
Subject: Re: University of Iowa Power Plant Ash - 2nd Quarter 2025 Resample

Mark -

Per your request to resume deliveries of boiler ash, and in consideration of the clarification from Microbac regarding the recent Barium SPLP exceedance, the DNR authorizes the resumption of deliveries upon confirmation of testing from SHL. Please call me with any questions. Thanks for your attention to this matter.

Chad A. Stobbe
Environmental Specialist Senior
Solid Waste and Contaminated Sites Section
Iowa Department of Natural Resources
6200 Park Avenue, Suite 200
Des Moines, IA 50321
515-201-8272
chad.stobbe@dnr.iowa.gov
www.iowadnr.gov

On Fri, Jul 25, 2025 at 9:57 AM <mark.maxwell@engie.com> wrote:

> Chad and Sherman,
>
> We had Microbac Labs re-analyze the original ash sample that showed a high barium result for the SPLP analysis. The re-test came back with an SPLP barium result of 11.6 mg/L which is below the limit of 20 mg/L. Also, the lab provided a note that the original barium result was incorrect due to an analysis error (see attached lab report).
>
> We sent an additional sample the State Hygienic Laboratory, but those results are not complete yet. Based on this confirmation from Microbac that the original barium result was in error, we are requesting approval to restart shipments of ash to the BMC beneficial use site.
>
> Thanks,
>
> **Mark W. Maxwell, P.E.**
> Environmental Engineer
> ENGIE North America at University of Iowa
> mark.maxwell@engie.com
> M: +1 319 631 1950

Outlook

RE: University of Iowa Power Plant Ash - 2nd Quarter 2025 Resample

From mark.maxwell@engie.com <mark.maxwell@engie.com>

Date Fri 8/1/2025 5:22 PM

To chad.stobbe@dnr.iowa.gov <chad.stobbe@dnr.iowa.gov>

Cc Sherm Lundy <sherml@bmcaggregates.com>; melissa.gilmartin@engie.com <melissa.gilmartin@engie.com>; uiowa-env.engiena@engie.com <uiowa-env.engiena@engie.com>; becky.jolly@dnr.iowa.gov <becky.jolly@dnr.iowa.gov>; lindsey.dueling@engie.com <lindsey.dueling@engie.com>

2 attachments (215 KB)

Cumulative_Risk_Results_2025Q2_SHL_Results.csv; DNR BUD Form July 2025_SHL Results.doc;

Chad,

I have attached the results from the State Hygienic Laboratory boiler ash testing discussed in the email below. The SHL testing confirms that all of the required parameters, including the barium SPLP result are below state limits.
We did notice that the barium SPLP result is higher than it has been in previous quarters and we will be contacting our pellet fuel supplier to discuss the increase.

With these results confirming the boiler ash is in compliance with the applicable limits, we plan to resume ash shipments to the BMC facility.

Thanks,

Mark W. Maxwell, P.E.
Environmental Engineer
ENGIE North America at University of Iowa
mark.maxwell@engie.com
M: +1 319 631 1950

www.engie-na.com

1 West Prentiss Street
Iowa City, IA 52242
United States of America

VIA ELECTRONIC MAIL

Chad Stobbe
Iowa Department of Natural Resources
Chad.Stobbe@dnr.iowa.gov

October 9, 2025

RE: Notification of Antimony Total Metals and Barium SPLP Exceedances in Boiler Ash Sample, University of Iowa Power Plant

Dear Mr. Stobbe:

As required in Special Condition 6) a. of Beneficial Use Determination 07-BUD-20-02, UI is required to submit a written notification within 10 business days for any results that exceed regulatory limits.

A composite sample of the power plant's combined boiler ash was submitted to State Hygienic Laboratory, on September 5, 2025. The test results were received from the lab on October 8, 2025. The results from the testing showed antimony exceeded the total metals regulatory limit of 31 mg/kg. The tested antimony value was 33 mg/kg. The total metals results were entered into the IDNR Cumulative Risk Calculator and the resultant values were found to be below 1.0 for the Site Worker scenario. Additionally, the test results showed that barium exceeded the SPLP (10 X MCL) limit of 20 mg/L for the composite sample. The tested barium value was 23 mg/L.

In response to the elevated SPLP barium result we have halted shipments of ash to the BMC Aggregates beneficial use site, and we will be collecting another ash sample this week for shipment to a different certified laboratory.

We will be in contact with you as we receive more information regarding the high barium result and we will not resume disposal of ash at the BMC facility until we receive your approval.

Please contact me at 319-631-1950, or mark.maxwell@engie.com with any questions regarding this report.

Sincerely,

Mark Maxwell

Mark Maxwell
Environmental Advisor

Enclosures:
2025-10-09 – IOWA – HLI Ash Sample Report.pdf
DNR BUD Form October 2025

CC: BMC Aggregates, L.C., Sherman Lundy, sherml@bmcaggregates.com
ENGIE, Melissa Gilmartin, melissa.gilmartin@engie.com
University of Iowa, Jenna Wischmeyer, jenna-wischmeyer@uiowa.edu

Engie North America, Inc.
1 West Prentiss Street
Iowa City, IA 52242
USA
+1 319 631 1950

Section 3: End-User Monitoring Reports.

a. End-User groundwater monitoring involved securing water samples from 4 monitoring wells on site and one upgradient well, sending these samples to Keystone Labs for testing, then forwarding these results to SCS Engineers for review and comments. A copy of the biannual test results from the 5 monitoring wells as analyzed by Keystone Labs accompanies this Section of the Report in addition to the Analytical and Statistical review of the results by SCS. Any exceedances above the accepted thresholds were to be reported to DNR. In the case of the VOCs and SVOCs testing was to be completed only for any VOCs or SVOCs present in the By Product Generator materials and to establish a base line for future reference.

b. The 2025 Monitoring Well Testing program followed the original testing of several heavy metallic ions along with some additional nonmetallic ions and later for the VOCs found in the By Product Generator Materials. These tests, involve both TCLP and SPLP Testing as outlined in the DNR Analytical Testing Report. The Monitoring Well Testing Program for 2025 utilized the total testing requirements as outlined in Appendix D of the newer BUD Permit, 07-BUD-20-02 which included any possible VOC exceedance issues. For future testing, SCS also pointed out the need to utilize the full spectrum of such testing requirements as noted in Section 3.5 of the SCS Report.

c. The Complete 2025 Annual Water Quality Report for BMC Aggregates as generated by SCS Engineering Consultants is part of this Section. Again, all of the Keystone information from the BMC field testing is included in this report along with detailed Statistical Analysis of the material as provided by SCS Engineering. Further, SCS evaluation of the biannual five (5) monitor wells test results did not indicate any significant trends which might impact the project

MONITORING WELL

TEST RESULTS
FOR

MARCH 2025
AND

OCTOBER 2025

MARCH 2025

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #1	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	03/13/2025 8:30
Lab Sample ID:	1IC1029-01		

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Conductivity	**628**	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS
Method: TIMBERLINE									
Nitrogen, Ammonia	**0.18**	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1536	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**399**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	<2	2	2	mg/L	2		03/19/25 1351	03/20/25 0741	LAW

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 9056A									
Sulfate	**75.2**	0.4	1.0	mg/L	1		03/25/25 0000	03/25/25 1850	MID

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.677**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Magnesium, total	**32.1**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	**0.050**	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Boron, total	<0.056	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	**0.0010**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Arsenic, total	**0.0029**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Barium, total	**0.413**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Cadmium, total	**0.00009**	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Chromium, total	<0.0007	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Copper, total	**0.0028**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Lead, total	**0.0008**	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Manganese, total	**0.0317**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Molybdenum, total	<0.0006	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Nickel, total	**0.0017**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Selenium, total	<0.0011	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
[illegible]r, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
[illegible]ium, total	**0.0006**	0.0004	0.0008	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Vanadium, total	**0.0057**	0.0043	0.0080	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Zinc, total	<0.0174	0.0174	0.0200	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #1		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-01	**Collection Date:**	03/13/2025 8:30

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1	**M1**	03/20/25 1536	03/21/25 1528	JAR

Analytical Testing Parameters

Client Sample ID: Well #1
Sample Matrix: Aqueous
Lab Sample ID: 1IC1029-01

Collected By: Sherman Lundy
Collection Date: 03/13/2025 8:30

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1601	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1601	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1601	CSM
Surrogate: Dibromofluoromethane	80.5	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1601	CSM
Surrogate: 1,2-Dichloroethane-d4	76.0	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1601	CSM
Surrogate: Toluene-d8	107	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1601	CSM
Surrogate: 4-Bromofluorobenzene	93.8	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1601	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 1942	EPP

Determination of Acid Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 1942	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 1942	EPP
Surrogate: 2-Fluorophenol	82.0	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 1942	EPP
Surrogate: Phenol-d6	87.0	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 1942	EPP
Surrogate: 2,4,6-Tribromophenol	101	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 1942	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1018	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/24/25 0723	03/24/25 1433	CES
od: EPA 9020B									
Total Organic Halogens (TOX)	0.029	0.006	0.010	mg/L	1	TX1, TX2	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-02	**Collection Date:**	03/13/2025 9:30

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: TIMBERLINE									
Nitrogen, Ammonia	<0.10	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1537	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**505**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	<4	4	4	mg/L	4		03/19/25 1357	03/20/25 0914	MSP

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 9056A									
Sulfate	**119**	1.8	5.0	mg/L	5		03/26/25 0000	03/26/25 1208	MID

rmination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.914**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0502	JAR
Magnesium, total	**37.2**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0502	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	<0.050	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0502	JAR
Boron, total	<0.056	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0502	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	<0.0008	0.0008	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Arsenic, total	**0.0009**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Barium, total	**0.0906**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Cadmium, total	<0.00008	0.00008	0.0002	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Chromium, total	<0.0007	0.0007	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Copper, total	**0.0020**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Lead, total	<0.0005	0.0005	0.0008	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Manganese, total	**0.0369**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Molybdenum, total	<0.0006	0.0006	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Nickel, total	**0.0007**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Selenium, total	<0.0011	0.0011	0.0040	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Silver, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
ium, total	<0.0004	0.0004	0.0008	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
adium, total	<0.0043	0.0043	0.0080	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Zinc, total	<0.0174	0.0174	0.0200	mg/L	4		03/17/25 1407	03/25/25 1949	RVV

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-02	**Collection Date:**	03/13/2025 9:30

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1		03/20/25 1536	03/21/25 1535	JAR

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-02	**Collection Date:**	03/13/2025 9:30

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1623	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1623	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: Dibromofluoromethane	80.4	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: 1,2-Dichloroethane-d4	79.0	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: Toluene-d8	108	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: 4-Bromofluorobenzene	92.6	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1623	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 2006	EPP

rmination of Acid ractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2006	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2006	EPP
Surrogate: 2-Fluorophenol	79.5	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 2006	EPP
Surrogate: Phenol-d6	81.5	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 2006	EPP
Surrogate: 2,4,6-Tribromophenol	98.5	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 2006	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1038	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/24/25 0723	03/24/25 1433	CES
Method: EPA 9020B									
l Organic Halogens (TOX)	**0.012**	0.006	0.010	mg/L	1	TX1	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									
Conductivity	**711**	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #3		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-03	**Collection Date:**	03/13/2025 10:00

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: TIMBERLINE									
Nitrogen, Ammonia	**0.10**	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1539	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**483**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	**4**	4	4	mg/L	4		03/19/25 1357	03/20/25 0914	MSP

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 9056A									
Sulfate	**113**	1.8	5.0	mg/L	5		03/26/25 0000	03/26/25 1226	MID

rmination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.084**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Magnesium, total	**27.1**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	<0.050	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Boron, total	**0.057**	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	<0.0008	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Arsenic, total	**0.0016**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Barium, total	**0.114**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Cadmium, total	<0.00008	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Chromium, total	<0.0007	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Copper, total	**0.0043**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Lead, total	**0.0006**	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Manganese, total	**0.0087**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Molybdenum, total	**0.0120**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Nickel, total	**0.0023**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Selenium, total	**0.0030**	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Silver, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
[illegible]um, total	<0.0004	0.0004	0.0008	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Vanadium, total	**0.0050**	0.0043	0.0080	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Zinc, total	<0.0174	0.0174	0.0200	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #3		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-03	**Collection Date:**	03/13/2025 10:00

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1		03/20/25 1536	03/21/25 1538	JAR

Client Sample ID:	Well #3		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-03	**Collection Date:**	03/13/2025 10:00

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1645	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1645	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1645	CSM
Surrogate: Dibromofluoromethane	83.8	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1645	CSM
Surrogate: 1,2-Dichloroethane-d4	79.2	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1645	CSM
Surrogate: Toluene-d8	107	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1645	CSM
Surrogate: 4-Bromofluorobenzene	95.3	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1645	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 2030	EPP

rmination of Acid Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2030	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2030	EPP
Surrogate: 2-Fluorophenol	76.9	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 2030	EPP
Surrogate: Phenol-d6	80.0	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 2030	EPP
Surrogate: 2,4,6-Tribromophenol	105	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 2030	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1059	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/26/25 0717	03/26/25 1600	CES
Method: EPA 9020B									
Organic Halogens (TOX)	**0.066**	0.006	0.010	mg/L	1	TX1	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									
Conductivity	**753**	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #4	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	03/13/2025 11:00
Lab Sample ID:	1IC1029-04		

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: TIMBERLINE									
Nitrogen, Ammonia	<0.10	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1540	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**420**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	<4	4	4	mg/L	4		03/19/25 1357	03/20/25 0914	MSP

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 9056A									
Sulfate	**87.2**	0.4	1.0	mg/L	1		03/25/25 0000	03/26/25 0112	MID

rmination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.056**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0514	JAR
Magnesium, total	**20.6**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0514	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	**0.094**	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0514	JAR
Boron, total	<0.056	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0514	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	<0.0008	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Arsenic, total	**0.0117**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Barium, total	**0.0734**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Cadmium, total	<0.00008	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Chromium, total	<0.0007	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Copper, total	**0.0038**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Lead, total	<0.0005	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Manganese, total	**0.0065**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Molybdenum, total	**0.0040**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Nickel, total	**0.0026**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Selenium, total	**0.0027**	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Silver, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
[illegible]lium, total	<0.0004	0.0004	0.0008	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Vanadium, total	**0.0056**	0.0043	0.0080	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Zinc, total	<0.0174	0.0174	0.0200	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #4		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-04	**Collection Date:**	03/13/2025 11:00

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1		03/20/25 1536	03/21/25 1544	JAR

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #4		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-04	**Collection Date:**	03/13/2025 11:00

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1708	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1708	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: Dibromofluoromethane	78.4	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: 1,2-Dichloroethane-d4	73.3	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: Toluene-d8	108	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: 4-Bromofluorobenzene	94.9	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1708	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 2055	EPP

rmination of Acid Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2055	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2055	EPP
Surrogate: 2-Fluorophenol	80.2	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 2055	EPP
Surrogate: Phenol-d6	82.4	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 2055	EPP
Surrogate: 2,4,6-Tribromophenol	98.7	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 2055	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1119	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/26/25 0717	03/26/25 1600	CES
Method: EPA 9020B									
Organic Halogens (TOX)	**0.019**	0.006	0.010	mg/L	1	**TX1**	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									
Conductivity	**686**	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS

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CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well # Upgradient		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-05	**Collection Date:**	03/13/2025 11:30

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: TIMBERLINE									
Nitrogen, Ammonia	<0.10	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1542	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**337**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	**8**	6	7	mg/L	7		03/19/25 1357	03/20/25 0914	MSP

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 9056A									
Sulfate	**84.1**	0.4	1.0	mg/L	1		03/25/25 0000	03/26/25 0130	MID

rmination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.920**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Magnesium, total	**21.3**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	**0.453**	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Boron, total	<0.056	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	<0.0008	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Arsenic, total	**0.0011**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Barium, total	**0.104**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Cadmium, total	**0.00008**	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Chromium, total	**0.0082**	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Copper, total	**0.0137**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Lead, total	**0.0186**	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Manganese, total	**0.0108**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Molybdenum, total	**0.0031**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Nickel, total	**0.0017**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Selenium, total	**0.0031**	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Silver, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
[illegible]ium, total	<0.0004	0.0004	0.0008	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
[illegible]adium, total	**0.0061**	0.0043	0.0080	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Zinc, total	**0.105**	0.0174	0.0200	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well # Upgradient		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-05	**Collection Date:**	03/13/2025 11:30

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1		03/20/25 1536	03/21/25 1547	JAR

Client Sample ID: Well # Upgradient
Sample Matrix: Aqueous
Lab Sample ID: 1IC1029-05
Collected By: Sherman Lundy
Collection Date: 03/13/2025 11:30

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1730	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1730	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1730	CSM
Surrogate: Dibromofluoromethane	84.1	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1730	CSM
Surrogate: 1,2-Dichloroethane-d4	79.3	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1730	CSM
Surrogate: Toluene-d8	107	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1730	CSM
Surrogate: 4-Bromofluorobenzene	92.6	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1730	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 1739	EPP

rmination of Acid actable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 1739	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 1739	EPP
Surrogate: 2-Fluorophenol	79.2	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 1739	EPP
Surrogate: Phenol-d6	79.4	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 1739	EPP
Surrogate: 2,4,6-Tribromophenol	103	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 1739	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1140	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/26/25 0717	03/26/25 1600	CES
Method: EPA 9020B									
T[illegible]l Organic Halogens (TOX)	<0.010	0.006	0.010	mg/L	1	TX1	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									
Conductivity	597	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS

October 2025

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CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #1	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 12:30
Lab Sample ID:	1IJ1640-01		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Nitrogen, Ammonia	<0.10	0.10	mg/L		10/20/25 1504	10/21/25 1025	BHF
USGS I-1750-85							
Total Dissolved Solids (TDS)	395	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	2	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	1.0	0.1	mg/L			10/20/25 1140	BMS
Chloride	12.1	1.0	mg/L			10/20/25 1140	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1638	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/23/25 0810	JAR
Iron	0.127	0.047	0.100	mg/L		10/21/25 1518	10/23/25 0810	JAR
Magnesium	35.5	0.06	0.10	mg/L	M6	10/21/25 1518	10/23/25 0810	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	<0.0003	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Arsenic	0.0010	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Barium	0.259	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1843	RVV
Chromium	0.0003	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Cobalt	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1843	RVV
Copper	0.0026	0.0021	0.0050	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Lead	0.0002	0.0002	0.0005	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Manganese	0.0026	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Molybdenum	<0.0005	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Nickel	0.0023	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Selenium	<0.0011	0.0011	0.0020	mg/L		10/20/25 1620	10/21/25 1843	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1843	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1843	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1843	RVV
Zinc	<0.0136	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1843	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #1	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 12:30
Lab Sample ID:	1IJ1640-01		

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
Sulfate	90.2	0.4	1.0	mg/L			10/20/25 1140	BMS

CERTIFICATE OF ANALYSIS

1IJ1640

Analytical Testing Parameters

Client Sample ID: Well #1
Sample Matrix: Aqueous
Lab Sample ID: 1IJ1640-01

Collected By: Sherman Lundy
Collection Date: 10/15/2025 12:30

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1		Method Notes: H2					
2-Butanone (MEK)	<10.0	10.0	ug/L		10/31/25 0000	10/31/25 1255	RAF
Chloroform	<1.0	1.0	ug/L		10/30/25 0000	10/30/25 1952	RAF
Benzene	<1.0	1.0	ug/L		10/30/25 0000	10/30/25 1952	RAF
Surrogate: Dibromofluoromethane	92.3	Limit: 59-123	% Rec		10/30/25 0000	10/30/25 1952	RAF
Surrogate: 1,2-Dichloroethane-d4	84.3	Limit: 56-130	% Rec		10/30/25 0000	10/30/25 1952	RAF
Surrogate: Toluene-d8	98.0	Limit: 85-113	% Rec		10/30/25 0000	10/30/25 1952	RAF
Surrogate: 4-Bromofluorobenzene	92.2	Limit: 82-112	% Rec		10/30/25 0000	10/30/25 1952	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1529	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1529	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1529	EPP
Surrogate: 2-Fluorophenol	81.8	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1529	EPP
Surrogate: Phenol-d6	83.7	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1529	EPP
Surrogate: 2,4,6-Tribromophenol	111	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1529	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1231	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/23/25 0810	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 1123	10/21/25 1608	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	0.036	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
SM 2510 B-2011							
Conductivity	649	2.0	uS/cm		10/21/25 1311	10/21/25 1557	BSS

TIMBERLINE

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CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #2	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 1:00
Lab Sample ID:	1IJ1640-02		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
USGS I-1750-85							
Total Dissolved Solids (TDS)	464	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	<1	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	0.9	0.1	mg/L			10/20/25 1202	BMS
Chloride	12.4	1.0	mg/L			10/20/25 1202	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1640	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/24/25 0151	JAR
Iron	0.191	0.047	0.100	mg/L		10/21/25 1518	10/24/25 0151	JAR
Magnesium	39.1	0.06	0.10	mg/L		10/21/25 1518	10/24/25 0151	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	<0.0003	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1846	RVV
Arsenic	0.0003	0.0002	0.0010	mg/L	J	10/20/25 1620	10/21/25 1846	RVV
Barium	0.0839	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1846	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1846	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1846	RVV
Chromium	0.0004	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1846	RVV
Cobalt	0.00007	0.00007	0.0002	mg/L	J	10/20/25 1620	10/21/25 1846	RVV
Copper	0.0052	0.0021	0.0050	mg/L		10/20/25 1620	10/21/25 1846	RVV
Lead	<0.0002	0.0002	0.0005	mg/L		10/20/25 1620	10/21/25 1846	RVV
Manganese	0.0054	0.0002	0.0050	mg/L		10/20/25 1620	10/21/25 1846	RVV
Molybdenum	<0.0005	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1846	RVV
Nickel	0.0008	0.0004	0.0010	mg/L	J	10/20/25 1620	10/21/25 1846	RVV
Selenium	<0.0011	0.0011	0.0020	mg/L		10/20/25 1620	10/21/25 1846	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1846	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1846	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1846	RVV
Zinc	<0.0136	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1846	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								
Sulfate	133	0.4	1.0	mg/L			10/20/25 1202	BMS

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CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-02	**Collection Date:**	10/15/2025 1:00

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-02	**Collection Date:**	10/15/2025 1:00

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1							
2-Butanone (MEK)	<10.0	10.0	ug/L		10/29/25 0000	10/29/25 1148	RAF
Chloroform	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1148	RAF
Benzene	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1148	RAF
Surrogate: Dibromofluoromethane	98.2	Limit: 59-123	% Rec		10/29/25 0000	10/29/25 1148	RAF
Surrogate: 1,2-Dichloroethane-d4	101	Limit: 56-130	% Rec		10/29/25 0000	10/29/25 1148	RAF
Surrogate: Toluene-d8	106	Limit: 85-113	% Rec		10/29/25 0000	10/29/25 1148	RAF
Surrogate: 4-Bromofluorobenzene	89.7	Limit: 82-112	% Rec		10/29/25 0000	10/29/25 1148	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1554	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1554	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1554	EPP
Surrogate: 2-Fluorophenol	73.5	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1554	EPP
Surrogate: Phenol-d6	74.3	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1554	EPP
Surrogate: 2,4,6-Tribromophenol	110	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1554	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1251	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/24/25 0151	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 0826	10/21/25 1610	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	<0.010	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
SM 2510 B-2011							
Conductivity	730	2.0	uS/cm		10/21/25 1311	10/21/25 1557	BSS
TIMBERLINE							
Nitrogen, Ammonia	0.13	0.10	mg/L		10/20/25 1444	10/21/25 1026	BHF

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CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #3	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 12:30
Lab Sample ID:	1IJ1640-03		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
USGS I-1750-85							
Total Dissolved Solids (TDS)	411	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	16	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	0.6	0.1	mg/L			10/20/25 1224	BMS
Chloride	20.7	1.0	mg/L			10/20/25 1224	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1642	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/24/25 0211	JAR
Iron	<0.047	0.047	0.100	mg/L		10/21/25 1518	10/24/25 0211	JAR
Magnesium	28.6	0.06	0.10	mg/L		10/21/25 1518	10/24/25 0211	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	<0.0003	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Arsenic	0.0005	0.0002	0.0010	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Barium	0.0772	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1848	RVV
Chromium	0.0004	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Cobalt	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1848	RVV
Copper	0.0030	0.0021	0.0050	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Lead	<0.0002	0.0002	0.0005	mg/L		10/20/25 1620	10/21/25 1848	RVV
Manganese	0.0024	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Molybdenum	0.0032	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Nickel	0.0012	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Selenium	<0.0011	0.0011	0.0020	mg/L		10/20/25 1620	10/21/25 1848	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1848	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1848	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1848	RVV
Zinc	<0.0136	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1848	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								
Sulfate	104	0.4	1.0	mg/L			10/20/25 1224	BMS

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #3		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-03	**Collection Date:**	10/15/2025 12:30

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Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #3	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 12:30
Lab Sample ID:	1IJ1640-03		

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1							
2-Butanone (MEK)	<10.0	10.0	ug/L		10/29/25 0000	10/29/25 1211	RAF
Chloroform	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1211	RAF
Benzene	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1211	RAF
Surrogate: Dibromofluoromethane	97.5	Limit: 59-123	% Rec		10/29/25 0000	10/29/25 1211	RAF
Surrogate: 1,2-Dichloroethane-d4	101	Limit: 56-130	% Rec		10/29/25 0000	10/29/25 1211	RAF
Surrogate: Toluene-d8	107	Limit: 85-113	% Rec		10/29/25 0000	10/29/25 1211	RAF
Surrogate: 4-Bromofluorobenzene	91.0	Limit: 82-112	% Rec		10/29/25 0000	10/29/25 1211	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1619	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1619	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1619	EPP
Surrogate: 2-Fluorophenol	76.0	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1619	EPP
Surrogate: Phenol-d6	76.3	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1619	EPP
Surrogate: 2,4,6-Tribromophenol	107	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1619	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1311	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/24/25 0211	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 0826	10/21/25 1610	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	**0.021**	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
SM 2510 B-2011							
Conductivity	**607**	2.0	uS/cm		10/21/25 1311	10/21/25 1557	BSS
TIMBERLINE							
Nitrogen, Ammonia	<0.10	0.10	mg/L		10/20/25 1447	10/21/25 1037	BHF

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #4	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 14:00
Lab Sample ID:	1IJ1640-04		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
USGS I-1750-85							
Total Dissolved Solids (TDS)	385	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	11	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	0.2	0.1	mg/L			10/20/25 1247	BMS
Chloride	23.8	1.0	mg/L			10/20/25 1247	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1645	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/24/25 0217	JAR
Iron	<0.047	0.047	0.100	mg/L		10/21/25 1518	10/24/25 0217	JAR
Magnesium	21.5	0.06	0.10	mg/L		10/21/25 1518	10/24/25 0217	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	0.0003	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Arsenic	0.0022	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1851	RVV
Barium	0.0788	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1851	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1851	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1851	RVV
Chromium	0.0005	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Cobalt	0.00009	0.00007	0.0002	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Copper	0.0029	0.0021	0.0050	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Lead	0.0002	0.0002	0.0005	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Manganese	0.0031	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Molybdenum	0.0033	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1851	RVV
Nickel	0.0018	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1851	RVV
Selenium	0.0039	0.0011	0.0020	mg/L		10/20/25 1620	10/21/25 1851	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1851	RVV
Thallium	0.0001	0.00007	0.0005	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Vanadium	0.0018	0.0005	0.0050	mg/L	J	10/20/25 1620	10/21/25 1851	RVV
Zinc	<0.0136	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1851	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								
Sulfate	111	0.4	1.0	mg/L			10/20/25 1247	BMS

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #4		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-04	**Collection Date:**	10/15/2025 14:00

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID: Well #4
Sample Matrix: Aqueous
Lab Sample ID: 1IJ1640-04

Collected By: Sherman Lundy
Collection Date: 10/15/2025 14:00

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1							
2-Butanone (MEK)	<10.0	10.0	ug/L		10/29/25 0000	10/29/25 1233	RAF
Chloroform	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1233	RAF
Benzene	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1233	RAF
Surrogate: Dibromofluoromethane	97.8	Limit: 59-123	% Rec		10/29/25 0000	10/29/25 1233	RAF
Surrogate: 1,2-Dichloroethane-d4	100	Limit: 56-130	% Rec		10/29/25 0000	10/29/25 1233	RAF
Surrogate: Toluene-d8	106	Limit: 85-113	% Rec		10/29/25 0000	10/29/25 1233	RAF
Surrogate: 4-Bromofluorobenzene	92.4	Limit: 82-112	% Rec		10/29/25 0000	10/29/25 1233	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1644	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1644	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1644	EPP
Surrogate: 2-Fluorophenol	96.0	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1644	EPP
Surrogate: Phenol-d6	104	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1644	EPP
Surrogate: 2,4,6-Tribromophenol	116	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1644	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1332	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/24/25 0217	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 0826	10/21/25 1610	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	**0.084**	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
SM 2510 B-2011							
Conductivity	**650**	2.0	uS/cm		10/21/25 1311	10/21/25 1557	BSS
TIMBERLINE							
Nitrogen, Ammonia	<0.10	0.10	mg/L		10/20/25 1447	10/21/25 1039	BHF

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Upgradient Well	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 14:30
Lab Sample ID:	1IJ1640-05		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
USGS I-1750-85							
Total Dissolved Solids (TDS)	**420**	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	<1	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	**0.3**	0.1	mg/L			10/20/25 1309	BMS
Chloride	**34.0**	1.0	mg/L			10/20/25 1309	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1647	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/24/25 0223	JAR
Iron	<0.047	0.047	0.100	mg/L		10/21/25 1518	10/24/25 0223	JAR
Magnesium	**21.7**	0.06	0.10	mg/L		10/21/25 1518	10/24/25 0223	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	**0.0013**	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Arsenic	**0.0003**	0.0002	0.0010	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Barium	**0.160**	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1858	RVV
Chromium	**0.0007**	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Cobalt	**0.00009**	0.00007	0.0002	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Copper	**0.0098**	0.0021	0.0050	mg/L		10/20/25 1620	10/21/25 1858	RVV
Lead	**0.0006**	0.0002	0.0005	mg/L		10/20/25 1620	10/21/25 1858	RVV
Manganese	**0.0022**	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Molybdenum	**0.0026**	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Nickel	**0.0011**	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Selenium	**0.0012**	0.0011	0.0020	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1858	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1858	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1858	RVV
Zinc	**0.112**	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1858	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								
Sulfate	**58.6**	0.4	1.0	mg/L			10/20/25 1309	BMS

CERTIFICATE OF ANALYSIS

1IJ1640

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Upgradient Well		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-05	**Collection Date:**	10/15/2025 14:30

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1							
2-Butanone (MEK)	<10.0	10.0	ug/L		10/29/25 0000	10/29/25 1256	RAF
Chloroform	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1256	RAF
Benzene	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1256	RAF
Surrogate: Dibromofluoromethane	101	Limit: 59-123	% Rec		10/29/25 0000	10/29/25 1256	RAF
Surrogate: 1,2-Dichloroethane-d4	102	Limit: 56-130	% Rec		10/29/25 0000	10/29/25 1256	RAF
Surrogate: Toluene-d8	106	Limit: 85-113	% Rec		10/29/25 0000	10/29/25 1256	RAF
Surrogate: 4-Bromofluorobenzene	90.4	Limit: 82-112	% Rec		10/29/25 0000	10/29/25 1256	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1709	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1709	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1709	EPP
Surrogate: 2-Fluorophenol	87.3	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1709	EPP
Surrogate: Phenol-d6	89.5	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1709	EPP
Surrogate: 2,4,6-Tribromophenol	102	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1709	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1352	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/24/25 0223	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 0826	10/21/25 1610	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	<0.010	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
SM 2510 B-2011							
Conductivity	712	2.0	uS/cm		10/21/25 1311	10/21/25 1557	BSS
TIMBERLINE							
Nitrogen, Ammonia	0.62	0.10	mg/L		10/20/25 1447	10/21/25 1040	BHF

SCS ENGINEERIING
2026
STATISTICAL REPORT
AND
EVALUATION
OF 2025 MONITORING WELL
RESULTS FOR BMC
BUD PROJECT: 07-BUD-20-02

January 19, 2026
File No. 27224342.00

Mr. Chad Stobbe
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: 2025 Annual Water Quality Report
BMC Aggregates L.C. Waterloo South Quarry
Beneficial Use Site
Permit No. 07-BUD-20-02

Dear Chad:

SCS Engineers, on behalf of BMC Aggregates, L.C., has completed the statistical evaluation and annual water quality reporting for the BMC Aggregates L.C. Waterloo South Quarry Beneficial Use Site for the year 2025. Groundwater sampling was performed by BMC Aggregates L.C. personnel. Please find enclosed a copy of the 2025 Annual Water Quality Report and associated statistical evaluation.

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

Sincerely,

Nathan Ohrt
Senior Project Professional
SCS Engineers

Timothy C. Buelow, P.E.
VP – Senior Project Advisor
SCS Engineers

NPO/TCB

Copies: Mr. Sherman Lundy, BMC Aggregates, L.C.

Table of Contents

Figures

Tables

1.0 INTRODUCTION

1.1 PURPOSE

SCS Engineers (SCS), on behalf of BMC Aggregates, L.C., has completed the statistical evaluation of the groundwater data for the Waterloo South Quarry Beneficial Use site (South Quarry). BMC Aggregates, L.C. personnel performed the groundwater sampling. The purpose of this Annual Water Quality Report (AWQR) is to document and statistically evaluate the results for groundwater samples collected during 2025 from monitoring wells associated with the South Quarry.

1.2 REPORT PRIORITY

In correspondence dated May 30, 2025 (Doc #113156), the DNR requested a table showing the maintenance (completed and scheduled) for all monitoring wells. **Table 1** below shows the maintenance log.

Table 1. Well Maintenance Summary

Monitoring Wells	Completed Maintenance	Scheduled Maintenance
Reiter Farm (b)	None	None anticipated
Well #1	None	None anticipated
Well #2	None	None anticipated
Well #3	None	None anticipated
Well #4	None	None anticipated

(b) denotes background monitoring well.

Mr. Sherman Lundy stated that the well sites are checked during sampling and periodically apart from sampling to ensure that the sites are clear of any debris or other disturbance. No maintenance has been necessary or is anticipated for the monitoring wells.

1.3 SITE LOCATION

The South Quarry property is depicted in **Figure 1**, Site Map. The facility is located near the intersection of State Highway V37 (Dysart Road) and East Eagle Road near La Porte City in Black Hawk County, Iowa. The locations of the monitoring wells are also shown in **Figure 1**.

1.4 BACKGROUND

The *Beneficial Use Determination (BUD)* dated November 18, 2022 (Doc #104627) states that the materials approved for fill are waste foundry sand generated by the John Deere foundry in Waterloo, Iowa and coal combustion residue (CCR) generated by the University of Iowa power plant in Iowa City, Iowa. Previously, the South Quarry also received CCR from power plants at Iowa State University and the University of Northern Iowa. During this reporting period, the acceptance of CCR from the University of Iowa power plant was discontinued due to analytical results above regulatory limits. Acceptance of the material may resume if future analytical results are within compliance.

Table 3 shows the parameters that comprise the sampling list for the South Quarry as required by the permit.

Table 3. Permit Parameters

Indicator Parameters	
Chemical Oxygen Demand	Total Organic Halogens
Phenols	Ammonia Nitrogen
Formaldehyde	Total Dissolved Solids
Inorganic Parameters	
Aluminum	Lead
Antimony	Magnesium
Arsenic	Manganese
Barium	Mercury
Beryllium	Molybdenum
Boron	Nickel
Cadmium	Selenium
Chloride	Silver
Chromium	Sulfate
Cobalt	Thallium
Copper	Vanadium
Fluoride	Zinc
Iron	Total Suspended Solids
Organic Parameters Detected in Fill Materials - TCLP	
Benzene	2-Methylphenol
Chloroform	3/4-Methylphenol
2-Butanone (MEK)	Pyridine

The permit specifies the indicator and inorganic parameters to be analyzed during the semi-annual sampling events. Volatile organic compounds (VOCs) and/or semi-volatile organic compounds (SVOCs) detected above the laboratory method detection limit in the approved fill materials are to be analyzed during the semi-annual sampling events. The organic parameters for this reporting period are summarized in **Table 2**.

The groundwater monitoring statistical methods used for the South Quarry included outlier analysis, trend analysis (Mann-Kendall/Sen's Slope), and confidence interval or confidence band evaluation, as appropriate, to identify exceedances of groundwater protection standards (GWPSs) at statistically significant levels (SSLs). The results of the 2025 evaluation are included in **Appendix D**, 2025 Statistical Report, and discussed in Section 3.0.

Site Map

Legend

BMC Aggregates

Constituent	Reiter Farm (b)	Well #1	Well #2	Well #3	Well #4
Cobalt	ND	ND	ND	ND	ND
Copper	3,10	3	3,10	3	3
Fluoride	3,10	3,10	3,10	3,10	3,10
Iron	3	3,10	3,10	ND	ND
Lead	3,10	3	ND	ND	ND
Magnesium	3,10	3,10	3,10	3,10	3,10
Manganese	3	3	3,10	3	3
Mercury	ND	ND	ND	ND	ND
Molybdenum	3,10	ND	ND	3,10	3,10
Nickel	10	10	ND	10	10
Selenium	ND	ND	ND	ND	10
Silver	ND	ND	ND	ND	ND
Sulfate	3,10	3,10	3,10	3,10	3,10
Thallium	ND	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND	ND
Zinc	3,10	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
2-Butanone (MEK)	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND
3/4-Methylphenol	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND
Pyridine	ND	ND	ND	ND	ND

(b) denotes background monitoring well.
ND – Not Detected.
3 – March 2025 10 – October 2025
J flag concentrations, which are estimated concentrations greater than the method detection limit but below the laboratory reporting limit, were not considered detections for Table 3.

Table 4 shows that the majority of parameters were fairly consistently detected within individual monitoring wells - either detected during both sampling events or not detected during this reporting period. However, there were more single detections during the March 2025 sampling event compared to the October 2025 sampling event. No VOCs or SVOCs were detected during this reporting period.

3.2 SUMMARY OF ANALYTICAL DATA

The background Reiter Farm monitoring well is sampled for the calculation of site background concentrations but is not statistically evaluated. Mann-Kendall trend analysis and confidence intervals or confidence bands, as appropriate based on diagnostic analyses, were the selected statistical evaluations performed for the constituents numbered 1 - 25 in Appendix D of the BUD permit (Doc #104627). The indicator parameters listed in Appendix D of the permit are not statistically evaluated. Indicator parameter analytical data are included on the last page of **Appendix C**, Summary of Groundwater Chemistry.

