



2024 Annual Groundwater Monitoring and Corrective Action Report

Ash Disposal Area

Big Stone Plant

Big Stone City, South Dakota



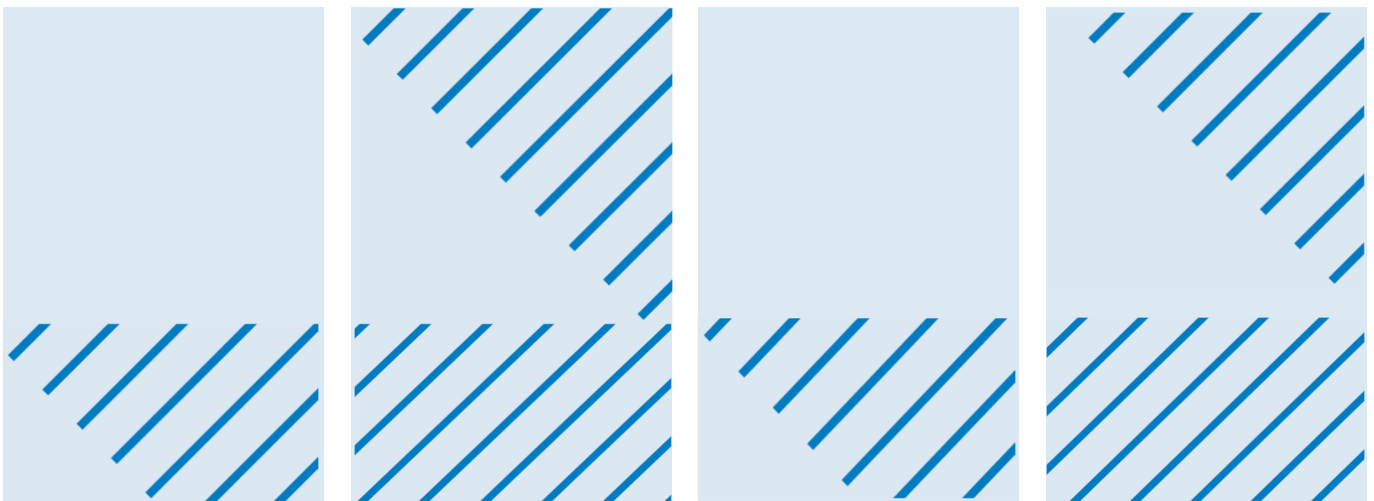
Prepared for
Otter Tail Power Company

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January 2025

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Acronyms

Acronym	Description
ADA	Ash Disposal Area
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
OTP	Otter Tail Power Company
SSI	Statistically Significant Increase

1 Executive Summary

This summary provides an overview of the Groundwater Monitoring & Corrective Action Program status as required by §257.90(e)(6). The CCR unit operated under the detection monitoring program described in §257.94 at the start and at the end of the 2024 annual reporting period. The current status of the facility is detection monitoring.

The monitoring program did not identify any statistically significant increases (SSIs) over background for any of the constituents listed in Appendix III to the CCR Rule; therefore, assessment monitoring of the constituents listed in Appendix IV to the CCR Rule were not monitored. Corrective action provisions of the CCR Rule were not required.

The monitoring network continues to be refined and augmented to adjust to data collected. Recent changes to the monitoring network include the installation and baseline monitoring of new upgradient and downgradient wells to adjust to changes in the interpretation groundwater flow direction.

1 Introduction

Otter Tail Power Company (OTP) operates the Big Stone Plant (Big Stone), located near Big Stone City, South Dakota. Big Stone is a coal-fired electrical generating plant, the operation of which results in coal combustion residuals (CCR) as a by-product. Management of CCR from plant operations includes placing CCR in an on-site landfill, referred to as the Ash Disposal Area (ADA). The ADA is required to comply with the provisions of the US Environmental Protection Agency (EPA) CCR Rule (40 CFR Parts 257 and 261, Disposal of Coal Combustion Residuals from Electric Utilities) for existing CCR landfills. The location of the ADA is shown on Figure 1.

This 2024 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) describes the monitoring program and results for the ADA at Big Stone. The ADA is currently in detection monitoring, as described by §257.94 of the CCR Rule.

1.1 Purpose

As stated in Section §257.90(e), the purpose of the Annual Report is to:

- Document the status of monitoring and corrective action program for the CCR unit
- Summarize key actions completed
- Describe any problems encountered
- Discuss actions to resolve the problems
- Highlight key activities for the upcoming year

1.2 Status of the Groundwater Monitoring and Corrective Action Program

Baseline monitoring for the network was completed in 2017, as documented in the 2017 Annual Groundwater Monitoring and Corrective Action Report, Ash Disposal Area (Barr, 2018). Wells H10, H11, and H12 were added in 2022 and 2023, as described in Section 2.1.2.

Statistical evaluation of detection monitoring results began on October 17, 2017, and continued through 2024. In 2024, the monitoring program did not identify any statistically significant increases (SSIs) over background for any of the constituents listed in Appendix III to the CCR Rule; therefore, constituents listed in Appendix IV to the CCR Rule were not monitored. Corrective action provisions of the CCR Rule were not required.

1.3 CCR Rule Requirements

This Annual Report has been prepared in accordance with the requirements of §257.90(e) of the CCR Rule, as outlined in the following Table 1.

Table 1 CCR Rule Requirements

CCR Rule Reference	Content Required in Report	Location
§257.90(e)(1)	Map showing the CCR unit and all monitoring wells that are part of the groundwater monitoring system	Section 2.1.1 Documentation; see Figure 1
§257.90(e)(2)	Discuss any new or decommissioned monitoring wells	Not applicable in 2024
§257.90(e)(3)	All monitoring data obtained under §257.90 through §257.98; provide the number and date groundwater samples were collected, and the monitoring (i.e., detection or assessment)	Section 2.2 Monitoring and Analytical Results; Table 2, Figure 2, Figure 3, Appendix A, Appendix B
§257.90(e)(4)	Discuss any transition between monitoring programs	Not applicable – no transition between monitoring programs was necessary
§257.90(e)(5)	Other information specified in §257.90 through §257.98	Throughout report
§257.90(e)(6)	Overview at beginning of annual report	Executive Summary

2 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the ADA for 2024. The groundwater monitoring system is described in Section 2.1, the monitoring and analytical results are described in Section 2.2, key actions completed and problems encountered are described in Section 2.3, and key activities planned for 2024 are described in Section 2.4.

2.1 Groundwater Monitoring System

2.1.1 Documentation

Figure 1 shows an aerial image of the ADA and all upgradient (background) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring system, as required by §257.90(e)(1). Further details on the monitoring system and the ADA monitoring wells can be found in the Groundwater Monitoring System Report, Big Stone Plant Ash Disposal Area (Barr, 2025).

2.1.2 Changes to Monitoring System

One upgradient monitoring well, H12, was installed east of the cooling pond on September 14, 2023, to provide a representative upgradient well for the area upgradient of H6 and H8 based on recent groundwater flow interpretations (Figure 1). Baseline sample collection began on October 17, 2023 and concluded on December 16, 2024; however, the analytical results from the December 16, 2024 event are not available at this time.

In 2022, two downgradient monitoring wells were installed (H10 and H11). Baseline sample collection for H10 and H11 wells began on May 15, 2023; however, after the data were reviewed, the initial sampling event was considered a statistical outlier due to calcium analytical results. The initial baseline sampling event for H10 and H11 is now considered to have occurred on June 12, 2023. Baseline sample collection is anticipated to conclude in early 2025.

The Groundwater Monitoring System Report, Big Stone Plant Ash Disposal Area has been updated to reflect the monitoring system changes (Barr, 2025).

No new monitoring wells were installed in 2024.

2.2 Monitoring and Analytical Results

Groundwater samples were collected from monitoring wells H2OX, H3OX, H4OX, H6, H8, and H9 during two semiannual sampling events. A total of 11 groundwater samples (six monitoring wells and two sampling events; H6 was not sampled during fall event due to insufficient well volume) were collected and analyzed for the constituents listed in Appendix III (Part 257) in 2024 under the detection monitoring program, consistent with the requirements of §257.94(c). Dates of sampling are reported on the field data sheets, and analytical laboratory reports are presented in Appendix A. Results are summarized in Table 2 from samples collected at monitoring wells previously included in the detection monitoring program. Results from samples collected at newly-installed monitoring wells are summarized in Table 3. Groundwater flow data, as required by §257.93(c), are presented in Figure 2, Figure 3 and Appendix C.

2.3 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program during 2024:

- Completed semiannual groundwater sampling under the detection monitoring program.
- Statistical analysis was conducted according to the Statistical Analysis Plan, Appendix B of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2017).
- Determined, pursuant to §257.93(h), that no statistically significant increase over background levels occurred for any of the constituents listed in Appendix III at any downgradient monitoring well during the 2024 detection monitoring sampling events.

2.4 Key Activities for Upcoming Year

The following key groundwater monitoring program activities are planned for 2025:

- Continue the detection monitoring program in accordance with the CCR Rule.
- Updated the Groundwater Monitoring Network to include monitoring wells H10, H11, and H12.
- Evaluate analytical results from the 2025 semiannual detection monitoring events for SSIs according to the Statistical Analysis Plan (Carlson McCain, 2017).

3 References

- Barr, 2018. 2017 Annual Groundwater Monitoring and Corrective Action Report, Big Stone Plant Ash Disposal Area. Prepared for Otter Tail Power Company. January 2018.
- Barr, 2024. Groundwater Monitoring System Report, Big Stone Plant Ash Disposal Area. Prepared for Otter Tail Power Company. December 2024.
- Carlson McCain, 2017. CCR Groundwater Sampling and Analysis Plan (Including Statistical Method Selection and Certification), Big Stone Plant Ash Disposal Area. Prepared for Otter Tail Power Company. October 2017.



Tables

Table 2
Detection Monitoring Well Groundwater Analytical Data Summary
Big Stone Plant
Otter Tail Power Company

Location			H2OX	H2OX	H3OX	H3OX	H4OX	H4OX	H6	H8	H8	H9	H9
Date			4/15/2024	10/14/2024	4/15/2024	10/14/2024	4/15/2024	10/14/2024	4/15/2024	4/15/2024	10/14/2024	4/15/2024	10/14/2024
Sample Type			N	N	N	N	N	N	N	N	N	N	N
Parameter	Analysis Location	Units											
Appendix III Parameters													
Boron, total	Lab	mg/l	0.248	0.233	7.640	6.730	0.572	0.494	2.400	3.160	2.590	1.290	1.290
Calcium, total	Lab	mg/l	514.0	500.0	425.0	383.0	318.0	272.0	53.40	119.0	112.0	615.0	610.0
Chloride	Lab	mg/l	4.1	3.5	63.6	65.4	40.8	39.6	< 3	3.7	3.4	69.5	80.8
Fluoride	Lab	mg/l	0.350	0.300	0.420	0.340	0.520	0.480	0.430	0.530	0.510	0.330	0.310
pH	Lab	pH units	7.1	7.0	7.3	7.0	7.1	7.0	7.5	7.4	7.3	6.9	6.9
pH	Field	pH units	7.18	6.45	6.88	6.40	6.93	6.51	7.24	7.16	7.16	6.58	6.60
Solids, total dissolved	Lab	mg/l	3840	3760	3040	2880	2160	2090	599	951	941	2820	2800
Sulfate, as SO4	Lab	mg/l	2230	2040	1380	1190	1070	922	104	245	276	1410	1370
Groundwater elevation	Field	ft amsl	1097.96	1093.24	1088.58	1087.41	1092.27	1088.75	1087.13	1075.76	1070.46	1078.19	1073.11

N Sample Type: Normal Detection Monitoring

Table 3
New Well Groundwater Analytical Data Summary
Big Stone Plant
Otter Tail Power Company

Location Date Sample Type		H10 5/15/2023 N	H10 6/12/2023 N	H10 8/21/2023 N	H10 10/17/2023 N	H10 12/11/2023 N	H10 2/19/2024 N	H10 4/15/2024 N	H10 6/10/2024 N	H10 10/14/2024 N
Parameter	Units									
Appendix III										
Boron, Total	mg/l	0.292	0.284	0.298	0.358	0.349	0.359	0.369	0.368	0.273
Calcium, Total	mg/l	284.0	489.0	492.0	509.0	499.0	499.0	496.0	469.0	356.0
Chloride	mg/l	7.1	6.6	6.3	6.3	6.4	6.7	6.7	7.5	6.8
Fluoride	mg/l	0.200	0.180	0.180	0.190	0.200	0.240	0.240	0.220	0.190
pH	pH units	7.0	7.1	7.0	7.2	7.0	7.1	7.1	7.2	7.0
pH, Field	pH units	6.34	7.00	6.88	6.51	6.87	6.95	7.01	6.91	6.38
Solids, total dissolved	mg/l	4810	4820	4840	4840	4650	5100	4990	4970	4200
Sulfate, as SO4	mg/l	2590	2650	2270	2590	2450	2310	2930	2620	2690
Appendix IV										
Antimony, Total	mg/l	< 0.0025	< 0.001	< 0.001	< 0.0025	0.00156	< 0.001	< 0.0025	< 0.001	--
Arsenic, Total	mg/l	< 0.0025	< 0.001	< 0.001	< 0.0025	0.00121	< 0.001	< 0.0025	< 0.001	--
Barium, Total	mg/l	0.026	0.026	0.023	0.027	0.026	0.023	0.023	0.022	--
Beryllium, Total	mg/l	< 0.005	< 0.005	< 0.00005	< 0.005	< 0.0001	< 0.0001	< 0.00025	< 0.0001	--
Cadmium, Total	mg/l	< 0.0005	0.00025	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0005	< 0.0002	--
Chromium, Total	mg/l	< 0.01	< 0.01	< 0.0005	< 0.0025	0.00141	< 0.01	< 0.0025	< 0.001	--
Cobalt, Total	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	--
Lead, Total	mg/l	< 0.0025	< 0.001	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.001	--
Lithium, Total	mg/l	0.226	0.235	0.271	0.298	0.298	0.295	0.321	0.354	--
Mercury, Total	mg/l	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	--
Molybdenum, Total	mg/l	0.017	< 0.015	0.00865	0.0123	0.0142	0.0133	0.0176	0.0145	--
Selenium, Total	mg/l	0.00495	0.00474	0.00454	0.00379 J+	0.00482	0.00465	0.00360	0.00248	--
Thallium, Total	mg/l	< 0.0005	< 0.0002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0002	--
Radium 226	pCi/l	4.42 +/- 0.989	0.390 +/- 0.250	0.290 +/- 0.217	0.0723 +/- 0.186 ND	0.986 +/- 0.401	0.719 +/- 0.380	0.433 +/- 0.324 B	0.241 +/- 0.202	--
Radium 228	pCi/l	0.726 +/- 0.251	0.402 +/- 0.331 ND	0.465 +/- 0.265 ND	0.238 +/- 0.287 ND	0.840 +/- 0.251	0.467 +/- 0.197	-0.486 +/- 0.306 ND	0.371 +/- 0.496 ND	--
Radium, combined (226+228) [Barr Calculation]	pCi/l	5.15 +/- 1.02	0.792 +/- 0.415 q	0.755 +/- 0.340 q	0.310 +/- 0.342 ND	1.826 +/- 0.473	1.186 +/- 0.428	-0.486 +/- 0.306 ND	0.612 +/- 0.536 q	--
Other										
Groundwater elevation, Field	ft amsl	1079.81	1078.28	1075.36	1073.73	1077.51	1075.85	1080.06	1085.00	1076.17

N Sample Type: Normal Detection Monitoring

J+ The result is an estimated quantity and may be biased high.

ND the analyte was analyzed for, but was not detected.

q The combined radium result includes both detected and not detected values.

B The analyte was detected in one of the associated laboratory,

equipment, field or trip blank samples and is considered non-detect at the concentration reported by the laboratory.

Note: The samples collected from H10 and H11 on 5/15/2023 are considered to be statistical outliers and are not considered baseline samples.

Table 3
New Well Groundwater Analytical Data Summary
Big Stone Plant
Otter Tail Power Company

Location Date Sample Type		H11 5/15/2023 N	H11 6/12/2023 N	H11 8/21/2023 N	H11 10/17/2023 N	H11 12/11/2023 N	H11 2/19/2024 N	H11 4/15/2024 N	H11 6/10/2024 N
Parameter	Units								
Appendix III									
Boron, Total	mg/l	0.232	0.247	0.245	0.271	0.263	0.263	0.261	0.260
Calcium, Total	mg/l	217.0	547.0	543.0	573.0	558.0	552.0	553.0	551.0
Chloride	mg/l	4.7	3.9	3.5	3.6	3.7	3.9	4.0	3.9
Fluoride	mg/l	0.140	0.130	0.140	0.140	0.160	0.160	0.160	0.160
pH	pH units	7.0	7.0	6.9	6.9	6.8	6.8	6.9	7.0
pH, Field	pH units	6.37	6.80	6.70	6.59	6.78	6.71	6.64	6.67
Solids, total dissolved	mg/l	4270	4230	4220	4220	4160	4240	4660	4060
Sulfate, as SO4	mg/l	2640	2170	2440	2580	2410	2500	2280	1950
Appendix IV									
Antimony, Total	mg/l	< 0.0005	< 0.0005	< 0.001	< 0.0025	< 0.0005	< 0.001	< 0.0025	< 0.0005
Arsenic, Total	mg/l	< 0.0025	< 0.001	< 0.001	< 0.0025	< 0.001	< 0.001	< 0.0025	< 0.001
Barium, Total	mg/l	0.036	0.035	0.034	0.030	0.030	0.030	0.028	0.027
Beryllium, Total	mg/l	< 0.005	< 0.005	< 0.0001	< 0.005	< 0.00005	< 0.0001	< 0.00025	< 0.00005
Cadmium, Total	mg/l	0.00038	0.00035	0.00027	< 0.0005	< 0.0002	< 0.0002	< 0.0005	0.00014
Chromium, Total	mg/l	< 0.01	< 0.01	< 0.001	< 0.0025	< 0.0005	< 0.01	< 0.0025	< 0.001
Cobalt, Total	mg/l	0.008	0.009	0.008	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Lead, Total	mg/l	< 0.0025	< 0.001	< 0.001	< 0.0025	< 0.001	< 0.001	< 0.0025	0.00055
Lithium, Total	mg/l	0.223	0.251	0.303	0.332	0.345	0.326	0.332	0.358
Mercury, Total	mg/l	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.000005	< 0.000005
Molybdenum, Total	mg/l	< 0.015	< 0.015	0.00490	0.00303	0.00204	0.00214	< 0.0025	0.00206
Selenium, Total	mg/l	< 0.0025	0.00172 J+	< 0.002	< 0.0025	0.00237	< 0.002	< 0.0025	< 0.001
Thallium, Total	mg/l	< 0.0005	< 0.0002	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0005	< 0.0001
Radium 226	pCi/l	1.27 +/- 0.422	0.171 +/- 0.205 ND	1.83 +/- 0.496	0.0392 +/- 0.107 ND	0.267 +/- 0.384 ND	0.260 +/- 0.264 ND	0.119 +/- 0.184 ND	0.160 +/- 0.169 ND
Radium 228	pCi/l	0.875 +/- 0.201	0.772 +/- 0.328	0.798 +/- 0.293 B	0.538 +/- 0.242	0.128 +/- 0.262 ND	-0.421 +/- 0.381 ND	0.0113 +/- 0.279 ND	-0.115 +/- 0.699 ND
Radium, combined (226+228) [Barr Calculation]	pCi/l	2.15 +/- 0.467	0.943 +/- 0.387 q	1.83 +/- 0.496	0.577 +/- 0.265 q	0.395 +/- 0.465 ND	0.260 +/- 0.264 ND	0.130 +/- 0.334 ND	0.160 +/- 0.169 ND
Other									
Groundwater elevation, Field	ft amsl	1082.58	1082.19	1079.29	1078.43	1079.48	1082.61	1083.12	1086.69

N Sample Type: Normal Detection Monitoring

J+ The result is an estimated quantity and may be biased high.