3.3 SUMMARY OF STATISTICS

Table 6 summarizes the monitoring points and SSLs measured during this reporting period.

Table 6. 2025 Statistical Summary Table

Monitoring Well	2025 SSL – Parameters
Well #1	Magnesium
Well #2	Magnesium
Well #3	Magnesium
Well #4	None

The SSLs measured during this reporting period are unchanged from recent years. Magnesium has no health-based regulatory standards. The GWPS for magnesium used in this report was based on the background concentration of the background Reiter Farm water supply well. The Reiter Farm water supply well differs from the groundwater monitoring wells in construction, use, and screened interval, which may contribute to differences in constituent concentrations.

The Geological Society of Iowa publication "Geology and Reclamation at the Waterloo South Quarry, Black Hawk County, Iowa (Guidebook 94, April 22, 2017) describes the surficial geology, Devonian stratigraphy and minerology of the quarry in addition to the beneficial fill/quarry reclamation project that is the basis for this water monitoring project. The publication illustrates that magnesium is prevalent in Iowa geology, including at the South Quarry.

Measured magnesium concentrations in the compliance monitoring wells have remained stable since 2017-2018 and are generally lower than those measured in the pre-2015 time period, indicating apparent stability in groundwater quality. The reclamation project previously accepted CCR from the Iowa State University and University of Northern Iowa power plants, but those sources have ceased in recent years, with the fill consisting of waste foundry sand from John Deere in Waterloo and CCR from the University of Iowa power plant. It is unclear what effect that change may have had or will have, if any, on measured concentrations.

Mann-Kendall trend analysis was performed at 99% confidence (α=0.01) using the most recent eight samples. Sulfate concentrations measured in monitoring well MW-1 was the only statistically significant trend (increasing) identified in the evaluation. A summary of the Mann-Kendall results for the SSL constituent-monitoring point pairs is shown in **Table 7**.

Table 7. Trending for SSL Well/Constituent Pairs

Monitoring Well	Constituent	Mann-Kendall Statistic	Trend
Well #1	Magnesium	11	Increasing – Not Statistically Significant
Well #2	Magnesium	6	Increasing – Not Statistically Significant
Well #3	Magnesium	1	Increasing – Not Statistically Significant

Monitoring Well	Constituent	Comments
Well #4	Arsenic	The March 2025 concentration was elevated, but arsenic had only six quantified detections since 2016.
	Chloride	The 2025 concentrations were slightly elevated compared to recent measurements but remained within the historical range.

3.4 QA/QC INFORMATION

The QA/QC protocols for the March and October 2025 sampling events included laboratory protocols provided by Microbac Laboratories, Inc.; documentation is included in **Appendix B**, Laboratory Analytical Data Sheets.

3.5 RECOMMENDATIONS

Review of the data indicated the beneficial use project is not having a significant adverse effect on the groundwater at the South Quarry as represented by groundwater samples collected from the monitoring wells associated with the South Quarry. Based on the groundwater sampling analytical results and the statistical evaluation performed on the data, the following is recommended:

- Continue sampling the Reiter Farm monitoring well and monitoring wells Well #1, Well #2, Well #3, and Well #4 for the permit parameters on a semi-annual schedule.

The recommended sampling schedule for the upcoming reporting period (January through December 2026) is summarized in **Table 10**.

Table 10. 2026 AWQR Reporting Period Sampling Schedule

Monitoring Point	March 2026	October 2026
Reiter Farm	Permit Parameters	Permit Parameters
Well #1	Permit Parameters	Permit Parameters
Well #2	Permit Parameters	Permit Parameters
Well #3	Permit Parameters	Permit Parameters
Well #4	Permit Parameters	Permit Parameters

See Table 2 for the list of current permit parameters. Required organic parameters will be determined by testing performed by the fill material generators.

4.0 GENERAL COMMENTS

The analysis and opinions expressed in this report are based upon data obtained from the samples collected at the indicated locations and from any other information discussed in this report. This report does not reflect any variation in subsurface stratigraphy, hydrogeology, or chemical concentrations that may occur between sampling locations or across the site. Actual subsurface conditions may vary and may not become evident without further exploration.

SCS has prepared this report for the exclusive use of our client for the specific application to the project discussed. No warranty is expressly stated or implied in this report with regard to the condition of the substrate and groundwater below the surface of the facility. SCS has relied upon information furnished by others as noted in the report, and SCS accepts no responsibility for any

Appendix A
Field Sampling Information

Appendix B
Laboratory Analytical Data Sheets

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IC1029

BMC Aggregates L.C.

Sherman Lundy
101 BMC Drive
Elk Run Heights, IA 50707

Project Name: Miller Creek Area

Project / PO Number: Sherman Lundy
Received: 03/14/2025
Reported: 04/01/2025

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Well #1	1IC1029-01	Aqueous	GRAB		03/13/25 08:30	03/14/25 12:05
Well #2	1IC1029-02	Aqueous	GRAB		03/13/25 09:30	03/14/25 12:05
Well #3	1IC1029-03	Aqueous	GRAB		03/13/25 10:00	03/14/25 12:05
Well #4	1IC1029-04	Aqueous	GRAB		03/13/25 11:00	03/14/25 12:05
Well # Upgradient	1IC1029-05	Aqueous	GRAB		03/13/25 11:30	03/14/25 12:05

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #1		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-01	**Collection Date:**	03/13/2025 8:30

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Conductivity	**628**	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS
Method: TIMBERLINE									
Nitrogen, Ammonia	**0.18**	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1536	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**399**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	<2	2	2	mg/L	2		03/19/25 1351	03/20/25 0741	LAW

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 300.0									
Fluoride	**0.9**	0.02	0.1	mg/L	1		03/25/25 0000	03/25/25 1850	MID
Chloride	**12.2**	0.3	1.0	mg/L	1		03/25/25 0000	03/25/25 1850	MID
Method: EPA 9056A									
Sulfate	**75.2**	0.4	1.0	mg/L	1		03/25/25 0000	03/25/25 1850	MID

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.677**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Magnesium, total	**32.1**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	**0.050**	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Boron, total	<0.056	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0456	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	**0.0010**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Arsenic, total	**0.0029**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Barium, total	**0.413**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Cadmium, total	**0.00009**	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Chromium, total	<0.0007	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Copper, total	**0.0028**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Lead, total	**0.0008**	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Manganese, total	**0.0317**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Molybdenum, total	<0.0006	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Nickel, total	**0.0017**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ
Selenium, total	<0.0011	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1708	KKJ

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID: Well #2
Sample Matrix: Aqueous
Lab Sample ID: 1IC1029-02

Collected By: Sherman Lundy
Collection Date: 03/13/2025 9:30

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1623	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1623	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: Dibromofluoromethane	80.4	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: 1,2-Dichloroethane-d4	79.0	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: Toluene-d8	108	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1623	CSM
Surrogate: 4-Bromofluorobenzene	92.6	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1623	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 2006	EPP

mination of Acid Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2006	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2006	EPP
Surrogate: 2-Fluorophenol	79.5	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 2006	EPP
Surrogate: Phenol-d6	81.5	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 2006	EPP
Surrogate: 2,4,6-Tribromophenol	98.5	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 2006	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1038	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/24/25 0723	03/24/25 1433	CES
Method: EPA 9020B									
l Organic Halogens (TOX)	0.012	0.006	0.010	mg/L	1	TX1	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									
Conductivity	711	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-02	**Collection Date:**	03/13/2025 9:30

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Thallium, total	<0.0004	0.0004	0.0008	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Vanadium, total	<0.0043	0.0043	0.0080	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Zinc, total	<0.0174	0.0174	0.0200	mg/L	4		03/17/25 1407	03/25/25 1949	RVV
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1		03/20/25 1536	03/21/25 1535	JAR

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IC1029

Client Sample ID:	Well #3		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-03	**Collection Date:**	03/13/2025 10:00

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: TIMBERLINE									
Nitrogen, Ammonia	**0.10**	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1539	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**483**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	**4**	4	4	mg/L	4		03/19/25 1357	03/20/25 0914	MSP

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 300.0									
Fluoride	**0.6**	0.02	0.1	mg/L	1		03/25/25 0000	03/26/25 0053	MID
Chloride	**31.6**	0.3	1.0	mg/L	1		03/25/25 0000	03/26/25 0053	MID
Method: EPA 9056A									
Sulfate	**113**	1.8	5.0	mg/L	5		03/26/25 0000	03/26/25 1226	MID

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.084**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Magnesium, total	**27.1**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	<0.050	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Boron, total	**0.057**	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0508	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	<0.0008	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Arsenic, total	**0.0016**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Barium, total	**0.114**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Cadmium, total	<0.00008	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Chromium, total	<0.0007	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Copper, total	**0.0043**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Lead, total	**0.0006**	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Manganese, total	**0.0087**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Molybdenum, total	**0.0120**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Nickel, total	**0.0023**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Selenium, total	**0.0030**	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ
Silver, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/19/25 1721	KKJ

Client Sample ID:	Well #4		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-04	**Collection Date:**	03/13/2025 11:00

Determination of Volatile Organic Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 5030B/EPA 624.1									
2-Butanone (MEK)	<10.0	1.4	10.0	ug/L	1		03/24/25 0000	03/24/25 1708	CSM
Chloroform	<1.0	0.4	1.0	ug/L	1		03/24/25 0000	03/24/25 1708	CSM
Benzene	<1.0	0.3	1.0	ug/L	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: Dibromofluoromethane	78.4	Limit: 59-123		% Rec	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: 1,2-Dichloroethane-d4	73.3	Limit: 56-130		% Rec	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: Toluene-d8	108	Limit: 85-113		% Rec	1		03/24/25 0000	03/24/25 1708	CSM
Surrogate: 4-Bromofluorobenzene	94.9	Limit: 82-112		% Rec	1		03/24/25 0000	03/24/25 1708	CSM

Determination of Base/Neutral Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 625.1									
Pyridine	<10	10	10	ug/L	1		03/17/25 1538	03/20/25 2055	EPP

Determination of Acid Extractable Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Ar
Method: EPA 625.1									
2-Methylphenol (o-Cresol)	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2055	EPP
(3 & 4)-Methylphenol	<10.0	2.6	10.0	ug/L	1		03/17/25 1538	03/20/25 2055	EPP
Surrogate: 2-Fluorophenol	80.2	Limit: 16-140		% Rec	1		03/17/25 1538	03/20/25 2055	EPP
Surrogate: Phenol-d6	82.4	Limit: 13-147		% Rec	1		03/17/25 1538	03/20/25 2055	EPP
Surrogate: 2,4,6-Tribromophenol	98.7	Limit: 20-158		% Rec	1		03/17/25 1538	03/20/25 2055	EPP

Determination of Carbonyl Compounds	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 8315									
Formaldehyde	<10.0	10.0	10.0	ug/L	1	H	03/14/25 1644	03/18/25 1119	PDS

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 410.4, Rv. 2 (1993)									
COD, total	<54	37	54	mg/L	1			03/18/25 0908	CES
Method: EPA 420.1									
Phenols, total	<0.035	0.024	0.035	mg/L	1		03/26/25 0717	03/26/25 1600	CES
Method: EPA 9020B									
Total Organic Halogens (TOX)	**0.019**	0.006	0.010	mg/L	1	**TX1**	03/26/25 1310	03/26/25 1323	CSM
Method: SM 2510 B-2011									
Conductivity	**686**	1.8	2.0	uS/cm	1		03/18/25 1514	03/19/25 1340	BSS

Client Sample ID:	Well #4		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-04	**Collection Date:**	03/13/2025 11:00

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Thallium, total	<0.0004	0.0004	0.0008	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Vanadium, total	**0.0056**	0.0043	0.0080	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Zinc, total	<0.0174	0.0174	0.0200	mg/L	4		03/17/25 1407	03/19/25 1727	KKJ
Method: SM 3112B									
Mercury, total	<0.00013	0.00013	0.00020	mg/L	1		03/20/25 1536	03/21/25 1544	JAR

Client Sample ID:	Well # Upgradient		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IC1029-05	**Collection Date:**	03/13/2025 11:30

Determination of Conventional Chemistry Parameters	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: TIMBERLINE									
Nitrogen, Ammonia	<0.10	0.08	0.10	mg/L	1		03/19/25 1358	03/19/25 1542	SDF
Method: USGS I-1750-85									
Total Dissolved Solids (TDS)	**337**	4	5	mg/L	13		03/18/25 0723	03/18/25 1450	LAW
Method: USGS I-3765-85									
Total Suspended Solids (TSS)	**8**	6	7	mg/L	7		03/19/25 1357	03/20/25 0914	MSP

Determination of Inorganic Anions	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 300.0									
Fluoride	**0.4**	0.02	0.1	mg/L	1		03/25/25 0000	03/26/25 0130	MID
Chloride	**30.1**	0.3	1.0	mg/L	1		03/25/25 0000	03/26/25 0130	MID
Method: EPA 9056A									
Sulfate	**84.1**	0.4	1.0	mg/L	1		03/25/25 0000	03/26/25 0130	MID

Determination of Total Metals	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: 200.7									
Iron, total	**0.920**	0.047	0.100	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Magnesium, total	**21.3**	0.06	0.10	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Method: EPA 200.7, Rv. 4.4 (1994)									
Aluminum, total	**0.453**	0.038	0.050	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Boron, total	<0.056	0.056	0.100	mg/L	1		03/19/25 0723	03/20/25 0520	JAR
Method: EPA 200.8, Rv. 5.4 (1994)									
Antimony, total	<0.0008	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Arsenic, total	**0.0011**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Barium, total	**0.104**	0.0002	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Beryllium, total	<0.00007	0.00007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Cadmium, total	**0.00008**	0.00008	0.0002	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Chromium, total	**0.0082**	0.0007	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Cobalt, total	<0.0005	0.0005	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Copper, total	**0.0137**	0.0008	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Lead, total	**0.0186**	0.0005	0.0008	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Manganese, total	**0.0108**	0.0017	0.0040	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Molybdenum, total	**0.0031**	0.0006	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Nickel, total	**0.0017**	0.0007	0.0040	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Selenium, total	**0.0031**	0.0011	0.0040	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ
Silver, total	<0.0015	0.0015	0.0020	mg/L	4		03/17/25 1407	03/19/25 1733	KKJ

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 8315	1IC0768	1IC0768-BS1	
		1IC0768-BLK1	
		1IC1029-01	Well #1
		1IC1029-02	Well #2
		1IC1029-03	Well #3
		1IC1029-04	Well #4
		1IC1029-05	Well # Upgradient
		1IC0768-MS1	1IC1029-01
		1IC0768-MSD1	1IC1029-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 200.8, Rv. 5.4 (1994)	1IC0785	1IC0785-BLK1	
		1IC0785-BS1	
		1IC0785-MS1	1IC0920-02
		1IC0785-MSD1	1IC0920-02
		1IC0785-PS1	1IC0920-02
		1IC1029-01	Well #1
		1IC1029-03	Well #3
		1IC1029-04	Well #4
		1IC1029-05	Well # Upgradient
		1IC1029-02RE1	Well #2

Method	Batch	Laboratory ID	Client / Source ID
EPA 625.1	1IC0804	1IC0804-BLK1	
		1IC0804-BLK1	
		1IC0804-BS1	
		1IC0804-BS1	
		1IC0804-BSD1	
		1IC0804-BSD1	
		1IC1029-05	Well # Upgradient
		1IC1029-05	Well # Upgradient
		1IC1029-01	Well #1
		1IC1029-01	Well #1
		1IC1029-02	Well #2
		1IC1029-02	Well #2
		1IC1029-03	Well #3
		1IC1029-03	Well #3
		1IC1029-04	Well #4
		1IC1029-04	Well #4

200.7	1IC0913	1IC0913-MSD1	1IC0880-01
		1IC0913-PS1	1IC0880-01
EPA 200.7, Rv. 4.4 (1994)		1IC0913-PS1	1IC0880-01
200.7		1IC0913-PS1	1IC0880-01
EPA 200.7, Rv. 4.4 (1994)		1IC1029-01	Well #1
200.7		1IC1029-01	Well #1
		1IC1029-01	Well #1
		1IC1029-02	Well #2
		1IC1029-02	Well #2
EPA 200.7, Rv. 4.4 (1994)		1IC1029-02	Well #2
		1IC1029-03	Well #3
200.7		1IC1029-03	Well #3
		1IC1029-03	Well #3
		1IC1029-04	Well #4
		1IC1029-04	Well #4
EPA 200.7, Rv. 4.4 (1994)		1IC1029-04	Well #4
200.7		1IC1029-05	Well # Upgradient
EPA 200.7, Rv. 4.4 (1994)		1IC1029-05	Well # Upgradient
200.7		1IC1029-05	Well # Upgradient
EPA 200.7, Rv. 4.4 (1994)		1IC0913-BS1	

Method	Batch	Laboratory ID	Client / Source ID
USGS I-3765-85	1IC0959	1IC0959-BLK1	
		1IC0959-DUP1	1IC1014-01
		1IC1029-01	Well #1
		1IC0959-BS1	

Method	Batch	Laboratory ID	Client / Source ID
USGS I-3765-85	1IC0960	1IC1029-04	Well #4
		1IC0960-BLK1	
		1IC0960-DUP1	1IC1010-01
		1IC1029-05	Well # Upgradient
		1IC0960-BS1	
		1IC1029-03	Well #3
		1IC1029-02	Well #2

Method	Batch	Laboratory ID	Client / Source ID
TIMBERLINE	1IC0961	1IC0961-BLK1	
		1IC0961-BS1	
		1IC0961-MS1	1IC0988-01
		1IC0961-MSD1	1IC0988-01
		1IC1029-01	Well #1
		1IC1029-02	Well #2
		1IC1029-03	Well #3

EPA 9056A	1IC1306	1IC1306-MRL1	
300.0		1IC1306-MRL1	
		1IC1306-BS1	
EPA 9056A		1IC1306-BS1	
		1IC1306-BSD1	
300.0		1IC1306-BSD1	
EPA 9056A		1IC1306-MS1	1IC0828-01
300.0		1IC1306-MS1	1IC0828-01
		1IC1306-MSD1	1IC0828-01
EPA 9056A		1IC1306-MSD1	1IC0828-01
300.0		1IC1029-01	Well #1
EPA 9056A		1IC1029-01	Well #1
		1IC1306-BLK3	
300.0		1IC1306-BLK3	
		1IC1306-BS2	
EPA 9056A		1IC1306-BS2	
300.0		1IC1306-BSD2	
EPA 9056A		1IC1306-BSD2	
		1IC1306-MS2	1IC1475-03
300.0		1IC1306-MS2	1IC1475-03
		1IC1306-MSD2	1IC1475-03
EPA 9056A		1IC1306-MSD2	1IC1475-03
300.0		1IC1029-02	Well #2
		1IC1029-03	Well #3
EPA 9056A		1IC1029-04	Well #4
300.0		1IC1029-04	Well #4
		1IC1029-05	Well # Upgradient
EPA 9056A		1IC1029-05	Well # Upgradient

Method	Batch	Laboratory ID	Client / Source ID
EPA 9020B	1IC1318	1IC1318-BS1	
		1IC1318-BLK1	
		1IC1318-BSD1	
		1IC1318-MS1	1IC1029-04
		1IC1318-MSD1	1IC1029-04
		1IC1029-05	Well # Upgradient
		1IC1029-01	Well #1
		1IC1029-02	Well #2
		1IC1029-03	Well #3
		1IC1029-04	Well #4

Method	Batch	Laboratory ID	Client / Source ID
EPA 9056A	1IC1339	1IC1339-BLK1	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC1198 - EPA 5030B - EPA 624.1										
Matrix Spike (1IC1198-MS1)	**Source: 1IC1029-01**		Prepared: 03/24/25 00:00 Analyzed: 03/24/25 17:52							
Surrogate: Toluene-d8	*506*		ug/L	*504*		*100*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*505*		ug/L	*501*		*101*	*82-112*			
Matrix Spike Dup (1IC1198-MSD1)	**Source: 1IC1029-01**		Prepared: 03/24/25 00:00 Analyzed: 03/24/25 18:15							
2-Butanone (MEK)	1180	100	ug/L	1000	ND	118	57-133	6.99	30	
Chloroform	573.2	10.0	ug/L	501	ND	114	51-138	3.95	54	
Benzene	520.6	10.0	ug/L	504	ND	103	37-151	0.752	61	
Surrogate: Dibromofluoromethane	*550*		ug/L	*502*		*110*	*59-123*			
Surrogate: 1,2-Dichloroethane-d4	*555*		ug/L	*501*		*111*	*56-130*			
Surrogate: Toluene-d8	*507*		ug/L	*504*		*101*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*508*		ug/L	*501*		*101*	*82-112*			

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC0804 - EPA 625 BNA - EPA 625.1										
Blank (1IC0804-BLK1)			Prepared: 03/17/25 15:38 Analyzed: 03/20/25 16:26							
Pyridine	<10	10	ug/L							
LCS (1IC0804-BS1)			Prepared: 03/17/25 15:38 Analyzed: 03/20/25 16:50							
Pyridine	<10	10	ug/L	10.0		35.7	13-127			
LCS Dup (1IC0804-BSD1)			Prepared: 03/17/25 15:38 Analyzed: 03/20/25 17:14							
Pyridine	<10	10	ug/L	10.0		30.3	13-127	16.4	30	

Determination of Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC0804 - EPA 625 BNA - EPA 625.1										
Blank (1IC0804-BLK1)			Prepared: 03/17/25 15:38 Analyzed: 03/20/25 16:26							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L							
(3 & 4)-Methylphenol	<10.0	10.0	ug/L							
Surrogate: 2-Fluorophenol	*14.8*		ug/L	*20.6*		*71.9*	*16-140*			
Surrogate: Phenol-d6	*14.2*		ug/L	*19.6*		*72.6*	*13-147*			
Surrogate: 2,4,6-Tribromophenol	*19.9*		ug/L	*20.0*		*99.2*	*20-158*			
LCS (1IC0804-BS1)			Prepared: 03/17/25 15:38 Analyzed: 03/20/25 16:50							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L	10.0		76.3	35-117			
(3 & 4)-Methylphenol	<10.0	10.0	ug/L	10.0		78.0	37-114			
Surrogate: 2-Fluorophenol	*15.4*		ug/L	*20.6*		*74.6*	*16-140*			
Surrogate: Phenol-d6	*15.4*		ug/L	*19.6*		*78.7*	*13-147*			
Surrogate: 2,4,6-Tribromophenol	*19.6*		ug/L	*20.0*		*98.0*	*20-158*			

Determination of Conventional Chemistry Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC0826 - Wet Chem Preparation - EPA 410.4, Rv. 2 (1993)										
Matrix Spike Dup (1IC0826-MSD1)	Source: 1IC1029-01		Prepared & Analyzed: 03/18/25 09:08							
COD, total	1060	108	mg/L	1000	ND	106	90-110	1.61	10	
Batch 1IC0883 - Wet Chem Preparation - SM 2510 B-2011										
Blank (1IC0883-BLK1)			Prepared: 03/18/25 15:14 Analyzed: 03/19/25 13:40							
Conductivity	<2.0	2.0	uS/cm							
Duplicate (1IC0883-DUP1)	Source: 1IC1029-01		Prepared: 03/18/25 15:14 Analyzed: 03/19/25 13:40							
Conductivity	629	2.0	uS/cm		628			0.127	10	
Reference (1IC0883-SRM1)			Prepared: 03/18/25 15:14 Analyzed: 03/19/25 13:40							
Conductivity	451	2.0	uS/cm	500		90.2	90-110			
Batch 1IC0959 - Wet Chem Preparation - USGS I-3765-85										
Blank (1IC0959-BLK1)			Prepared: 03/19/25 13:51 Analyzed: 03/20/25 07:41							
Total Suspended Solids (TSS)	<1	1	mg/L							
LCS (1IC0959-BS1)			Prepared: 03/19/25 13:51 Analyzed: 03/20/25 07:41							
Total Suspended Solids (TSS)	14.9	1	mg/L	15.0		99.3	71-110			
Duplicate (1IC0959-DUP1)	Source: 1IC1014-01		Prepared: 03/19/25 13:51 Analyzed: 03/20/25 07:41							
Total Suspended Solids (TSS)	63.0	10	mg/L		48.0			27.0	30	
Batch 1IC0960 - Wet Chem Preparation - USGS I-3765-85										
Blank (1IC0960-BLK1)			Prepared: 03/19/25 13:57 Analyzed: 03/20/25 09:14							
Total Suspended Solids (TSS)	<1	1	mg/L							
LCS (1IC0960-BS1)			Prepared: 03/19/25 13:57 Analyzed: 03/20/25 09:14							
Total Suspended Solids (TSS)	13.6	1	mg/L	15.0		90.7	71-110			
Duplicate (1IC0960-DUP1)	Source: 1IC1010-01		Prepared: 03/19/25 13:57 Analyzed: 03/20/25 09:14							
Total Suspended Solids (TSS)	148	10	mg/L		324			74.6	30	R1
Batch 1IC0961 - General Prep HPLC/IC - TIMBERLINE										
Blank (1IC0961-BLK1)			Prepared: 03/19/25 13:58 Analyzed: 03/19/25 14:50							
Nitrogen, Ammonia	<0.10	0.10	mg/L							
LCS (1IC0961-BS1)			Prepared: 03/19/25 13:58 Analyzed: 03/19/25 14:52							
Nitrogen, Ammonia	5.20	0.10	mg/L	5.00		104	90-114			
Matrix Spike (1IC0961-MS1)	Source: 1IC0988-01		Prepared: 03/19/25 13:58 Analyzed: 03/19/25 14:53							
Nitrogen, Ammonia	5.85	0.10	mg/L	5.00	ND	117	84-115			M1
Matrix Spike Dup (1IC0961-MSD1)	Source: 1IC0988-01		Prepared: 03/19/25 13:58 Analyzed: 03/19/25 14:55							
Nitrogen, Ammonia	6.00	0.10	mg/L	5.00	ND	120	84-115	2.52	20	M1
Batch 1IC1134 - Wet Chem Preparation - EPA 420.1										

Determination of Inorganic Anions	Result		RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC1306 - General Prep HPLC/IC - 300.0											
LCS (1IC1306-BS1)				Prepared: 03/25/25 00:00 Analyzed: 03/25/25 10:58							
Fluoride	1.16		0.1	mg/L	1.23		94.8	90-110			
Chloride	15.38		1.0	mg/L	15.7		98.0	90-110			
Sulfate	34.31	0.4	1.0	mg/L	33.9		101	80-120			
LCS (1IC1306-BS2)				Prepared: 03/25/25 00:00 Analyzed: 03/25/25 20:03							
Fluoride	1.18		0.1	mg/L	1.23		96.4	90-110			
Chloride	15.49		1.0	mg/L	15.7		98.7	90-110			
Sulfate	34.02	0.4	1.0	mg/L	33.9		100	80-120			
LCS Dup (1IC1306-BSD1)				Prepared: 03/25/25 00:00 Analyzed: 03/25/25 11:16							
Fluoride	1.16		0.1	mg/L	1.23		94.6	90-110	0.258	10	
Chloride	15.35		1.0	mg/L	15.7		97.8	90-110	0.156	10	
Sulfate	34.31	0.4	1.0	mg/L	33.9		101	80-120	0.00291	10	
LCS Dup (1IC1306-BSD2)				Prepared: 03/25/25 00:00 Analyzed: 03/25/25 20:21							
Fluoride	1.19		0.1	mg/L	1.23		96.7	90-110	0.337	10	
Chloride	15.53		1.0	mg/L	15.7		99.0	90-110	0.284	10	
Sulfate	34.65	0.4	1.0	mg/L	33.9		102	80-120	1.85	10	
Matrix Spike (1IC1306-MS1)		**Source: 1IC0828-01**		Prepared: 03/25/25 00:00 Analyzed: 03/25/25 12:29							
Fluoride	13.01		1.0	mg/L	12.3	ND	106	80-120			
Chloride	437.0		10.0	mg/L	157	276.3	102	80-120			
Sulfate	873.1	3.6	10.0	mg/L	339	499.2	110	87-113			
Matrix Spike (1IC1306-MS2)		**Source: 1IC1475-03**		Prepared: 03/25/25 00:00 Analyzed: 03/25/25 22:10							
Fluoride	15.27		1.0	mg/L	12.3	1.84	109	80-120			
Chloride	457.6		10.0	mg/L	157	309.4	94.4	80-120			
Sulfate	396.5	3.6	10.0	mg/L	339	64.28	98.0	87-113			
Matrix Spike Dup (1IC1306-MSD1)		**Source: 1IC0828-01**		Prepared: 03/25/25 00:00 Analyzed: 03/25/25 12:47							
Fluoride	13.02		1.0	mg/L	12.3	ND	106	80-120	0.0768	10	
Chloride	437.1		10.0	mg/L	157	276.3	102	80-120	0.0183	10	
Sulfate	883.4	3.6	10.0	mg/L	339	499.2	113	87-113	1.17	10	
Matrix Spike Dup (1IC1306-MSD2)		**Source: 1IC1475-03**		Prepared: 03/25/25 00:00 Analyzed: 03/25/25 22:28							
Fluoride	14.96		1.0	mg/L	12.3	1.84	107	80-120	2.05	10	
Chloride	458.0		10.0	mg/L	157	309.4	94.7	80-120	0.0983	10	
Sulfate	407.2	3.6	10.0	mg/L	339	64.28	101	87-113	2.66	10	
Batch 1IC1339 - General Prep HPLC/IC - EPA 9056A											
Blank (1IC1339-BLK1)				Prepared: 03/26/25 00:00 Analyzed: 03/26/25 10:19							
Sulfate	<0.4	0.4	1.0	mg/L							
Blank (1IC1339-BLK2)				Prepared: 03/26/25 00:00 Analyzed: 03/26/25 15:28							
Sulfate	<0.4	0.4	1.0	mg/L							
LCS (1IC1339-BS1)				Prepared: 03/26/25 00:00 Analyzed: 03/26/25 10:55							
Sulfate	34.27	0.4	1.0	mg/L	33.9		101	80-120			
LCS Dup (1IC1339-BSD1)				Prepared: 03/26/25 00:00 Analyzed: 03/26/25 11:13							

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC0785 - EPA 200.2 Total ICP-MS - EPA 200.8, Rv. 5.4 (1994)											
LCS (1IC0785-BS1)				Prepared: 03/17/25 14:07 Analyzed: 03/19/25 15:49							
Thallium, total	0.0970	0.0004	0.0008	mg/L	0.100		97.0	85-115			
Vanadium, total	0.0981	0.0043	0.0080	mg/L	0.100		98.1	85-115			
Zinc, total	0.0948	0.0174	0.0200	mg/L	0.100		94.8	85-115			
Matrix Spike (1IC0785-MS1)		Source: 1IC0920-02		Prepared: 03/17/25 14:07 Analyzed: 03/19/25 16:01							
Antimony, total	0.0959	0.0008	0.0020	mg/L	0.100	ND	95.9	70-130			
Arsenic, total	0.0981	0.0006	0.0020	mg/L	0.100	0.0019	96.2	70-130			
Barium, total	0.120	0.0002	0.0020	mg/L	0.100	0.0103	109	70-130			
Beryllium, total	0.0911	0.00007	0.0020	mg/L	0.100	ND	91.1	70-130			
Cadmium, total	0.0921	0.00008	0.0002	mg/L	0.100	0.0012	90.9	70-130			
Chromium, total	0.0984	0.0007	0.0008	mg/L	0.100	0.0064	92.1	70-130			
Cobalt, total	0.102	0.0005	0.0020	mg/L	0.100	0.0011	101	70-130			
Copper, total	0.102	0.0008	0.0020	mg/L	0.100	0.0095	92.1	70-130			
Lead, total	0.0875	0.0005	0.0008	mg/L	0.100	ND	87.5	70-130			
Manganese, total	0.251	0.0017	0.0040	mg/L	0.100	0.164	86.7	70-130			
Molybdenum, total	1.59	0.0006	0.0020	mg/L	0.100	1.49	102	70-130			
Nickel, total	0.229	0.0007	0.0040	mg/L	0.100	0.134	95.1	70-130			
ium, total	0.0926	0.0011	0.0040	mg/L	0.100	ND	92.6	70-130			
Silver, total	0.0937	0.0015	0.0020	mg/L	0.100	ND	93.7	70-130			
Thallium, total	0.0817	0.0004	0.0008	mg/L	0.100	ND	81.7	70-130			
Vanadium, total	0.0980	0.0043	0.0080	mg/L	0.100	ND	98.0	70-130			
Zinc, total	0.469	0.0174	0.0200	mg/L	0.100	0.390	79.1	70-130			
Matrix Spike Dup (1IC0785-MSD1)		Source: 1IC0920-02		Prepared: 03/17/25 14:07 Analyzed: 03/19/25 16:07							
Antimony, total	0.0966	0.0008	0.0020	mg/L	0.100	ND	96.6	70-130	0.810	20	
Arsenic, total	0.0998	0.0006	0.0020	mg/L	0.100	0.0019	97.9	70-130	1.70	20	
Barium, total	0.120	0.0002	0.0020	mg/L	0.100	0.0103	109	70-130	0.0598	20	
Beryllium, total	0.0894	0.00007	0.0020	mg/L	0.100	ND	89.4	70-130	1.85	20	
Cadmium, total	0.0921	0.00008	0.0002	mg/L	0.100	0.0012	90.9	70-130	0.0256	20	
Chromium, total	0.0992	0.0007	0.0020	mg/L	0.100	0.0064	92.9	70-130	0.825	20	
Cobalt, total	0.103	0.0005	0.0020	mg/L	0.100	0.0011	102	70-130	1.68	20	
Copper, total	0.103	0.0008	0.0020	mg/L	0.100	0.0095	94.0	70-130	1.87	20	
Lead, total	0.0879	0.0005	0.0008	mg/L	0.100	ND	87.9	70-130	0.546	20	
Manganese, total	0.253	0.0017	0.0040	mg/L	0.100	0.164	88.9	70-130	0.863	20	
Molybdenum, total	1.60	0.0006	0.0020	mg/L	0.100	1.49	110	70-130	0.536	20	
Nickel, total	0.234	0.0007	0.0040	mg/L	0.100	0.134	100	70-130	2.24	20	
Selenium, total	0.0918	0.0011	0.0040	mg/L	0.100	ND	91.8	70-130	0.897	20	
Silver, total	0.0929	0.0015	0.0020	mg/L	0.100	ND	92.9	70-130	0.873	20	
Thallium, total	0.0827	0.0004	0.0008	mg/L	0.100	ND	82.7	70-130	1.20	20	
Vanadium, total	0.0985	0.0043	0.0080	mg/L	0.100	ND	98.5	70-130	0.552	20	
Zinc, total	0.475	0.0174	0.0200	mg/L	0.100	0.390	84.7	70-130	1.20	20	
P pike (1IC0785-PS1)		Source: 1IC0920-02		Prepared: 03/17/25 14:07 Analyzed: 03/19/25 16:13							
A ony, total	0.0787			mg/L	0.0800	0.0004	97.9	70-130			
Arsenic, total	0.0823			mg/L	0.0800	0.0019	100	70-130			
Barium, total	0.0920			mg/L	0.0800	0.0101	102	70-130			

CERTIFICATE OF ANALYSIS

1IC1029

Determination of Total Metals	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IC1060 - EPA 7470A Hg Water - SM 3112B											
Blank (1IC1060-BLK1)				Prepared: 03/20/25 15:36 Analyzed: 03/21/25 14:59							
Mercury, total	<0.00013	0.00013	0.00020	mg/L							
LCS (1IC1060-BS1)				Prepared: 03/20/25 15:36 Analyzed: 03/21/25 15:01							
Mercury, total	0.00299	0.00013	0.00020	mg/L	0.00250		120	81-119			Q2
Matrix Spike (1IC1060-MS1)	Source: 1IC1029-01			Prepared: 03/20/25 15:36 Analyzed: 03/21/25 15:31							
Mercury, total	0.00312	0.00013	0.00020	mg/L	0.00250	ND	125	72-123			M1
Matrix Spike Dup (1IC1060-MSD1)	Source: 1IC1029-01			Prepared: 03/20/25 15:36 Analyzed: 03/21/25 15:33							
Mercury, total	0.00306	0.00013	0.00020	mg/L	0.00250	ND	123	72-123	1.66	18	

Definitions

H:	Sample was analyzed past holding time.
M1:	Matrix spike recovery is above acceptance limits.
M2:	Matrix spike recovery is below acceptance limits.
M6:	Matrix spike recovery is outside of acceptance limits. The analyte concentration is greater than 4X the spiking level.
MDL:	Minimum Detection Limit
Q2:	LCS recovery is above acceptance limits.
R1:	Duplicate RPD is outside acceptance criteria.
RL:	Reporting Limit
RPD:	Relative Percent Difference
TX1:	Repeated analysis of this sample consistently exceeded greater than 10% breakthrough to the second column.
TX2:	The RPD value for the sample duplicates are outside of acceptance limits due to matrix interference. The reported value is an average of all test measurements.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 1.8°C

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

Reviewed and Approved By:

Heather Tisdale

Heather Tisdale
Customer Relationship Specialist
heather.tisdale@microbac.com
04/01/25 15:53

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CHA

1 I C 1 0 2 9
BMC Aggregates L.C.
PM: Heather Tisdale

Printed: 2/24/2025 8:31:46A
www.keystonelabs.com

SITE INFORMATION
Sampler: Sherman Lundy
Project: GW Monitoring
Miller Creek Area

REPORT TO
Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO
Accounts Payable
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

SPECIAL INSTRUCTIONS
None

Turn Around Time
☐ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY
Work Order 1IC1029
Temperature 1.8
Turn-Cooler: No

☐ Custody Seal
☒ Containers Intact
☒ COC/Labels Agree
☐ Preservation Confirmed
☒ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses	Lab Sample Number
	W #1						an-r-200.0	

Relinquished By: [illegible] Date/Time: 3PM
Received By: Date/Time:
Relinquished By: Date/Time: 3/13/25 15:00
Received for Lab By: J [illegible] Date/Time:

Remarks:

Original - Lab Copy Yellow - Sampler Copy

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641-792-84

1 I C 1 0 2 9

BMC Aggregates L.C.
PM: Heather Tisdale

SITE INFORMATION

Sampler: Sherman Lundy

Project: GW Monitoring
Miller Creek Area

REPORT TO

Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO

Accounts Payable
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

SPECIAL INSTRUCTIONS

None

Turn Around Time

☐ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

Work Order 1IC1029
Temperature 1.8
Turn-Cooler: No

- ☐ Custody Seal
- ☒ Containers Intact
- ☒ COC/Labels Agree
- ☐ Preservation Confirmed
- ☒ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses	Lab Sample Number

38M

Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time
J Hogan 3/13/25 1500

Received for Lab By Date/Time

Remarks:

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CHAIN OF CUSTODY

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BMC Aggregates L.C.
PM: Heather Tisdale

SITE INFORMATION

Sampler: Sherman Lundy

Project: GW Monitoring
Miller Creek Area

SPECIAL INSTRUCTIONS

None

Turn Around Time
☐ Standard ☐ RUSH, need by ___/___/___

REPORT TO

Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO

Accounts Payable
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

LAB USE ONLY

Work Order 1IC1029
Temperature 1.8
Turn-Cooler: NO

- ☐ Custody Seal
- ☒ Containers Intact
- ☒ COC/Labels Agree
- ☐ Preservation Confirmed
- ☒ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses	Lab Sample Number

Relinquished By — Date/Time 3PM

Received By — Date/Time

Relinquished By — Date/Time

J Hogan — Received for Lab By — Date/Time 3/13/25 15:00

Remarks:

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BMC Aggregates L.C.
PM: Heather Tisdale

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www.keystonelabs.com

SITE INFORMATION

Sampler: Sherman Lundy

Project: GW Monitoring
Miller Creek Area

REPORT TO

Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO

Accounts Payable
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

SPECIAL INSTRUCTIONS

None

Turn Around Time

☐ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

Work Order ~~1IC1~~ EDF 1IC1029

Temperature 1.8

Turn-Cooler: No

- ☐ Custody Seal
- ☒ Containers Intact
- ☒ COC/Labels Agree
- ☐ Preservation Confirmed
- ☒ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses	Lab Sample Number
							zn-t-200.8	

3PM

Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

J Hogan 3/13/25 15:00

Received for Lab By Date/Time

Remarks:

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1IC1029

BMC Aggregates L.C.
PM: Heather Tisdale

Printed: 2/24/2025 9:31:46A
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SITE INFORMATION

Sampler: Sherman Lundy
Project: GW Monitoring
Miller Creek Area

REPORT TO

Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO

Accounts Payable
BMC Aggregates L.C
101 BMC Drive
Elk Run Heights, IA 50707

SPECIAL INSTRUCTIONS

None

Turn Around Time
☐ Standard ☐ RUSH, need by __/__/__

LAB USE ONLY

Work Order 1IC1029
Temperature 1.8
Turn-Cooler: No

☐ Custody Seal
☒ Containers Intact
☒ COC/Labels Agree
☐ Preservation Confirmed
☐ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses	Lab Sample Number
							zinc 200.5	

Relinquished By	Date/Time	Relinquished By	Date/Time
[signature]	3/13/25 3PM		
Received By	**Date/Time**	**Received for Lab By**	**Date/Time**
		J Hogan	3/13/25 15:00

Remarks:

Original - Lab Copy Yellow - Sampler Copy

MICROBAC

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IJ1640

BMC Aggregates L.C.

Sherman Lundy
101 BMC Drive
Elk Run Heights, IA 50707

Project Name: Miller Creek Area

Project / PO Number: Sherman Lundy
Received: 10/17/2025
Reported: 11/05/2025

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
Well #1	1IJ1640-01	Aqueous	GRAB		10/15/25 12:30	10/17/25 11:35
Well #2	1IJ1640-02	Aqueous	GRAB		10/15/25 01:00	10/17/25 11:35
Well #3	1IJ1640-03	Aqueous	GRAB		10/15/25 12:30	10/17/25 11:35
Well #4	1IJ1640-04	Aqueous	GRAB		10/15/25 14:00	10/17/25 11:35
Upgradient Well	1IJ1640-05	Aqueous	GRAB		10/15/25 14:30	10/17/25 11:35

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #1	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 12:30
Lab Sample ID:	1IJ1640-01		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Nitrogen, Ammonia	<0.10	0.10	mg/L		10/20/25 1504	10/21/25 1025	BHF
USGS I-1750-85							
Total Dissolved Solids (TDS)	**395**	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	**2**	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	**1.0**	0.1	mg/L			10/20/25 1140	BMS
Chloride	**12.1**	1.0	mg/L			10/20/25 1140	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1638	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/23/25 0810	JAR
Iron	**0.127**	0.047	0.100	mg/L		10/21/25 1518	10/23/25 0810	JAR
Magnesium	**35.5**	0.06	0.10	mg/L	M6	10/21/25 1518	10/23/25 0810	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	<0.0003	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Arsenic	**0.0010**	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Barium	**0.259**	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1843	RVV
Chromium	**0.0003**	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Cobalt	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1843	RVV
Copper	**0.0026**	0.0021	0.0050	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Lead	**0.0002**	0.0002	0.0005	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Manganese	**0.0026**	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1843	RVV
Molybdenum	<0.0005	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Nickel	**0.0023**	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1843	RVV
Selenium	<0.0011	0.0011	0.0020	mg/L		10/20/25 1620	10/21/25 1843	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1843	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1843	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1843	RVV
[illegible]	<0.0136	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1843	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID: Well #2
Sample Matrix: Aqueous
Lab Sample ID: 1IJ1640-02

Collected By: Sherman Lundy
Collection Date: 10/15/2025 1:00

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1							
2-Butanone (MEK)	<10.0	10.0	ug/L		10/29/25 0000	10/29/25 1148	RAF
Chloroform	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1148	RAF
Benzene	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1148	RAF
Surrogate: Dibromofluoromethane	98.2	Limit: 59-123	% Rec		10/29/25 0000	10/29/25 1148	RAF
Surrogate: 1,2-Dichloroethane-d4	101	Limit: 56-130	% Rec		10/29/25 0000	10/29/25 1148	RAF
Surrogate: Toluene-d8	106	Limit: 85-113	% Rec		10/29/25 0000	10/29/25 1148	RAF
Surrogate: 4-Bromofluorobenzene	89.7	Limit: 82-112	% Rec		10/29/25 0000	10/29/25 1148	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1554	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1554	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1554	EPP
Surrogate: 2-Fluorophenol	73.5	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1554	EPP
Surrogate: Phenol-d6	74.3	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1554	EPP
Surrogate: 2,4,6-Tribromophenol	110	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1554	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1251	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/24/25 0151	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 0826	10/21/25 1610	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	<0.010	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
SM 2510 B-2011							
Conductivity	730	2.0	uS/cm		10/21/25 1311	10/21/25 1557	
TIMBERLINE							
Nitrogen, Ammonia	0.13	0.10	mg/L		10/20/25 1444	10/21/25 1026	BHF

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #2		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-02	**Collection Date:**	10/15/2025 1:00

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #3		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-03	**Collection Date:**	10/15/2025 12:30

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
USGS I-1750-85							
Total Dissolved Solids (TDS)	**411**	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	**16**	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	**0.6**	0.1	mg/L			10/20/25 1224	BMS
Chloride	**20.7**	1.0	mg/L			10/20/25 1224	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1642	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/24/25 0211	
Iron	<0.047	0.047	0.100	mg/L		10/21/25 1518	10/24/25 0211	JAR
Magnesium	**28.6**	0.06	0.10	mg/L		10/21/25 1518	10/24/25 0211	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	<0.0003	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Arsenic	**0.0005**	0.0002	0.0010	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Barium	**0.0772**	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1848	RVV
Chromium	**0.0004**	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Cobalt	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1848	RVV
Copper	**0.0030**	0.0021	0.0050	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Lead	<0.0002	0.0002	0.0005	mg/L		10/20/25 1620	10/21/25 1848	RVV
Manganese	**0.0024**	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1848	RVV
Molybdenum	**0.0032**	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Nickel	**0.0012**	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1848	RVV
Selenium	<0.0011	0.0011	0.0020	mg/L		10/20/25 1620	10/21/25 1848	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1848	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1848	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1848	RVV
Zinc	<0.0136	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1848	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	A. st
EPA 9056A								
Sulfate	**104**	0.4	1.0	mg/L			10/20/25 1224	BMS

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #4	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 14:00
Lab Sample ID:	1IJ1640-04		

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 624.1							
2-Butanone (MEK)	<10.0	10.0	ug/L		10/29/25 0000	10/29/25 1233	RAF
Chloroform	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1233	RAF
Benzene	<1.0	1.0	ug/L		10/29/25 0000	10/29/25 1233	RAF
Surrogate: Dibromofluoromethane	97.8	Limit: 59-123	% Rec		10/29/25 0000	10/29/25 1233	RAF
Surrogate: 1,2-Dichloroethane-d4	100	Limit: 56-130	% Rec		10/29/25 0000	10/29/25 1233	RAF
Surrogate: Toluene-d8	106	Limit: 85-113	% Rec		10/29/25 0000	10/29/25 1233	RAF
Surrogate: 4-Bromofluorobenzene	92.4	Limit: 82-112	% Rec		10/29/25 0000	10/29/25 1233	RAF

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 625.1							
Pyridine	<10	10	ug/L		10/21/25 0943	10/27/25 1644	EPP

Determination of Acid Extractable Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
625.1							
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1644	EPP
(3 & 4)-Methylphenol	<10.0	10.0	ug/L		10/21/25 0943	10/27/25 1644	EPP
Surrogate: 2-Fluorophenol	96.0	Limit: 16-140	% Rec		10/21/25 0943	10/27/25 1644	EPP
Surrogate: Phenol-d6	104	Limit: 13-147	% Rec		10/21/25 0943	10/27/25 1644	EPP
Surrogate: 2,4,6-Tribromophenol	116	Limit: 20-158	% Rec		10/21/25 0943	10/27/25 1644	EPP

Determination of Carbonyl Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 8315A							
Formaldehyde	<20.0	20.0	ug/L		10/17/25 1046	10/20/25 1332	PDS

Metals Total by ICP	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)							
Aluminum	<0.050	0.050	mg/L		10/21/25 1518	10/24/25 0217	JAR

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 410.4, Rv. 2 (1993)							
COD, total	<54	54	mg/L		10/21/25 0826	10/21/25 1610	KAC
EPA 420.1							
Phenols, total	<0.035	0.035	mg/L		10/28/25 0854	10/29/25 1427	RDH
EPA 9020B							
Total Organic Halogens (TOX)	0.084	0.010	mg/L		10/29/25 0000	10/30/25 1443	CSM
A 2510 B-2011							
nductivity	650	2.0	uS/cm		10/21/25 1311	10/21/25 1557	BSS
TIMBERLINE							
Nitrogen, Ammonia	<0.10	0.10	mg/L		10/20/25 1447	10/21/25 1039	BHF

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Well #4		
Sample Matrix:	Aqueous	**Collected By:**	Sherman Lundy
Lab Sample ID:	1IJ1640-04	**Collection Date:**	10/15/2025 14:00

CERTIFICATE OF ANALYSIS

1IJ1640

Client Sample ID:	Upgradient Well	**Collected By:**	Sherman Lundy
Sample Matrix:	Aqueous	**Collection Date:**	10/15/2025 14:30
Lab Sample ID:	1IJ1640-05		

Determination of Conventional Chemistry Parameters	Result	RL	Units	Note	Prepared	Analyzed	Analyst
USGS I-1750-85							
Total Dissolved Solids (TDS)	**420**	5	mg/L		10/17/25 1408	10/20/25 0900	LAW
USGS I-3765-85							
Total Suspended Solids (TSS)	<1	1	mg/L		10/17/25 1405	10/20/25 0951	LAW

Determination of Inorganic Anions	Result	RL	Units	Note	Prepared	Analyzed	Analyst
300.0							
Fluoride	**0.3**	0.1	mg/L			10/20/25 1309	BMS
Chloride	**34.0**	1.0	mg/L			10/20/25 1309	BMS

Metals Total by AA	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
SM 3112 B-2011								
Mercury	<0.00015	0.00015	0.00050	mg/L		10/27/25 1536	10/28/25 1647	JAR

Metals Total by ICP	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
00.7, Rv. 4.4 (1994)								
Boron	<0.056	0.056	0.100	mg/L		10/21/25 1518	10/24/25 0223	JAR
Iron	<0.047	0.047	0.100	mg/L		10/21/25 1518	10/24/25 0223	JAR
Magnesium	**21.7**	0.06	0.10	mg/L		10/21/25 1518	10/24/25 0223	JAR

Metals Total by ICPMS	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 200.8, Rv. 5.4 (1994)								
Antimony	**0.0013**	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Arsenic	**0.0003**	0.0002	0.0010	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Barium	**0.160**	0.0003	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Beryllium	<0.0002	0.0002	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Cadmium	<0.00007	0.00007	0.0002	mg/L		10/20/25 1620	10/21/25 1858	RVV
Chromium	**0.0007**	0.0003	0.0010	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Cobalt	**0.00009**	0.00007	0.0002	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Copper	**0.0098**	0.0021	0.0050	mg/L		10/20/25 1620	10/21/25 1858	RVV
Lead	**0.0006**	0.0002	0.0005	mg/L		10/20/25 1620	10/21/25 1858	RVV
Manganese	**0.0022**	0.0002	0.0050	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Molybdenum	**0.0026**	0.0005	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Nickel	**0.0011**	0.0004	0.0010	mg/L		10/20/25 1620	10/21/25 1858	RVV
Selenium	**0.0012**	0.0011	0.0020	mg/L	J	10/20/25 1620	10/21/25 1858	RVV
Silver	<0.0035	0.0035	0.0050	mg/L		10/20/25 1620	10/21/25 1858	RVV
Thallium	<0.00007	0.00007	0.0005	mg/L		10/20/25 1620	10/21/25 1858	RVV
Vanadium	<0.0005	0.0005	0.0050	mg/L		10/20/25 1620	10/21/25 1858	RVV
Zinc	**0.112**	0.0136	0.0200	mg/L		10/20/25 1620	10/21/25 1858	RVV

Determination of Inorganic Anions	Result	MDL	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 9056A								
Sulfate	**58.6**	0.4	1.0	mg/L			10/20/25 1309	BMS

CERTIFICATE OF ANALYSIS

1IJ1640

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 8315A	1IJ1052	1IJ1052-BS1	
		1IJ1052-BLK1	
		1IJ1640-01	Well #1
		1IJ1640-02	Well #2
		1IJ1640-03	Well #3
		1IJ1640-04	Well #4
		1IJ1640-05	Upgradient Well
		1IJ1052-MS1	1IJ1513-01
		1IJ1052-MSD1	1IJ1513-01
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
USGS I-3765-85	1IJ1073	1IJ1640-02	Well #2
		1IJ1073-BLK1	
		1IJ1640-04	Well #4
		1IJ1073-DUP1	1IJ1621-01
		1IJ1073-BS1	
		1IJ1640-05	Upgradient Well
		1IJ1640-01	Well #1
		1IJ1640-03	Well #3
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
USGS I-1750-85	1IJ1074	1IJ1074-BS1	
		1IJ1074-DUP1	1IJ1640-01
		1IJ1640-05	Upgradient Well
		1IJ1640-01	Well #1
		1IJ1640-02	Well #2
		1IJ1640-03	Well #3
		1IJ1640-04	Well #4
		1IJ1074-BLK1	
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
TIMBERLINE	1IJ1150	1IJ1150-BLK1	
		1IJ1150-BS1	
		1IJ1150-MS1	1IJ1591-01
		1IJ1150-MSD1	1IJ1591-01
		1IJ1640-01	Well #1
		1IJ1640-02	Well #2
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
TIMBERLINE	1IJ1151	1IJ1151-BLK1	
		1IJ1151-BS1	
		1IJ1640-03	Well #3
		1IJ1640-04	Well #4
		1IJ1640-05	Upgradient Well
		1IJ1151-MS1	1IJ1640-03
		1IJ1151-MSD1	1IJ1640-03
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 200.8, Rv. 5.4 (1994)	1IJ1173	1IJ1173-BLK1	
		1IJ1173-MS1	1IJ1565-02
		1IJ1173-MSD1	1IJ1565-02
		1IJ1173-PS1	1IJ1565-02
		1IJ1640-01	Well #1

CERTIFICATE OF ANALYSIS

1IJ1640

Method	Batch	Laboratory ID	Client / Source ID
EPA 625.1	1IJ1187	1IJ1640-01	Well #1
		1IJ1640-01	Well #1
		1IJ1640-02	Well #2
		1IJ1640-02	Well #2
		1IJ1640-03	Well #3
		1IJ1640-03	Well #3
		1IJ1640-04	Well #4
		1IJ1640-04	Well #4
		1IJ1640-05	Upgradient Well
		1IJ1640-05	Upgradient Well
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 410.4, Rv. 2 (1993)	1IJ1207	1IJ1207-BLK1	
		1IJ1207-BS1	
		1IJ1207-MS1	1IJ1640-01
		1IJ1207-MSD1	1IJ1640-01
		1IJ1640-01	Well #1
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
SM 2510 B-2011	1IJ1216	1IJ1640-05	Upgradient Well
		1IJ1640-04	Well #4
		1IJ1640-02	Well #2
		1IJ1640-01	Well #1
		1IJ1640-03	Well #3
		1IJ1216-SRM1	
		1IJ1216-DUP1	1IJ1640-01
		1IJ1216-BLK1	
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 200.7, Rv. 4.4 (1994)	1IJ1227	1IJ1227-BLK1	
		1IJ1227-BS1	
		1IJ1640-01	Well #1
		1IJ1227-MS1	1IJ1640-01
		1IJ1227-MSD1	1IJ1640-01
		1IJ1227-PS1	1IJ1640-01
		1IJ1640-02	Well #2
		1IJ1640-03	Well #3
		1IJ1640-04	Well #4
		1IJ1640-05	Upgradient Well
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
SM 3112 B-2011	1IJ1552	1IJ1552-BLK1	
		1IJ1552-BS1	
		1IJ1552-MS1	1IJ1317-01
		1IJ1552-MSD1	1IJ1317-01
		1IJ1640-01	Well #1
		1IJ1640-02	Well #2
		1IJ1640-03	Well #3
		1IJ1640-04	Well #4
		1IJ1640-05	Upgradient Well
Method	**Batch**	**Laboratory ID**	**Client / Source ID**
EPA 420.1	1IJ1579	1IJ1640-03	Well #3
		1IJ1579-BS1	
		1IJ1640-04	Well #4

CERTIFICATE OF ANALYSIS

1IJ1640

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1715 - EPA 5030B - EPA 624.1										
Blank (1IJ1715-BLK1)			Prepared: 10/29/25 00:00 Analyzed: 10/29/25 11:02							
Benzene	<1.0	1.0	ug/L							
Surrogate: Dibromofluoromethane	*50.3*		ug/L	*50.2*		*100*	*59-123*			
Surrogate: 1,2-Dichloroethane-d4	*51.2*		ug/L	*50.4*		*102*	*56-130*			
Surrogate: Toluene-d8	*52.5*		ug/L	*50.5*		*104*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*46.4*		ug/L	*50.2*		*92.5*	*82-112*			
LCS (1IJ1715-BS1)			Prepared: 10/29/25 00:00 Analyzed: 10/29/25 10:16							
2-Butanone (MEK)	98.53	10.0	ug/L	100		98.5	44-134			
Chloroform	49.18	1.0	ug/L	50.1		98.2	70-135			
Benzene	47.59	1.0	ug/L	50.4		94.4	65-135			
Surrogate: Dibromofluoromethane	*51.8*		ug/L	*50.2*		*103*	*59-123*			
Surrogate: 1,2-Dichloroethane-d4	*52.0*		ug/L	*50.4*		*103*	*56-130*			
Surrogate: Toluene-d8	*53.7*		ug/L	*50.5*		*106*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*51.2*		ug/L	*50.2*		*102*	*82-112*			
Matrix Spike (1IJ1715-MS1)	**Source: 1IJ2193-01**		Prepared: 10/29/25 00:00 Analyzed: 10/29/25 19:02							
2-Butanone (MEK)	1214	100	ug/L	1000	ND	121	57-133			
Chloroform	625.7	10.0	ug/L	501	ND	125	51-138			
Benzene	488.1	10.0	ug/L	504	ND	96.8	37-151			
Surrogate: Dibromofluoromethane	*586*		ug/L	*502*		*117*	*59-123*			
Surrogate: 1,2-Dichloroethane-d4	*396*		ug/L	*504*		*78.6*	*56-130*			
Surrogate: Toluene-d8	*532*		ug/L	*505*		*105*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*523*		ug/L	*502*		*104*	*82-112*			
Matrix Spike Dup (1IJ1715-MSD1)	**Source: 1IJ2193-01**		Prepared: 10/29/25 00:00 Analyzed: 10/29/25 19:25							
2-Butanone (MEK)	1043	100	ug/L	1000	ND	104	57-133	15.2	30	
Chloroform	492.2	10.0	ug/L	501	ND	98.3	51-138	23.9	54	
Benzene	460.1	10.0	ug/L	504	ND	91.2	37-151	5.91	61	
Surrogate: Dibromofluoromethane	*508*		ug/L	*502*		*101*	*59-123*			
Surrogate: 1,2-Dichloroethane-d4	*523*		ug/L	*504*		*104*	*56-130*			
Surrogate: Toluene-d8	*531*		ug/L	*505*		*105*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*401*		ug/L	*502*		*79.9*	*82-112*			*S2*
Batch 1IJ1790 - EPA 5030B - EPA 624.1										
Blank (1IJ1790-BLK1)			Prepared: 10/30/25 00:00 Analyzed: 10/30/25 12:14							
Chloroform	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
Surrogate: Dibromofluoromethane	*50.7*		ug/L	*50.2*		*101*	*59-123*			
Surrogate: 1,2-Dichloroethane-d4	*51.7*		ug/L	*50.4*		*103*	*56-130*			
Surrogate: Toluene-d8	*52.9*		ug/L	*50.5*		*105*	*85-113*			
Surrogate: 4-Bromofluorobenzene	*46.0*		ug/L	*50.2*		*91.6*	*82-112*			
LCS (1IJ1790-BS1)			Prepared: 10/30/25 00:00 Analyzed: 10/30/25 11:06							

CERTIFICATE OF ANALYSIS

1IJ1640

Determination of Volatile Organic Compounds	Result		RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Metals Total by AA	**Result**	**MDL**	**RL**	**Units**	**Spike Level**	**Source Result**	**%REC**	**%REC Limits**	**RPD**	**RPD Limit**	**Notes**
Batch 1IJ1552 - EPA 7470A Hg Water - SM 3112 B-2011											
Blank (1IJ1552-BLK1)					Prepared: 10/27/25 15:36 Analyzed: 10/28/25 16:06						
Mercury	<0.00015	0.00015	0.00050	mg/L							
LCS (1IJ1552-BS1)					Prepared: 10/27/25 15:36 Analyzed: 10/28/25 16:08						
Mercury	0.00240	0.00015	0.00050	mg/L	0.00250		96.1	83-118			
Matrix Spike (1IJ1552-MS1)		Source: 1IJ1317-01			Prepared: 10/27/25 15:36 Analyzed: 10/28/25 16:13						
Mercury	0.00425	0.00059	0.00200	mg/L	0.00250	0.00118	123	74-124			
Matrix Spike Dup (1IJ1552-MSD1)		Source: 1IJ1317-01			Prepared: 10/27/25 15:36 Analyzed: 10/28/25 16:15						
Mercury	0.00450	0.00059	0.00200	mg/L	0.00250	0.00118	133	74-124	5.60	14	M1

Determination of Base/Neutral Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1IJ1187 - EPA 625 BNA - EPA 625.1										
Blank (1IJ1187-BLK1)				Prepared: 10/21/25 09:43 Analyzed: 10/27/25 14:14						
Pyridine	<10	10	ug/L							
LCS (1IJ1187-BS1)				Prepared: 10/21/25 09:43 Analyzed: 10/27/25 14:39						
Pyridine	<10	10	ug/L	12.0		14.5	13-127			

Determination of Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1187 - EPA 625 BNA - EPA 625.1										
Blank (1IJ1187-BLK1)				Prepared: 10/21/25 09:43 Analyzed: 10/27/25 14:14						
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L							
(3 & 4)-Methylphenol	<10.0	10.0	ug/L							
Surrogate: 2-Fluorophenol	*ND*		ug/L	*20.2*		*30.9*	*16-140*			
Surrogate: Phenol-d6	*ND*		ug/L	*19.8*		*36.8*	*13-147*			
Surrogate: 2,4,6-Tribromophenol	*12.0*		ug/L	*20.5*		*58.4*	*20-158*			
LCS (1IJ1187-BS1)				Prepared: 10/21/25 09:43 Analyzed: 10/27/25 14:39						
2-Methylphenol (o-Cresol)	<10.0	10.0	ug/L	12.0		59.0	35-117			
(3 & 4)-Methylphenol	<10.0	10.0	ug/L	12.0		42.8	37-114			
Surrogate: 2-Fluorophenol	*6.63*		ug/L	*20.2*		*32.8*	*16-140*			
Surrogate: Phenol-d6	*8.57*		ug/L	*19.8*		*43.3*	*13-147*			
Surrogate: 2,4,6-Tribromophenol	*15.9*		ug/L	*20.5*		*77.7*	*20-158*			

Determination of Carbonyl Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

CERTIFICATE OF ANALYSIS

1IJ1640

Metals Total by ICPMS	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1173 - EPA 200.2 Total ICP-MS - EPA 200.8, Rv. 5.4 (1994)											
Blank (1IJ1173-BLK1)				Prepared: 10/20/25 16:20 Analyzed: 10/21/25 18:11							
Antimony	<0.0003	0.0003	0.0010	mg/L							
Arsenic	<0.0002	0.0002	0.0010	mg/L							
Barium	<0.0003	0.0003	0.0010	mg/L							
Beryllium	<0.0002	0.0002	0.0010	mg/L							
Cadmium	<0.00007	0.00007	0.0002	mg/L							
Chromium	<0.0003	0.0003	0.0010	mg/L							
Cobalt	<0.00007	0.00007	0.0002	mg/L							
Copper	<0.0021	0.0021	0.0050	mg/L							
Lead	0.0002	0.0002	0.0005	mg/L							J
Manganese	0.0014	0.0002	0.0050	mg/L							B, J
Molybdenum	<0.0005	0.0005	0.0010	mg/L							
Nickel	<0.0004	0.0004	0.0010	mg/L							
Selenium	<0.0011	0.0011	0.0020	mg/L							
Silver	<0.0035	0.0035	0.0050	mg/L							
Thallium	<0.00007	0.00007	0.0005	mg/L							
Vanadium	<0.0005	0.0005	0.0050	mg/L							
Zinc	<0.0136	0.0136	0.0200	mg/L							
LCS (1IJ1173-BS1)				Prepared: 10/20/25 16:20 Analyzed: 10/22/25 12:28							
Antimony	0.121	0.0003	0.0010	mg/L	0.100		121	85-115			Q2
Arsenic	0.108	0.0002	0.0010	mg/L	0.100		108	85-115			
Barium	0.115	0.0003	0.0010	mg/L	0.100		115	85-115			
Beryllium	0.103	0.0002	0.0010	mg/L	0.100		103	85-115			
Cadmium	0.105	0.00007	0.0002	mg/L	0.100		105	85-115			
Chromium	0.106	0.0003	0.0010	mg/L	0.100		106	85-115			
Cobalt	0.113	0.00007	0.0002	mg/L	0.100		113	85-115			
Copper	0.108	0.0021	0.0050	mg/L	0.100		108	85-115			
Lead	0.112	0.0002	0.0005	mg/L	0.100		112	85-115			
Manganese	0.111	0.0021	0.0050	mg/L	0.100		111	85-115			
Molybdenum	0.106	0.0005	0.0010	mg/L	0.100		106	85-115			
Nickel	0.109	0.0004	0.0010	mg/L	0.100		109	85-115			
Selenium	0.109	0.0011	0.0020	mg/L	0.100		109	85-115			
Silver	0.112	0.0035	0.0050	mg/L	0.100		112	85-115			
Thallium	0.109	0.00007	0.0005	mg/L	0.100		109	85-115			
Vanadium	0.114	0.0005	0.0050	mg/L	0.100		114	85-115			
Zinc	0.109	0.0136	0.0200	mg/L	0.100		109	85-115			
Matrix Spike (1IJ1173-MS1)		**Source: 1IJ1565-02**		Prepared: 10/20/25 16:20 Analyzed: 10/21/25 18:18							
Antimony	0.118	0.0003	0.0010	mg/L	0.100	0.0009	117	70-130			
Arsenic	0.108	0.0002	0.0010	mg/L	0.100	0.0012	106	70-130			
Barium	0.123	0.0003	0.0010	mg/L	0.100	0.0093	114	70-130			
Beryllium	0.0986	0.0002	0.0010	mg/L	0.100	ND	98.6	70-130			
Cadmium	0.103	0.00007	0.0002	mg/L	0.100	ND	103	70-130			
Chromium	0.111	0.0003	0.0010	mg/L	0.100	0.0053	106	70-130			
Cobalt	0.109	0.00007	0.0002	mg/L	0.100	0.0007	108	70-130			

CERTIFICATE OF ANALYSIS

1IJ1640

Metals Total by ICPMS	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1173 - EPA 200.2 Total ICP-MS - EPA 200.8, Rv. 5.4 (1994)											
Post Spike (1IJ1173-PS1)		**Source: 1IJ1565-02**		Prepared: 10/20/25 16:20 Analyzed: 10/21/25 18:28							
Thallium	0.0199			mg/L	0.0200	0.0001	99.1	70-130			
Vanadium	0.0210			mg/L	0.0200	0.00008	105	70-130			
Zinc	0.215			mg/L	0.0200	0.204	53.0	70-130			M2

Determination of Conventional Chemistry Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1073 - Wet Chem Preparation - USGS I-3765-85										
Blank (1IJ1073-BLK1)			Prepared: 10/17/25 14:05 Analyzed: 10/20/25 09:51							
Total Suspended Solids (TSS)	<1	1	mg/L							
LCS (1IJ1073-BS1)			Prepared: 10/17/25 14:05 Analyzed: 10/20/25 09:51							
Total Suspended Solids (TSS)	15.1	1	mg/L	15.0		101	73-110			
Duplicate (1IJ1073-DUP1)		**Source: 1IJ1621-01**	Prepared: 10/17/25 14:05 Analyzed: 10/20/25 09:51							
Total Suspended Solids (TSS)	1380	1	mg/L		1540			11.3	30	
Batch 1IJ1074 - Wet Chem Preparation - USGS I-1750-85										
Blank (1IJ1074-BLK1)			Prepared: 10/17/25 14:08 Analyzed: 10/20/25 09:00							
Total Dissolved Solids (TDS)	<5	5	mg/L							
LCS (1IJ1074-BS1)			Prepared: 10/17/25 14:08 Analyzed: 10/20/25 09:00							
Total Dissolved Solids (TDS)	99	5	mg/L	100		98.6	83-110			
Duplicate (1IJ1074-DUP1)		**Source: 1IJ1640-01**	Prepared: 10/17/25 14:08 Analyzed: 10/20/25 09:00							
Total Dissolved Solids (TDS)	404	5	mg/L		395			2.34	20	
Batch 1IJ1150 - General Prep HPLC/IC - TIMBERLINE										
Blank (1IJ1150-BLK1)			Prepared: 10/20/25 14:44 Analyzed: 10/21/25 09:47							
Nitrogen, Ammonia	<0.10	0.10	mg/L							
LCS (1IJ1150-BS1)			Prepared: 10/20/25 14:44 Analyzed: 10/21/25 09:48							
Nitrogen, Ammonia	5.73	0.10	mg/L	5.56		103	90-114			
Matrix Spike (1IJ1150-MS1)		**Source: 1IJ1591-01**	Prepared: 10/20/25 14:44 Analyzed: 10/21/25 09:50							
Nitrogen, Ammonia	5.53	0.10	mg/L	5.56	ND	99.5	84-115			
Matrix Spike Dup (1IJ1150-MSD1)		**Source: 1IJ1591-01**	Prepared: 10/20/25 14:44 Analyzed: 10/21/25 09:51							
Nitrogen, Ammonia	6.35	0.10	mg/L	5.56	ND	114	84-115	13.7	20	
Batch 1IJ1151 - General Prep HPLC/IC - TIMBERLINE										
Blank (1IJ1151-BLK1)			Prepared: 10/20/25 14:47 Analyzed: 10/21/25 10:31							
Nitrogen, Ammonia	<0.10	0.10	mg/L							
LCS (1IJ1151-BS1)			Prepared: 10/20/25 14:47 Analyzed: 10/21/25 10:32							
Nitrogen, Ammonia	5.45	0.10	mg/L	5.56		98.1	90-114			

CERTIFICATE OF ANALYSIS

1IJ1640

Determination of Conventional Chemistry Parameters	Result		RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1579 - Wet Chem Preparation - EPA 420.1											
Matrix Spike (1IJ1579-MS1)		**Source: 1IJ1640-01**		Prepared: 10/28/25 08:54 Analyzed: 10/29/25 14:27							
Phenols, total	0.389		0.035	mg/L	0.400	ND	97.1	57-114			
Matrix Spike Dup (1IJ1579-MSD1)		**Source: 1IJ1640-01**		Prepared: 10/28/25 08:54 Analyzed: 10/29/25 14:27							
Phenols, total	0.366		0.035	mg/L	0.400	ND	91.4	57-114	6.04	30	
Batch 1IJ1738 - TOX/TX/EOX - EPA 9020B											
Blank (1IJ1738-BLK1)				Prepared: 10/29/25 00:00 Analyzed: 10/30/25 14:43							
Total Organic Halogens (TOX)	<0.010		0.010	mg/L							
LCS (1IJ1738-BS1)				Prepared: 10/29/25 00:00 Analyzed: 10/30/25 14:43							
Total Organic Halogens (TOX)	0.0993		0.010	mg/L	0.111		89.8	60-139			
Matrix Spike (1IJ1738-MS1)		**Source: 1IJ1640-04**		Prepared: 10/29/25 00:00 Analyzed: 10/30/25 14:43							
Total Organic Halogens (TOX)	1.284		0.100	mg/L	1.11	0.0844	109	29-153			
Matrix Spike Dup (1IJ1738-MSD1)		**Source: 1IJ1640-04**		Prepared: 10/29/25 00:00 Analyzed: 10/30/25 14:43							
Total Organic Halogens (TOX)	1.003		0.100	mg/L	1.11	0.0844	83.1	29-153	24.6	30	

Determination of Inorganic Anions	Result		RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ1177 - General Prep HPLC/IC - 300.0											
Blank (1IJ1177-BLK1)				Prepared & Analyzed: 10/20/25 10:33							
Fluoride	<0.1		0.1	mg/L							
Chloride	<1.0		1.0	mg/L							
Sulfate	<0.4	0.4	1.0	mg/L							
Blank (1IJ1177-BLK2)				Prepared & Analyzed: 10/20/25 22:05							
Fluoride	<0.1		0.1	mg/L							
Chloride	<1.0		1.0	mg/L							
Sulfate	<0.4	0.4	1.0	mg/L							
LCS (1IJ1177-BS1)				Prepared & Analyzed: 10/20/25 10:55							
Fluoride	1.38		0.1	mg/L	1.30		106	90-110			
Chloride	15.49		1.0	mg/L	15.5		99.8	90-110			
Sulfate	36.41	0.4	1.0	mg/L	33.9		107	80-120			
LCS (1IJ1177-BS2)				Prepared & Analyzed: 10/20/25 22:28							
Fluoride	1.36		0.1	mg/L	1.30		105	90-110			
Chloride	15.56		1.0	mg/L	15.5		100	90-110			
Sulfate	36.54	0.4	1.0	mg/L	33.9		108	80-120			
LCS Dup (1IJ1177-BSD1)				Prepared & Analyzed: 10/20/25 11:17							
Fluoride	1.39		0.1	mg/L	1.30		107	90-110	0.751	10	
Chloride	15.54		1.0	mg/L	15.5		100	90-110	0.305	10	
Sulfate	36.47	0.4	1.0	mg/L	33.9		108	80-120	0.172	10	
LCS Dup (1IJ1177-BSD2)				Prepared & Analyzed: 10/20/25 22:50							

CERTIFICATE OF ANALYSIS

1IJ1640

Report Comments

Reviewed and Approved By:

Heather Tisdale

Heather Tisdale
Customer Relationship Specialist
heather.tisdale@microbac.com
11/05/25 14:35

CHAIN OF CUSTODY RECORD

MICROBAC
600 East 17th Street South
Newton, IA 50208
Phone: 641-792-8451

SITE INFORMATION

Sampler: Sherman Lundy

Project: GW Monitoring
Miller Creek Area

REPORT TO

Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO

Accounts Payable
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

SPECIAL INSTRUCTIONS

None

Turn Around Time
☐ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

1IJ1640
BMC Aggregates L.C.
PM: Heather Tisdale

Temperature: 5.4/5.6 oC

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	# Containers	Analyses	Lab Sample Number
02-001	**Well #2**	Aqueous	GRAB	10/15/25	1 PM	14	624@mek, as-t-200.8, se-t-200.8, cond-2510, f-300.0, phenol-t-420.1, hg-t-3112-low, fe-t-200.7, 624@benzene, nh3-timberline, 625-126, cod-t-410.4, 8315@Formaldehyde, ag-t-200.8, ba-t-200.8, be-t-200.8, cd-t-200.8, co-t-200.8, cr-t-200.8, cu-t-200.8, mn-t-200.8, mo-t-200.8, ni-t-200.8, sb-t-200.8, tl-t-200.8, v-t-200.8, zn-t-200.8, so4-9056-w, al-t-200.7, b-t-200.7, 9020-100, tss-i-3765-85, mg-t-200.7, tds-i-1750-85, cl-300.0, 624-base-analysis, 624@chloroform, 625@pyridine, pb-t-200.8	02

Relinquished By — Date/Time

Received By — Date/Time

Relinquished By — Date/Time

Received for Lab By — Date/Time 10/16/25 1355

Remarks: Please do Electrical Conductivity as well

CHAIN OF CUSTODY RECORD

MICROBAC
600 East 17th Street South
Newton, IA 50208
Phone: 641-792-8451

SITE INFORMATION

Sampler: Sherman Lundy

Project: GW Monitoring
Miller Creek Area

REPORT TO

Sherman Lundy
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

INVOICE TO

Accounts Payable
BMC Aggregates L.C.
101 BMC Drive
Elk Run Heights, IA 50707

SPECIAL INSTRUCTIONS

None

Turn Around Time
☐ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

1IJ1640
BMC Aggregates L.C.
PM: Heather Tisdale

Temperature: 2.6° oC

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	# Containers	Analyses	Lab Sample Number
04-001	**Well #4**	Aqueous	GRAB	10/15/25	2PM	19	624@mek, se-t-200.8, f-300.0, hg-t-3112-low, 624@benzene, 625-126, 8315@Formaldehyde, ba-t-200.8, cd-t-200.8, cr-t-200.8, mn-t-200.8, ni-t-200.8, tl-t-200.8, zn-t-200.8, al-t-200.7, 9020-100, mg-t-200.7, cl-300.0, 624@chloroform, pb-t-200.8, as-t-200.8, cond-2510, phenol-t-420.1, fe-t-200.7, nh3-timberline, cod-t-410.4, ag-t-200.8, be-t-200.8, co-t-200.8, cu-t-200.8, mo-t-200.8, sb-t-200.8, v-t-200.8, so4-9056-w, b-t-200.7, tss-i-3765-85, tds-i-1750-85, 624-base-analysis, 625@pyridine	04