ND the analyte was analyzed for, but was not detected.

q The combined radium result includes both detected and not detected values.

B The analyte was detected in one of the associated laboratory,
equipment, field or trip blank samples and is considered non-detect at the concentration reported by the laboratory.

Note: The samples collected from H10 and H11 on 5/15/2023 are considered to be statistical outliers and are not considered baseline samples.

Table 3
New Well Groundwater Analytical Data Summary
Big Stone Plant
Otter Tail Power Company

Location Date Sample Type		H11 10/14/2024 N	H12 10/17/2023 N	H12 12/11/2023 N	H12 2/19/2024 N	H12 4/15/2024 N	H12 6/10/2024 N	H12 8/12/2024 N	H12 10/14/2024 N
Parameter	Units								
Appendix III									
Boron, Total	mg/l	0.218	0.402	0.415	0.392	0.381	0.610	0.369	0.358
Calcium, Total	mg/l	607.0	25.60	21.70	23.00	23.20	39.90	20.70	25.60
Chloride	mg/l	4.0	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Fluoride	mg/l	0.150	0.290	0.300	0.320	0.320	0.380	0.340	0.310
pH	pH units	6.8	8.2	7.8	7.9	8.2	7.8	7.2	8.0
pH, Field	pH units	6.66	7.99	7.98	8.00	8.21	7.79	7.80	8.23
Solids, total dissolved	mg/l	4140	197	156	159	184	207	133	197
Sulfate, as SO4	mg/l	2250	20.8	< 5	7.1	485	90.7	8.8	8.4
Appendix IV									
Antimony, Total	mg/l	--	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Arsenic, Total	mg/l	--	0.00274	0.00118	0.00187	0.00164	0.00142	0.00127	0.00252
Barium, Total	mg/l	--	0.058	0.032	0.045	0.041	0.089	0.039	0.067
Beryllium, Total	mg/l	--	< 0.005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.0001	< 0.005
Cadmium, Total	mg/l	--	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0002
Chromium, Total	mg/l	--	0.00371	0.00056	< 0.01	0.00184	0.00197	0.00177	< 0.01
Cobalt, Total	mg/l	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Lead, Total	mg/l	--	0.00153	< 0.0005	0.00081	0.00059	0.00052	< 0.0005	0.00136
Lithium, Total	mg/l	--	< 0.02	< 0.02	< 0.02	0.031	< 0.02	< 0.02	< 0.02
Mercury, Total	mg/l	--	0.000012	< 0.000005	< 0.000005	0.000009	< 0.000005	< 0.000005	0.000009
Molybdenum, Total	mg/l	--	0.0342	0.0387	0.0382	0.0378	0.0277	0.0394	0.039
Selenium, Total	mg/l	--	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.00199	< 0.0005	< 0.0005
Thallium, Total	mg/l	--	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Radium 226	pCi/l	--	0.182 +/- 0.170 ND	0.0839 +/- 0.180 ND	-0.00784 +/- 0.114 ND	0.0967 +/- 0.187 ND	0.147 +/- 0.155 ND	0.836 +/- 0.345	0.0912 +/- 0.196 ND
Radium 228	pCi/l	--	0.465 +/- 0.228	0.947 +/- 0.196	0.710 +/- 0.274	1.85 +/- 2.81	0.604 +/- 0.488 ND	0.0603 +/- 0.228 ND	0.742 +/- 0.238
Radium, combined (226+228) [Barr Calculation]	pCi/l	--	0.647 +/- 0.284 q	1.031 +/- 0.266 q	0.710 +/- 0.274 q	1.95 +/- 2.82 ND	0.751 +/- 0.512 ND	0.896 +/- 0.414 q	0.833 +/- 0.308 q
Other									
Groundwater elevation, Field	ft amsl	1079.28	1109.26	1108.72	1109.29	1108.88	1111.77	1110.62	1109.46

N Sample Type: Normal Detection Monitoring

J+ The result is an estimated quantity and may be biased high.

ND the analyte was analyzed for, but was not detected.

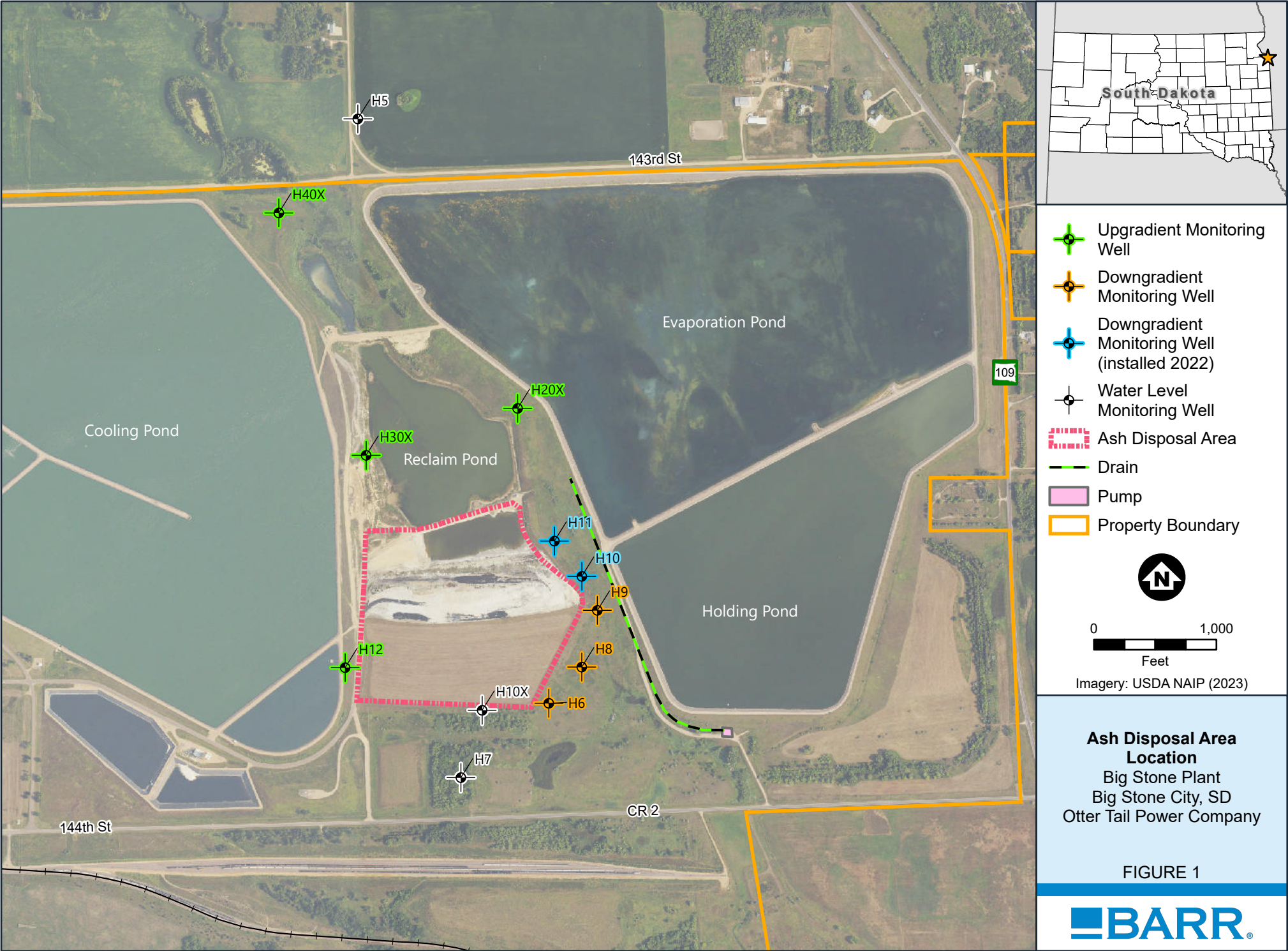
q The combined radium result includes both detected and not detected values.