Relinquished By — Date/Time

Received By — Date/Time

Relinquished By — Date/Time 10/16/25 1250

Received for Lab By — Date/Time

Remarks: Please do Electrical Conductivity as well

Appendix C
Summary of Groundwater Chemistry

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Summary of Groundwater Chemistry
BMC Aggregates L.C. South Waterloo Quarry

Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Arsenic, mg/L (CAS NO - 7440-38-2)	12/16/2009	0.0013	N/A	N/A	N/A	N/A
	12/16/2009	< 0.0003	N/A	N/A	N/A	N/A
	1/15/2010	< 0.0003	N/A	N/A	N/A	N/A
	2/18/2010	0.0006	0.0014	0.001	0.001	0.0006
	3/16/2010	0.0022	0.0012	0.0037	0.0037	N/A
	3/23/2010	N/A	N/A	N/A	N/A	< 0.0003
	4/15/2010	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
	5/17/2010	0.0009	< 0.0003	0.0015	0.0015	0.003
	6/21/2010	0.0013	0.0007	0.0021	0.0017	0.0025
	7/16/2010	< 0.0003	0.001	0.0016	< 0.0003	0.0009
	8/18/2010	0.0019	0.0048	0.0019	0.0006	0.0017
	9/20/2010	0.0005	0.0007	0.0018	0.0006	< 0.0003
	10/18/2010	< 0.0003	0.0009	0.0015	0.0026	0.0008
	11/16/2010	< 0.0003	0.0012	0.0012	< 0.0003	< 0.0003
	12/16/2010	0.0022	0.0017	0.0024	0.0017	0.0011
	1/13/2011	< 0.0003	0.002	0.0018	< 0.0003	< 0.0003
	2/16/2011	0.0003	0.0013	0.0009	0.0003	0.0003
	5/18/2011	0.0003	0.0003	0.0018	0.0015	0.0003
	8/17/2011	< 0.0003	0.0027	< 0.0003	< 0.0003	< 0.0003
	10/17/2011	< 0.0003	0.0031	< 0.0003	< 0.0003	< 0.0003
	1/18/2012	< 0.0003	0.0029	0.0075	0.0073	< 0.0003
	4/17/2012	0.0004	0.0057	0.002	0.0057	0.0031
	7/17/2012	0.0012	0.0045	0.0009	0.0076	0.0015
	11/14/2012	< 0.0003	0.0009	< 0.0003	0.0068	< 0.0003
	3/19/2013	< 0.0003	0.0025	< 0.0003	0.0061	0.001
	6/17/2013	< 0.0003	0.0022	0.0004	0.0102	< 0.0003
	9/17/2013	0.0008	0.0034	0.001	0.0089	0.001
	12/17/2013	0.0004	0.0023	0.001	0.0124	0.0007
	2/17/2014	0.0005	0.0034	0.0006	0.0118	< 0.0003
	4/15/2014	0.0005	0.0038	0.0005	0.0112	0.0022
	7/15/2014	0.0003	0.0005	0.0015	0.01	0.0036
	10/13/2014	0.0004	0.0015	0.0005	0.009	0.0005
	1/16/2015	0.0004	0.0033	0.0045	0.0107	0.0007
	5/13/2015	0.0003	0.0026	0.0018	0.0097	0.0005
	8/18/2015	0.0003	0.0031	0.0013	0.0093	0.0005
	11/17/2015	0.0004	0.0034	0.0008	0.0089	0.0006
	3/16/2016	0.0003*	0.0027	0.0009*	0.0088	0.0009*
	10/12/2016	0.0004*	0.0027	0.0022	0.0069	0.0013*
	3/16/2017	0.0003*	0.0031	0.0008*	0.0069	0.0011*
	10/12/2017	0.0005*	0.0021	0.0007*	0.0006*	0.0013*
	3/14/2018	0.0002*	0.0028	0.0007*	0.0004*	0.0012*
	10/17/2018	< 0.0001	0.0027	0.0004*	0.0064	0.0023
	3/19/2019	0.0001	0.0029	0.0033	0.0045	0.0057
	10/16/2019	0.0004*	0.0022	0.0003*	0.0028	0.0005*
	3/18/2020	0.0007*	0.0035	0.0007*	0.0015*	0.0011*
	10/16/2020	< 0.0006	0.0026	< 0.0006	0.002	0.0009*
	3/17/2021	< 0.0006	0.0032	0.0008*	< 0.0006	0.0009*
	10/20/2021	< 0.0006	0.0017*	< 0.0006	0.002	< 0.0006
	3/17/2022	< 0.0006	0.0014*	< 0.0006	< 0.0006	< 0.0006
	10/18/2022	0.0009*	0.0022	0.001*	0.0011*	0.0008*
	3/14/2023	0.0025	0.004	0.0024	0.0026	0.0029
	10/18/2023	0.0006*	0.0015*	0.0009*	0.0009*	0.002
	3/18/2024	0.0006*	0.0016*	0.0011*	0.0011*	0.0009*
	10/16/2024	0.0008*	0.002	0.0012*	0.0012*	0.0012*
	3/13/2025	0.0011*	0.0029	0.0009*	0.0016*	0.0017
	10/15/2025	0.0003*	0.003	0.0003*	0.0005*	0.0022
Barium, mg/L (CAS NO - 7440-39-3)	12/16/2009	0.241	N/A	N/A	N/A	N/A
	12/16/2009	0.241	N/A	N/A	N/A	N/A
	1/15/2010	0.111	N/A	N/A	N/A	N/A
	2/18/2010	0.111	0.0435	0.0492	0.0431	0.128
	3/16/2010	0.085	0.0418	0.0412	0.0349	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0826
	4/15/2010	0.113	0.0531	0.0491	0.0478	0.125
	5/17/2010	0.114	0.0554	0.0507	0.0476	0.135
	6/21/2010	0.115	0.0563	0.0626	0.0486	0.132
	7/16/2010	0.119	0.0749	0.0673	0.0517	0.132
	8/18/2010	0.133	0.116	0.077	0.153	0.136
	9/20/2010	0.0984	0.136	0.0971	0.51	0.112
	10/18/2010	0.118	0.262	0.197	0.202	0.133
	11/16/2010	0.107	0.136	0.11	0.0689	0.0484

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Summary of Groundwater Chemistry
BMC Aggregates L.C. South Waterloo Quarry

Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Beryllium, mg/L (CAS NO - 7440-41-7)	2/17/2014	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	4/15/2014	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.0002
	7/15/2014	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.0006
	10/13/2014	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	1/16/2015	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	5/13/2015	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	8/18/2015	< 0.00005	0.00005	0.00005	0.0002	0.0004
	11/17/2015	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
	3/16/2016	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
	10/12/2016	< 0.00003	< 0.00003	< 0.00003	< 0.00003	0.0002*
	3/16/2017	< 0.00003	< 0.00003	< 0.00003	< 0.00003	0.0002*
	10/12/2017	0.00004*	< 0.00003	< 0.00003	< 0.00003	0.0003*
	3/14/2018	< 0.00003	< 0.00003	< 0.00003	< 0.00003	0.0003*
	10/17/2018	< 0.00003	< 0.00003	< 0.00003	< 0.00003	0.0002*
	3/19/2019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	10/16/2019	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
	3/18/2020	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	10/16/2020	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	3/17/2021	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	10/20/2021	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	3/17/2022	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	10/18/2022	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	3/14/2023	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	10/18/2023	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001*
	3/18/2024	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	10/16/2024	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	3/13/2025	< 0.00007	< 0.00007	< 0.00007	< 0.00007	< 0.00007
	10/15/2025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Boron, mg/L (CAS NO - 7440-42-8)	12/16/2009	< 0.004	N/A	N/A	N/A	N/A
	12/16/2009	< 0.004	N/A	N/A	N/A	N/A
	1/15/2010	< 0.004	N/A	N/A	N/A	N/A
	2/18/2010	0.019	0.059	0.058	0.036	0.045
	3/16/2010	0.059	0.168	0.048	0.115	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.012
	4/15/2010	0.022	0.047	0.067	0.046	0.014
	5/17/2010	0.046	0.055	0.088	0.066	0.039
	6/21/2010	0.021	0.047	0.054	0.043	0.011
	7/16/2010	0.015	0.048	0.069	0.048	0.013
	8/18/2010	0.028	0.05	0.071	0.065	0.026
	9/20/2010	0.063	0.092	0.134	0.087	0.076
	10/18/2010	0.029	0.045	0.08	0.058	0.046
	11/16/2010	0.032	0.045	0.06	0.047	0.071
	12/16/2010	0.03	0.05	0.069	0.051	0.067
	1/13/2011	0.032	0.052	0.074	0.052	0.073
	2/16/2011	0.04	0.056	0.084	0.064	0.047
	5/18/2011	0.004	0.029	0.052	0.033	0.015
	8/17/2011	0.018	0.047	0.066	0.042	0.396
	10/17/2011	< 0.004	< 0.004	< 0.004	< 0.004	0.53
	1/18/2012	0.08	0.138	0.098	0.115	0.027
	4/17/2012	0.028	0.045	0.063	0.054	0.062
	7/17/2012	0.025	0.052	0.092	0.052	0.053
	11/14/2012	0.027	0.044	0.051	0.05	0.079
	3/19/2013	0.045	0.03	0.041	0.038	0.018
	6/17/2013	0.008	0.051	0.052	0.044	0.047
	9/17/2013	0.03	0.042	0.054	0.052	0.107
	12/17/2013	0.033	0.044	0.056	0.055	0.054
	2/17/2014	0.006	< 0.004	< 0.004	< 0.004	< 0.004
	4/15/2014	0.05	0.038	0.047	0.042	0.034
	7/15/2014	0.023	0.05	0.038	0.047	0.071
	10/13/2014	0.029	0.041	0.048	0.047	0.083
	1/16/2015	0.019	0.033	0.045	0.043	0.053
	5/13/2015	0.009	0.03	0.036	0.038	0.038
	8/18/2015	0.023	0.039	0.043	0.058	0.061
	11/17/2015	0.038	0.054	0.045	0.054	0.042
	3/16/2016	0.027*	0.054*	0.05*	0.063*	0.045*
	10/12/2016	0.028*	0.059*	0.042*	0.055*	0.07*
	3/16/2017	0.027*	0.046*	0.038*	0.059*	0.054*
	10/12/2017	0.052*	0.06*	0.051*	0.081*	0.082*
	3/14/2018	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057
	10/17/2018	< 0.057	0.064*	< 0.057	0.067*	0.092*

SCS ENGINEERS

Summary of Groundwater Chemistry
BMC Aggregates L.C. South Waterloo Quarry

Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Chloride, mg/L (CAS NO - 16887-00-6)	1/15/2010	55.6	N/A	N/A	N/A	N/A
	2/18/2010	20.3	44.6	43.4	25	33.2
	3/16/2010	24.6	23.7	21.2	28.1	N/A
	3/23/2010	N/A	N/A	N/A	N/A	18.5
	4/15/2010	20	19.5	16	25.1	17.2
	5/17/2010	20.4	31.9	18.5	21.4	17.4
	6/21/2010	20.4	19.3	16.4	20.6	17.8
	7/16/2010	25.5	22.7	17.3	23.8	15.7
	8/18/2010	29.9	28	27.3	27.2	24.8
	9/20/2010	27.1	25.9	26.2	29.7	26.6
	10/18/2010	21	17.4	14.9	19.6	18.2
	11/16/2010	15.2	15.4	15.1	20	17.9
	12/16/2010	13.8	15.8	15.2	20.2	23.8
	1/13/2011	14	15.2	15.6	21.1	19.6
	2/16/2011	18.3	18.9	16.8	22.5	15.4
	5/18/2011	28.7	17.5	23.2	20.7	34.8
	8/17/2011	13.4	14.4	13.5	16.7	26.4
	1/18/2012	16.2	14.9	14.8	19.1	17.4
	4/17/2012	17.6	14.7	14.1	18.7	18.7
	7/17/2012	12.7	13.4	35.2	13.7	8.5
	11/14/2012	21.1	19.1	16.4	22.6	27.6
	3/19/2013	19.4	15.1	11.3	18.7	14.7
	6/17/2013	24.3	11.7	11.1	18.3	18.4
	9/17/2013	19.4	12.1	11	19.4	39
	12/17/2013	18.3	11.8	10.3	16.8	17.1
	2/17/2014	19.6	13.7	13	19.4	18.6
	4/15/2014	20.6	12.9	11	18	21.7
	7/15/2014	26	13.7	11.1	19	23
	10/13/2014	22.7	14.2	10.5	18.9	19.9
	1/16/2015	26.8	14.7	11.5	20	23.2
	5/13/2015	30.1	13.6	10.2	2240	21.6
	8/18/2015	26.6	12.8	9.5	2000	24.6
	11/17/2015	21.6	14.1	9.8	1950	31.8
	3/16/2016	29	11	7.3	1570	22.7
	10/12/2016	27.2	11	9.3	1350	21.2
	3/16/2017	28.1	10.2	10.6	1250	21.7
	10/12/2017	23.6	9.3	11.6	29.1	16.3
	3/14/2018	25.6	9	11.8	28.5	11.8
	10/17/2018	17.9	10.4	12.9	578	16.7
	3/19/2019	20.7	9.4	13.8	112	14.4
	10/16/2019	30.4	17.5	16.4	33.4	21.2
	3/18/2020	23.9	8.9	14.1	23.9	29.7
	10/16/2020	27.4	9.3	12.6	22.1	12.6
	3/17/2021	17.3	9	13.2	22.5	13.3
	10/20/2021	27.2	9.6	12.5	29.9	15.3
	3/17/2022	22.5	9.2	13.2	25.1	18.5
	10/18/2022	36.3	9.3	12.8	22	21
	3/14/2023	26.8	10.1	13.3	20.3	24.1
	10/18/2023	35	9.8	12.4	23.8	20
	3/18/2024	26.4	N/A	13.9	N/A	N/A
	3/13/2025	30.1	12.2	13.4	31.6	24.4
	10/15/2025	34	12.1	12.4	20.7	23.8
Chromium, mg/L (CAS NO - 7440-47-3)	12/16/2009	0.0072	N/A	N/A	N/A	N/A
	12/16/2009	< 0.0009	N/A	N/A	N/A	N/A
	1/15/2010	< 0.0009	N/A	N/A	N/A	N/A
	2/18/2010	< 0.0009	< 0.0009	0.0009	< 0.0009	< 0.0009
	3/16/2010	0.0036	0.0045	0.102	0.0044	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0031
	4/15/2010	< 0.0009	< 0.0009	0.0009	< 0.0009	< 0.0009
	5/17/2010	< 0.0009	0.0027	0.0018	0.0021	0.0073
	6/21/2010	0.002	0.0061	0.0078	0.0361	0.012
	7/16/2010	0.0021	0.005	0.0035	0.0209	0.0027
	8/18/2010	0.001	0.0058	0.0157	0.0009	0.0012
	9/20/2010	< 0.0009	< 0.0009	0.017	0.0142	0.0151
	10/18/2010	< 0.0009	0.0029	0.0168	< 0.0009	< 0.0009
	11/16/2010	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	12/16/2010	0.0004	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	1/13/2011	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	2/16/2011	0.0003	0.0002	0.00006	0.00006	0.00006
	5/18/2011	0.0001	0.0002	0.0002	0.0002	0.0002

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Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Cobalt, mg/L (CAS NO - 7440-48-4)	1/16/2015	< 0.0001	< 0.0001	< 0.0001	0.0002	0.002
	5/13/2015	0.0001	0.00004	0.00007	0.0001	0.0002
	8/18/2015	0.00007	0.00004	0.00006	0.0002	0.0004
	11/17/2015	0.00009	0.00005	< 0.0001	0.0045	0.0001
	3/16/2016	0.00008*	< 0.00004	0.00007*	0.0035	0.00007*
	10/12/2016	0.0001*	< 0.00004	0.0001*	0.0071	0.0002*
	3/16/2017	0.00008*	< 0.00004	0.00005*	0.0073	0.0002*
	10/12/2017	0.0002*	< 0.00004	0.00007*	0.0001*	0.0006*
	3/14/2018	0.0001*	0.00009*	0.00005*	0.0002*	0.0002*
	10/17/2018	0.0002*	0.0002*	0.0002*	0.0003*	0.0003*
	3/19/2019	0.0001	0.00005	0.0002	0.0082	0.0018
	10/16/2019	0.00005*	0.00005*	0.00004*	0.0006*	0.0002*
	3/18/2020	< 0.0005	< 0.0005	< 0.0005	0.0009*	< 0.0005
	10/16/2020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0005*
	3/17/2021	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	10/20/2021	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	3/17/2022	0.0006*	< 0.0005	< 0.0005	< 0.0005	0.0005*
	10/18/2022	0.0013*	0.0017*	0.0014*	0.0013*	0.0016*
	3/14/2023	< 0.0005	< 0.0005	< 0.0005	0.0007*	0.0005*
	10/18/2023	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0015*
	3/18/2024	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	10/16/2024	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	3/13/2025	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	10/15/2025	0.00009*	< 0.0002	0.00007*	< 0.0002	0.00009*
Copper, mg/L (CAS NO - 7440-50-8)	12/16/2009	0.0214	N/A	N/A	N/A	N/A
	12/16/2009	0.0214	N/A	N/A	N/A	N/A
	1/15/2010	0.0054	N/A	N/A	N/A	N/A
	2/18/2010	0.003	0.0672	0.0041	0.0041	0.0081
	3/16/2010	0.0029	0.0147	0.0113	0.0069	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0041
	4/15/2010	0.0018	0.0137	0.0051	0.0052	0.0083
	5/17/2010	0.0019	0.0184	0.0026	0.0027	0.0033
	6/21/2010	0.0052	0.0095	0.0032	2.56	0.764
	7/16/2010	0.0074	0.0166	0.0019	0.831	0.0248
	8/18/2010	0.0034	0.0086	0.0025	0.0033	0.016
	9/20/2010	0.0025	0.0014	0.0017	0.833	0.0047
	10/18/2010	0.0048	0.981	0.0029	0.0043	0.0054
	11/16/2010	0.0038	0.0018	0.0014	0.0162	0.0017
	12/16/2010	0.0584	0.0012	0.0018	0.0113	0.0015
	1/13/2011	0.0274	0.0085	0.0016	0.0032	0.0012
	2/16/2011	0.0194	0.0013	0.0013	0.0025	0.0013
	5/18/2011	0.0027	0.0004	0.0025	0.0017	0.0012
	8/17/2011	0.004	0.0011	0.0021	0.0077	< 0.0004
	10/17/2011	0.0133	< 0.0004	< 0.0004	< 0.0004	0.0025
	1/18/2012	0.0041	< 0.0004	0.0008	0.0133	0.0191
	4/17/2012	0.002	0.0038	< 0.0004	0.016	< 0.0004
	7/17/2012	0.0228	< 0.0004	0.0011	0.0075	0.0019
	11/14/2012	0.0072	0.0025	0.0018	0.0065	0.0031
	3/19/2013	0.118	0.0033	0.0025	0.0074	0.0033
	6/17/2013	0.0163	0.0031	0.0128	0.0101	0.0478
	9/17/2013	0.0043	0.0029	0.0023	0.0041	0.0052
	12/17/2013	0.0062	0.0015	0.0027	0.0063	0.0022
	2/17/2014	0.002	0.002	0.0023	0.0037	0.004
	4/15/2014	0.0233	0.0013	0.0011	0.0024	0.0043
	7/15/2014	0.0191	0.0011	0.0017	0.0032	0.0035
	10/13/2014	0.0051	0.0022	0.0022	0.0035	0.0033
	1/16/2015	0.0159	0.0025	0.0028	0.0042	0.0053
	5/13/2015	0.342	0.0017	0.001	0.0103	0.0017
	8/18/2015	0.0125	0.0013	0.0009	0.0021	0.0095
	11/17/2015	0.0345	0.0014	0.0011	0.0083	0.0025
	3/16/2016	0.0331	0.0015*	0.0016*	0.0115	0.0072
	10/12/2016	0.0241	0.0013*	0.0048	0.0095	0.0056
	3/16/2017	0.0246	0.0026	0.0021	0.0059	0.0039
	10/12/2017	0.0217	0.0046	0.0043	0.0163	0.0045
	3/14/2018	0.588	0.0026	0.002	0.006	0.0064
	10/17/2018	0.0255	0.0056	0.005	< 0.004	< 0.004
	3/19/2019	0.0119	0.0043	0.0028	0.0149	0.0104
	10/16/2019	0.0548	0.0034	0.0015*	0.0017*	0.0024
	3/18/2020	0.0615	0.0028	0.002	0.0033	0.0055
	10/16/2020	0.814	0.0032	0.0015*	0.0032	0.0087

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Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Iron, mg/L (CAS NO - 7439-89-6)	10/18/2022	< 0.047	0.249	0.188	< 0.047	< 0.047
	3/14/2023	< 0.047	0.463	0.439	0.441	0.243
	10/18/2023	< 0.047	0.269	0.573	0.055*	2.43
	3/18/2024	< 0.047	0.437	0.156	0.145	0.15
	10/16/2024	< 0.047	0.736	1.62	0.154	0.275
	3/13/2025	0.92	0.677	0.914	0.084*	0.056*
	10/15/2025	< 0.1	0.127	0.191	< 0.1	< 0.1
Lead, mg/L (CAS NO - 7439-92-1)	12/16/2009	0.0143	N/A	N/A	N/A	N/A
	12/16/2009	0.0143	N/A	N/A	N/A	N/A
	1/15/2010	0.0008	N/A	N/A	N/A	N/A
	2/18/2010	0.0005	< 0.0002	0.0004	< 0.0002	0.0032
	3/16/2010	0.0005	0.0003	0.0007	0.0008	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0002
	4/15/2010	0.0003	0.0015	0.0008	0.0005	0.0003
	5/17/2010	0.0009	0.0015	0.0013	0.001	< 0.0002
	6/21/2010	0.0002	0.0008	0.0003	0.0008	< 0.0002
	7/16/2010	0.0008	0.0013	0.0006	0.0018	0.0006
	8/18/2010	< 0.0002	< 0.0002	0.0002	0.0004	0.0002
	9/20/2010	< 0.0002	< 0.0002	0.0004	0.0003	< 0.0002
	10/18/2010	0.0004	< 0.0002	0.0005	< 0.0002	< 0.0002
	11/16/2010	0.0006	0.0003	< 0.0002	< 0.0002	< 0.0002
	12/16/2010	0.0243	0.0003	0.0003	0.0004	0.0033
	1/13/2011	0.0179	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	2/16/2011	0.0131	0.0003	0.0003	0.0003	0.0002
	5/18/2011	0.0003	0.0002	0.0003	0.0002	0.0042
	8/17/2011	0.0002	< 0.0002	0.0003	0.0002	< 0.0002
	10/17/2011	0.0011	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	1/18/2012	0.0002	< 0.0002	< 0.0002	0.0004	0.0011
	4/17/2012	0.0005	0.0005	0.0002	0.0007	0.0004
	7/17/2012	0.0029	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	11/14/2012	0.0075	0.0007	0.0005	0.0006	0.0033
	3/19/2013	0.002	0.0025	0.0011	0.0011	0.008
	6/17/2013	0.0151	0.0001	0.0038	0.0058	0.0007
	9/17/2013	0.0008	0.0007	0.0007	0.0005	0.0042
	12/17/2013	0.0006	0.0003	0.0003	0.0004	0.0038
	2/17/2014	0.0013	0.0003	0.0005	0.0009	0.0011
	4/15/2014	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.002
	7/15/2014	0.0013	< 0.0002	< 0.0002	< 0.0002	0.0105
	10/13/2014	0.0015	0.0004	0.0009	0.0003	0.0021
	1/16/2015	0.00012	0.0003	< 0.0002	0.0004	0.0019
	5/13/2015	0.0173	< 0.0002	< 0.0002	0.00007	0.0025
	8/18/2015	0.0014	0.0002	0.0002	0.0029	0.0003
	11/17/2015	0.002	0.0002	0.00007	0.0002	0.0012
	3/16/2016	0.0013	0.0002*	0.0001*	0.0003*	0.0004*
	10/12/2016	0.0019	0.0001*	0.0003*	0.0002*	0.0051
	3/16/2017	0.0011	0.0003*	0.0003*	0.0005*	0.0041
	10/12/2017	0.0029	0.0001*	0.0005*	0.0006*	0.0058
	3/14/2018	0.0151	0.0002*	0.0002*	0.0002*	0.0078
	10/17/2018	0.0025	< 0.0008	< 0.0008	< 0.0008	0.0026
	3/19/2019	0.0014	0.0072	0.0206	0.0111	0.0274
	10/16/2019	0.0039	0.0003*	0.0001*	0.0001*	0.0005*
	3/18/2020	0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	10/16/2020	0.0019	< 0.0005	< 0.0005	< 0.0005	0.0007*
	3/17/2021	0.0074	0.0005*	0.0008	< 0.0005	< 0.0005
	10/20/2021	0.0072	0.0009	0.0007*	0.0021	0.0005*
	3/17/2022	0.0015	< 0.0005	0.0007*	< 0.0005	0.0006*
	10/18/2022	0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	3/14/2023	0.004	0.0008	< 0.0005	0.0011	0.0009
	10/18/2023	0.0007*	< 0.0005	< 0.0005	< 0.0005	0.0023
	3/18/2024	< 0.0005	< 0.0005	0.0008	< 0.0005	< 0.0005
	10/16/2024	0.0051	< 0.0005	< 0.0005	< 0.0005	0.0008
	3/13/2025	0.0185	0.0008	< 0.0005	0.0006*	< 0.0005
	10/15/2025	0.0005	0.0002*	< 0.0005	< 0.0005	0.0002*
Magnesium, mg/L (CAS NO - 7439-95-4)	1/15/2010	21.9	N/A	N/A	N/A	N/A
	2/18/2010	21.3	60.2	58.5	52.6	38
	3/16/2010	20.5	54.7	38.6	36.5	N/A
	3/23/2010	N/A	N/A	N/A	N/A	20.7
	4/15/2010	22.4	53.6	41.3	35.8	22.1
	5/17/2010	21.5	56.6	40.1	33.3	20.3
	6/21/2010	22.2	52.9	42.1	35.7	3.87

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Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Manganese, mg/L (CAS NO - 7439-96-5)	11/14/2012	0.017	< 0.0019	0.033	0.0972	0.0157
	3/19/2013	0.0073	0.0232	0.0632	0.153	0.0203
	6/17/2013	0.049	0.0234	0.072	0.125	0.0057
	9/17/2013	0.0021	0.0276	0.0542	0.103	0.0261
	12/17/2013	0.0026	0.0065	0.0152	0.102	0.0258
	2/17/2014	0.0258	0.0159	0.0122	0.102	0.0755
	4/15/2014	0.0142	0.0187	0.0123	0.0828	0.0363
	7/15/2014	0.0078	0.0537	0.0265	0.0758	0.0205
	10/13/2014	0.0043	0.0057	0.0469	0.0732	0.0103
	1/16/2015	0.0028	0.0195	0.0214	0.0837	0.0224
	5/13/2015	0.0013	0.0169	0.0759	0.109	0.0036
	8/18/2015	0.0026	0.0221	0.0623	0.0063	0.009
	11/17/2015	0.0026	0.0198	0.0859	0.0053	0.0054
	3/16/2016	0.002*	0.0192	0.0547	0.0173	0.0039*
	10/12/2016	0.003*	0.0153	0.0867	0.136	0.0076
	3/16/2017	0.0022*	0.0157	0.0462	0.21	0.0096
	10/12/2017	0.008	0.0142	0.0421	0.0866	0.0139
	3/14/2018	< 0.004	0.0131	0.0411	0.0053	0.0268
	10/17/2018	0.0037*	0.0131	0.0387	0.0973	0.0082
	3/19/2019	0.0075	0.0168	0.0504	0.204	0.0719
	10/16/2019	0.0026*	0.0125	0.0246	0.0241	0.0091
	3/18/2020	0.0028*	0.0172	0.0256	0.0313	0.0039*
	10/16/2020	0.0018*	0.0164	0.0235	0.0307	0.0269
	3/17/2021	0.0214	0.0216	0.194	0.0034*	0.02
	10/20/2021	0.0026*	0.0114	0.0232	0.0352	0.0071
	3/17/2022	0.0025*	0.0137	0.0148	0.0234	0.0131
	10/18/2022	< 0.0017	0.0019*	0.022	0.0027*	0.004
	3/14/2023	0.0034*	0.0142	0.0648	0.0299	0.0462
	10/18/2023	< 0.0017	0.0055	0.0107	0.0072	0.0078
	3/18/2024	< 0.0017	0.0082	0.0128	0.0185	0.0041
	10/16/2024	0.0027*	0.0141	0.0392	0.0105	0.0172
	3/13/2025	0.0108	0.0117	0.0269	0.0087	0.0064
	10/15/2025	0.0022*	0.0026*	0.0058	0.0024*	0.0031*
Mercury, mg/L (CAS NO - 7439-97-6)	12/16/2009	0.00003	N/A	N/A	N/A	N/A
	12/16/2009	< 0.00002	N/A	N/A	N/A	N/A
	1/15/2010	0.00004	N/A	N/A	N/A	N/A
	2/18/2010	0.00003	0.00003	0.00005	0.00011	0.00015
	3/16/2010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.00005
	4/15/2010	0.00003	0.00002	< 0.00002	0.00004	< 0.00002
	5/17/2010	< 0.00002	0.00006	< 0.00002	< 0.00002	< 0.00002
	6/21/2010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	7/16/2010	0.00008	0.00006	0.00007	0.00007	0.00013
	8/18/2010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	9/20/2010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	10/18/2010	0.00007	0.00002	0.00006	< 0.00002	< 0.00002
	11/16/2010	0.00004	0.00006	0.00003	0.00007	0.00005
	12/16/2010	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	1/13/2011	0.00005	< 0.00002	0.00002	0.00005	0.00005
	2/16/2011	0.00007	0.00009	0.00008	0.00002	0.00007
	5/18/2011	0.00014	0.00003	0.00002	0.00002	0.00002
	8/17/2011	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	10/17/2011	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002
	1/18/2012	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00013
	4/17/2012	< 0.00002	0.004	< 0.00002	< 0.00002	< 0.00002
	7/17/2012	< 0.00002	0.00015	< 0.00002	< 0.00002	< 0.00002
	11/14/2012	0.00025	0.00012	0.00037	0.00027	0.00018
	3/19/2013	0.00013	< 0.00002	< 0.00002	0.00017	0.00025
	6/17/2013	0.00018	0.00019	0.00021	0.00022	0.00018
	9/17/2013	< 0.00002	0.00024	0.00014	< 0.00002	0.00008
	12/17/2013	0.00012	0.0001	0.00014	0.00015	0.00009
	2/17/2014	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	4/15/2014	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	7/15/2014	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	10/13/2014	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00014
	1/16/2015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	5/13/2015	< 0.00002	< 0.00002	< 0.00002	0.00014	< 0.00002
	8/18/2015	0.00009	0.00011	0.00011	0.00011	0.0002
	11/17/2015	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
	3/16/2016	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009

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Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Molybdenum, mg/L (CAS NO - 7439-98-7)	10/18/2023	0.0063	0.001*	< 0.0006	0.0025	0.008
	3/18/2024	0.0031	< 0.0006	0.0043	0.0043	0.0031
	10/16/2024	0.0189	0.0006*	< 0.0006	0.0038	0.0031
	3/13/2025	0.0031	< 0.0006	< 0.0006	0.012	0.004
	10/15/2025	0.0026	< 0.001	< 0.001	0.0032	0.0033
Nickel, mg/L (CAS NO - 7440-02-0)	12/16/2009	0.0417	N/A	N/A	N/A	N/A
	12/16/2009	0.0417	N/A	N/A	N/A	N/A
	1/15/2010	0.0052	N/A	N/A	N/A	N/A
	2/18/2010	0.0039	0.0045	0.0049	0.0072	0.0077
	3/16/2010	0.0034	0.0062	0.0632	0.0066	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0086
	4/15/2010	0.0028	0.0041	0.005	0.0089	0.0041
	5/17/2010	0.0033	0.0067	0.0048	0.0079	0.0051
	6/21/2010	0.0042	0.0089	0.0074	0.0254	0.0091
	7/16/2010	0.0048	0.0078	0.0072	0.0246	0.0058
	8/18/2010	0.0253	0.0055	0.0112	0.0068	0.0054
	9/20/2010	0.004	0.0045	0.0128	0.0135	0.0124
	10/18/2010	0.0052	0.0156	0.0119	0.0084	0.005
	11/16/2010	0.0033	0.003	0.0032	0.0073	0.0068
	12/16/2010	0.0258	0.0039	0.0045	0.0075	0.0121
	1/13/2011	0.0092	0.0027	0.0033	0.0055	0.0119
	2/16/2011	0.0188	0.0031	0.0054	0.0061	0.0047
	5/18/2011	0.005	0.0041	0.0044	0.007	0.0061
	8/17/2011	0.0048	0.005	0.0059	0.0079	0.0052
	10/17/2011	0.0037	0.0035	0.0037	0.0078	0.0046
	1/18/2012	0.0023	0.0025	0.0027	0.007	0.0035
	4/17/2012	0.0057	0.005	0.0054	0.0131	0.0057
	7/17/2012	0.0252	0.0027	0.0149	0.0085	0.0086
	11/14/2012	0.0089	0.0049	0.0052	0.0099	0.0147
	3/19/2013	0.0041	0.0036	0.0043	0.0064	0.0046
	6/17/2013	0.007	0.0008	0.0023	0.0027	0.0015
	9/17/2013	0.0006	0.0008	0.0009	0.0022	0.013
	12/17/2013	0.0008	0.0006	0.0009	0.0023	0.0069
	2/17/2014	0.0104	0.0005	0.001	0.003	0.0008
	4/15/2014	0.0016	0.0005	0.0006	0.003	0.0064
	7/15/2014	0.0009	0.0009	0.0011	0.0023	0.004
	10/13/2014	0.0026	0.0024	0.0011	0.0047	0.0031
	1/16/2015	0.0015	0.0009	0.001	0.0029	0.0787
	5/13/2015	0.0051	< 0.0001	< 0.0001	0.0481	0.0018
	8/18/2015	0.0021	0.0015	0.0016	0.0034	0.0446
	11/17/2015	0.0014	0.0012	0.0006	0.0484	0.0032
	3/16/2016	0.0018*	0.0009*	0.0014*	0.0477	0.0013*
	10/12/2016	0.0019*	0.0012*	0.0017*	0.0381	0.002*
	3/16/2017	0.001*	0.0019*	0.0009*	0.0424	0.0024*
	10/12/2017	0.0039*	0.001*	0.0019*	0.0015*	0.0044
	3/14/2018	0.0034	0.0007*	0.0063	0.0026*	0.0021*
	10/17/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/19/2019	0.0015	0.0021	0.0032	0.0675	0.0109
	10/16/2019	0.0011*	0.0011*	0.0008*	0.0102	0.0027*
	3/18/2020	0.003*	0.0011*	0.001*	0.0167	0.0033*
	10/16/2020	< 0.0007	0.0007*	< 0.0007	0.0069	0.0024*
	3/17/2021	0.0026*	0.0015*	0.0012*	0.0064	0.0021*
	10/20/2021	0.0015*	< 0.0007	< 0.0007	0.0034*	0.0012*
	3/17/2022	0.0011*	0.0007*	0.0014*	0.0021*	0.0036*
	10/18/2022	< 0.0007	< 0.0007	< 0.0007	0.006	0.0057
	3/14/2023	0.0034*	0.0044	0.0017*	0.0046	0.0146
	10/18/2023	0.0018*	0.0013*	0.0012*	0.0026*	0.0061
	3/18/2024	< 0.0007	0.0011*	0.0021*	0.002*	0.0013*
	10/16/2024	0.0012*	0.0008*	0.0009*	0.003*	0.0024*
	3/13/2025	0.0017*	0.0017*	0.0007*	0.0023*	0.0026*
	10/15/2025	0.0011	0.0023	0.0008*	0.0012	0.0018
Selenium, mg/L (CAS NO - 7782-49-2)	12/16/2009	0.0012	N/A	N/A	N/A	N/A
	12/16/2009	< 0.0002	N/A	N/A	N/A	N/A
	1/15/2010	0.0011	N/A	N/A	N/A	N/A
	2/18/2010	0.001	< 0.0002	< 0.0002	0.0014	< 0.0002
	3/16/2010	0.0012	< 0.0002	0.0002	0.0017	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0003
	4/15/2010	0.0013	< 0.0002	< 0.0002	0.0019	0.0013
	5/17/2010	0.0015	0.0002	< 0.0002	0.0017	0.0011
	6/21/2010	0.0012	0.0002	< 0.0002	0.0007	0.0009