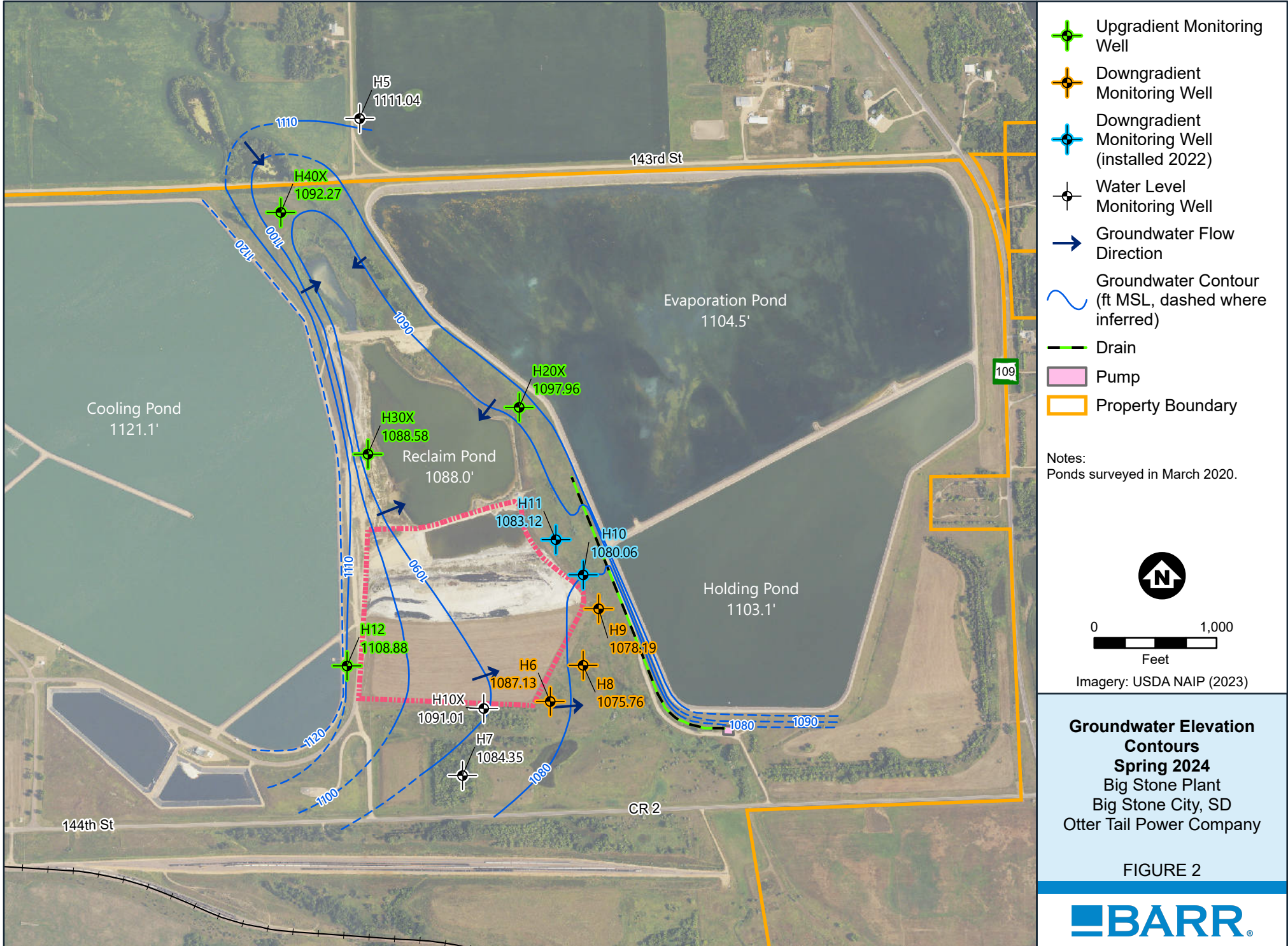
B The analyte was detected in one of the associated laboratory, equipment, field or trip blank samples and is considered non-detect at the concentration reported by the laboratory.

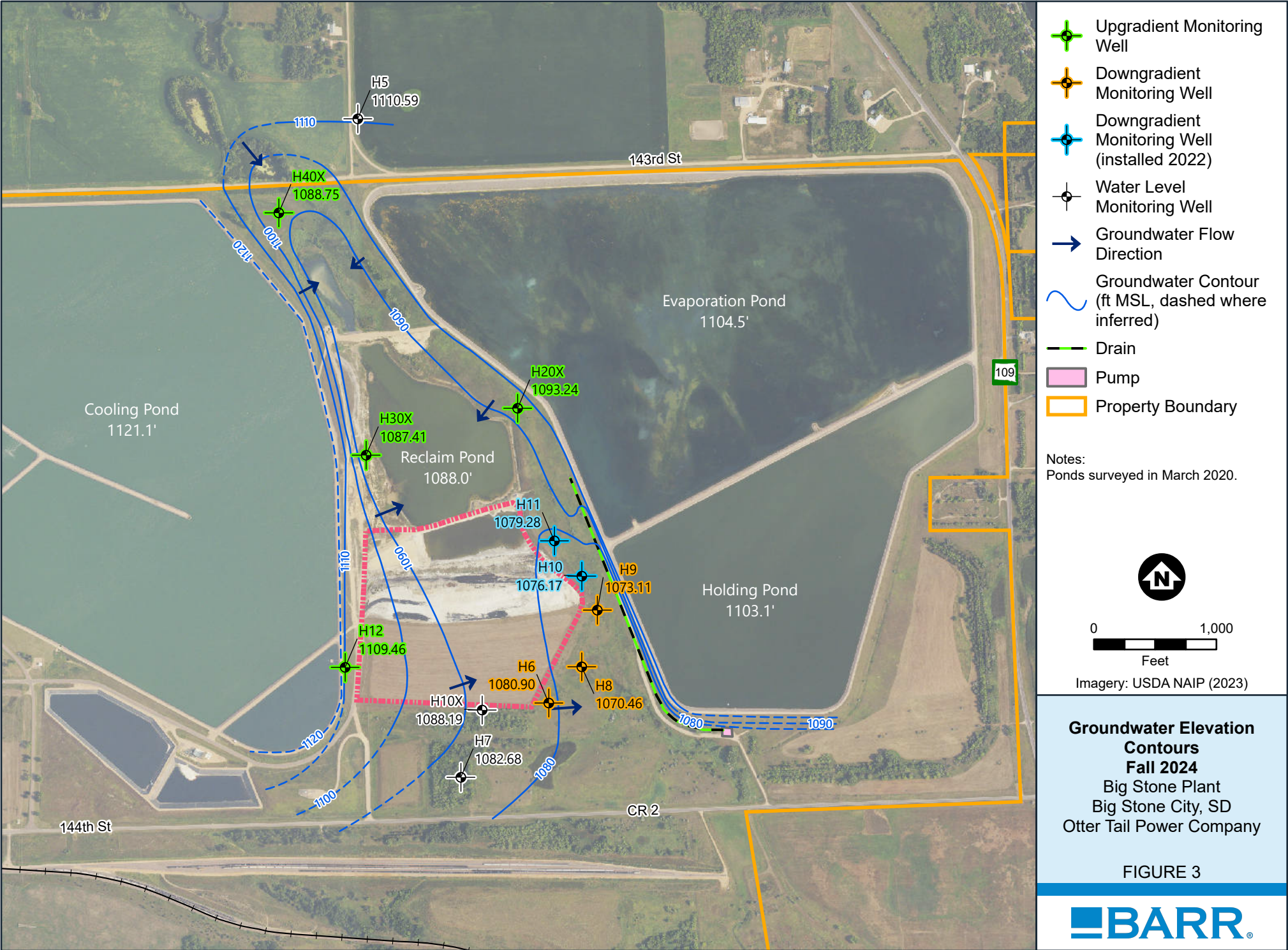
Note: The samples collected from H10 and H11 on 5/15/2023 are considered to be statistical outliers and are not considered baseline samples.



Figures









Appendices



Appendix A

Laboratory and Field Reports



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Page: 1 of 5

FINAL REPORT COMPLETION DATE: 25 Jan 24 AX

Date Reported: 23 Jan 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 31-0319
Account #: 006106
PO #: 59601

Project Name: BIG STONE PLANT CCR

Jeff Hoffman 24 Jan 24
Field Service Manager/Date Reviewed

[Signature] 23 Jan 24
Chemistry Lab Manager/Date Reviewed

[Signature] 23 Jan 2024
Quality Assurance Director/Date Reviewed

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

All data for this report has been approved by MVTL Laboratory Management.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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Page: 2 of 5

JOSH HOLLEN
 OTTER TAIL POWER CO
 PO BOX 496
 FERGUS FALLS MN 56538-0496

Report Date: 23 Jan 2024
 Lab Number: 23-A10137
 Work Order #: 31-0319
 Account #: 006106
 Sample Matrix: GROUNDWATER
 Date Sampled: 11 Dec 2023 11:56
 Sampled By: MVTL FIELD PERSONNEL
 Date Received: 11 Dec 2023 14:25
 PO #: 59601

Project Name: BIG STONE PLANT CCR

Sample Description: H10

Temp at Receipt: 2.1C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					12 Dec 23	JN
Water Digestions					12 Dec 23	JN
pH, Field	6.87	units	1.00	SM4500-H+-2011	11 Dec 23 11:56	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	12 Dec 23 11:53	KFL
Radium 226	0.99	pCi/L	0.60		4 Jan 24 18:47	OL
Radium 228	0.84	pCi/L	3.00	EPA M9320	30 Dec 23 16:21	OL
Sulfate	2450 ~	mg/L	5.0	ASTM D516-11	14 Dec 23 8:36	KRM
Chloride	6.4	mg/L	3.0	SM 4500 Cl E	12 Dec 23 9:42	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	12 Dec 23 11:38	RMB
Solids, Total Dissolved	4650	mg/L	10	SM 2540 C-97	12 Dec 23 9:35	CC
Calcium	499.0 ~	mg/L	0.500	SW6010D	13 Dec 23 12:39	SS
Lithium	0.298	mg/L	0.020	SW6010D	13 Dec 23 12:39	SS
Barium	0.026	mg/L	0.005	SW6010D	13 Dec 23 12:39	SS
Cobalt	< 0.005	mg/L	0.005	SW6010D	13 Dec 23 12:39	SS
Boron	0.349	mg/L	0.100	SW6010D	13 Dec 23 12:39	SS
Antimony	1.56	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Arsenic	1.21 @	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Beryllium	< 0.1 @	ug/L	0.05	SW6020B	13 Dec 23 13:47	KAM
Cadmium	< 0.2 @	ug/L	0.1	SW6020B	14 Dec 23 14:01	KAM
Chromium	1.41 @	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Lead	< 2.5 @	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Molybdenum	14.2 @	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Selenium	4.82 @	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Thallium	< 0.5 @	ug/L	0.1	SW6020B	13 Dec 23 13:47	KAM
Fluoride	0.200	mg/L	0.020	EPA 300.0	19 Dec 23 4:59	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

Radium 228 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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 www.mvtl.com



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JOSH HOLLEN
 OTTER TAIL POWER CO
 PO BOX 496
 FERGUS FALLS MN 56538-0496

Report Date: 23 Jan 2024
 Lab Number: 23-A10138
 Work Order #: 31-0319
 Account #: 006106
 Sample Matrix: GROUNDWATER
 Date Sampled: 11 Dec 2023 11:27
 Sampled By: MVTL FIELD PERSONNEL
 Date Received: 11 Dec 2023 14:25
 PO #: 59601

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Temp at Receipt: 2.1C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					12 Dec 23	JN
Water Digestions					12 Dec 23	JN
pH, Field	6.78	units	1.00	SM4500-H+-2011	11 Dec 23 11:27	BMW
pH	* 6.8	units	1.0	SM 4500 H+ B-2000	12 Dec 23 11:53	KFL
Radium 226	0.27	pCi/L	0.60		4 Jan 24 18:47	OL
Radium 228	0.13	pCi/L	3.00	EPA M9320	30 Dec 23 16:21	OL
Sulfate	2410 ~	mg/L	5.0	ASTM D516-11	14 Dec 23 8:36	KRM
Chloride	3.7	mg/L	3.0	SM 4500 Cl E	12 Dec 23 9:42	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	12 Dec 23 11:38	RMB
Solids, Total Dissolved	4160	mg/L	10	SM 2540 C-97	12 Dec 23 9:35	CC
Calcium	558.0 ~	mg/L	0.500	SW6010D	13 Dec 23 12:39	SS
Lithium	0.345	mg/L	0.020	SW6010D	13 Dec 23 12:39	SS
Barium	0.030	mg/L	0.005	SW6010D	13 Dec 23 12:39	SS
Cobalt	< 0.005	mg/L	0.005	SW6010D	13 Dec 23 12:39	SS
Boron	0.263	mg/L	0.100	SW6010D	13 Dec 23 12:39	SS
Antimony	< 0.5	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Arsenic	< 1 @	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	13 Dec 23 13:47	KAM
Cadmium	< 0.2 @	ug/L	0.1	SW6020B	14 Dec 23 14:01	KAM
Chromium	< 0.5	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Lead	< 1 @	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Molybdenum	2.04	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Selenium	2.37 @	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Thallium	< 0.2 @	ug/L	0.1	SW6020B	13 Dec 23 13:47	KAM
Fluoride	0.160	mg/L	0.020	EPA 300.0	19 Dec 23 4:59	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

Radium 228 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

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= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
 OTTER TAIL POWER CO
 PO BOX 496
 FERGUS FALLS MN 56538-0496

Report Date: 23 Jan 2024
 Lab Number: 23-A10139
 Work Order #: 31-0319
 Account #: 006106
 Sample Matrix: GROUNDWATER
 Date Sampled: 11 Dec 2023 10:49
 Sampled By: MVTL FIELD PERSONNEL
 Date Received: 11 Dec 2023 14:25
 PO #: 59601

Project Name: BIG STONE PLANT CCR

Sample Description: H12

Temp at Receipt: 2.1C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					12 Dec 23	JN
Water Digestions					12 Dec 23	JN
pH, Field	7.98	units	1.00	SM4500-H+-2011	11 Dec 23 10:49	BMW
pH	* 7.8	units	1.0	SM 4500 H+ B-2000	12 Dec 23 11:53	KFL
Radium 226	0.08	pCi/L	0.60		4 Jan 24 18:47	OL
Radium 228	0.95	pCi/L	3.00	EPA M9320	30 Dec 23 16:21	OL
Sulfate	< 5	mg/L	5	ASTM D516-11	14 Dec 23 8:36	KRM
Chloride	< 3	mg/L	3	SM 4500 Cl E	12 Dec 23 9:42	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	12 Dec 23 11:38	RMB
Solids, Total Dissolved	156	mg/L	10	SM 2540 C-97	12 Dec 23 9:35	CC
Calcium	21.70	mg/L	0.500	SW6010D	13 Dec 23 12:39	SS
Lithium	< 0.02	mg/L	0.02	SW6010D	13 Dec 23 12:39	SS
Barium	0.032	mg/L	0.005	SW6010D	13 Dec 23 12:39	SS
Cobalt	< 0.005	mg/L	0.005	SW6010D	13 Dec 23 12:39	SS
Boron	0.415	mg/L	0.100	SW6010D	13 Dec 23 12:39	SS
Antimony	< 0.5	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Arsenic	1.18	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	13 Dec 23 13:47	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	14 Dec 23 14:01	KAM
Chromium	0.56	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Lead	< 0.5	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Molybdenum	38.7	ug/L	0.50	SW6020B	13 Dec 23 13:47	KAM
Selenium	< 0.5	ug/L	0.5	SW6020B	13 Dec 23 13:47	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	13 Dec 23 13:47	KAM
Fluoride	0.300 @	mg/L	0.020	EPA 300.0	19 Dec 23 4:59	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

Radium 228 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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Date Reported: 23 Jan 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202331-0319
Account Number: 006106
PO #: 59601

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC & METALS ANALYSES:
No problems were encountered.

MVTL**MINNESOTA VALLEY TESTING LABORATORIES, INC.**

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MEMBER
ACIL

Page: 1 of 1

Quality Control Report

Lab IDs: 23-A10137 to 23-A10139

Project: BIG STONE PLANT CCR

Work Order: 202331-0319

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	105	85-115	25.0	23A10139q	< 0.5	27.2	109	75-125	27.2	26.9	108	1.1	10	102	90-110	< 0.5
Arsenic ug/L	25.0	106	85-115	25.0	23A10139q	1.18	28.2	108	75-125	28.2	27.1	104	4.0	10	104	90-110	< 0.5
Barium mg/L	1.000	102	85-115	1.00	23A10140q	0.030	1.030	100	75-125	1.030	1.050	102	1.9	10	98	90-110	< 0.005
Beryllium ug/L	2.50	100	85-115	2.50	23A10139q	< 0.05	2.63	105	75-125	2.63	2.42	97	8.3	10	102	90-110	< 0.05
Boron mg/L	1.000	106	85-115	1.00	23A10140q	0.397	1.480	108	75-125	1.480	1.510	111	2.0	10	102	90-110	< 0.1
Cadmium ug/L	5.00	101	85-115	5.00	23-A10139	< 0.1	5.39	108	75-125	5.39	5.21	104	3.4	10	104	90-110	< 0.1
Calcium mg/L	50.00	104	85-115	50.0	23A10140q	20.50	71.50	102	75-125	71.50	72.20	103	1.0	10	104	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	23-A10140	< 3	65.1	108	80-120	65.1	64.1	107	1.5	10	94	90-110	< 3
Chromium ug/L	25.0	103	85-115	25.0	23A10139q	0.56	25.7	101	75-125	25.7	25.0	98	2.8	10	100	90-110	< 0.5
Cobalt mg/L	1.000	105	85-115	1.00	23A10140q	< 0.005	0.999	100	75-125	0.999	1.030	103	3.1	10	102	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00	23-A10139	0.300	1.36	106	80-120	1.36	1.30	100	4.5	10	102	90-110	< 0.02
Lead ug/L	25.0	100	85-115	25.0	23A10139q	< 0.5	26.3	105	75-125	26.3	25.9	104	1.5	10	101	90-110	< 0.5
Lithium mg/L	1.000	104	85-115	1.00	23A10140q	< 0.02	1.010	101	75-125	1.010	1.020	102	1.0	10	103	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	36224001qc	< 0.005	0.096	96	63-111	0.096	0.096	96	0.0	18	102	76-113	< 0.005
Molybdenum ug/L	25.0	97	85-115	25.0	23A10139q	38.7	65.1	106	75-125	65.1	64.0	101	1.7	10	100	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.9	7.9	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	102	85-115	25.0	23A10139q	< 0.5	27.2	109	75-125	27.2	26.3	105	3.4	10	102	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	156	149	-	4.6	10	99	85-115	< 10
Sulfate mg/L	-	-	-	50.0	23-A10140	< 5	47.7	95	80-120	47.7	47.0	94	1.5	10	81	80-120	< 5
Thallium ug/L	5.00	101	85-115	5.00	23A10139q	< 0.1	5.29	106	75-125	5.29	5.19	104	1.9	10	102	90-110	< 0.1

Approved by:





Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

January 16, 2024

Todd Rieger
MVTL Laboratories
1126 North Front Street
New Ulm, MN 56073

RE: Project: 31-0319 Otter Tail Power Co
Pace Project No.: 10678768

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on December 13, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Piper Gibbs".