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Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Silver, mg/L (CAS NO - 7440-22-4)	11/14/2012	< 0.0012	0.0003	0.0003	0.0004	< 0.0012
	3/19/2013	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	6/17/2013	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	9/17/2013	< 0.0012	< 0.0012	< 0.0012	0.0001	< 0.0012
	12/17/2013	< 0.0012	0.0001	< 0.0012	0.0003	< 0.0012
	2/17/2014	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	4/15/2014	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	7/15/2014	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	10/13/2014	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	1/16/2015	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012
	5/13/2015	< 0.0012	< 0.0012	< 0.0012	0.0001	< 0.0012
	8/18/2015	< 0.0012	< 0.0012	< 0.0012	0.00005	0.0001
	11/17/2015	< 0.0012	0.00004	< 0.0012	0.00009	< 0.0012
	3/16/2016	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
	10/12/2016	0.0013*	0.0014*	0.0014*	0.0014*	0.0013*
	3/16/2017	0.0004*	0.0005*	0.0004*	0.0004*	0.0004*
	10/12/2017	0.0009*	0.0009*	0.0014*	0.001*	0.0009*
	3/14/2018	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	10/17/2018	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	3/19/2019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	10/16/2019	< 0.0019	< 0.0019	< 0.0019	< 0.0019	< 0.0019
	3/18/2020	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
	10/16/2020	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
	3/17/2021	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	10/20/2021	< 0.0025	< 0.0002	< 0.0002	< 0.0025	< 0.0025
	3/17/2022	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	10/18/2022	< 0.0015	< 0.0015	0.0023	< 0.0015	< 0.0015
	3/14/2023	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015
	10/18/2023	< 0.0015	< 0.0015	0.0019*	< 0.0015	< 0.0015
	3/18/2024	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015
	10/16/2024	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015
	3/13/2025	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015
	10/15/2025	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Sulfate, mg/L (CAS NO - 14808-79-8)	1/15/2010	509	N/A	N/A	N/A	N/A
	2/18/2010	40.5	141	134	101	229
	3/16/2010	17.5	139	62.6	86.7	N/A
	3/23/2010	N/A	N/A	N/A	N/A	43.3
	4/15/2010	25.4	141	68	88.2	28.7
	5/17/2010	24.1	138	57.8	90.8	19.3
	6/21/2010	28.8	126	38.5	82.3	18
	7/16/2010	27.8	103	37.3	82.6	17.1
	8/18/2010	54.4	106	69	0.7	53.4
	9/20/2010	40.9	56.9	34.1	69.3	118
	10/18/2010	34	32.2	10.5	0.3	147
	11/16/2010	35.3	21.6	25.8	46.4	279
	12/16/2010	35.1	14.8	26.5	22.5	385
	1/13/2011	36.5	10.5	28.5	40	422
	2/16/2011	26.2	14.1	26.4	11.6	126
	5/18/2011	23.2	7.8	28.1	0.7	125
	8/17/2011	38.9	3	17.7	0.7	197
	1/18/2012	39.3	1.3	13.6	1	101
	4/17/2012	40.5	2.1	11.5	2.1	132
	7/17/2012	36.8	2.9	529	6.6	12.9
	11/14/2012	40.4	13.9	28.2	15.1	463
	3/19/2013	130	1.5	26.7	2.1	104
	6/17/2013	22.5	2.7	25.9	6.8	234
	9/17/2013	34.5	2.3	27.4	8.1	565
	12/17/2013	39.4	2.8	26.8	2	257
	2/17/2014	315	2.4	37.2	2.2	115
	4/15/2014	337	0.9	33.8	9.2	334
	7/15/2014	23.2	2.5	36.4	14.2	287
	10/13/2014	40	2.1	38.4	10.5	288
	1/16/2015	30.7	< 8	39.9	7.6	259
	5/13/2015	27.3	1.9	43.5	100	300
	8/18/2015	32.2	1.6	54.5	134	326
	11/17/2015	285	2.2	58	174	285
	3/16/2016	24.3	2.9	53.6	196	263
	10/12/2016	32.6	5.4	104	224	280
	3/16/2017	31.1	6.3	127	216	252
	10/12/2017	34.6	7.2	134	85.3	163

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Total Metals Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Thallium, mg/L (CAS NO - 7440-28-0)	3/13/2025	< 0.0004	0.0006*	< 0.0004	< 0.0004	< 0.0004
	10/15/2025	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0001*
Vanadium, mg/L (CAS NO - 7440-62-2)	12/16/2009	< 0.0007	N/A	N/A	N/A	N/A
	12/16/2009	< 0.0007	N/A	N/A	N/A	N/A
	1/15/2010	< 0.0007	N/A	N/A	N/A	N/A
	2/18/2010	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	3/16/2010	0.0031	0.0049	0.0049	0.0052	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0022
	4/15/2010	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	5/17/2010	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	6/21/2010	< 0.0007	0.0034	< 0.0007	< 0.0007	< 0.0007
	7/16/2010	< 0.0007	0.0007	< 0.0007	0.0027	< 0.0007
	8/18/2010	0.0081	0.0118	0.0109	0.0033	0.0096
	9/20/2010	< 0.0007	0.0007	< 0.0007	< 0.0007	< 0.0007
	10/18/2010	< 0.0007	0.0007	< 0.0007	< 0.0007	< 0.0007
	11/16/2010	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	12/16/2010	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	1/13/2011	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	2/16/2011	0.0034	0.0021	0.0026	0.0007	0.0019
	5/18/2011	0.0007	0.0007	0.0007	0.0007	0.0007
	8/17/2011	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	10/17/2011	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	1/18/2012	< 0.0007	< 0.0007	< 0.0007	< 0.0007	0.0033
	4/17/2012	< 0.0007	< 0.0007	< 0.0007	< 0.0007	0.0026
	7/17/2012	0.0031	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	11/14/2012	< 0.0007	< 0.0007	< 0.0007	< 0.0007	< 0.0007
	3/19/2013	0.0063	0.0056	0.0059	< 0.0007	0.0058
	6/17/2013	0.0024	0.0005	0.0005	0.0005	0.0009
	9/17/2013	0.0005	0.0005	0.0003	0.0003	0.0013
	12/17/2013	0.0008	0.0005	0.0004	0.0013	0.0012
	2/17/2014	0.0017	0.0003	0.0003	0.0006	0.0035
	4/15/2014	0.0006	< 0.0007	< 0.0007	0.0006	0.0059
	7/15/2014	0.0005	< 0.0007	< 0.0007	0.0008	0.0087
	10/13/2014	0.0004	< 0.0007	< 0.0007	< 0.0007	0.0017
	1/16/2015	0.0006	< 0.0007	< 0.0007	0.0012	0.0011
	5/13/2015	0.0005	0.0005	0.0003	0.0013	0.0006
	8/18/2015	0.0003	0.0004	0.0003	0.0032	0.0009
	11/17/2015	0.0008	0.0007	0.0005	0.0036	0.0009
	3/16/2016	0.0007*	0.0005*	0.0011*	0.0007*	0.002*
	10/12/2016	0.0008*	0.0006*	0.0016*	0.0008*	0.0019*
	3/16/2017	0.0002*	0.0004*	0.0004*	0.0004*	0.0013*
	10/12/2017	0.001*	0.0002*	0.0007*	0.0007*	0.0011*
	3/14/2018	0.0004*	0.0002*	0.0004*	0.0004*	0.0018*
	10/17/2018	0.0002*	0.0003*	0.0003*	0.0033*	0.0129
	3/19/2019	< 0.004	0.0042	0.0053	0.063	0.0164
	10/16/2019	< 0.002	< 0.002	< 0.002	< 0.002	0.0026*
	3/18/2020	< 0.0043	< 0.0043	< 0.0043	< 0.0043	0.0175
	10/16/2020	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
	3/17/2021	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
	10/20/2021	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
	3/17/2022	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
	10/18/2022	0.0054*	0.0056*	0.0056*	0.007*	0.0049*
	3/14/2023	0.0067*	0.0051*	0.0058*	0.0088	0.0066*
	10/18/2023	< 0.0043	< 0.0043	< 0.0043	< 0.0043	0.0095
	3/18/2024	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
	10/16/2024	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
	3/13/2025	0.0061*	0.0057*	< 0.0043	0.005*	0.0056*
	10/15/2025	< 0.005	< 0.005	< 0.005	< 0.005	0.0018*
Zinc, mg/L (CAS NO - 7440-66-6)	12/16/2009	0.12	N/A	N/A	N/A	N/A
	12/16/2009	0.12	N/A	N/A	N/A	N/A
	1/15/2010	0.0706	N/A	N/A	N/A	N/A
	2/18/2010	0.0537	0.0281	0.0351	0.0276	0.007
	3/16/2010	0.0375	0.0069	0.0076	0.0191	N/A
	3/23/2010	N/A	N/A	N/A	N/A	0.0091
	4/15/2010	0.0363	1.11	0.004	0.0477	0.0113
	5/17/2010	0.0926	0.0453	0.0106	0.0422	0.0229
	6/21/2010	0.0448	0.245	0.0083	0.114	0.0203
	7/16/2010	0.0563	0.0122	0.005	0.0782	0.0098
	8/18/2010	0.0508	0.0035	0.0043	0.0083	0.009
	9/20/2010	0.0533	0.0036	0.0089	0.0285	0.0685

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Appendix I VOC Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
2-Butanone, ug/L (CAS NO - 78-93-3)	10/17/2018	< 5	< 5	< 5	47.4	< 5
	11/14/2018	N/A	N/A	N/A	28.3	N/A
	3/19/2019	< 5	< 5	< 5	< 5	< 5
	10/16/2019	< 5	< 5	< 5	< 5	< 5
	3/18/2020	< 5	< 5	< 5	< 5	< 5
	10/16/2020	< 5	< 5	< 5	< 5	< 5
	3/17/2021	< 5	< 5	< 5	< 5	< 5
	10/20/2021	< 5	< 5	< 5	< 5	< 5
	3/17/2022	< 10	< 10	< 10	< 10	< 10
	10/18/2022	< 10	< 10	< 10	< 10	< 10
	3/14/2023	< 10	< 10	< 10	< 10	< 10
	10/18/2023	< 10	< 10	< 10	< 10	< 10
	3/18/2024	< 10	< 10	< 10	< 10	< 10
	10/16/2024	< 10	< 10	< 10	< 10	< 10
	3/13/2025	< 10	< 10	< 10	< 10	< 10
	10/15/2025	< 10	< 10	< 10	< 10	< 10
2-Methylphenol, ug/L (CAS NO - 95-48-7)	10/17/2018	< 10	< 10	< 10	< 10	< 10
	11/14/2018	N/A	N/A	N/A	< 10	N/A
	3/19/2019	< 10	< 10	< 10	< 10	< 10
	10/16/2019	< 10	< 10	< 10	< 10	< 10
	3/18/2020	< 13.6	< 10	< 10	< 14.4	< 10
	10/16/2020	< 10	< 10	< 10	< 10	< 10
	3/17/2021	< 12.8	< 10	< 10	< 10	< 10
	10/20/2021	< 10	< 10	< 10	< 10	< 10
	3/17/2022	< 12.5	< 10	< 10	< 13	< 10
	10/18/2022	< 10	< 10	< 10	< 10	< 10
	3/14/2023	< 10	N/A	N/A	< 10	< 10
	10/18/2023	< 10	< 10	< 12.8	< 10	< 10
	3/18/2024	< 10	< 10	< 10	< 10	< 10
	10/16/2024	< 10	< 10	< 10	< 10	< 10
	3/13/2025	< 10	< 10	< 10	< 10	< 10
	10/15/2025	< 10	< 10	< 10	< 10	< 10
3/4-Methylphenol, ug/L (CAS NO - T-34MP)	10/17/2018	< 10	< 10	< 10	22.5	< 10
	11/14/2018	N/A	N/A	N/A	< 10	N/A
	3/19/2019	< 10	< 10	< 10	< 10	< 10
	10/16/2019	< 10	< 10	< 10	< 10	< 10
	3/18/2020	< 13.6	< 10	< 10	< 14.4	< 10
	10/16/2020	< 10	< 10	< 10	< 10	< 10
	3/17/2021	< 12.8	< 10	< 10	< 10	< 10
	10/20/2021	< 10	< 10	< 10	< 10	< 10
	3/17/2022	< 12.5	< 10	< 10	< 13	< 10
	10/18/2022	< 10	< 10	< 10	< 10	< 10
	3/14/2023	< 10	N/A	N/A	< 10	< 10
	10/18/2023	< 10	< 10	< 12.8	< 10	< 10
	3/18/2024	< 10	< 10	< 10	< 10	< 10
	10/16/2024	< 10	< 10	< 10	< 10	< 10
	3/13/2025	< 10	< 10	< 10	< 10	< 10
	10/15/2025	< 10	< 10	< 10	< 10	< 10
Benzene, ug/L (CAS NO - 71-43-2)	10/17/2018	< 1	< 1	< 1	< 1	< 1
	3/19/2019	< 1	< 1	< 1	< 1	< 1
	10/16/2019	< 1	< 1	< 1	< 1	< 1
	3/18/2020	< 1	< 1	< 1	< 1	< 1
	10/16/2020	< 1	< 1	< 1	< 1	< 1
	3/17/2021	< 1	< 1	< 1	< 1	< 1
	10/20/2021	< 1	< 1	< 1	< 1	< 1
	3/17/2022	< 1	< 1	< 1	< 1	< 1
	10/18/2022	< 1	< 1	< 1	< 1	< 1
	3/14/2023	< 1	< 1	< 1	< 1	< 1
	10/18/2023	< 1	< 1	< 1	< 1	< 1
	3/18/2024	< 1	< 1	< 1	< 1	< 1
	10/16/2024	< 1	< 1	< 1	< 1	< 1
	3/13/2025	< 1	< 1	< 1	< 1	< 1
	10/15/2025	< 1	< 1	< 1	< 1	< 1
Chloroform, ug/L (CAS NO - 67-66-3)	10/17/2018	< 1	< 1	< 1	410	< 1
	11/14/2018	N/A	N/A	N/A	18.5	N/A
	3/19/2019	< 1	< 1	< 1	80.6	< 1
	5/3/2019	N/A	N/A	N/A	9	N/A
	10/16/2019	< 1	< 1	< 1	< 1	< 1
	3/18/2020	< 1	< 1	< 1	< 1	< 1
	10/16/2020	< 1	< 1	< 1	< 1	< 1

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Summary of Groundwater Chemistry
BMC Aggregates L.C. South Waterloo Quarry

Other Constituents	Sample Date	ReiterFarm UPG	Well#1 DNG	Well#2 DNG	Well#3 DNG	Well#4 DNG
Ammonia as N, mg/L (CAS NO - 7664-41-7)	3/19/2019	< 0.1	< 0.1	< 0.1	2.03	0.11
	10/16/2019	< 0.1	< 0.1	< 0.1	0.11	< 0.1
	3/18/2020	< 0.1	< 0.1	0.11	0.1	< 0.1
	10/16/2020	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	3/17/2021	< 0.1	< 0.1	< 0.1	< 0.1	0.22
	10/20/2021	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	3/17/2022	< 0.1	< 0.1	0.19	< 0.1	< 0.1
	10/18/2022	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	3/14/2023	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	10/18/2023	< 0.1	1.51	< 0.1	0.12	< 0.1
	3/18/2024	< 0.1	0.45	< 0.1	< 0.1	< 0.1
	10/16/2024	< 0.1	0.38	< 0.1	< 0.1	0.8
	3/13/2025	< 0.1	0.18	< 0.1	0.1	< 0.1
	10/15/2025	0.62	< 0.1	0.13	< 0.1	< 0.1
Chemical Oxygen Demand, mg/L (CAS NO - COD)	3/19/2019	< 20	< 20	< 20	687	36
	10/16/2019	< 20	< 20	< 20	< 20	< 20
	3/18/2020	< 20	< 20	< 20	< 20	< 20
	10/16/2020	< 20	< 20	< 20	< 20	< 20
	3/17/2021	< 20	< 20	< 20	< 20	83
	10/20/2021	< 20	< 20	21	39	22
	3/17/2022	< 20	< 20	< 20	< 20	< 20
	10/18/2022	< 20	< 20	< 20	< 20	< 20
	3/14/2023	< 20	< 20	< 20	< 20	< 20
	10/18/2023	< 54	< 54	< 54	< 54	< 54
	3/18/2024	< 54	< 54	< 54	< 54	< 54
	10/16/2024	< 54	72	< 54	< 54	< 54
	3/13/2025	< 54	< 54	< 54	< 54	< 54
	10/15/2025	< 54	< 54	< 54	< 54	< 54
Formaldehyde, ug/L (CAS NO - 50-00-0)	3/19/2019	< 10	< 10	< 10	351	< 10
	5/3/2019	N/A	N/A	N/A	< 10	N/A
	10/16/2019	< 10	< 10	< 10	< 10	< 10
	3/18/2020	< 10	29.6	< 10	< 10	< 10
	10/16/2020	< 10	< 10	< 10	< 10	< 10
	3/17/2021	< 10	10.9	11.7	11.7	< 10
	10/20/2021	< 10	< 10	< 10	< 10	< 10
	3/17/2022	< 10	< 10	< 10	< 10	< 10
	10/18/2022	< 10	< 10	< 10	< 10	< 10
	3/14/2023	< 10	< 10	< 10	< 10	< 10
	10/18/2023	< 10	< 10	< 10	< 10	< 10
	3/18/2024	< 10	< 10	< 10	< 10	< 10
	10/16/2024	< 10	< 10	< 10	< 10	< 10
	3/13/2025	< 10	< 10	< 10	< 10	< 10
	10/15/2025	< 20	< 20	< 20	< 20	< 20
Phenols, total, mg/L (CAS NO - 108-95-2)	3/19/2019	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	10/16/2019	< 0.035	< 0.035	< 0.035	< 0.035	0.039
	3/18/2020	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	10/16/2020	0.043	< 0.035	0.082	< 0.035	< 0.035
	3/17/2021	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	10/20/2021	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	3/17/2022	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	10/18/2022	< 0.035	0.06	< 0.035	< 0.035	< 0.035
	3/14/2023	0.057	0.06	0.06	0.063	0.035
	10/18/2023	0.082	0.047	0.099	0.07	0.118
	3/18/2024	0.074	0.132	0.094	< 0.035	< 0.035
	10/16/2024	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	3/13/2025	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
	10/15/2025	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035
Total Dissolved Solids, mg/L (CAS NO - TDS)	10/17/2018	311	305	445	1370	626
	3/19/2019	311	337	469	815	492
	10/16/2019	366	308	491	458	468
	3/18/2020	343	333	493	415	736
	10/16/2020	300	291	444	409	348
	3/17/2021	365	313	483	443	604
	10/20/2021	383	305	564	481	443
	3/17/2022	359	351	536	447	429
	10/18/2022	391	333	391	392	415
	3/14/2023	360	341	456	445	479
	10/18/2023	429	369	481	400	459
	3/18/2024	336	420	565	428	439
	10/16/2024	408	393	487	383	409

Appendix D
2025 Statistical Report

Management of Outliers

Background datasets are evaluated for outliers using the Ohio EPA Method included in the Sanitas™ statistical software program and described below, which includes the use of Dixon's, Rosner's, and Tukey's outlier tests, as appropriate based on the diagnostic tests, for the datasets that contain less than 75% of the measured concentrations below the PQL. Outliers are not confirmed unless a physical cause or explanation for the outlier is determined.

Management of Data (ND data < 75%)

If less than 75% of the background dataset is below the PQL, outliers are statistically evaluated using the following guidelines.

- A parametric dataset with n < 20 is evaluated with the Dixon's outlier test.
- A parametric dataset with n ≥ 20 is evaluated with the Rosner's outlier test.
- A non-parametric dataset is evaluated with the Tukey's outlier test.

In accordance with the Ohio EPA Method, if a statistically significant outlier is not found using the above tests, but the highest value data point exceeds the second highest data point by an order of magnitude, the highest point is considered an outlier.

Management of Data (ND data ≥ 75%)

If greater than or equal to 75% of the background dataset is less than the PQL, outliers are statistically evaluated using the following guidelines.

- Single detection ≥ the PQL:
  - If ≥ 50% of the background dataset has detections ≥ the method detection limit (MDL), any value ≥ two times the PQL of background is considered an outlier.
  - If < 50% of the background dataset has detections ≥ the MDL, any value ≥ the PQL of background is considered an outlier.
- Two or more detections ≥ the PQL:
  - If ≥ 50% of the background dataset has detections ≥ the MDL, any value ≥ three times the PQL of background is considered an outlier.
  - If < 50% of the background dataset has detections ≥ the MDL, any value ≥ two times the PQL of background is considered an outlier.

The chloride outliers identified in Well #3 from the May, August, and November 2015 sampling events, the March and October 2016 sampling events, the March 2017 sampling event, and the October 2018 sampling event were confirmed due to the fact that the well was treated with chlorine to control iron-fouling bacteria on multiple occasions. The confirmed outliers are shown in Appendix C of the Annual Water Quality Report, Summary of Groundwater Chemistry. Indicated outliers in the background monitoring well were not confirmed at this time as there was no information to link the indicated outliers to a physical cause or explanation.

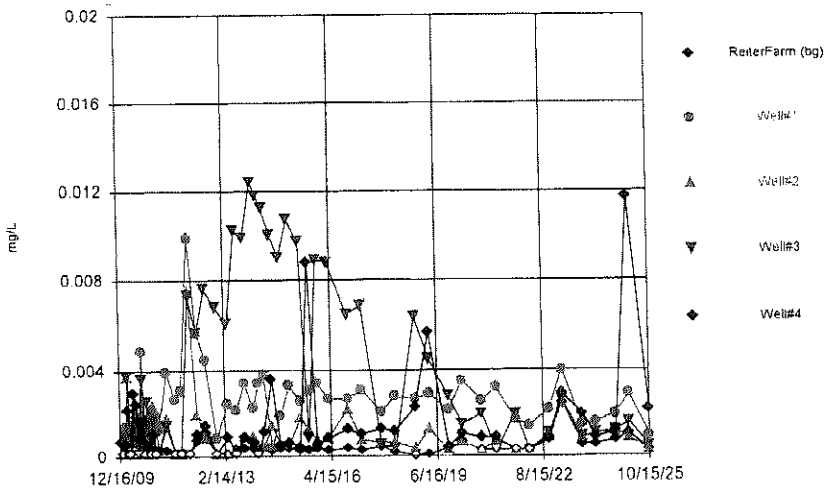
Assessment Monitoring Statistical Program

Confidence intervals or confidence bands, as appropriate, were selected as the appropriate statistical methods for comparison of the groundwater analytical data against a fixed groundwater protection standard (GWPS). The assessment monitoring statistical evaluations are performed using the most recent eight samples or all samples if less than eight samples are available. The

Time Series Plots

Sanitas™ v 10.1.02 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

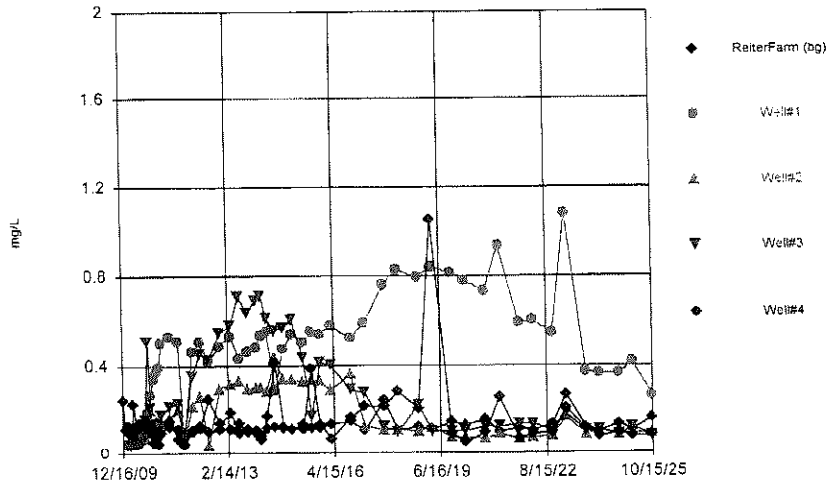
Time Series



Constituent: Arsenic Analysis Run 11/20/2025 5:38 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers. UG

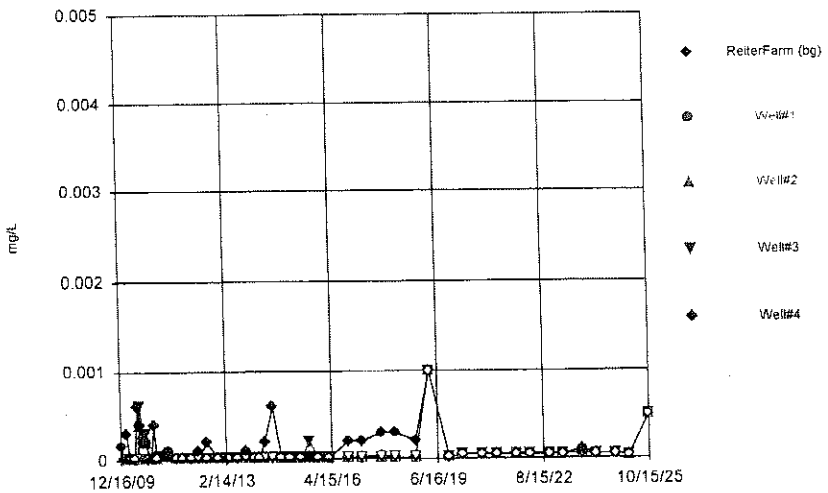
Time Series



Constituent: Barium Analysis Run 11/20/2025 5:38 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Beryllium Analysis Run 11/20/2025 5:38 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

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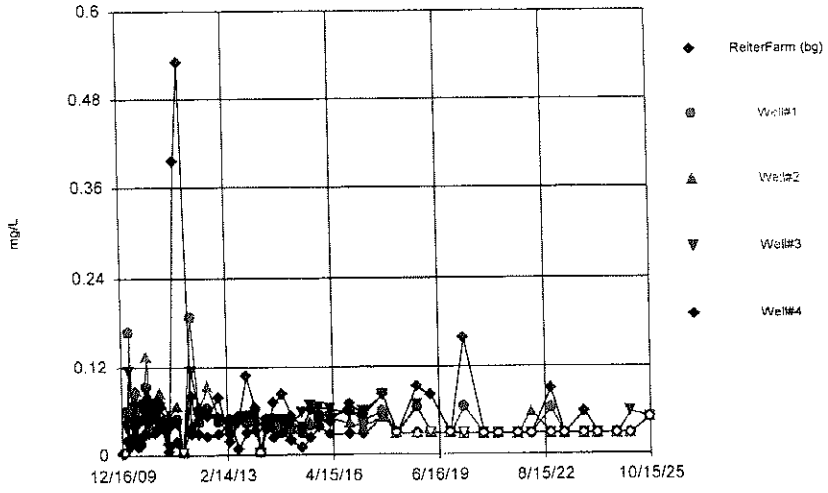
Hollow symbols indicate censored values.

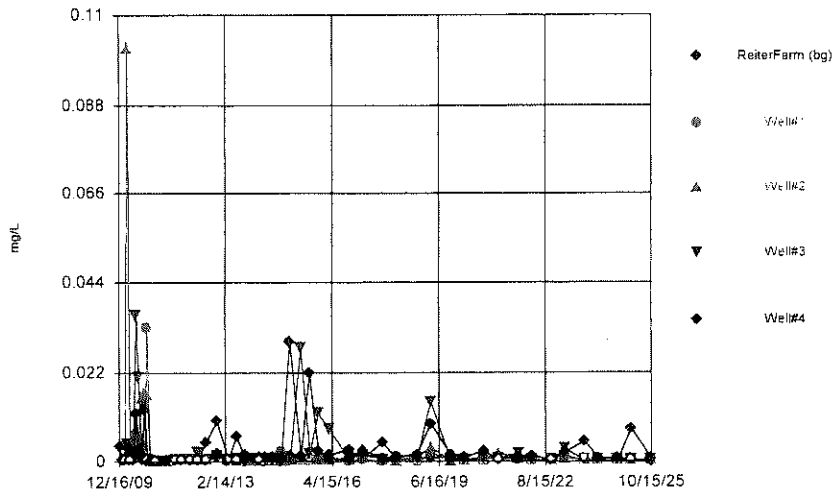
Time Series



Constituent: Boron Analysis Run 11/20/2025 5:38 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG
Hollow symbols indicate censored values.

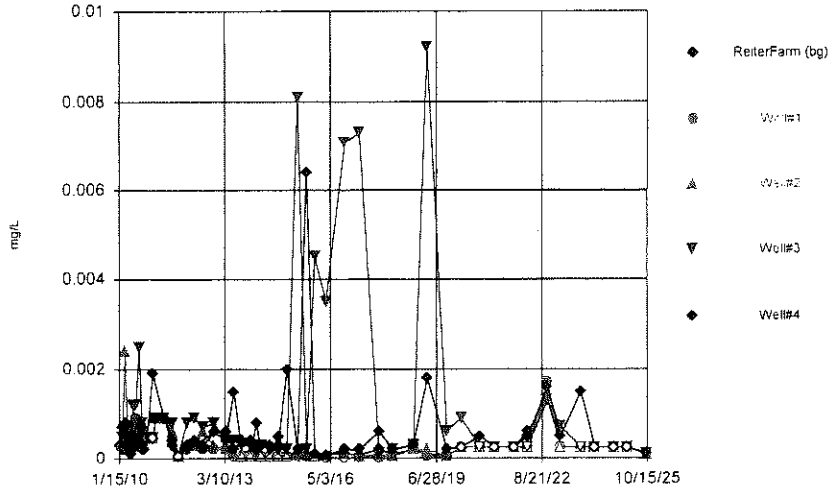
Time Series



Constituent: Chromium Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG
Hollow symbols indicate censored values.

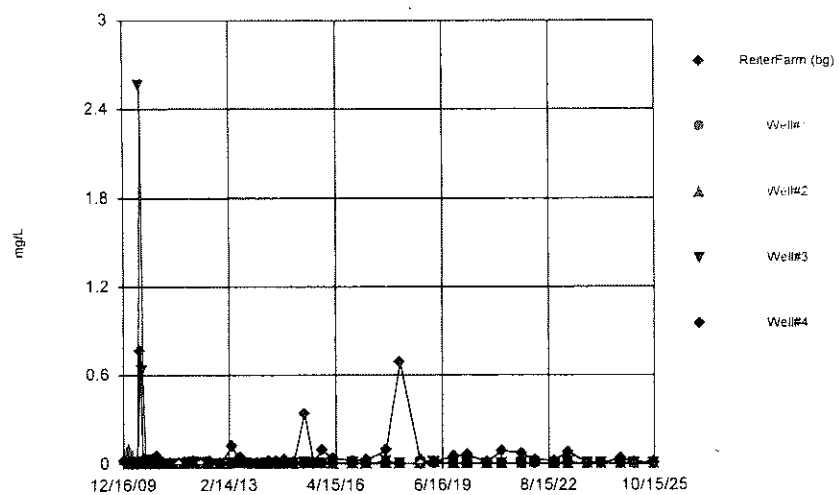
Time Series



Constituent: Cobalt Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG
Hollow symbols indicate censored values.

Time Series



stituent: Copper Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

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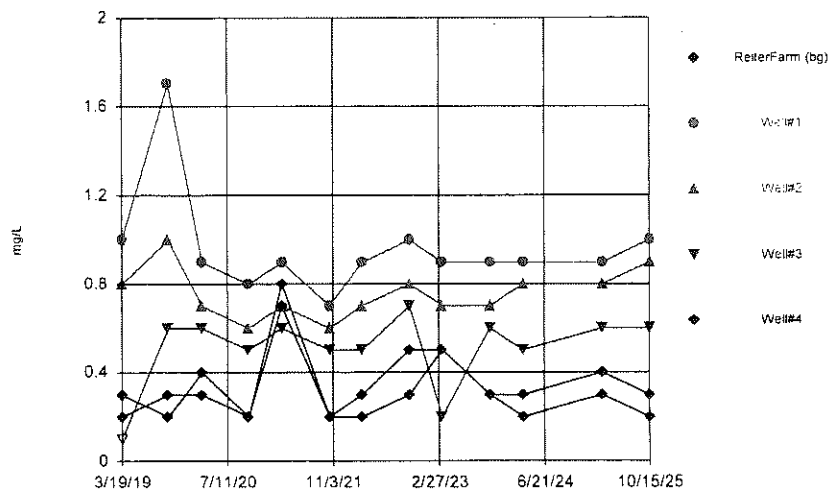
Hollow symbols indicate censored values

Time Series



Constituent: Fluoride Analysis Run 11/20/2025 5:39 PM View: 2025AW e_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas r master

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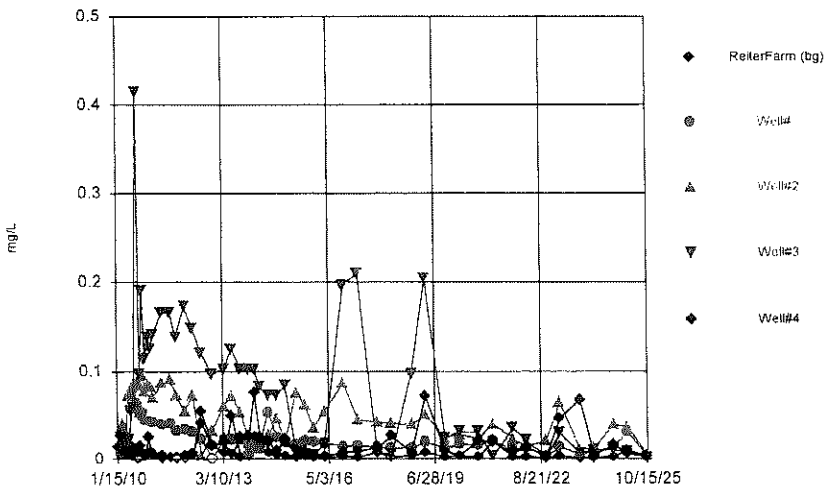
Hollow symbols indicate censored values.

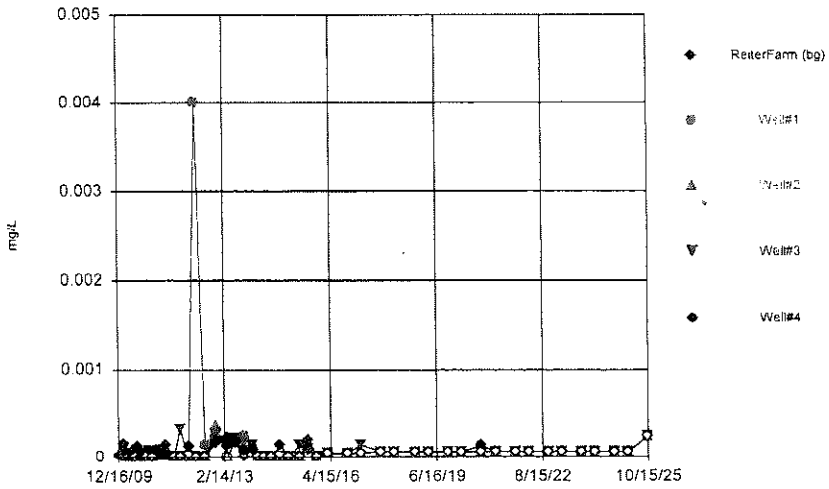
Time Series



Constituent: Manganese Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Time Series



Constituent: Mercury Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

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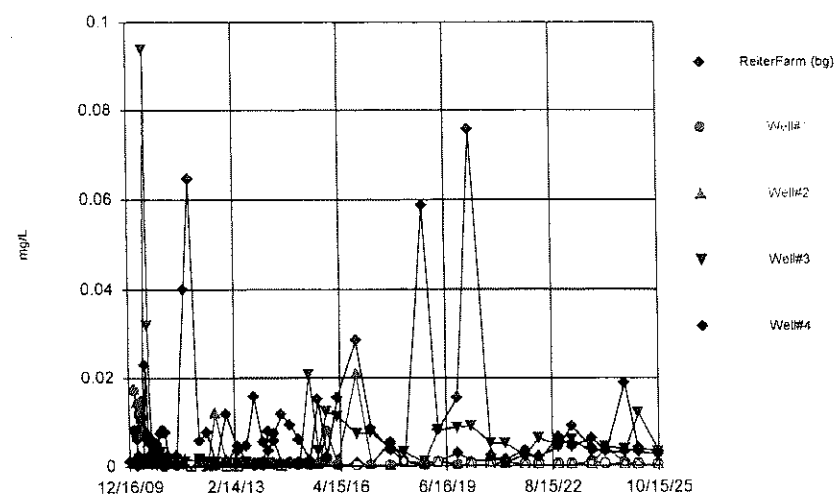
Hollow symbols indicate censored values.