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-1700
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC

1700 Elm Street

Minneapolis, MN 55414

(612)607-1700

SAMPLE SUMMARY

Project: 31-0319 Otter Tail Power Co

Pace Project No.: 10678768

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10678768001	23A10137-H10	Water	12/11/23 11:56	12/13/23 11:29
10678768002	23A10138-H11	Water	12/11/23 11:27	12/13/23 11:29
10678768003	23A10139-H12	Water	12/11/23 10:49	12/13/23 11:29

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

Effective Date: 4/14/2023

Sample Condition Upon Receipt	Client Name: <u>MVTL</u>	Project #:	WO#: 10678768
Courier: <input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input checked="" type="checkbox"/> Client <input type="checkbox"/> Pace <input type="checkbox"/> Speedee <input type="checkbox"/> Commercial		PM: PG Due Date: 01/15/24 CLIENT: MVTL	
Tracking Number: _____		<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142	

Custody Seal on Cooler/Box Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Seals Intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Biological Tissue Frozen? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Packing Material: <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Bubble Bags <input checked="" type="checkbox"/> None <input type="checkbox"/> Other	Temp Blank? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Thermometer: <input type="checkbox"/> T1 (0461) <input type="checkbox"/> T2 (0436) <input type="checkbox"/> T3 (0459) <input type="checkbox"/> T4 (0402) <input type="checkbox"/> T5 (0178) <input type="checkbox"/> T6 (0235) <input checked="" type="checkbox"/> T7 (0042) <input type="checkbox"/> T8 (0775) <input type="checkbox"/> T9 (0727) <input type="checkbox"/> 01339252/1710	Type of Ice: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Blue <input type="checkbox"/> Dry <input type="checkbox"/> None <input type="checkbox"/> Melted	

Did Samples Originate In West Virginia? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Were All Container Temps Taken? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Temp should be above freezing to 6 °C	Cooler temp Read w/Temp Blank: <u>0.5</u> °C	Average Corrected Temp (no temp blank only): _____ °C
Correction Factor: <u>-0.4</u>	Cooler Temp Corrected w/temp blank: <u>0.1</u> °C	<input type="checkbox"/> See Exceptions ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: ☒ N/A, water sample/other: _____Date/Initials of Person Examining Contents: CRL 12/13/23Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☐ NoDid samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): <input type="checkbox"/> Duluth <input checked="" type="checkbox"/> Minneapolis <input type="checkbox"/> Virginia	COMMENTS
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Chain of Custody Relinquished?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sampler Name and/or Signature on COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sufficient Sample Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other	
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
All containers needing preservation are found to be in compliance with EPA recommendation?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
(HNO ₃ H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide)	
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS	
(*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	
Headspace in Methyl Mercury Container?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
3 Trip Blanks Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A

CLIENT NOTIFICATION/RESOLUTION

 Person Contacted: _____
 Comments/Resolution: _____

Date/Time: _____

Project Manager Review: Anchea RichardsonDate: 12/13/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: CRLLine: 4
Page 4 of 20
Page 1 of 1

Page 6 of 20



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10678768

(To be completed by sending lab)

Sending Project No:	10678768
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	12/13/23
REQUESTED COMPLETION DATE:	1/15/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N		HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),MPCA EQuls (493)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.



ANALYTICAL REPORT

January 16, 2024

Pace Analytical - Minnesota

Sample Delivery Group: L1688321
Samples Received: 12/14/2023
Project Number: 10678768
Description: 31-0319 Otter Tail Power Co
Site: 001
Report To: Piper Gibbs

Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

ACCOUNT:
Pace Analytical - Minnesota

PROJECT:
10678768

SDG:
L1688321

DATE/TIME:
01/16/24 14:28

PAGE:
1 of 13

Page 8 of 20

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23A10137-H11 L1688321-02	6	⁴ Cn
23A10137-H12 L1688321-03	7	⁵ Sr
Qc: Quality Control Summary	8	⁶ Qc
Radiochemistry by Method 904/9320	8	
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Sc: Sample Chain of Custody	12	⁹ Sc

SAMPLE SUMMARY

23A10137-H10 L1688321-01 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2196101	1	12/27/23 17:05	12/30/23 16:21	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2199148	1	01/03/24 09:35	01/04/24 18:47	ZRG	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

12/11/23 11:56
12/14/23 09:00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

23A10137-H11 L1688321-02 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2196101	1	12/27/23 17:05	12/30/23 16:21	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2199148	1	01/03/24 09:35	01/04/24 18:47	ZRG	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

12/11/23 11:27
12/14/23 09:00

23A10137-H12 L1688321-03 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2196101	1	12/27/23 17:05	12/30/23 16:21	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2199148	1	01/03/24 09:35	01/04/24 18:47	ZRG	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

12/11/23 10:49
12/14/23 09:00

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ GI

⁸ AI

⁹ Sc

23A10137-H10

Collected date/time: 12/11/23 11:56

SAMPLE RESULTS - 01

L1688321

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.840		0.251		0.444		12/30/2023 16:21	WG2196101
(T) Barium	92.6					30.0-143	12/30/2023 16:21	WG2196101
(T) Yttrium	120					30.0-136	12/30/2023 16:21	WG2196101

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.986		0.401	0.176	0.234	0.178	01/04/2024 18:47	WG2199148
(T) Barium-133	84.7					30.0-143	01/04/2024 18:47	WG2199148

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

23A10137-H11

SAMPLE RESULTS - 02

Collected date/time: 12/11/23 11:27

L1688321

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.128	<u>U</u>	0.262		0.486		12/30/2023 16:21	WG2196101
(T) Barium	93.5					30.0-143	12/30/2023 16:21	WG2196101
(T) Yttrium	103					30.0-136	12/30/2023 16:21	WG2196101

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.267	<u>J</u>	0.384	0.113	0.559	0.367	01/04/2024 18:47	WG2199148
(T) Barium-133	65.8					30.0-143	01/04/2024 18:47	WG2199148

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc

23A10137-H12

SAMPLE RESULTS - 03

Collected date/time: 12/11/23 10:49

L1688321

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.947		0.196		0.333		12/30/2023 16:21	WG2196101
(T) Barium	102					30.0-143	12/30/2023 16:21	WG2196101
(T) Yttrium	106					30.0-136	12/30/2023 16:21	WG2196101

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.0839	U	0.180	0.0797	0.299	0.207	01/04/2024 18:47	WG2199148
(T) Barium-133	109					30.0-143	01/04/2024 18:47	WG2199148

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG2196101

Radiochemistry by Method 904/9320

QUALITY CONTROL SUMMARY

L1688321-01,02,03

Method Blank (MB)

(MB) R4019877-1 12/30/23 16:21

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0979	<u>U</u>	0.180	0.162	
(T) Barium	113		113		
(T) Yttrium	103		103		

L1688114-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1688114-01 12/30/23 16:21 • (DUP) R4019877-5 12/30/23 16:21

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.798	0.244	0.417		0.0890	0.271	0.509		160	1.95	<u>U</u>	20	3
(T) Barium	106				108	108							
(T) Yttrium	108				103	103							

Laboratory Control Sample (LCS)

(LCS) R4019877-2 12/30/23 16:21

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.11	102	80.0-120	
(T) Barium			101		
(T) Yttrium			109		

L1688304-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1688304-01 12/30/23 16:21 • (MS) R4019877-3 12/30/23 16:21 • (MSD) R4019877-4 12/30/23 16:21

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	10.0	0.0867	10.5	11.0	104	109	1	70.0-130			4.56		20
(T) Barium		99.4			97.6	99.8							
(T) Yttrium		107			109	104							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG2199148

Radiochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY

L1688321-01,02,03

Method Blank (MB)

(MB) R4022154-1 01/04/24 18:47

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0165	U	0.0675	0.116	0.0755
(T) Barium-133	72.0		72.0		

L1688841-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1688841-02 01/04/24 18:47 • (DUP) R4022154-5 01/04/24 18:47

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	3.09	0.682	0.332	0.221	2.57	0.669	0.314	0.222	18.3	0.541		20	3
(T) Barium-133	89.3				82.9	82.9							

Laboratory Control Sample (LCS)

(LCS) R4022154-2 01/04/24 18:47

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.27	105	80.0-120	
(T) Barium-133			73.8		

L1688321-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1688321-03 01/04/24 18:47 • (MS) R4022154-3 01/04/24 18:47 • (MSD) R4022154-4 01/04/24 18:47

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.0839	22.6	20.4	112	101	1	75.0-125			10.3		20
(T) Barium-133		109			91.7	96.2							

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER LABORATORY WORK ORDER # 10678768
(To be completed by sending lab)

44688321

Page 20 of 20

Sending Project No.	10678768
Receiving Project No.	
Check Box for Consolidated Invoice	<input type="checkbox"/>
Date Prepared	12/13/23
REQUESTED COMPLETION DATE	1/15/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED						
Method Description	Container Type	Quantity of Containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N		HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),MPCA EQuls (493)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