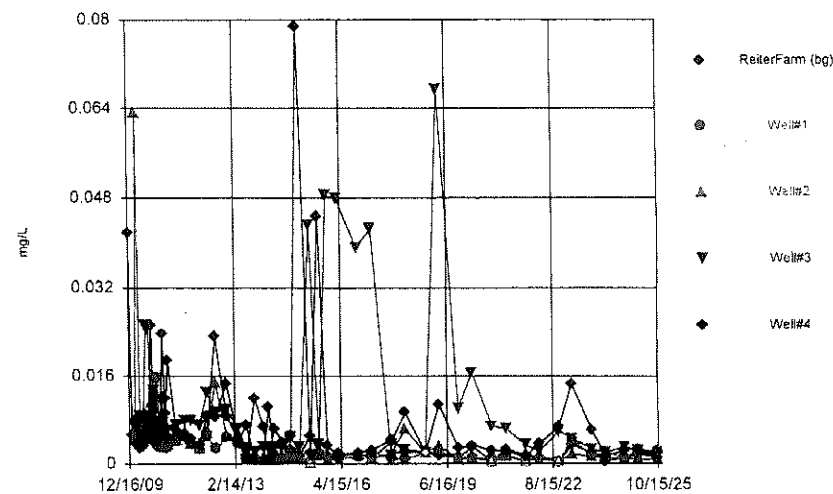
Time Series



Constituent: Molybdenum Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

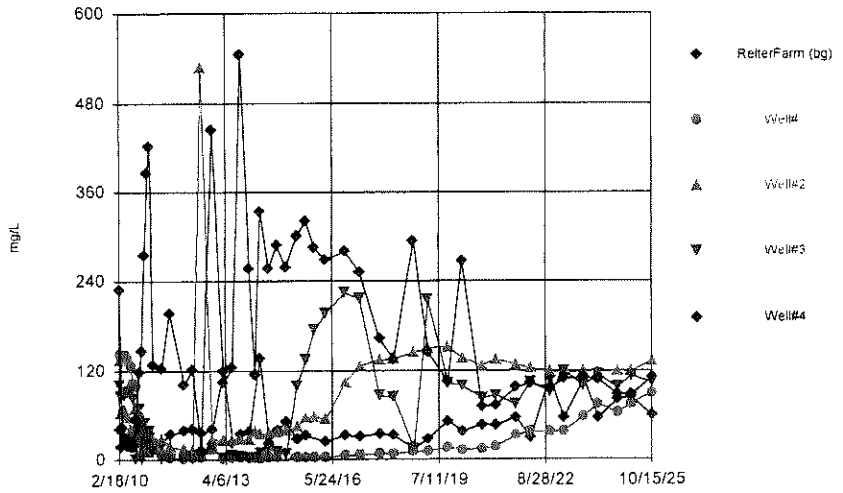
Time Series



Constituent: Nickel Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG
Hollow symbols indicate censored values

Time Series



Constituent: Sulfate Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

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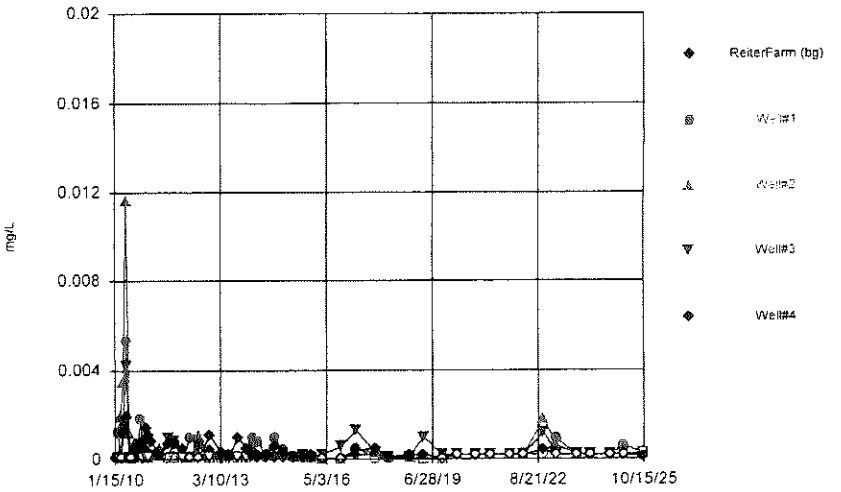
Hollow symbols indicate censored values

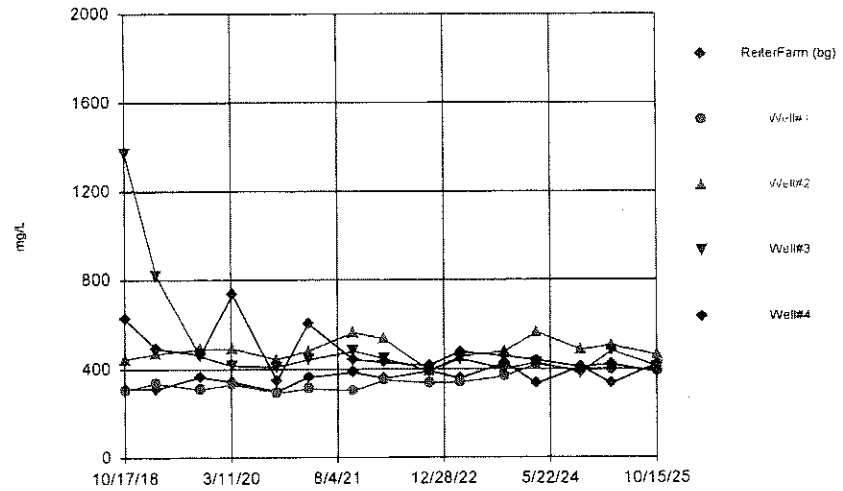
Time Series



Constituent: Thallium Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG

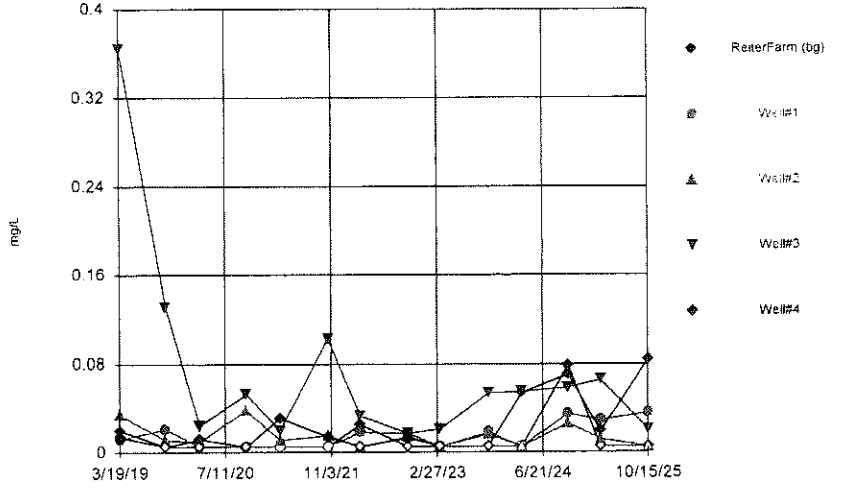
Time Series



Constituent: Total Dissolved Solids Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG
Hollow symbols indicate censored values

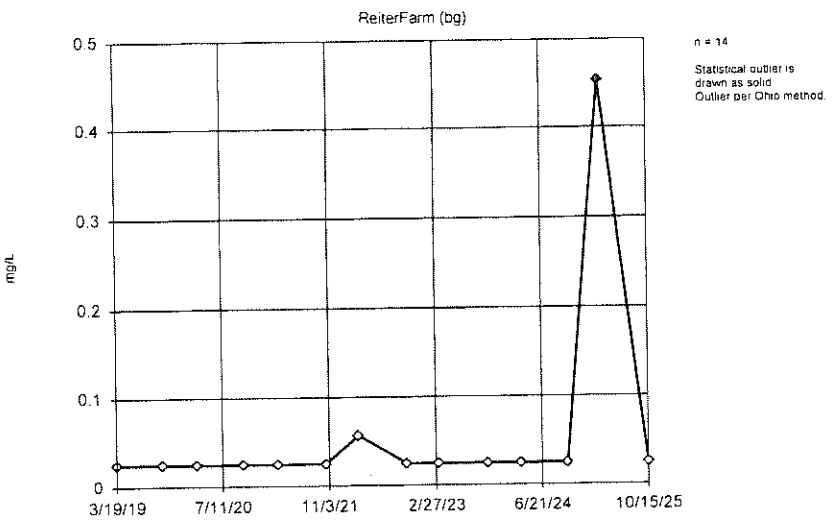
Time Series



Constituent: Total Organic Halogens Analysis Run 11/20/2025 5:39 PM View: 2025AWQR-Time_Series
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Outlier Tests Summary Table and Graphs

Ohio EPA 0715 Outlier Algorithm

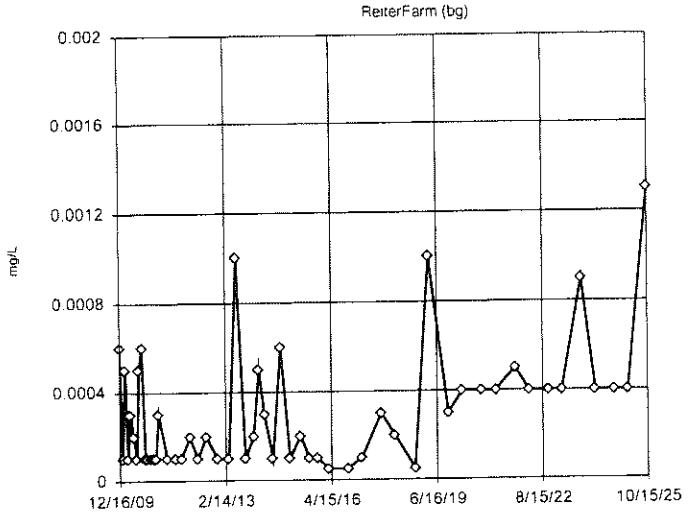


n = 14

Statistical outlier is drawn as solid
Outlier per Ohio method.

Constituent: Aluminum Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



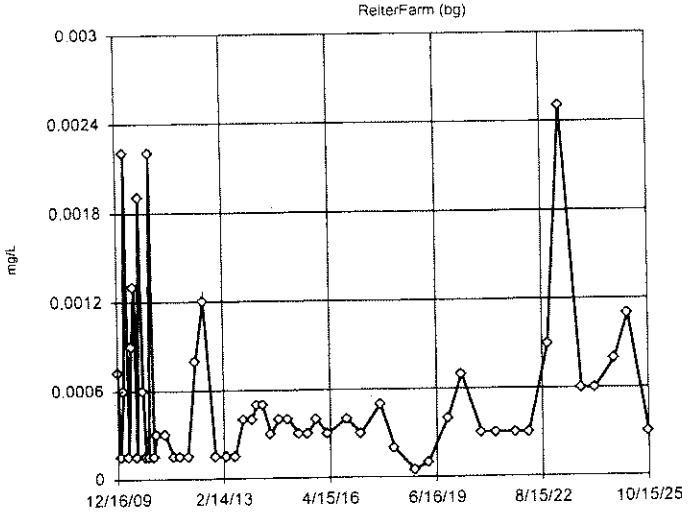
n = 54

No outliers found
Tukey's method used in lieu of parametric test because the Shapiro Francia normality test failed at the 0.01 alpha level.

The results were invalidated because both the lower and upper quartiles represent reporting limits

Constituent: Antimony Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

EPA Screening (suspected outliers for Rosner's Test)



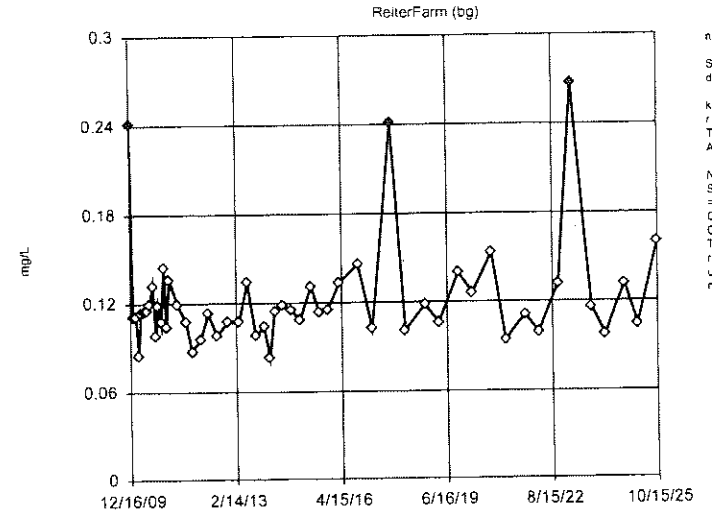
n = 54

Rosner's will not be run
No suspect values identified or unable to establish suspect values
Ohio method in use.
Mean 0.0005495, std dev 0.0005529, critical Tn 2.986

Normality test used.
Shapiro Francia@alpha = 0.01
Calculated = 0.9591
Critical = 0.939 (after natural log transformation)
The distribution was found to be log-normal

Constituent: Arsenic Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Rosner's Outlier Test / Ohio EPA 0715 Outlier Algorithm



n = 54

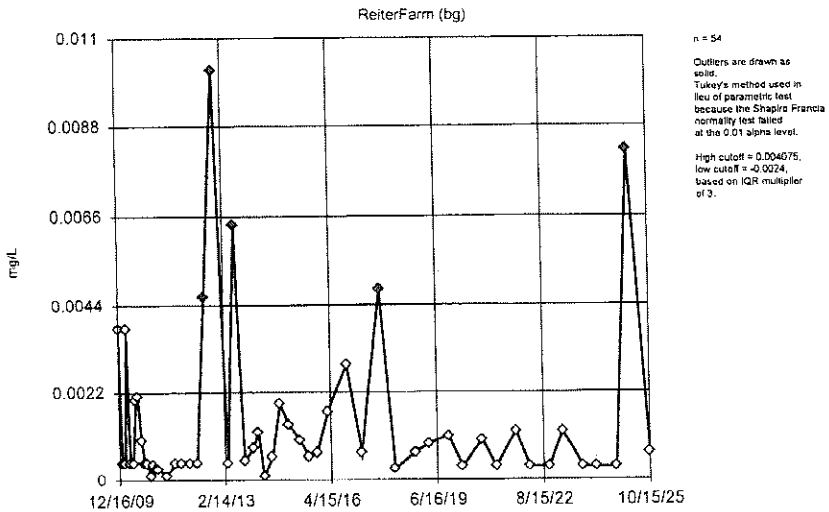
Statistical outliers are drawn as solid

k = 5
r = 5.107
Tabulated value = 2.948
Alpha = 0.01

Normality test used
Shapiro Francia@alpha = 0.01
Calculated = 0.9627
Critical = 0.935
The distribution, after removal of suspect values, was found to be normally distributed.

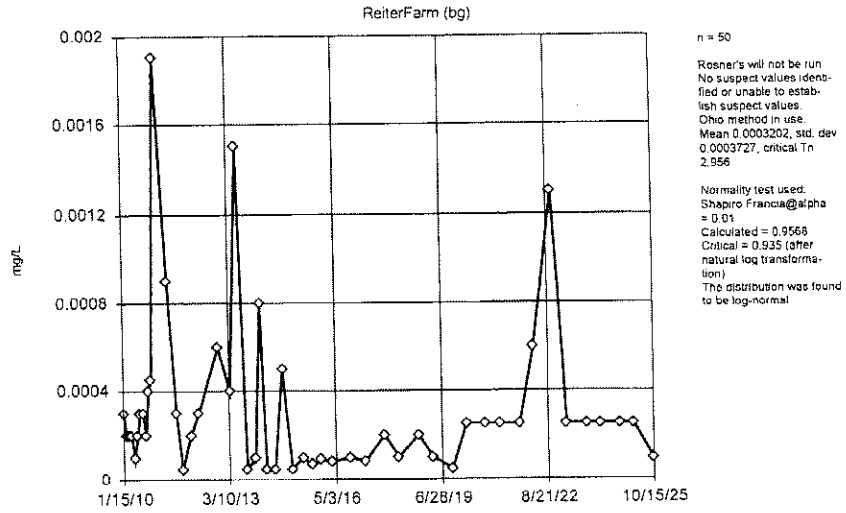
Constituent: Barium Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



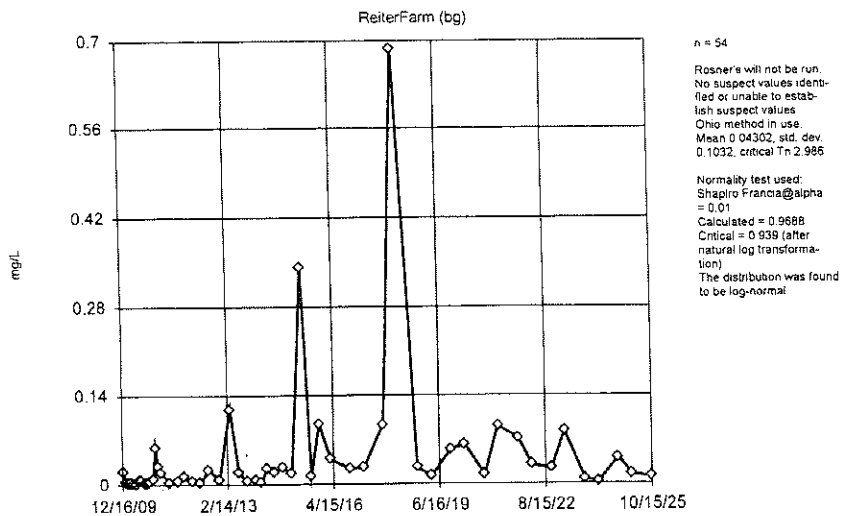
Constituent: Chromium Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

EPA Screening (suspected outliers for Rosner's Test)



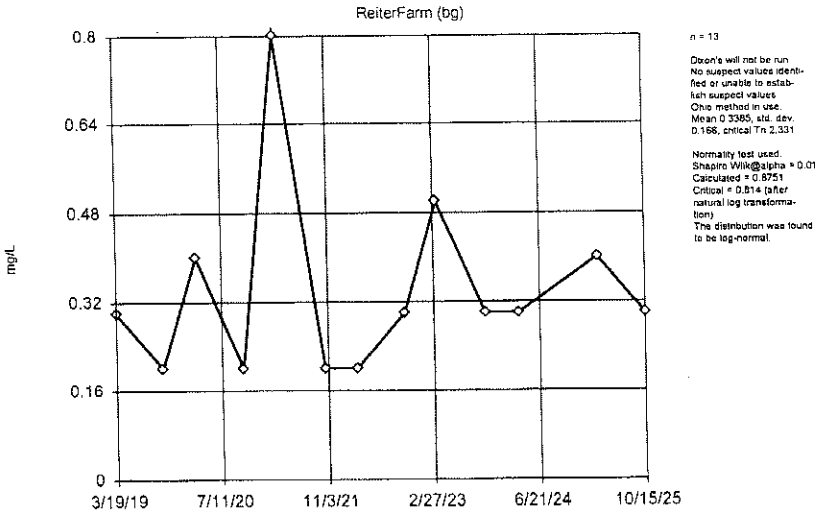
Constituent: Cobalt Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

EPA Screening (suspected outliers for Rosner's Test)



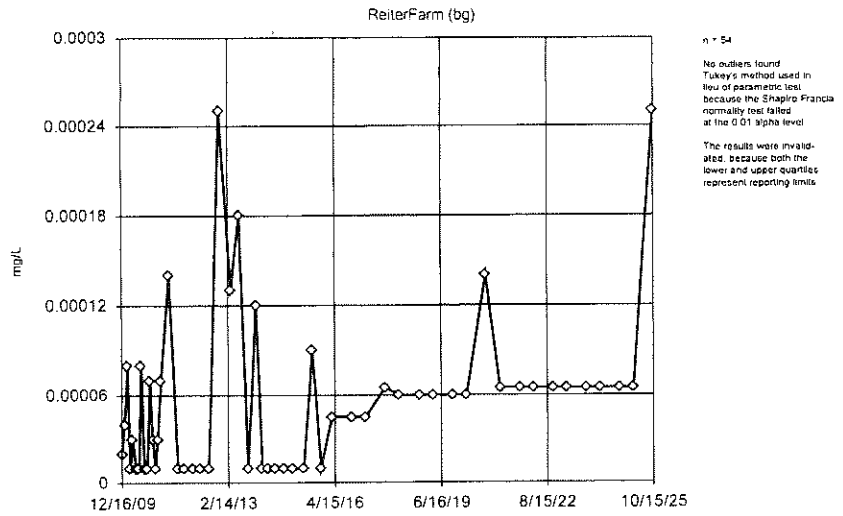
Constituent: Copper Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

EPA Screening (suspected outliers for Dixon's Test)



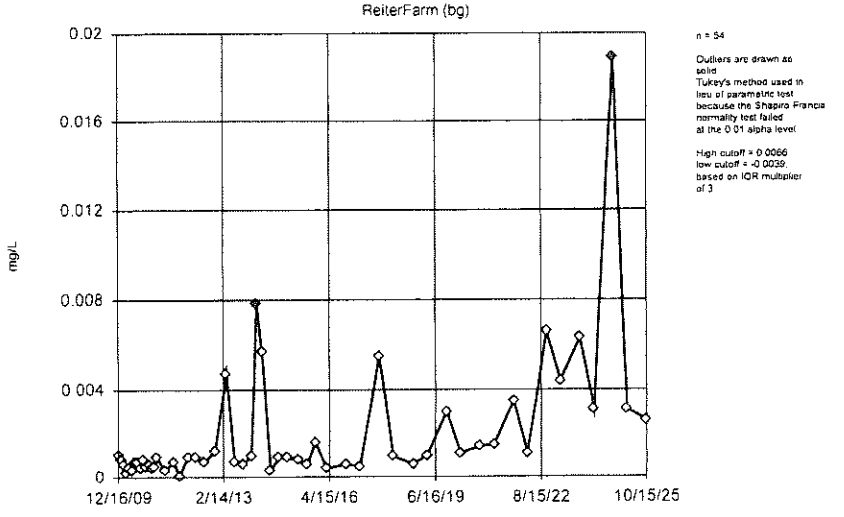
Constituent: Fluoride Analysis Run 11/20/2025 7:44 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



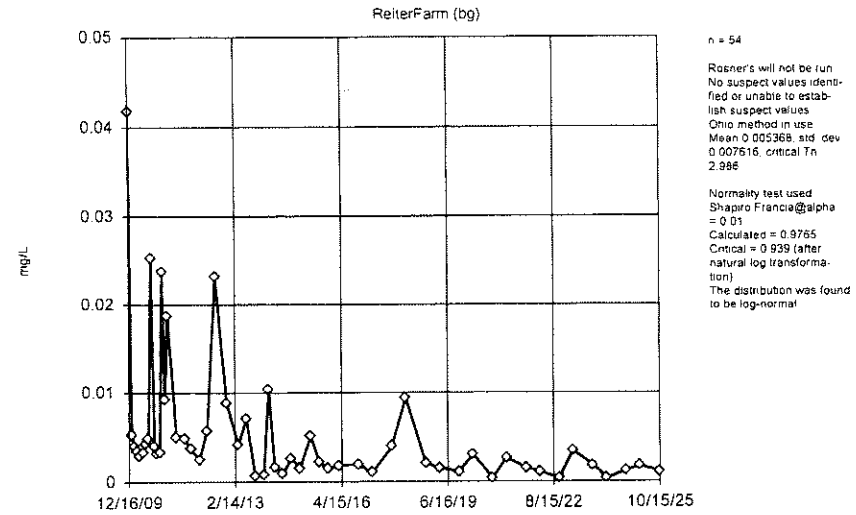
Constituent: Mercury Analysis Run 11/20/2025 7:45 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



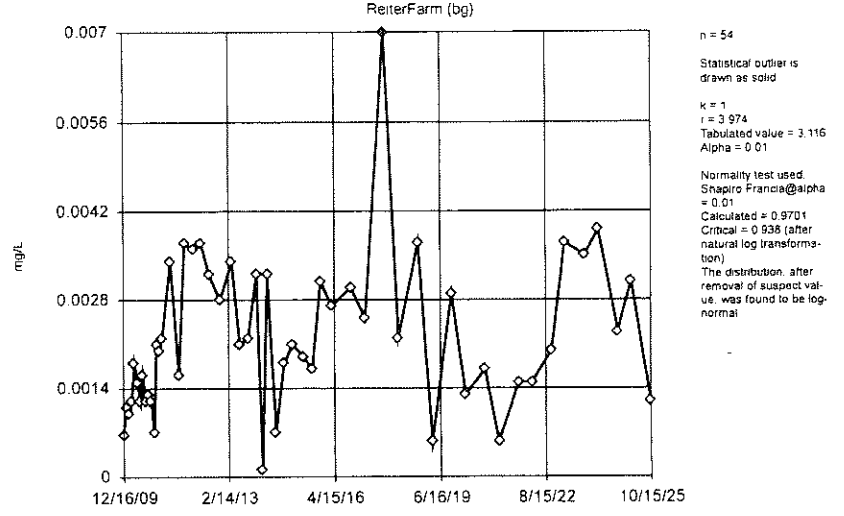
Constituent: Molybdenum Analysis Run 11/20/2025 7:45 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

EPA Screening (suspected outliers for Rosner's Test)



nstituent: Nickel Analysis Run 11/20/2025 7:45 PM View: 2025AWQR-BG Outliers
C Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

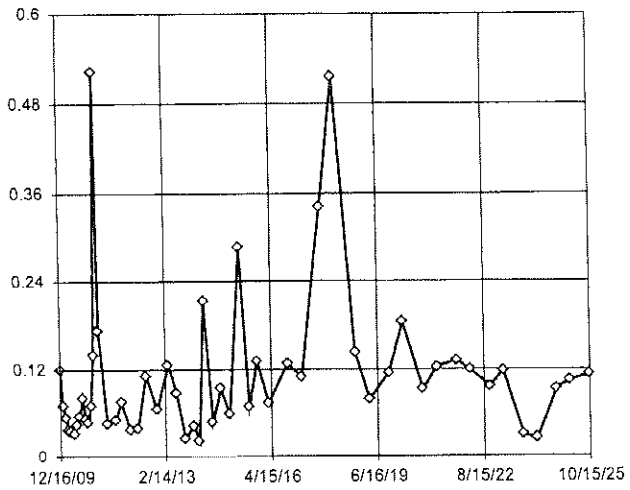
Rosner's Outlier Test / Ohio EPA 0715 Outlier Algorithm



Constituent: Selenium Analysis Run 11/20/2025 7:45 PM View: 2025A' G Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas . R master

EPA Screening (suspected outliers for Rosner's Test)

ReiterFarm (bg)



n = 54

Rosner's will not be run
No suspect values identified or unable to establish suspect values.
Ohio method in use
Mean 0.1094, std. dev 0.1015, critical Tn 2.986

Normality test used:
Shapiro Francia@alpha = 0.01
Calculated = 0.9708
Critical = 0.939 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Zinc Analysis Run 11/20/2025 7:45 PM View: 2025AWQR-BG Outliers
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: Sanitas ISU CCR master

BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS Printed 11/20/2025, 10:08 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Aluminum (mg/L)	Well#1	0	2	21	No	8	75	0.01	NP
Aluminum (mg/L)	Well#2	-0.005413	-10	-21	No	8	62.5	0.01	NP
Aluminum (mg/L)	Well#3	0	-8	-21	No	8	62.5	0.01	NP
Aluminum (mg/L)	Well#4	-0.04494	-3	-21	No	8	25	0.01	NP
Arsenic (mg/L)	Well#1	-0.0000186	0	21	No	8	0	0.01	NP
Arsenic (mg/L)	Well#2	-0.00002081	-2	-21	No	8	12.5	0.01	NP
Arsenic (mg/L)	Well#3	0.000114	5	21	No	8	12.5	0.01	NP
Arsenic (mg/L)	Well#4	0.0005234	14	21	No	8	12.5	0.01	NP
Barium (mg/L)	Well#1	-0.09283	-18	-21	No	8	0	0.01	NP
Barium (mg/L)	Well#2	0.003618	10	21	No	8	0	0.01	NP
Barium (mg/L)	Well#3	-0.01212	-12	-21	No	8	0	0.01	NP
Barium (mg/L)	Well#4	-0.00543	-6	-21	No	8	0	0.01	NP
Chloride (mg/L)	Well#1	0.6515	19	21	No	8	0	0.01	NP
Chloride (mg/L)	Well#2	0	-2	-21	No	8	0	0.01	NP
Chloride (mg/L)	Well#3	-0.4134	-4	-21	No	8	0	0.01	NP
Chloride (mg/L)	Well#4	2.472	20	21	No	8	0	0.01	NP
Chromium (mg/L)	Well#3	0	3	21	No	8	75	0.01	NP
Chromium (mg/L)	Well#4	-0.000314	-7	-21	No	8	25	0.01	NP
Copper (mg/L)	Well#1	-0.0001834	-3	-21	No	8	0	0.01	NP
Copper (mg/L)	Well#2	-0.0007074	-10	-21	No	8	0	0.01	NP
Copper (mg/L)	Well#3	0.0001927	2	21	No	8	0	0.01	NP
Copper (mg/L)	Well#4	-0.00038	-6	-21	No	8	0	0.01	NP
Fluoride (mg/L)	Well#1	0	9	21	No	8	0	0.01	NP
Fluoride (mg/L)	Well#2	0.05734	18	21	No	8	0	0.01	NP
Fluoride (mg/L)	Well#3	0.01253	6	21	No	8	0	0.01	NP
Fluoride (mg/L)	Well#4	0	-5	-21	No	8	0	0.01	NP
Iron (mg/L)	Well#1	-0.004824	0	21	No	8	0	0.01	NP
Iron (mg/L)	Well#2	0.2309	10	21	No	8	0	0.01	NP
Iron (mg/L)	Well#3	-0.001086	0	21	No	8	25	0.01	NP
Iron (mg/L)	Well#4	-0.0831	-8	-21	No	8	25	0.01	NP
Lead (mg/L)	Well#1	0	-3	-21	No	8	62.5	0.01	NP
Lead (mg/L)	Well#2	0	-5	-21	No	8	75	0.01	NP
Lead (mg/L)	Well#3	0	1	21	No	8	75	0.01	NP
Lead (mg/L)	Well#4	-0.0000736	-9	-21	No	8	37.5	0.01	NP
Magnesium (mg/L)	Well#1	0.4521	11	21	No	8	0	0.01	NP
Magnesium (mg/L)	Well#2	0.5548	6	21	No	8	0	0.01	NP
Magnesium (mg/L)	Well#3	0.04186	1	21	No	8	0	0.01	NP
Magnesium (mg/L)	Well#4	-2.275	-16	-21	No	8	0	0.01	NP
Manganese (mg/L)	Well#1	0.000369	4	21	No	8	0	0.01	NP
Manganese (mg/L)	Well#2	-0.002602	-4	-21	No	8	0	0.01	NP
Manganese (mg/L)	Well#3	-0.004095	-10	-21	No	8	0	0.01	NP
Manganese (mg/L)	Well#4	-0.002498	-6	-21	No	8	0	0.01	NP
Molybdenum (mg/L)	Well#2	0	7	21	No	8	87.5	0.01	NP
Molybdenum (mg/L)	Well#3	-0.0005513	-8	-21	No	8	0	0.01	NP
Molybdenum (mg/L)	Well#4	-0.00006243	-2	-21	No	8	0	0.01	NP
Nickel (mg/L)	Well#1	0.0003559	10	21	No	8	12.5	0.01	NP
Nickel (mg/L)	Well#3	-0.001077	-12	-21	No	8	0	0.01	NP
Nickel (mg/L)	Well#4	-0.001249	-2	-21	No	8	0	0.01	NP
Selenium (mg/L)	Well#3	0	0	21	No	8	62.5	0.01	NP
Selenium (mg/L)	Well#4	0.0005574	12	21	No	8	12.5	0.01	NP

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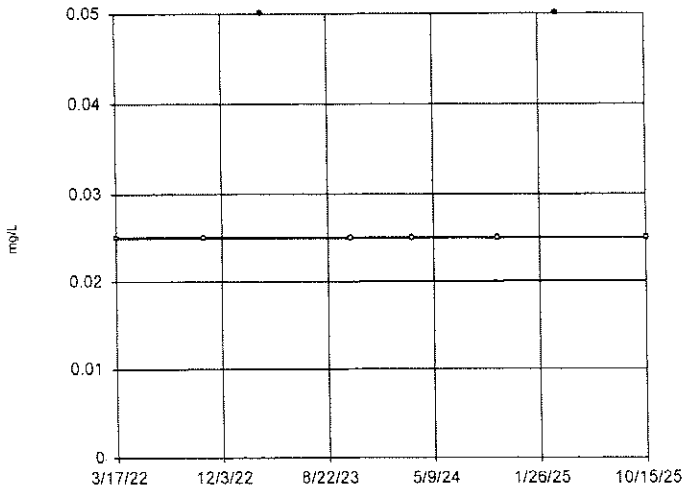
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#1



Constituent: Aluminum Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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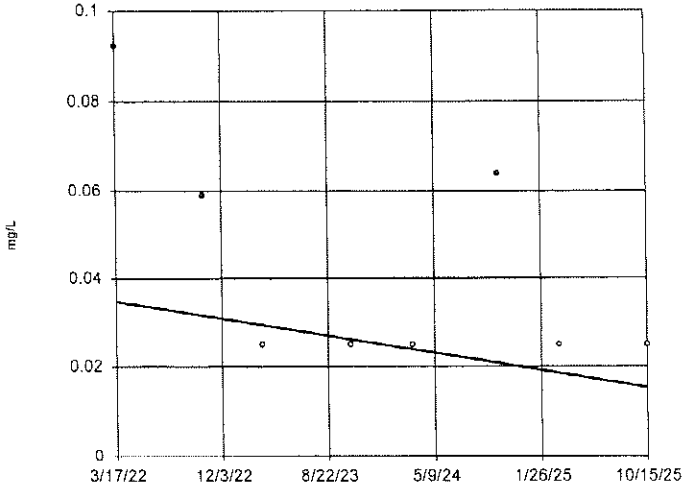
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#2



Constituent: Aluminum Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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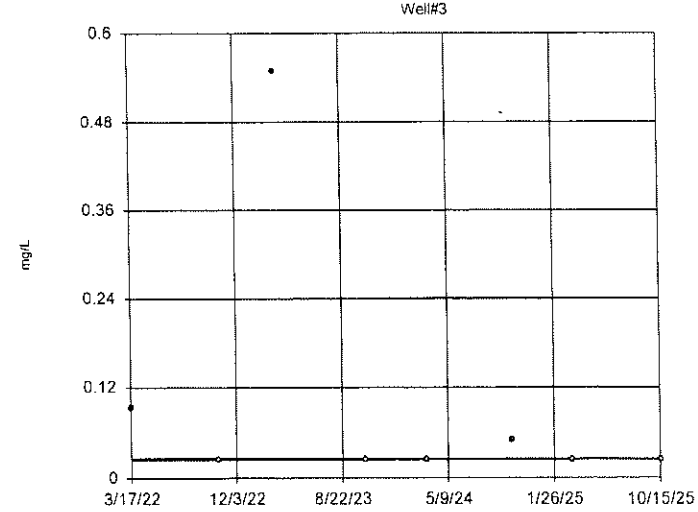
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#3



Constituent: Aluminum Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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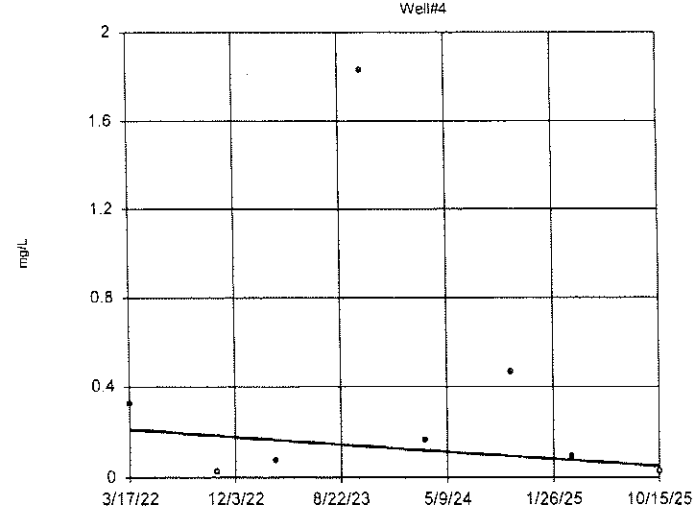
Hollow symbols indicate censored values.

Sen's Slope Estimator

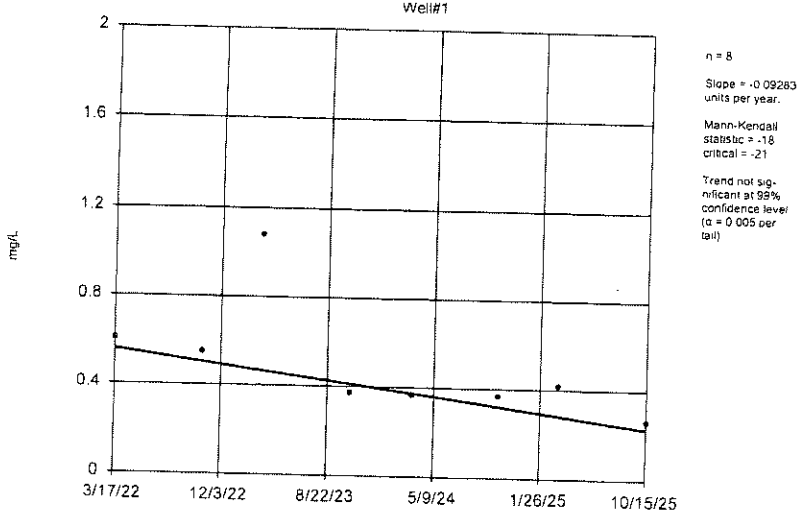
Well#4



Constituent: Aluminum Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#1



n = 8

Slope = -0.09283 units per year.

Mann-Kendall statistic = -18
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Barium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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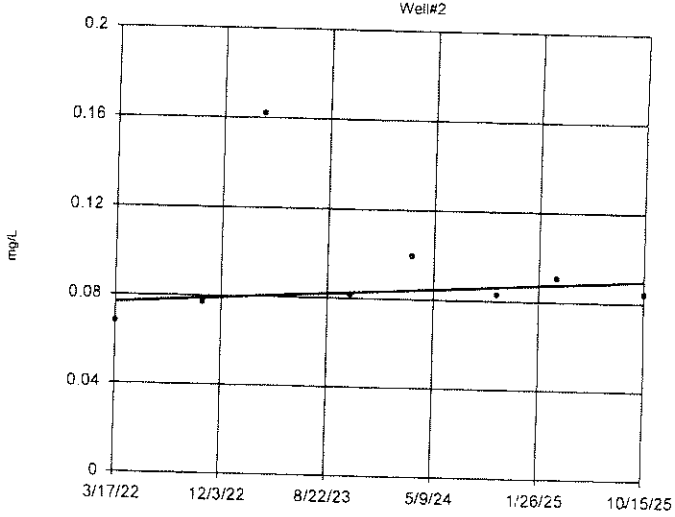
Sen's Slope Estimator

Well#2



n = 8

Slope = 0.003618 units per year

Mann-Kendall statistic = 10
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Barium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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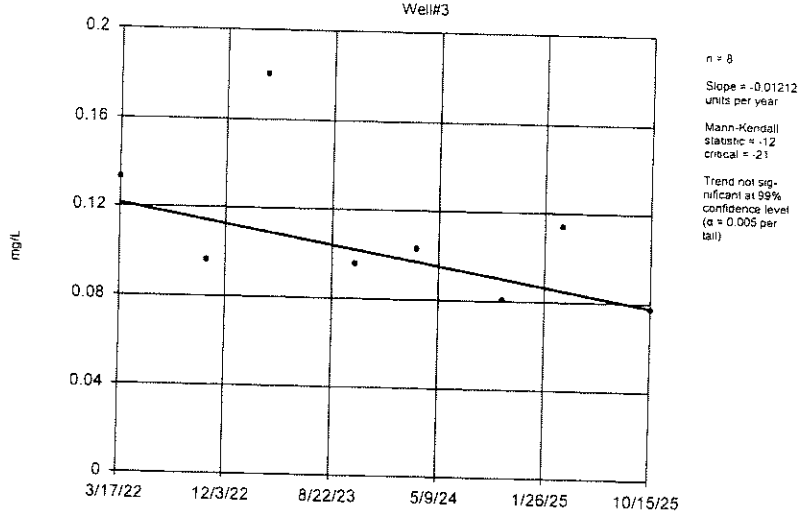
Sen's Slope Estimator

Well#3



n = 8

Slope = -0.01212 units per year

Mann-Kendall statistic = -12
critical = -21

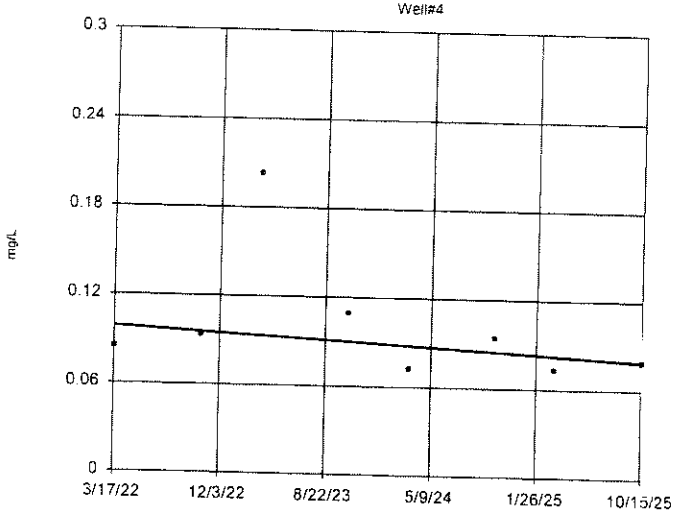
Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Barium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC [illegible] y CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v 10.1.02 Software licensed to SCS Engineers UG

Sen's Slope Estimator

Well#4



n = 8

Slope = -0.00543 units per year.

Mann-Kendall statistic = -6
critical = -21

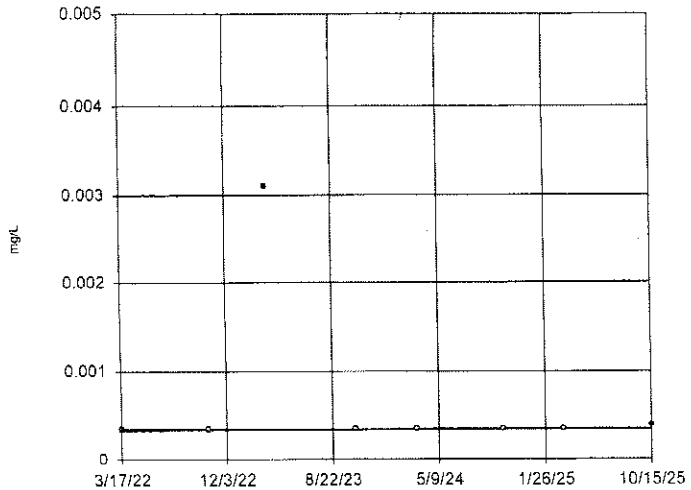
Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Barium Analysis Run 11/20/2025 10:05 PM View: 2025AW[illegible]n_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Hollow symbols indicate censored values

Sen's Slope Estimator

Well#3



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = 3
critical = 21

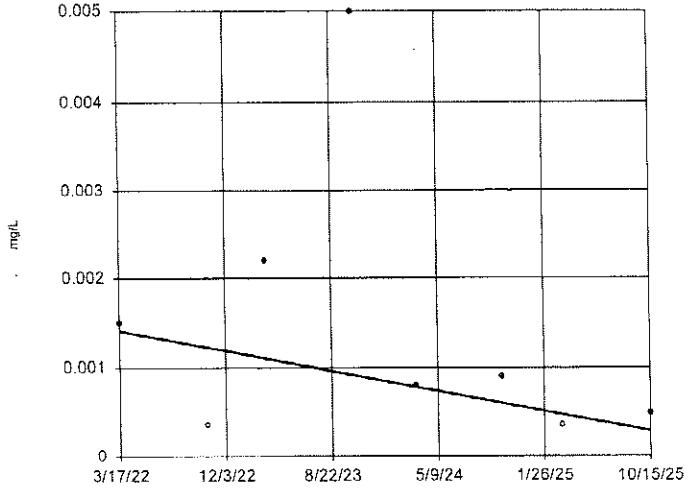
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chromium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Hollow symbols indicate censored values

Sen's Slope Estimator

Well#4



n = 8

Slope = -0.000314
units per year.

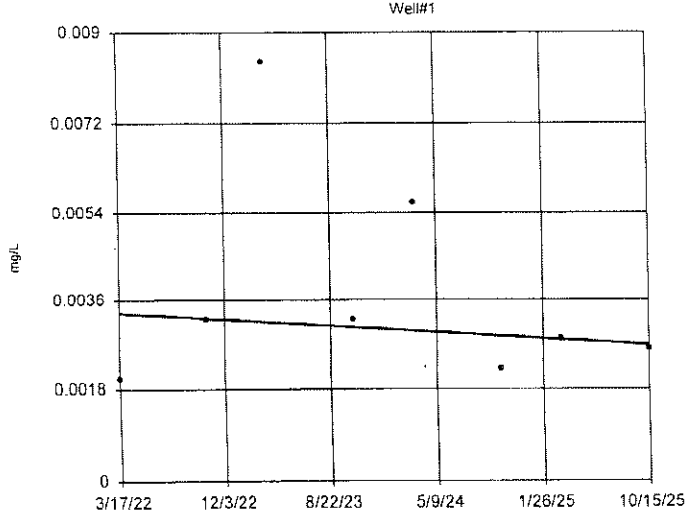
Mann-Kendall
statistic = -7
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chromium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#1



n = 8

Slope = -0.0001834
units per year.

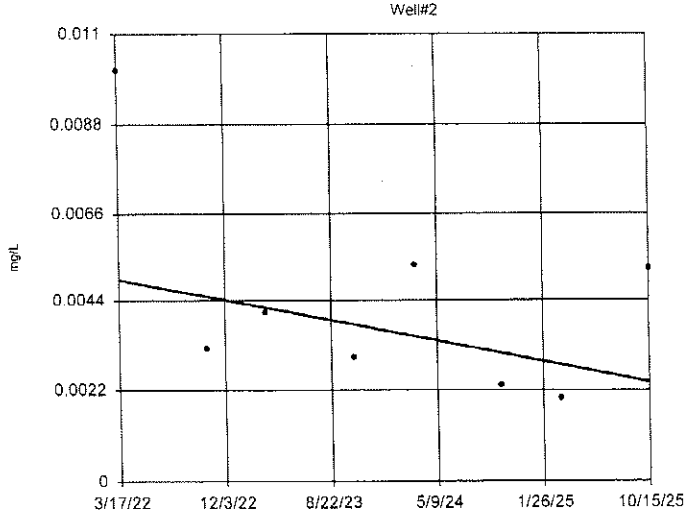
Mann-Kendall
statistic = -3
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Copper Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#2



n = 8

Slope = -0.0007074
units per year

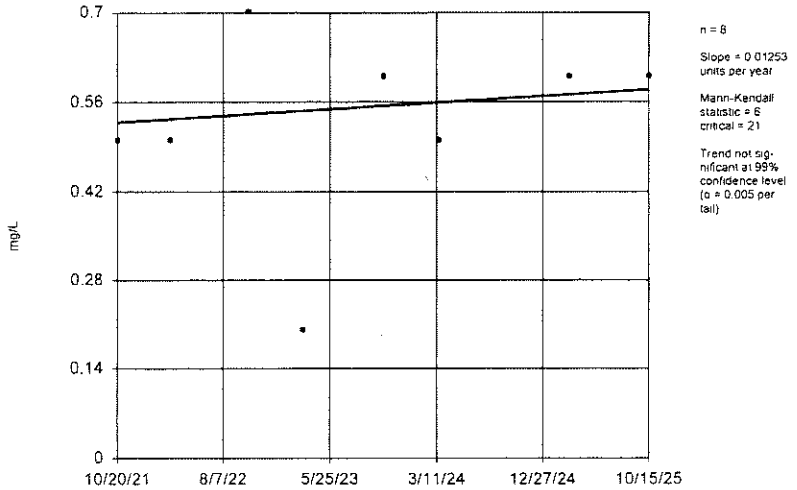
Mann-Kendall
statistic = -10
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Copper Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#3



n = 8

Slope = 0.01253 units per year

Mann-Kendall statistic = 6 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Fluoride Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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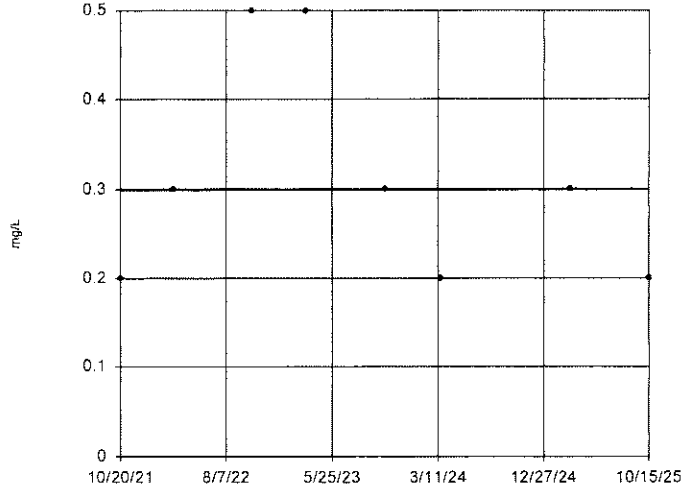
Sen's Slope Estimator

Well#4



n = 8

Slope = 0 units per year

Mann-Kendall statistic = -5 critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Fluoride Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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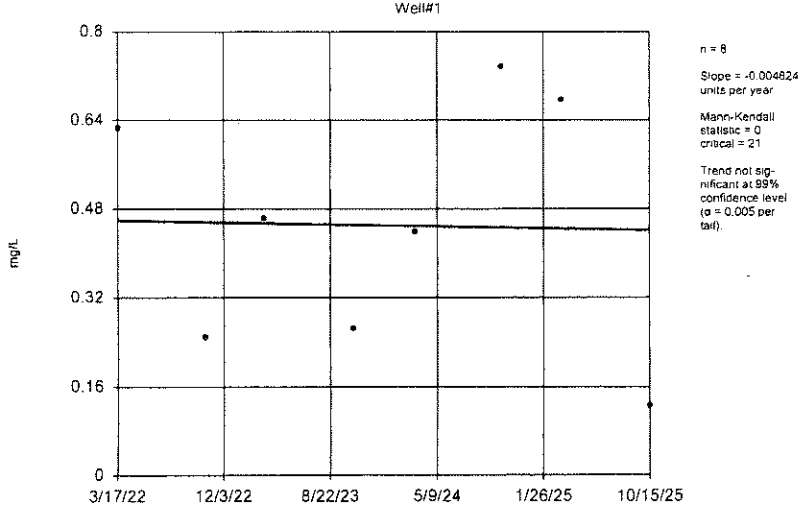
Sen's Slope Estimator

Well#1



n = 8

Slope = -0.004824 units per year

Mann-Kendall statistic = 0 critical = 21

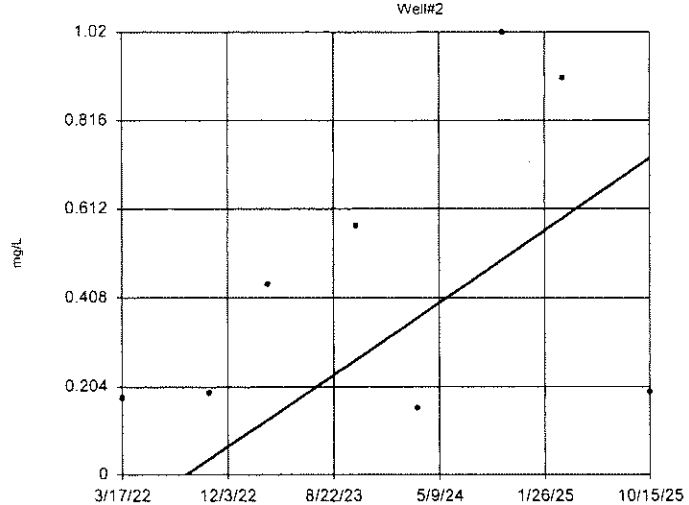
Trend not significant at 99% confidence level (α = 0.005 per tail).

stituent: Iron Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC y CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v 10 1.02 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

Well#2



n = 8

Slope = 0.2309 units per year.

Mann-Kendall statistic = 10 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail)

Constituent: Iron Analysis Run 11/20/2025 10:05 PM View: 2025AWQ Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2 QR_AM_AWRS

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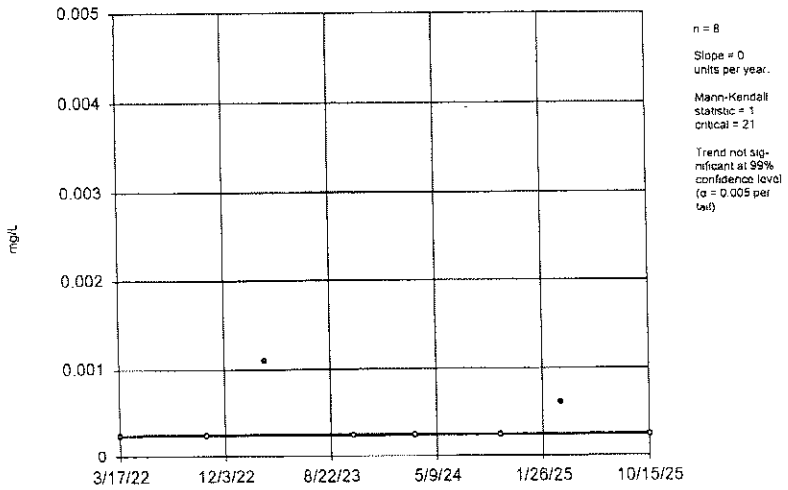
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#3

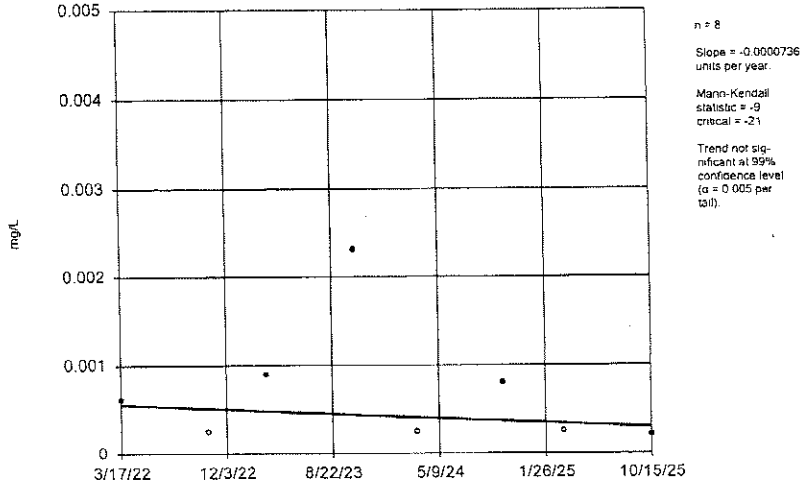


Constituent: Lead Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#4

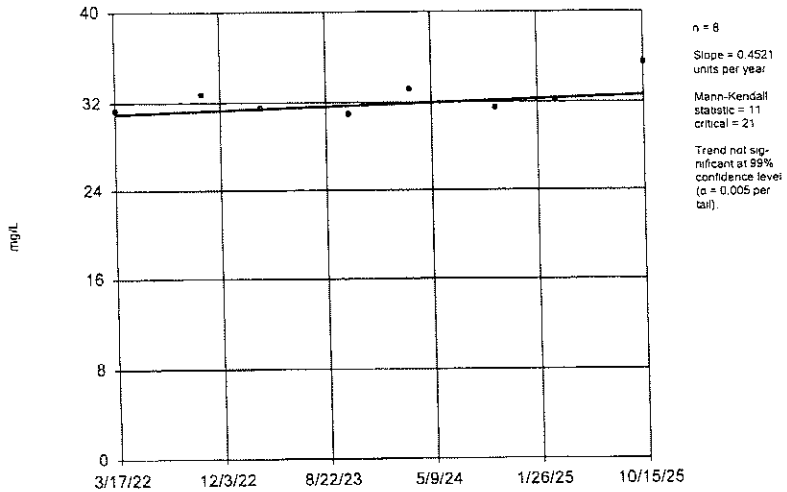


Constituent: Lead Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG

Sen's Slope Estimator

Well#1

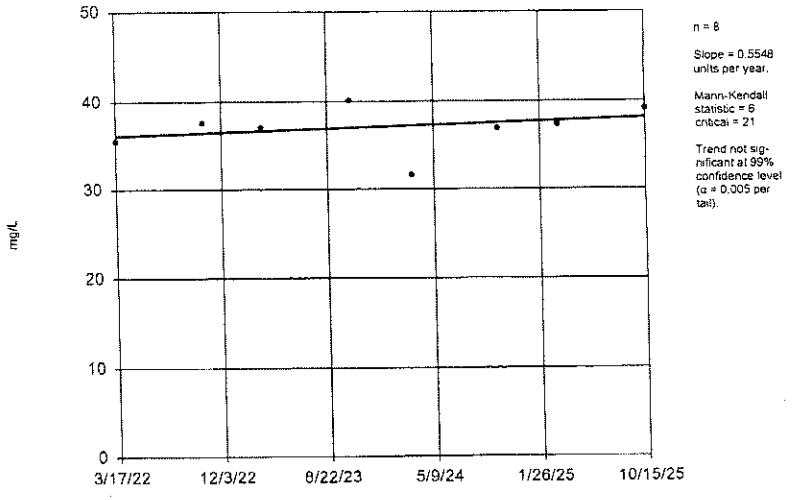


Constituent: Magnesium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG

Sen's Slope Estimator

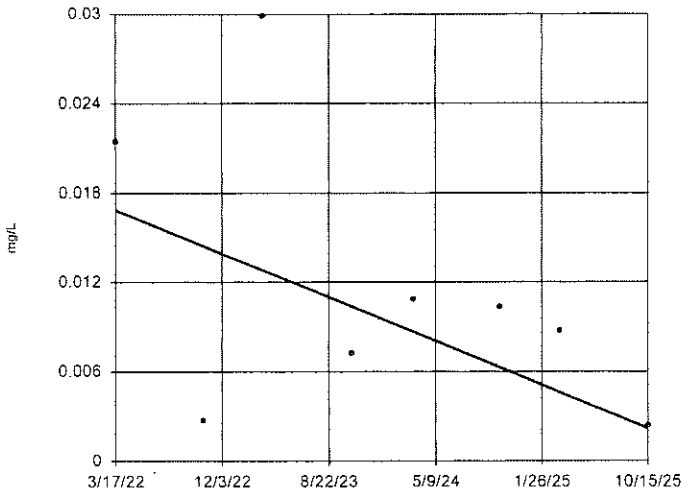
Well#2



Constituent: Magnesium Analysis Run 11/20/2025 10:05 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#3



n = 8

Slope = -0.004095 units per year

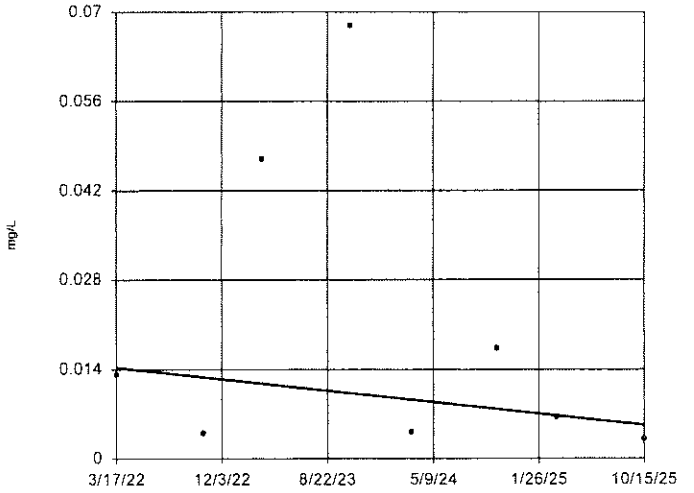
Mann-Kendall statistic = -10
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Manganese Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#4



n = 8

Slope = -0.002498 units per year.

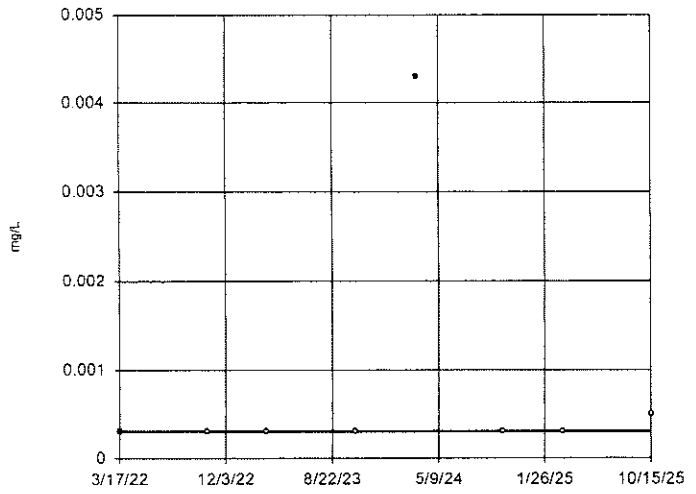
Mann-Kendall statistic = -6
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Manganese Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#2



n = 8

Slope = 0 units per year.

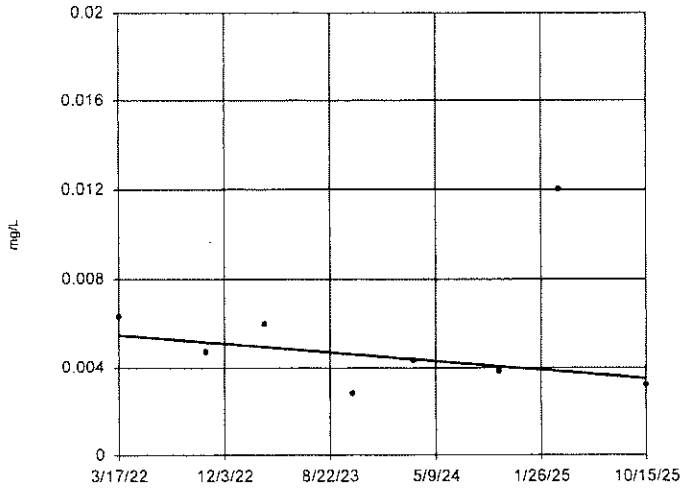
Mann-Kendall statistic = 7
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail)

C ent: Molybdenum Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sen's Slope Estimator

Well#3



n = 8

Slope = -0.0005513 units per year

Mann-Kendall statistic = -8
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 11/20/2025 10:06 PM View: 2025A nn_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2. R_AM_AWRS

Sanitas™ v 10 ... are licensed to SCS Engineers, UG
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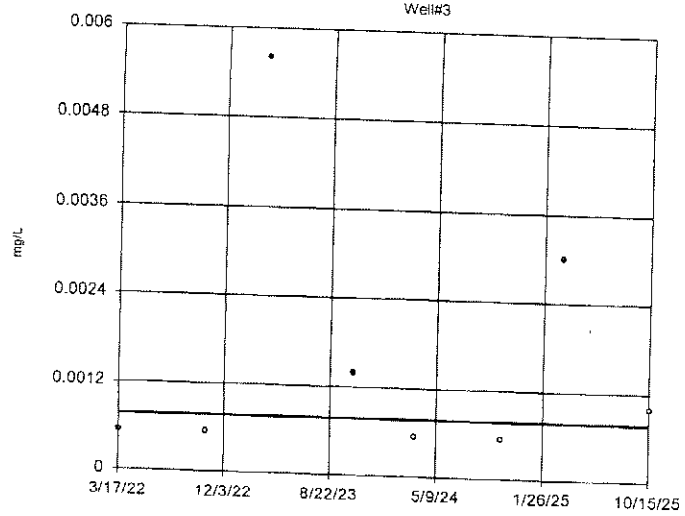
Sen's Slope Estimator

Well#3



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Selenium Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

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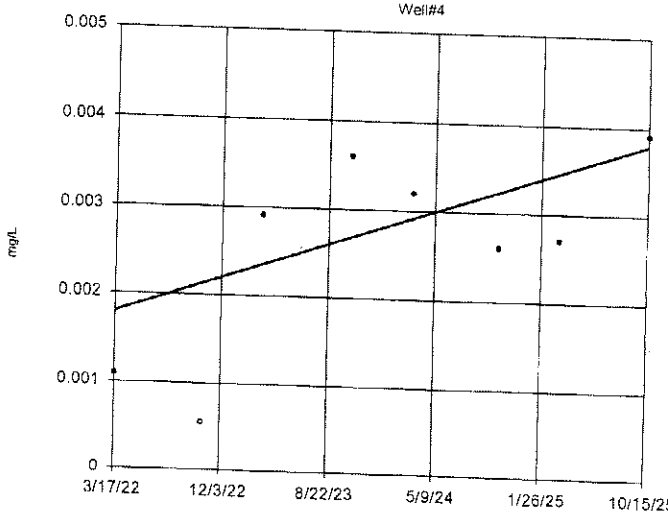
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#4



n = 8

Slope = 0.0005574 units per year.

Mann-Kendall statistic = 12
critical = 21

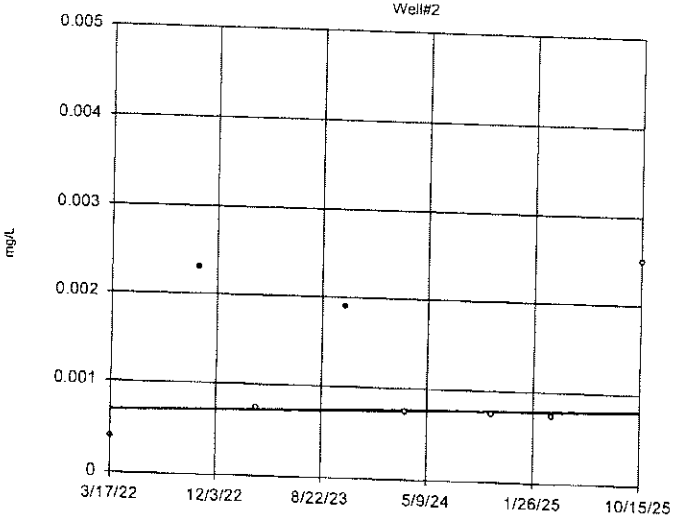
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Selenium Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#2



n = 8

Slope = 0.00003339 units per year.

Mann-Kendall statistic = 6
critical = 21

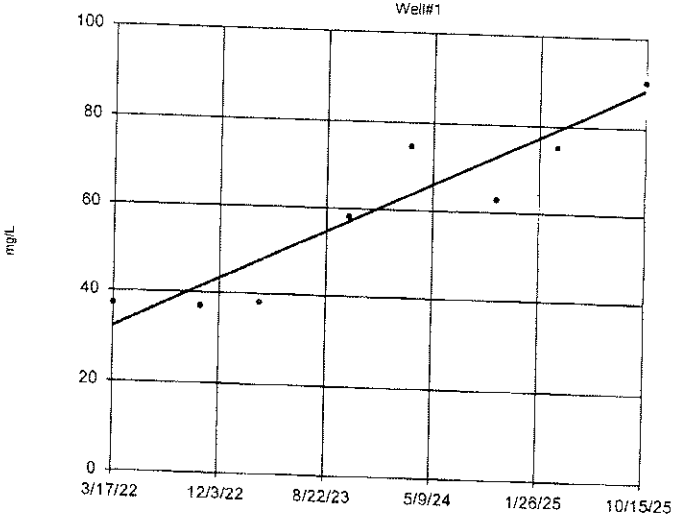
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Silver Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v.10.1.02 Software licensed to SCS Engineers, UG

Sen's Slope Estimator

Well#1



n = 8

Slope = 15.74 units per year.

Mann-Kendall statistic = 24
critical = 21

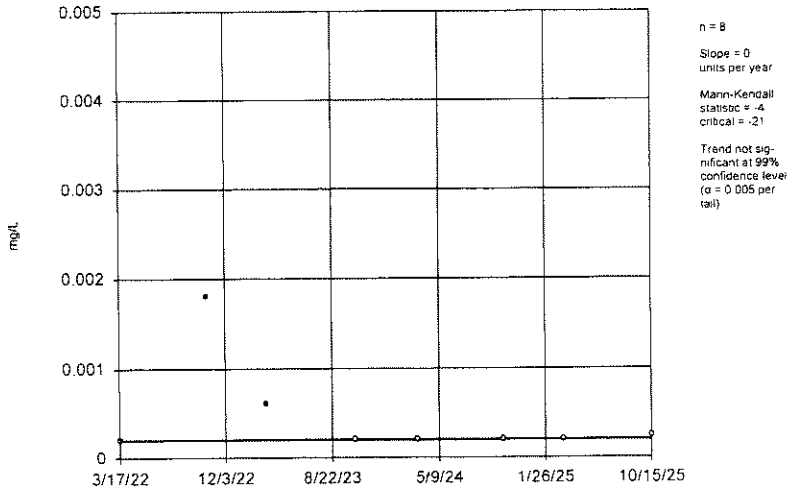
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v 10 1 02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#2

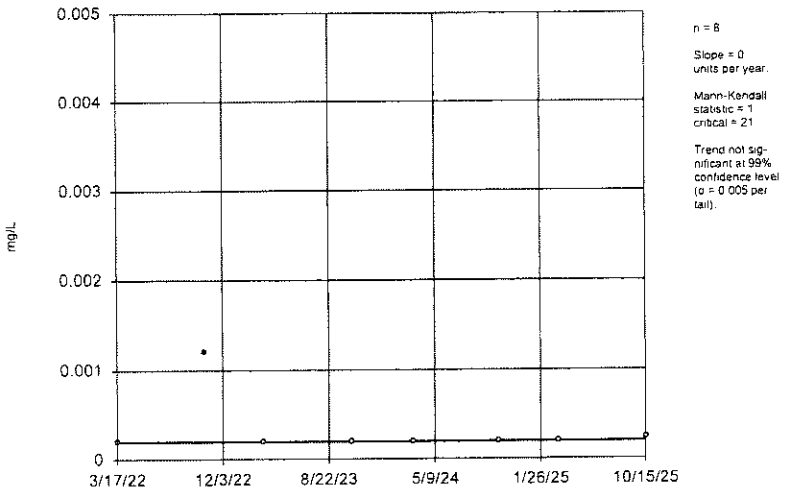


Constituent: Thallium Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v 10 1 02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#3

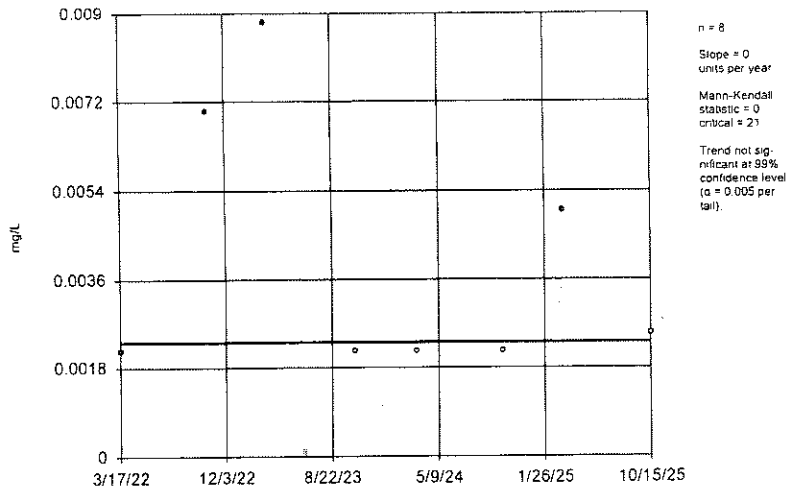


Constituent: Thallium Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v 10 1 02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#3

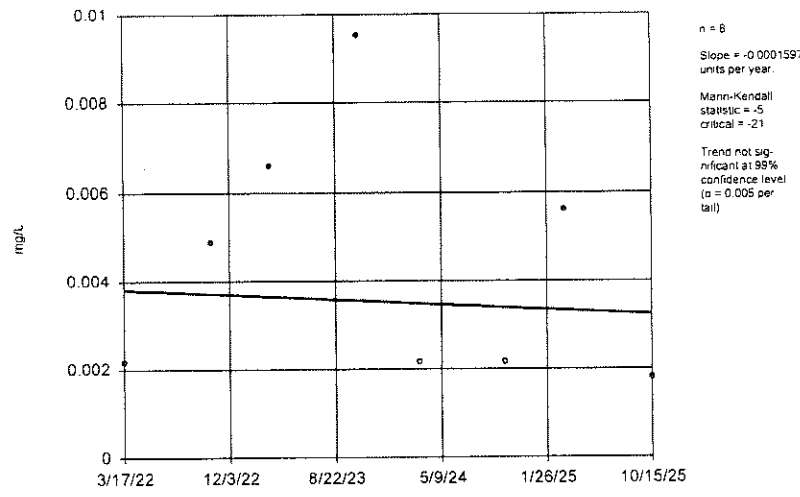


uent: Vanadium Analysis Run 11/20/2025 10:06 PM View: 2025AWQR-Mann_Kendall
BMC ry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Sanitas™ v 10 1 02 Software licensed to SCS Engineers, UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

Well#4



Constituent: Vanadium Analysis Run 11/20/2025 10:06 PM View: 2025AV ann_Kendall
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2(QR_AM_AWRS

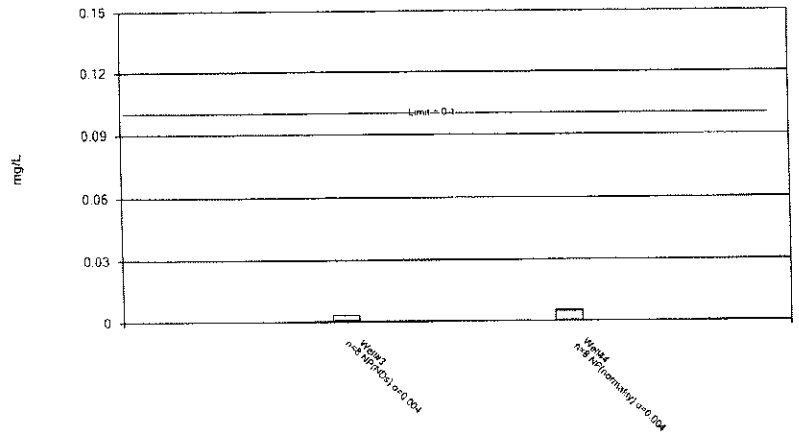
Confidence Interval Summary Table and Graphs

BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS Printed 11/20/2025, 10:22 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Silver (mg/L)	Well#2	0.0025	0.0004	0.1	No	8	75	No	0.004	NP (NDs)
Sulfate (mg/L)	Well#2	126.6	115.4	250	No	8	0	No	0.01	Param.
Sulfate (mg/L)	Well#3	115.8	95.36	250	No	8	0	No	0.01	Param.
Sulfate (mg/L)	Well#4	112.2	90.87	250	No	8	0	No	0.01	Param.
Thallium (mg/L)	Well#1	0.0009	0.0002	0.002	No	8	75	No	0.004	NP (NDs)
Thallium (mg/L)	Well#2	0.0018	0.0002	0.002	No	8	75	No	0.004	NP (NDs)
Thallium (mg/L)	Well#3	0.0012	0.0002	0.002	No	8	87.5	No	0.004	NP (NDs)
Vanadium (mg/L)	Well#3	0.0088	0.00215	0.035	No	8	62.5	No	0.004	NP (NDs)
Vanadium (mg/L)	Well#4	0.007112	0.001338	0.035	No	8	37.5	No	0.004	NP (NDs)
Zinc (mg/L)	Well#2	0.0211	0.0087	2	No	8	87.5	No	0.01	Param.
									0.004	NP (NDs)

Non-Parametric Confidence Interval

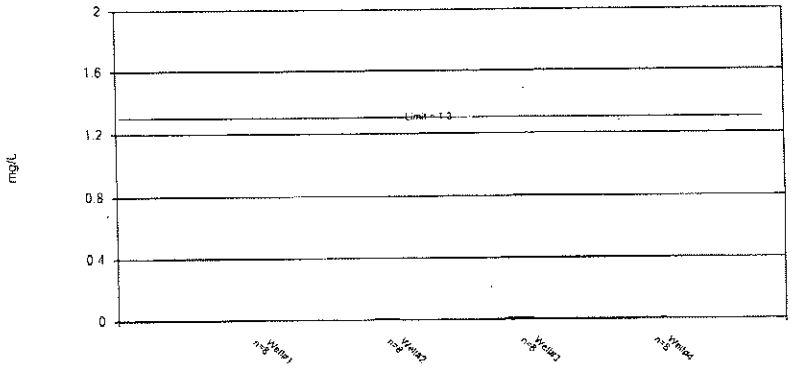
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Parametric Confidence Interval

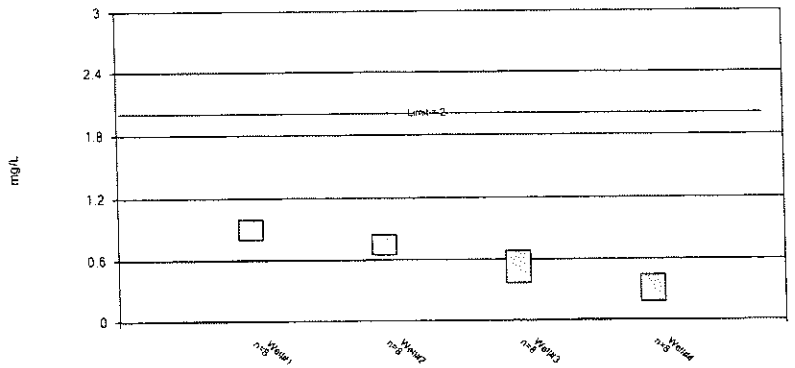
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Copper Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Parametric Confidence Interval

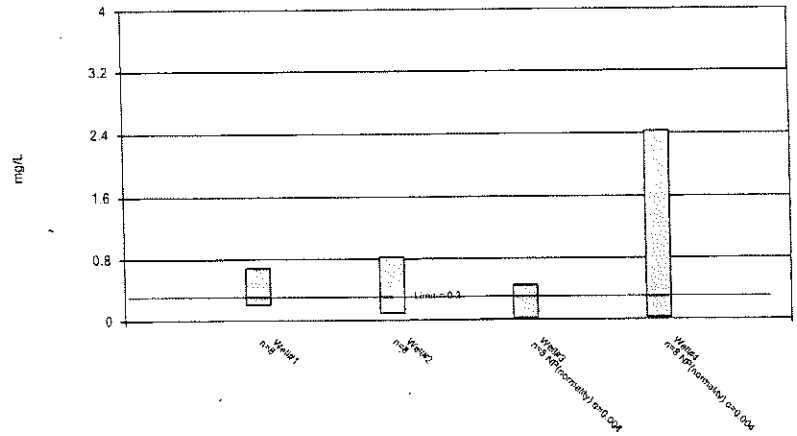
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Fluoride Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Parametric and Non-Parametric (NP) Confidence Interval

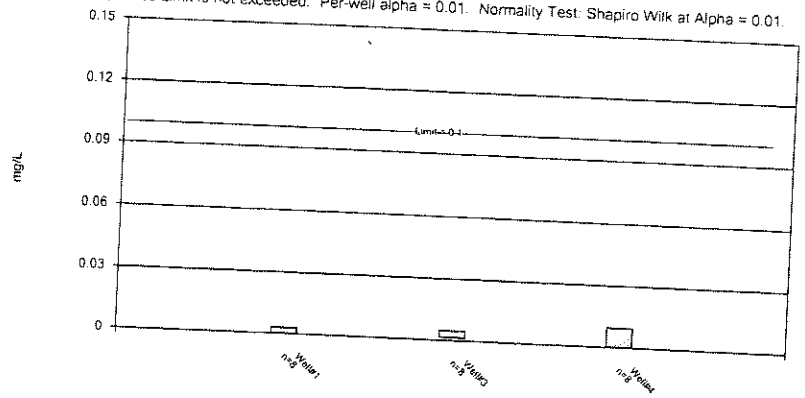
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Iron Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Parametric Confidence Interval

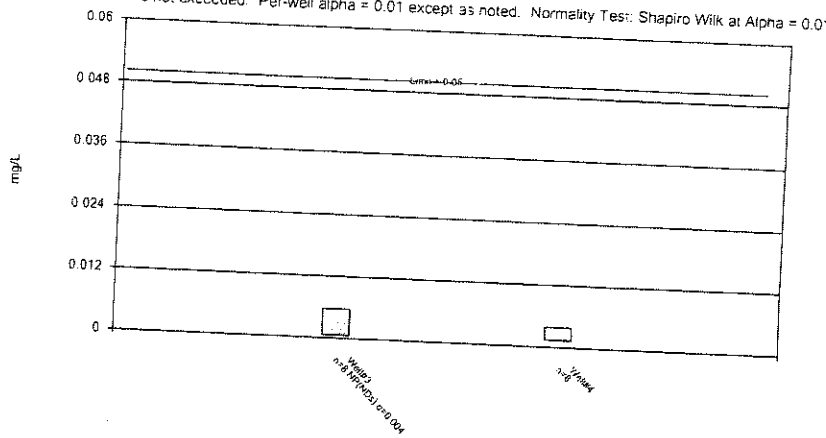
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Nickel Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Parametric and Non-Parametric (NP) Confidence Interval

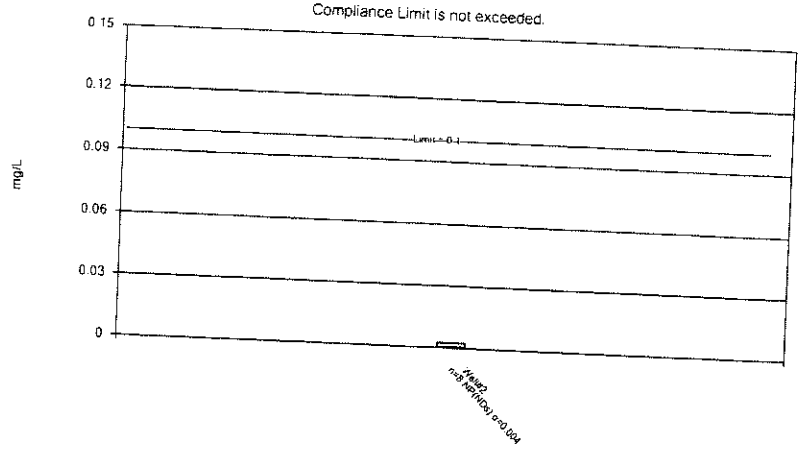
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Selenium Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Non-Parametric Confidence Interval

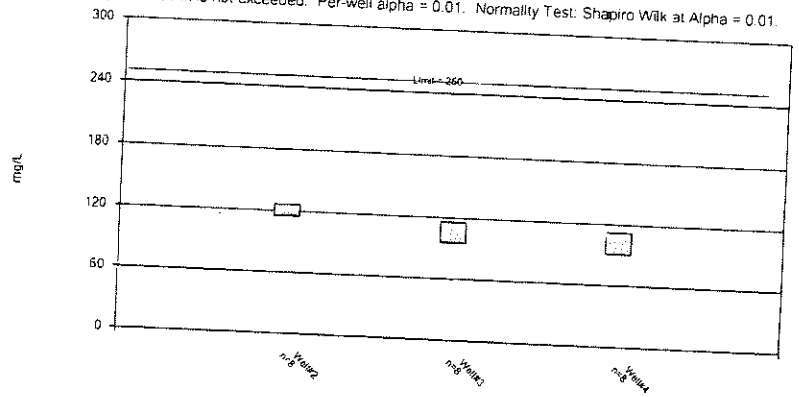
Compliance Limit is not exceeded.