1126 North Front Street New Ulm, MN 56003
Phone: 800 782 3557 Fax: 507 359 2890

This is an exact copy of
the original document

By AS Date 17 Dec 23

pages 1-7

Project Otter Tail Power Company	Project Type: Big Stone Plant CCR	Name of Samplers: Bwids
Report Otter Tail Power Company	Carbon Copy: Barr Engineering	Quote Number:
Attn: Paul Vukonich	Attn:	Work Order Number: 31-319
Address P.O. Box 496	Address:	Lab Numbers:
Fergus Falls, MN 56538-0496		
Phone: 218-739-8349		

Phone: 210-755-6545

Sample Information					Bottle Type										Analysis				
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	1000 HNO3 Inner Mountain	500 None	1000 none	500 HNO3	Filter? Y or N	500 H2SO4	Filter? Y or N	1000 HNO3 Pace	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
A1037	H10		110-023	1156	GW				1	1	N			2					CCR 3&4
38	H11		↓	1127	GW				1	1	N			2					CCR 3&4
39	H12		↓	1049	GW				1	1	N			2					CCR 3&4

Comments:

Samples Relinquished By: <u>Born W/M</u>			Samples Received By: <u>A. Kieder</u>		
Date: <u>11 Dec 23</u>	Time: <u>1425</u>	Temp: <u>2.1 TMH</u>	Date: <u>11 Dec 23</u>	Time: <u>1425</u>	Temp: <u>2.1C</u>
Samples Relinquished into: <u>Fridge</u> <u>log in Cart</u> Other:					
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: <u>Samplers</u> Other:			Seal Number(s) - If Used		
Transport: <u>Ambient</u> <u>(ice)</u>	Other:		Seals Intact? <u>Yes</u> <u>No</u>		

Dec 11th
Jeff Hoffman

From: Hollen, Josh <jhollen@otpc.com>
Sent: Friday, December 1, 2023 2:48 PM
To: Jeff Hoffman
Subject: Big Stone sampling - Dec 11th

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Jeff,

Are we still on for the 11th of Dec. at Big Stone? That's the date I have on my sheet.

It would be CCR background (CCR 3 and CCR 4) for monitoring wells H10, H11, and H12.

It would be State of SD background for monitoring well H12.



Josh Hollen

Environmental Compliance Specialist
Environmental Services Dept.

Phone: (218) 739-8314

otpc.com



CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters**Method**

Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
pH	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97

Note: These are non-filtered samples.

4

CCR - Appendix IV - Assessment Monitoring

Total Concentration Parameters

	Method
Antimony	SW6020A
Arsenic	SW602A
Barium	SW6010C
Beryllium	SW6020A
Cadmium	SW6020A
Chromium, Total	SW6020A
Cobalt	SW6010C
Fluoride	EPA 300
Lead	SW6020A
Lithium	SW6010C
Mercury	EPA 245.7
Molybdenum	SW6020A
Selenium	SW6020A
Thallium	SW6020A
Radium 226 + 228	

Note: These are non-filtered samples.

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW
DS

Site:

Otter Tail Power Co./ Big Stone

Facility ID:

Date: 11 Dec 23

Unique Station ID:

Sample ID:

H10

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? ☐ Yes ☒ No

State ID Tag? ☐ Yes ☒ No

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 38.53

Constructed Depth: —

Casing Diameter: 2"

Water Level Before Purge: 13.32

Well Volume: 4.11 Gallons

Well Casing Elevation: 1090.83

Static Water Elevation: 1077.51

Previous Static: —

Water Level After Sample: Below pump

Measurement Method: Elec. WLI

Steel Tape

Sampling Information

Weather Conditions: Temp: 25

Wind: NE5

Sky: Fair

Sampling Method: Grundfos

Bladder S&T

Disp. Bailer

Whale

Grab Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate:

25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began

1134

6:21 pm

Time Purged Dry? 1151

Time of Sampling:

1156

6:21 pm

Duplicate Sample? ☐ Yes ☒ No

ID: —

Sample EH:

136.0

Sample Appearance: General: clear

Color: none

Phase: none

Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1151	6.85	5025	8.76	NA	NA	4.25	1	
							2	
1156	6.87	5013	8.79	I	I	—	3	Recharge
							4	
							5	

Stabiliz Yes

☒ No

Amount Water Removed:

4.25

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW
NS

Site:

Otter Tail Power Co./ Big Stone

Facility ID:

Date: 11 Dec 23

Unique Station ID:

Sample ID: H11

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? Yes ☒ No ☐

State ID Tag? Yes ☒ No ☐

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 44.32

Constructed Depth: —

Casing Diameter: 2"

Water Level Before Purge: 12.76

Well Volume: 4.99 Gallons

Well Casing Elevation: 1093.24

Static Water Elevation: 1079.48

Previous Static: —

Water Level After Sample: 39.07

Measurement Method: ☒ Elec. WLI ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 25

Wind: NE S

Sky: Fair

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other: ☐

Dedicated Equipment: Yes ☒ No ☐

Pumping Rate: 25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began 1102 am/pm

Time Purged Dry? 1122

Time of Sampling: 1127 am/pm

Duplicate Sample? Yes ☒ No ☐

ID: —

Sample EH: 131.9

Sample Appearance: General: Clear

Color: Not

Phase: Not

Odor: Not

20 Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1122	6.63	4246	8.65	NA	NA	5	1	
							2	
1127	6.78	4267	8.48	—	—	—	3	Recharge
							4	
							5	

Stabiliz Yes ☒ No ☐

Amount Water Removed: 5

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

DS

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 11 Dec 23

Unique Station ID:

Sample ID: H12

Well Condition

Well Locked? Yes ☒ No ☐
Well Labeled? Yes ☒ No ☐
Casing Straight? Yes ☒ No ☐

Protective Posts? Yes ☒ No ☐
State ID Tag? Yes ☒ No ☐
Grout Seal Intact? Yes ☒ No ☐

Repairs Necessary:

Well Information

Well Depth: 22.63

Constructed Depth: 24.00

Casing Diameter: 2"

Water Level Before Purge: 18.68

Well Volume: 64 Gallons

Well Casing Elevation: NA

Static Water Elevation:

Previous Static:

Water Level After Sample: 19.02

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 25 Wind: NE5 Sky: Fair

Sampling Method: Grundfos Bladder SS/ Disp. Bailer Whale Grab Other:

Indicated Equipment: Yes ☒ No ☐

Pumping Rate: 25 gpm

Well Purged Dry? Yes ☒ No ☐

Time Pump Began: 1040 am / pm

Time Purged Dry:

Time of Sampling: 1049 am / pm

Duplicate Sample? Yes ☒ No ☐

Sample EH: 107-5

Sample Appearance: General: Clear Color: NOD Phase: NOD Odor: NOD

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1043	7.93	302	10.51	NA	NA	.75	1	
1046	7.96	299	10.58	I	I	1.50	2	
1049	7.98	298	10.59	I	I	2.25	3	
							4	
							5	

Stabilized? Yes ☒ No ☐

Amount Water Removed: 2.25 Gallons

Comments:

Exceptions to Protocol:



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FINAL REPORT COMPLETION DATE: 22 Apr 24 AH

Date Reported: 18 Apr 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 31-0022
Account #: 006106
PO #: 108267

Project Name: BIG STONE PLANT - STATE CCR

Josh Hollen 19 Apr 24
Field Service Manager/Date Reviewed
[Signature] 18 Apr 24
Chemistry Lab Manager/Date Reviewed
[Signature] 18 Apr 24
Quality Assurance Director/Date Reviewed

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

All data for this report has been approved by MVTL Laboratory Management.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A352
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:40
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: WELL 10

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	47.01	feet	NA	Field	19 Feb 24 12:40	BMW
Water Level Before Purge	16.34	feet	NA	NA	19 Feb 24 12:40	BMW
Static Elevation, Field	1082.36	ft	NA	Field	19 Feb 24 12:40	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A353
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:36
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: WELL 11

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	127.22	feet	NA	Field	19 Feb 24 12:36	BMW
Water Level Before Purge	96.12	feet	NA	NA	19 Feb 24 12:36	BMW
Static Elevation, Field	1007.88	ft	NA	Field	19 Feb 24 12:36	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A354
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:31
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: WELL 12

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	112.40	feet	NA	Field	19 Feb 24 12:31	BMW
Water Level Before Purge	65.11	feet	NA	NA	19 Feb 24 12:31	BMW
Static Elevation, Field	1006.78	ft	NA	Field	19 Feb 24 12:31	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MEMBER
ACIL

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A358
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:03
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H20X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	32.83	feet	NA	Field	19 Feb 24 12:03	BMW
Water Level Before Purge	8.89	feet	NA	NA	19 Feb 24 12:03	BMW
Static Elevation, Field	1094.97	ft	NA	Field	19 Feb 24 12:03	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix
! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A359
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:02
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H2INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	62.45	feet	NA	Field	19 Feb 24 12:02	BMW
Water Level Before Purge	61.44	feet	NA	NA	19 Feb 24 12:02	BMW
Static Elevation, Field	1042.47	ft	NA	Field	19 Feb 24 12:02	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix
! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A361
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 11:52
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H3INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	54.42	feet	NA	Field	19 Feb 24 11:52	BMW
Water Level Before Purge	26.19	feet	NA	NA	19 Feb 24 11:52	BMW
Static Elevation, Field	1068.98	ft	NA	Field	19 Feb 24 11:52	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix
! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A362
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 11:45
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H40X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	27.48	feet	NA	Field	19 Feb 24 11:45	BMW
Water Level Before Purge	16.66	feet	NA	NA	19 Feb 24 11:45	BMW
Static Elevation, Field	1091.59	ft	NA	Field	19 Feb 24 11:45	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix
! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A363
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 11:47
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H4INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	60.10	feet	NA	Field	19 Feb 24 11:47	BMW
Water Level Before Purge	16.10	feet	NA	NA	19 Feb 24 11:47	BMW
Static Elevation, Field	1092.51	ft	NA	Field	19 Feb 24 11:47	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix
! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A364
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:50
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H5