Constituent: Silver Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-Confidence_Interval
BMC Q[illegible] CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

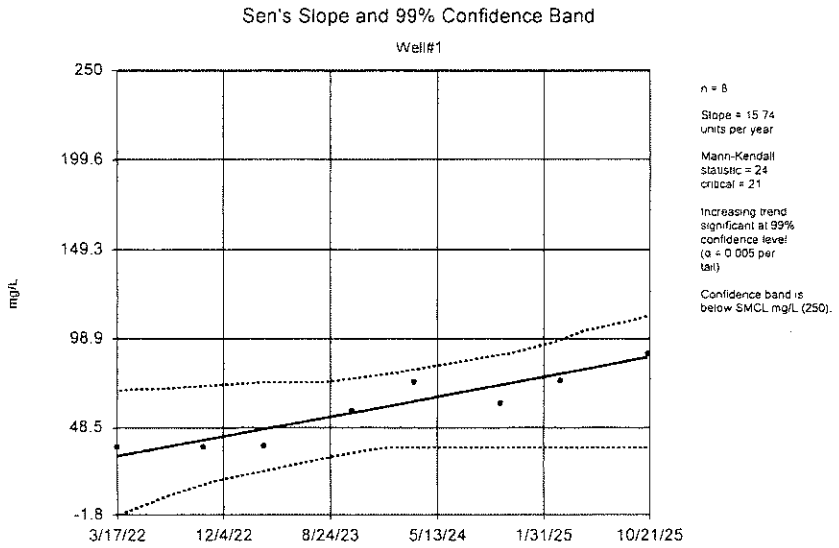
Parametric Confidence Interval

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



Constituent: Sulfate Analysis Run 11/20/2025 10:20 PM View: 2025AWQR-C[illegible]e_Interval
BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

Theil-Sen Trend Line and Confidence Bands Summary Table and Graphs



Constituent: Sulfate Analysis Run 11/20/2025 10:23 PM View: 2025AWQR-Theil_Sen

BMC Quarry CCR Disposal Site Client: SCS Engineers Data: BMC Quarry_2025_AWQR_AM_AWRS

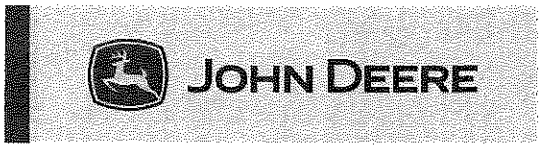
Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
Well#1	Aluminum		2	
	Arsenic		0	
	Barium	-18		
	Chloride			19
	Copper		-3	
	Fluoride		9	
	Iron		0	
	Lead		-3	
	Magnesium		11	
	Manganese		4	
	Nickel		10	
	Sulfate			24
	Thallium		6	
Well#2	Aluminum		-10	
	Arsenic		-2	
	Barium		10	
	Chloride		-2	
	Copper		-10	
	Fluoride			18
	Iron		10	
	Lead		-5	
	Magnesium		6	
	Manganese		-4	
	Molybdenum		7	
	Silver		6	
	Sulfate		0	
	Thallium		-4	
	Zinc		-1	
Well#3	Aluminum		-8	
	Arsenic		5	
	Barium		-12	
	Chloride		-4	
	Chromium		3	
	Copper		2	
	Fluoride		6	
	Iron		0	
	Lead		1	
	Magnesium		1	
	Manganese		-10	
	Molybdenum		-8	
	Nickel		-12	
	Selenium		4	
	Sulfate		0	
	Thallium		1	
	Vanadium		0	

Section 4. By Product Generator Management Plans.

Copies of the By Product Generator Management Plans are included in this Section as part of the requirement in the BUD Permit. The only approved Product Generator contributing materials to the South Quarry Beneficial Use Determination (Quarry Reclamation) Project the John Deere Foundry. The John Deere By-Product Generator Management Plan accompanies this report.

[Note the University of Iowa is no longer permitted to bring coal combustion products to the BMC BUD location as of October 8, 2026. Former contributors, Iowa State University and University of Northern Iowa discontinued bringing coal combustion products to the BMC BUD location several years ago.]

Solid By-Product Management Plan (SBMP)



John Deere Foundry

2000 Westfield Ave

Waterloo, Iowa 50701

February 2026

Table of Contents

Section 1 – Introduction

Objective

This Solid By-Product Management Plan (SBMP) was prepared on behalf of John Deere Foundry of Waterloo, Iowa. The objective of this Management Plan is to fulfill the requirements set forth by 567-108.6 of the Iowa Administrative Code (IAC) regarding foundry sand used as fill material. Contents of this Management Plan describe the management, operation, and reporting procedures.

Facility Operations & Site Location

John Deere Foundry has been operating since 1972. The facility is engaged in the production of gray and ductile iron castings using green sand molds. The process includes the melt down of purchased scrap and preparation of casting molds using foundry sand and manufactured sand cores.

The John Deere Foundry is located adjacent to the Cedar River in Waterloo, Iowa in Sections 22 and 23, T. 89N, R. 13W.

The facility address is:

John Deere Foundry Waterloo
2000 Westfield Ave.
Waterloo, Iowa 50701

Used Foundry Sand & Refractory Brick Generation

John Deere Foundry's authorized by-products include used foundry sand (UFS) and refractory brick (RB). There are two types of UFS generated by John Deere Foundry. One is the mold line sand, which is generated from either overflow from the mold lines, or by-pass sand which is carried off the end of the mold line. The second type is baghouse dust, which is collected by various baghouses at the mold lines, blast, and shakeout areas.

The RB authorized by-product is generated from the re-lining of holding furnaces and transfer ladles; these are lined with refractory brick and mortar. Periodically the brick and mortar are chipped out of the ladle or holding furnace and replaced with new brick – the re-line process. There are two types of refractory brick, silica and alumina brick.

Table 1 identifies and describes the by-products generated at John Deere Foundry that have been authorized for reclamation activities at Waterloo South Quarry under the Iowa Department of Natural Resources Beneficial Use Determination #07-BUD-20-02.

Used foundry sand and refractory brick are not stockpiled on site. All material generated is stored in roll off boxes, small bins, silos, or bunkers. When the container is full it is loaded to a truck, covered, and taken directly to the site.

Used foundry sand and refractory brick that fails to meet the requirements of 567 IAC 108 or BUD #07-BUD-20-02 will be alternatively managed as outlined in Appendix B

Table 1. John Deere Foundry's Authorized By-products				
	Sand By-Product Source	**Description**	**Primary Location (End-User Site)**	**Secondary Location (Disposal Site)**
1	***Refractory Brick***	*Bunkered collection point for ladle and holding furnace lining when it is periodically chipped out and replaced. [Bunkered material is loaded onto a truck with end loader.]*	*Black Hawk County Landfill 07-SWA-28-04*	*Waterloo South Quarry*
2	***West Dock Sand***	*Main collection point for sand leaving the Foundry. Belts carry sand from Mold Line 802, Mold Line 804, Cleaning Room (Dept. 850, 853, & 855), Department 871, Core Room Didion, and Department 789. [West dock sand is stored in an overhead silo and discharged directly onto a truck.]*	*Heidelberg Cement*	*Waterloo South Quarry* *Black Hawk County Landfill 07-SWA-105-18*
3	***802 West Dust Pelletizer***	*Collection point of main baghouse system for department 802. Major processes controlled include belts, shakeout, lump breaker, attrition mill, sand cooler and mullers. The process also includes a collection point [Bag Splitter] to process material from small dust collectors. All material is processed through a pelletizer which adds moisture to the material for dust control prior to disposal. [Roll-off]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
4	***East Dust Pelletizer***	*Collection point of multiple baghouse systems for departments 855 Tumblast, 808 Sand Belts, and 871 Shakeout. [Roll-off]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
5	***Cleaning Room Dust***	*Collection point for the baghouse controlling departments 850 and 853 shot blast units. [Trailer]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
6	***871 Baghouse Dust***	*Collection point for Cleaning Room baghouse supporting castings produced on the 804 mold line. [Roll-off]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
7	***804 Sand System Baghouse Dust***	*The main dust collection system for processes on 804 mold line. Also captures dust from sand cooler. This may alternatively be transported to the East Sand Pelletizer. [Trailer]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*

John Deere Foundry Beneficial Uses

John Deere Foundry sand and refractory brick is used as beneficial fill material [567 IAC 108.4(6)e and 108.6] at BMC Aggregates Waterloo South Quarry in La Porte City, Iowa. The fill is added to the quarry to within 25 feet of the surface. The detailed quantity of the Foundry's solid by-products that are being beneficially used at the South Quarry are contained in the Annual Beneficial Fill Tonnage Report for John Deere Foundry, Appendix A.

Foundry sand is also sent to Heidelberg Cement in Mason City, Iowa for use as a raw material in the manufacture of cement [567 IAC 108.4(6)b]. Refractory brick is primarily sent to the Black Hawk County Landfill.

Section – 2 Sampling and Analysis Procedures

Objective

The purpose of this section is to outline the sampling procedures and methodology, which will be used to ensure that only used foundry sand and refractory brick acceptable for use as fill material, is sent to BMC Aggregates Waterloo South Quarry.

Historical UFS and RB Laboratory Analytical Data

A considerable amount of historical laboratory analytical data already exists for UFS and RB generated by John Deere Foundry. This includes laboratory results for volatile organic compounds (VOCs), metals and base/neutral/acid (BNA) extractable compounds using Toxicity Characteristics Leaching Procedure (TCLP) methodology, and pH. The Iowa Administrative Code requires Synthetic Precipitation Leaching Procedure (SPLP) methodology for metals that cannot exceed 10 times the MCL for Drinking Water Standards and Total Metals for State Standards for Soil including Thallium & Arsenic. For historical analysis, refer to Environmental Office Cabinet Files. Metals are the primary constituents of concern, which have been detected in the used foundry sand and refractory brick produced at the site. Historic total and TCLP laboratory results indicate detectable concentrations of metals in foundry sand including arsenic, barium, cobalt, and chromium. However, these concentrations are well below TCLP and SPLP regulatory levels.

UFS and RB Management Plan Sampling Program

Sampling Frequency

Periodic UFS and RB sampling analytical data will be used to continually monitor UFS and RB generated by the Foundry and ensures regulatory compliance is maintained for its beneficial use. Quarterly sampling of all beneficial use sources is required to comply with 567-IAC 108.6(1) and Beneficial Use Determination (BUD) #07-BUD-20-02. At renewal of the BUD, additional sampling parameters are required.

UFS AND RB Sample Collection, Handling and Analysis

UFS and RB samples are collected for laboratory analysis as required. UFS and RB is characterized for beneficial use by collecting a representative composite sample of used sand or refractory brick generated by operations performed at the site.

The composite samples have been placed in laboratory provided containers labeled with the following information:

- Sample Identification
- Sampling date and time
- Sampler's name
- Analyses to be performed – (RCRA Total metals, TCLP Metals, TCLP VOC, TCLP SVOC, SPLP)

Chain-of-custody (COC) documentation will be completed by sampling personnel for each sampling event. COC forms will be used to document the possession of and

responsibility for the sample, from sample collection to sample analysis. A completed COC record will accompany the sample to the laboratory as documentation of sample collection and handling activities. The COC also identifies the analyses to be performed on the sample. A copy of a COC record is included with every report and kept in the site environmental files.

Quarterly sampling requires analysis for RCRA Total Metals, TCLP Metals, and SPLP. At renewal of the BUD, the following analyses are required: RCRA Total Metals, TCLP Metals, TCLP VOC, TCLP SVOC, and SPLP.

No TCLP pesticide or herbicide analyses have been performed on the used foundry sand and refractory brick since these compounds are not associated with the manufacturing process.

Analytical Results

John Deere Foundry contracts with Eurofins Laboratories to analyze the used foundry sand and refractory brick.

Laboratory analytical results obtained from the sampling program are used to characterize John Deere Foundry UFS and RB and provide verification monitoring regarding its acceptability for beneficial use applications. UFS and RB are considered acceptable for beneficial use if the analytical criterion set forth in BUD # 07-BUD-20-02 are met.

Noncompliance Actions

Any UFS and RB that do not meet applicable regulatory standards will be managed alternatively as detailed in the Contingency Plan, Appendix B. Any analytical exceedance will be reported to the DNR and BMC Aggregates Waterloo South Quarry, within ten (10) *business* days of receiving the results from the laboratory.

Foundry Operation Modifications Effecting UFS and RB

John Deere Foundry will document significant changes or modifications of Foundry operations, which may affect the acceptability of UFS and RB for beneficial use. UFS and RB generated by these modified Foundry operations will not be transferred to the beneficial use sites until compliance criteria outlined in BUD # 07-BUD-20-02 and this Management Plan have been met. Used sand generated from the modified process will also be subject to initial sampling and DNR approval prior to beneficial use application. Upon receipt of acceptable analytical results, the DNR and beneficial use site will be notified that the new used foundry sand and/or refractory brick waste stream will be sent for beneficial use. Quarterly sampling requirements will apply to the new used foundry sand and/or refractory brick waste stream.

Section – 3 UFS and RB Storage Site Management

Objective

The purpose of this section is to describe the procedures associated with management of the UFS and RB storage site. The following includes: Storage locations and inventory and pollution prevention measures which will be utilized to address fugitive dust and storm water discharge.

Storage Procedures

Storage Locations

The storage sites are located within enclosed areas accessible only through John Deere Foundry property. Access to UFS and RB in the storage areas will take place under the direct supervision of authorized John Deere Foundry personnel. All John Deere Foundry personnel associated with UFS and RB storage and beneficial use operations at the foundry are familiar with the requirements of this Management Plan.

Inventory

The amount of UFS and RB transferred out of the storage areas will be tracked using weights of the sand and refractory brick taken to beneficial use sites. The volume of UFS and RB removed from the facility and taken to the beneficial use sites will be determined by invoices that include weights from the contracted hauler and fill site. Since the roll-off boxes are filled with sand directly at the point of generation, the amount generated is the same as the amount hauled out to the beneficial use sites.

Pollution Prevention Controls

Fugitive Dust Management

Control of fugitive dust after dispersion is highly problematic. Therefore, control measures used at the John Deere Foundry site will focus on minimizing the amount of fugitive dust dispersed during storage and handling of the UFS and RB. John Deere Foundry operates under Title V permit #02-TV-012R2-M001. Control measures which will be used at the site for fugitive dust control fall into three general categories including administrative control measures, non-structural control measures, and structural control measures. The following describes the specific control measures which will be implemented for the John Deere Foundry storage sites.

Administrative Controls – Administrative controls which will be used at the site to control and minimize the formation of fugitive dust will include:

- Visual inspection of the storage sites and surrounding areas. Periodic visual inspection of the facility grounds, operations, and housekeeping practices will be used as a tool for identifying any operational concerns associated with UFS and RB storage and handling activities at the site.
- Making employees aware of proper procedures for UFS and RB storage and handling practices, equipment operations, visual inspection, preventative procedures, and good housekeeping.

Non-Structural Controls – Non-structural controls which will be used at the site to control and minimize the formation of fugitive dust will include:

- Implementation of proper materials handling practices to reduce the volume of fugitive dust generation by UFS and RB operations. Handling of the UFS and RB will be minimal to avoid excessive fugitive dust formation.
- Preventative practices involving close control of plant operations and equipment to prevent fugitive dust generation.
- Good housekeeping practices will be used to maintain a clean and orderly work environment. This will result in minimizing the amount of fugitive dust generated at the site and reduce safety hazards to personnel. Good housekeeping measures will include: (1) prompt cleanup of any UFS and RB spilled outside the storage area; and (2) regular maintenance of the storage site area in an effort to keep UFS and RB from migrating outside the designated storage area.
- Accumulated UFS and RB will be reused as soon as possible to prevent long term storage and avoid overstocking problems. The maximum UFS storage (residence) time is not to exceed six months.

Structural Controls – Containment or structural controls which will be used at the site to control the formation of fugitive dust will include:

- No material is to be placed directly onto the ground in the pelletizer bunkers.
- The plan requires cleaning out and sweeping the enclosed areas of the pelletizers underneath the drop chute and approach apron frequently enough that there are no significant accumulations and, that any potential for air entrainment of fugitive dust is kept to a minimum.
- Transport vehicles are to be tarped prior to leaving the loadout area to minimize spillage and drag out.
- Where appropriate, the overhead door is to be kept closed at all times except during loadout.

Storm Water Management

Measures similar to those described for fugitive dust control have been implemented for storm water pollution prevention. Storm water pollution prevention measures developed for the John Deere Foundry Waterloo facility as part of our storm water National Pollution Discharge Elimination System (NPDES) permitting process and outlined in the Storm Water Pollution Prevention Plan (SWPPP) are also implemented at the site. Best management practices presented in the SWPPP are being employed to address storm water run-on, run-off or containment related to the UFS and RB storage areas. Authorization for storm water discharge has been granted to John Deere Foundry by the Iowa Department of Natural Resources (IDNR) under NPDES Permit #0790116 which provides coverage through 6/30/2030.

Table 2. John Deere Foundry's Authorized By-products Storage Location and Controls					
	Sand By-Product Source	**Storage Location / Maximum Anticipated Inventory**	**Stormwater Controls++**	**Air Controls++**	**Maximum Storage Time+**
1	***Refractory Brick***	*Melt Dept. /Truckload*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*
2	***West Dock Sand***	*West Dock /Silo*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*
3	***802 West Dust Pelletizer***	*Dept. 802/Roll-off*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*
4	***East Dust Pelletizer***	*Dept. 871/Roll-off*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*
5	***Cleaning Room Dust***	*Cleaning Room /Trailer*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*
6	***871 Baghouse Dust***	*Dept. 871/Roll-off*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*
7	***804 Sand System Baghouse Dust***	*Dept. 804 /Trailer*	*DNR Permit# 0790116; Storm water Pollution Prevention Plan (SWPPP)*	*Current DNR Title V Operating Permit*	*<6 months*

+Maximum Storage Time – John Deere Foundry does not stockpile material. Once storage containers become full, the container is hauled off-site to the appropriate end-user or disposal site.

++Stormwater and Air Controls – John Deere Foundry stores all materials under roof. Roll-offs and bunkers are completely enclosed by roof and walls. Trailers are enclosed with a small portion of the trailer sitting slightly beyond the bay door opening. Trailers are not completely

Table 2. John Deere Foundry's Authorized By-products Storage Location and Controls					
	Sand By-Product Source	**Storage Location / Maximum Anticipated Inventory**	**Stormwater Controls[++]**	**Air Controls[++]**	**Maximum Storage Time[+]**
enclosed within the walls of the building; all trailers are covered while being filled to prevent migration of material.					

Section 4 – Operations Manager Signature

Approved By: _____ Date: _____

Casey Kann, Foundry Operations Manager

Appendix A

Annual Beneficial Fill Tonnage Report

Appendix B

Contingency Plan

Contingency Plan for UFS and RB

JOHN DEERE

Section 1 - Introduction

Objective

The objective of this Contingency Plan is to fulfill the requirements set forth by Rule 567- 108 of the Iowa Administrative Code (IAC) and Special Condition 9 of Iowa Department of Natural Resources Beneficial Use Determination #07-BUD-20-02 (issued January 2, 2023). This detailed Contingency Plan will outline alternative management options that have been identified for John Deere Foundry's authorized by-products that fail to meet applicable regulatory standards. Contents will also describe the management, sampling, and reporting procedures for authorized by-products.

John Deere Foundry's used foundry sand and refractory brick are authorized by-products for quarry reclamation activities at Waterloo South Quarry located at 11305 South Dysart Road, La Porte City, Iowa 50651. Foundry sand is also sent to Lehigh Cement in Mason City, Iowa for use as a raw product in the manufacture of cement [567-108.4(6)b].

Facility Operations & Site Location

John Deere Foundry has been operating since 1972. The facility is engaged in the production of gray and ductile iron castings using green sand molds. The process includes melt down of purchased scrap and preparation of casting molds using foundry sand and manufactured sand cores.

John Deere Foundry is located adjacent to the Cedar River in Waterloo, Iowa in Sections 22 and 23, T. 89N, R. 13W.

The facility address is: John Deere Foundry Waterloo 2000 Westfield Ave.
Waterloo, Iowa 50701

Used Foundry Sand & Refractory Brick Generation

John Deere Foundry's authorized by-products include used foundry sand and refractory brick. There are two types of used foundry sand generated by John Deere Foundry. One is the mold line sand, which is generated from either overflow from the mold lines, or by-pass sand which is carried off the end of the mold line. The second type is baghouse dust, which is collected by various baghouses at the mold lines, blast, and shakeout areas.

The refractory brick authorized by-product is generated from the re-lining of holding furnaces and transfer ladles; these are lined with refractory brick and mortar.

Periodically the brick and mortar are chipped out of the ladle or holding furnace and replaced with new brick. There are two types of refractory brick, silica and alumina brick.

Table 1 identifies and describes the by-products generated at John Deere Foundry that have been authorized for reclamation activities at Waterloo South Quarry under the Iowa Department of Natural Resources Beneficial Use Determination # 07-BUD-20-02.

Table 1. John Deere Foundry's Authorized By-products				
	Sand By-Product Source	**Description**	**Primary Location (End-User Site)**	**Secondary Location (Disposal Site)**
1	***Refractory Brick***	*Bunkered collection point for ladle and holding furnace lining when it is periodically chipped out and replaced. [Bunkered material is loaded onto a truck with end loader.]*	*Black Hawk County Landfill*	*Waterloo South Quarry*
2	***West Dock Sand***	*Main collection point for sand leaving the Foundry. Belts carry sand from Mold Line 802, Mold Line 804, Cleaning Room (Dept. 850 & 853), Core Room Didion, and Department 789. [West dock sand is stored in an overhead silo and discharged directly onto a truck.]*	*Heidelberg Cement-Mason City*	*Waterloo South Quarry* *Black Hawk County Landfill 07-SWA-105-18*
3	***802 West Dust Pelletizer***	*Collection point of main baghouse system for department 802. Major processes controlled include belts, shakeout, lump breaker, attrition mill, sand cooler and mullers. The process also includes a collection point [Bag Splitter] to process material from small dust collectors. All material is processed through a pelletizer which adds moisture to the material for dust control prior to disposal. [Roll-off]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
4	***East Dust Pelletizer***	*Collection point of multiple baghouse systems for departments 855 Tumblast, 808 Sand Belts, and 871 Shakeout. [Roll-off]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
5	***Cleaning Room Dust***	*Collection point for the baghouse controlling departments 850 and 853 shot blast units. [Trailer]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
6	***871 Baghouse Dust***	*Collection point for Cleaning Room baghouse supporting castings produced on the 804 mold line. [Roll-off]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*
7	***804 Sand System Baghouse Dust***	*The main dust collection system for processes on 804 mold line. Also captures dust from sand cooler. This may alternatively be transported to the East Sand Pelletizer. [Trailer]*	*Waterloo South Quarry*	*Black Hawk County Landfill 07-SWA-105-18*

Those authorized by-products identified in Table 1 that fail to meet applicable regulatory standards specified in 567-108 IAC and the Iowa Department of Natural Resources Beneficial Use Determination #07-BUD-20-02 will be disposed of at the Black Hawk County Landfill. This sanitary landfill is located at 1509 East Washburn Road, Waterloo, Iowa. The landfill requires an approved and active special waste authorization (SWA) prior to receipt of any materials. The corresponding SWA's for each authorized by-product are listed in Table 1. Prior to shipment of by-products to the Black Hawk County Landfill, the landfill Administrator will be notified and supplied the most recent analytical data. John Deere Foundry will coordinate with contracted trucking companies, Rite Environmental and Peterson Contractors, on re-routing of the failed authorized by-products. A copy of the approved SWA must accompany each shipment of the by-product to the Black Hawk County Landfill.

In the unusual scenario that an authorized by-product fails for any TCLP Metals, the authorized by-products will have to be shipped to a Veolia or US Ecology hazardous waste facility for disposal. Each container of hazardous material will be sampled and profiled independently prior to shipment.

Section 2 – Analytical Exceedance Actions

Analytical data for authorized by-products that exceed applicable regulatory standards for any RCRA Total Metals will be further evaluated for an unacceptable risk level as determined by the Iowa Cumulative Risk Calculator using the "Site worker" exposure scenario. Iowa Law (567 IAC 137.10(7)) allows for the application of cumulative risk criteria in lieu of compliance with specific standards for individual contaminants in soil. John Deere Foundry will cease delivery of those authorized by-products to Waterloo South Quarry that fail the Site Worker' exposure for the Iowa Cumulative Risk Calculator. Authorized by-products that fail to meet an acceptable risk level determined by the Iowa Cumulative Risk Calculator for any RCRA Total Metals will be delivered to Black Hawk County Landfill.

Occasionally total chrome has exceeded the regulatory level for beneficial use. However, when analyzed further to distinguish between Chrome III and Chrome VI, the results yield Chrome III.

Authorized by-products that exceed applicable regulatory levels for any SPLP will be delivered to Black Hawk County Landfill.

The issuance of Iowa Department of Natural Resources Beneficial Use Determination #07-BUD-20-02 required John Deere Foundry, the by-product generator, to analyze authorized by-products for TCLP-SVOC and TCLP-VOC to inform the end-users groundwater monitoring program. All analytical data for TCLP-SVOC and TCLP-VOC were well below regulatory limits.

UFS and RB have historically shown to be below applicable regulatory standards for any TCLP Metals. Authorized by-products that exceed applicable regulatory levels for any TCLP Metals will have to be managed and disposed of as a hazardous waste.

Any analytical data for an authorized by-product that exceeds the applicable regulatory standard will be reported to the Iowa DNR and the end-user, Waterloo South Quarry, within ten (10) business days of receipt of laboratory data.

Additional and more frequent sampling will be performed to re-establish acceptability for beneficial use. Prior to resuming beneficial reuse of an authorized by-product that failed to comply with applicable regulatory standards, John Deere Foundry will notify Iowa DNR and Waterloo South Quarry in writing of a return to compliance. The written notification will include at a minimum the certified laboratory reports and a narrative discussion regarding the circumstances surrounding the documented exceedance. After review, concurrence, and notification from Iowa DNR, John Deere Foundry may resume beneficial use of the referenced authorized by-products

Section 3 – Operations Manager Signature

Approved By: _____ Date: _____

Casey Kann,

Foundry Operations Manager

Section 4 – Revision Log

Objective

The objective of this revision log is to track the changes that occur in this plan.

Date	Description of Change
03/28/2018	Original Plan issuance
2/4/2020	Updated plan for CY20. Updated to brand compliance.
12/10/2021	Updated plan for CY2022; removed 808 Inside ETA waste stream.
10/10/2022	Updated plan for CY2023
2/12/2025	Updated Plan for CY2024; removed mentions of Martin and corrected Chrome IV to Chrome VI.
2/3/26	Updated Pan for Lehigh being renamed Heidelberg and new foundry ops manager, Casey Kann, and new NPDES permit. Updated for CY2025.

Annual Solid By-Product Beneficial Use Report

In accordance with Section 108.7(3)b of the Iowa Administrative Code, this report has been prepared, and is intended as a Calendar Year 2024 summary on the tons of solid by-product (used foundry sand and refractory brick) generated by John Deere Foundry and sent to the following location for beneficial use:

BENEFCIAL USE LOCATION:	BMC Aggregates, L.C..
	Waterloo South Quarry
SOLID BY-PRODUCT FOR CY2024:	14243.56 Tons
USE:	Fill Material [567 IAC 108.6(1)]

Annual Solid By-Product Use Report

All weights are reported as tons per month with calculated totals for the year.

Monthly weight tickets summaries are kept within the offices of the JDFW Environmental Department and are available for review by IDNR personnel upon request.

All sample data is kept within the offices of the JDFW Environmental Department and is available for review by IDNR personnel upon request.

If you need any additional information, or have any questions or comments concerning this report, please contact Christina Konicek at (319) 292-6964 or KonicekChristina@JohnDeere.com .

Source Name	Used Foundry Sand									
	East Dust Pelletizer	802 West Dust Pelletizer	808 Inside ETA	Cleaning Room Dust	West Dock Sand	804 Sand System Baghouse Dust	871 Baghouse Dust	TOTAL Foundry Sand	Refractory Brick	TOTAL Solid By-Products
Month	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons
Jan	13.82	82.98	0	24.95	273.43	457.43	191.6	1044.21	0	1044.21
Feb	61.12	348.96	0	67.16	484.59	420.17	180.71	1562.71	0	1562.71
Mar	41.58	535.67	0	51.81	684.07	320.81	112.43	1746.37	0	1746.37
Apr	77.61	472.81	0	63.12	328.66	317.44	136.28	1395.92	0	1395.92
May	51.69	473.98	0	36.54	128.49	333.51	145.14	1169.35	0	1169.35
Jun	46.28	460.5	0	67.95	373.32	403.93	160.14	1512.12	0	1512.12
Jul	48.55	206.71	0	41.21	65.88	199.13	64.11	625.59	0	625.59
Aug	44.36	206.87	0	67.35	0	373.54	147.15	839.27	0	839.27
Sept	44.54	218.01	0	52.39	2670.97	239.77	101.27	3326.95	0	3326.95
Oct	24.79	284.05	0	52.28	2473.96	223.99	85.54	3144.61	0	3144.61
Nov	48.12	208.79	0	41.99	2392.28	178.88	74.3	2944.36	0	2944.36
Dec	21.68	289.45	0	54.14	2441.77	262.54	79.92	3149.5	0	3149.5
2025 Totals	524.14	3788.78	**0**	620.89	12317.42	3731.14	1478.59	22460.96	**0**	22460.96

Section 5. By Product Generators Product Brought to Site.

As requested by DNR, all products from the By Product Generators are listed in this Section along with the quantities received for placement of these products for the calendar year 2025. For this time period from March 2025 to February 2026, the beneficial use products listed in this Section, Quarterly Tested by approved Laboratory Facilities, were brought to BMC Beneficial Use location at the South Quarry location located on Dysart Rd. Note from previous communications, Deere received permission from DNR to combine some products into a new determination to correlate with the Deere manufacturing process. For the University of Iowa, all products remained the same in previous years and were part of the products brought to the Beneficial Use Site for this time period.
[NOTE]: The University of Iowa will no longer be bringing any CCRs to the BUD site as of October 8, 2026

Deere Foundry (Waterloo, Iowa) and the University of Iowa were the only By-Product Generators bringing material to the BMC, BUD site for the calendar year, 2025.

DEERE BY PRODUCTS

BROUGHT TO BMC AGGREGATES

BUD LOCATION UNDER

PERMIT #07-BUD-20-02

YEAR: 2025

DEERE FOUNDRY SAND PRODUCTS AND PRODUCT TOTALS BROUGHT TO BMC BUD RECLAMATION SITE IN 2025

PRODUCTS	TONNAGE
JD EAST PELLETIZER DUST	524.14 TONS
JD WEST PELLETIZER DUST	3788.78 TONS
JD CLEANING ROOM DUST	620.89 TONS
JD WEST DOCK/MUD DOCK	12317.42 TONS
JD 804 DUST	3731.14 TONS
JD 871 DUST	1478.60 TONS
TOTAL DEERE BY PRODUCT TONNAGE:	22,460.97 TONS

UNIVERSITY OF IOWA BY PRODUCTS
BROUGHT TO BMC AGGREGATES
BUD LOCATION UNDER
PERMIT #07-BUD-20-02
YEAR: 2025

UNIVERSITY OF IOWA PRODUCTS AND PRODUCT TOTALS BROUGHT TO BMC BUD RECLAMATION SITE IN 2025

PRODUCTS	TONNAGE
FLY ASH AND BOILER ASH	3358,93 TONS

Section 6. Map of Site and Product Placement.

This aerial was Droned in December of 2025. This latest aerial imagery shows the progression of the fill. As in previous reports to the IDNR, beginning in 2018, the fill progression has not progressed much beyond the initial boundaries of the 2018 imagery. The fill area for 2025 was limited to the Deere Foundry products and the University of Iowa CCR materials. Similar to last year, BUD project quantities of material have decreased as a result of periodic redirection of West Dock Materials from Deere to the Cement Plant in Mason City. As noted last year, we no longer receive CCRs from Iowa State University and Northern Iowa University. The BUD site also received University of Iowa CCRs up until October 8th of 2025, when an exceedance in the Barium SPLP resulted in the complete NON ACCEPTANCE of any CCRs from the University of Iowa in the future. Because of these reductions, the enclosed Contour Aerial Photo shows minimal change from past years in the placement of the CCRs and the Deere Foundry materials.

As mentioned in earlier reports the lateral extent of the potential fill area is fairly extensive. In addition to the lateral extension to the south in the BUD area, there is also the capability for vertical expansion to the elevation of the land area denoted by the berm surrounding the fill area. The contour lines on the accompanying aerial photo suggest the potential height increase for some future date.

The landscape and drainage scenarios remain as indicated in the original application. Currently and for many years into the future, the fill area to the south will continue to be the location of the deposition of the BUD materials prior to any increase in the overall height of the fill site.

LEGEND

582ftus

Aggregates L.C.

Site: 8301 Waterloo South

Survey: 05 Dec 2023 Fly Ash

File created: Feb 7, 2024

propeller

Section 7. Brief Summary of Report.

A) The quarterly reporting of the By Product Generator Test results in the form of the Analytical Testing Reports have been documented against the Laboratory Reports from the Testing Labs utilized by the By Product Generators. All of this information has been filed with the DNR at the time of each of these tests by the By Product Generator and reviewed by the End User (BMC) as well. Any corrections in the data or notification of Risk Calculator use has been documented in earlier communications between the DNR, By Product Generators, and the End User prior to the completion of this report.

B) SCS Engineering Consultants receives the data from Keystone Labs Testing using the Field Sampling completed by the End User for the 5 monitoring wells that are part of this BUD Permit. SCS provides the documentation and statistical analysis review required by DNR for this project with reference to the End User obligations.

C) A review of the SCS Report which is included in this submission to IDNR did not indicate any statistical issues or concerns with any of the test results from the 5 monitoring wells for this project. Paragraph 3.5 in the accompanying SCS 2025 Water Quality Report which accompanies this Report indicated " *Review of the data indicated the beneficial use project is not having a significant adverse effect on the groundwater at the South Quarry as represented by groundwater samples collected from the monitoring wells associated with the South Quarry. . .*"
The SCS recommendation included continuing sampling the Four Monitoring Wells on site along with the Upgradient Well for the permit parameters using the same time frame of March and October in 2025, as in the past.