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	44.90	feet	NA	Field	19 Feb 24 12:50	BMW
Water Level Before Purge	10.63	feet	NA	NA	19 Feb 24 12:50	BMW
Static Elevation, Field	1112.17	ft	NA	Field	19 Feb 24 12:50	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A365
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:20
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H6

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	17.92	feet	NA	Field	19 Feb 24 12:20	BMW
Water Level Before Purge	12.14	feet	NA	NA	19 Feb 24 12:20	BMW
Static Elevation, Field	1085.62	ft	NA	Field	19 Feb 24 12:20	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A366
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:12
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H7

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	35.60	feet	NA	Field	19 Feb 24 12:12	BMW
Water Level Before Purge	21.72	feet	NA	NA	19 Feb 24 12:12	BMW
Static Elevation, Field	1084.34	ft	NA	Field	19 Feb 24 12:12	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

0 = Due to sample matrix

1 = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A369
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:08
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - STATE

Sample Description: H9

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	30.71	feet	NA	Field	19 Feb 24 12:08	BMW
Water Level Before Purge	8.55	feet	NA	NA	19 Feb 24 12:08	BMW
Static Elevation, Field	1077.66	ft	NA	Field	19 Feb 24 12:08	BMW

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A370
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 13:13
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - CCR

Sample Description: H10

Temp at Receipt: 0.8C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					21 Feb 24	JN
Water Digestions:					21 Feb 24	JN
pH, Field	6.95	units	1.00	SM4500-H+-2011	19 Feb 24 13:13	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	20 Feb 24 13:40	KFL
Radium 226	0.72	pCi/L	0.60		6 Mar 24 10:44	OL
Radium 228	0.47	pCi/L	3.00	EPA M9320	15 Mar 24 23:27	OL
Sulfate	2310 ~	mg/L	5.0	ASTM D516-11	22 Feb 24 8:02	LNK
Chloride	6.7	mg/L	3.0	SM 4500 Cl E	22 Feb 24 8:33	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	20 Feb 24 13:16	RMB
	See Narrative					
Solids, Total Dissolved	5100	mg/L	10	SM 2540 C-97	22 Feb 24 10:55	MDH
Calcium	499.0 ~	mg/L	0.500	SW6010D	22 Feb 24 13:14	KAM
Lithium	0.295	mg/L	0.020	SW6010D	26 Feb 24 12:13	TMM
Barium	0.023	mg/L	0.005	SW6010D	22 Feb 24 13:14	KAM
Chromium	< 0.01	mg/L	0.01	SW6010D	26 Feb 24 12:13	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	22 Feb 24 13:14	KAM
Boron	0.359	mg/L	0.100	SW6010D	22 Feb 24 13:14	KAM
Antimony	< 1 @	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Arsenic	< 1 @	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Beryllium	< 0.1 @	ug/L	0.05	SW6020B	22 Feb 24 12:15	SS
Cadmium	< 0.2 @	ug/L	0.1	SW6020B	22 Feb 24 12:15	SS
Lead	< 2.5 @	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Molybdenum	13.3 @	ug/L	0.50	SW6020B	22 Feb 24 12:15	SS
Selenium	4.65 @^	ug/L	0.50	SW6020B	22 Feb 24 12:15	SS
Thallium	< 0.5 @	ug/L	0.1	SW6020B	22 Feb 24 12:15	SS
Fluoride	0.240	mg/L	0.020	EPA 300.0	21 Feb 24 16:16	MDH

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A370
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 13:13
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - CCR

Sample Description: H10

Temp at Receipt: 0.8C

As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
-----------------------	--------------	---------------------	------------------	---------

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

^ The reporting limit (RL) was elevated due to instrument performance at the lower limit of quantitation (LLOQ). This will only impact results that are found to be below the elevated RL. Results above the elevated RL are unaffected.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix	# = Due to concentration of other analytes
! = Due to sample quantity	+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A371
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:46
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - CCR

Sample Description: H11

Temp at Receipt: 0.8C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					21 Feb 24	JN
Water Digestions					21 Feb 24	JN
pH, Field	6.71	units	1.00	SM4500-H+-2011	19 Feb 24 12:46	DS
pH	* 6.8	units	1.0	SM 4500 H+ B-2000	20 Feb 24 13:40	KFL
Radium 226	0.26	pCi/L	0.60		6 Mar 24 10:44	OL
Radium 228	-0.42	pCi/L	3.00	EPA M9320	15 Mar 24 23:27	OL
Sulfate	2500 ~	mg/L	5.0	ASTM D516-11	22 Feb 24 8:02	LNK
Chloride	3.9	mg/L	3.0	SM 4500 Cl E	22 Feb 24 8:33	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	20 Feb 24 13:16	RMB
	See Narrative					
Solids, Total Dissolved	4240	mg/L	10	SM 2540 C-97	22 Feb 24 10:55	MDH
Calcium	552.0 ~	mg/L	0.500	SW6010D	22 Feb 24 13:14	KAM
Lithium	0.326	mg/L	0.020	SW6010D	26 Feb 24 12:13	TMM
Barium	0.030	mg/L	0.005	SW6010D	22 Feb 24 13:14	KAM
Chromium	< 0.01	mg/L	0.01	SW6010D	26 Feb 24 12:13	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	22 Feb 24 13:14	KAM
Boron	0.263	mg/L	0.100	SW6010D	22 Feb 24 13:14	KAM
Antimony	< 1 @	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Arsenic	< 1 @	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Beryllium	< 0.1 @	ug/L	0.05	SW6020B	22 Feb 24 12:15	SS
Cadmium	< 0.2 @	ug/L	0.1	SW6020B	22 Feb 24 12:15	SS
Lead	< 1 @	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Molybdenum	2.14 @	ug/L	0.50	SW6020B	22 Feb 24 12:15	SS
Selenium	< 2 @^	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Thallium	< 0.2 @	ug/L	0.1	SW6020B	22 Feb 24 12:15	SS
Fluoride	0.160	mg/L	0.020	EPA 300.0	21 Feb 24 16:16	MDH

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A371
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:46
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - CCR

Sample Description: H11

Temp at Receipt: 0.8C

As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
-----------------------	--------------	---------------------	------------------	---------

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

^ The reporting limit (RL) was elevated due to instrument performance at the lower limit of quantitation (LLOQ). This will only impact results that are found to be below the elevated RL. Results above the elevated RL are unaffected.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

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! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 18 Apr 2024
Lab Number: 24-A372
Work Order #: 31-0022
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 19 Feb 2024 12:09
Sampled By: MVTL FIELD PERSONNEL
Date Received: 19 Feb 2024 16:05
PO #: 108267

Project Name: BIG STONE PLANT - CCR

Sample Description: H12

Temp at Receipt: 0.8C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					21 Feb 24	JN
Water Digestions					21 Feb 24	JN
pH, Field	8.00	units	1.00	SM4500-H+-2011	19 Feb 24 12:09	DS
pH	* 7.9	units	1.0	SM 4500 H+ B-2000	20 Feb 24 13:40	KFL
Radium 226	-0.01	pCi/L	0.60		6 Mar 24 10:44	OL
Radium 228	0.71	pCi/L	3.00	EPA M9320	15 Mar 24 23:27	OL
Sulfate	7.1	mg/L	5.0	ASTM D516-11	22 Feb 24 8:02	LNK
Chloride	< 3	mg/L	3	SM 4500 Cl E	22 Feb 24 8:33	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	20 Feb 24 13:16	RMB
	See Narrative					
Solids, Total Dissolved	159	mg/L	10	SM 2540 C-97	22 Feb 24 10:55	MDH
Calcium	23.00	mg/L	0.500	SW6010D	22 Feb 24 13:14	KAM
Lithium	< 0.02	mg/L	0.02	SW6010D	26 Feb 24 12:13	TMM
Barium	0.045	mg/L	0.005	SW6010D	22 Feb 24 13:14	KAM
Chromium	< 0.01	mg/L	0.01	SW6010D	26 Feb 24 12:13	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	22 Feb 24 13:14	KAM
Boron	0.392	mg/L	0.100	SW6010D	22 Feb 24 13:14	KAM
Antimony	< 0.5	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Arsenic	1.87	ug/L	0.50	SW6020B	22 Feb 24 12:15	SS
Beryllium	< 0.05	ug/L	0.05	SW6020B	22 Feb 24 12:15	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	22 Feb 24 12:15	SS
Lead	0.81	ug/L	0.50	SW6020B	22 Feb 24 12:15	SS
Molybdenum	38.2	ug/L	0.50	SW6020B	22 Feb 24 12:15	SS
Selenium	< 1 ^	ug/L	0.5	SW6020B	22 Feb 24 12:15	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	22 Feb 24 12:15	SS
Fluoride	0.320	mg/L	0.020	EPA 300.0	21 Feb 24 16:16	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

^ The reporting limit (RL) was elevated due to instrument performance at the lower limit of quantitation (LLOQ). This will only impact results that are found to be below the elevated RL. Results above the elevated RL are unaffected.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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Date Reported: 18 Apr 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202431-0022
Account Number: 006106
PO #: 108267

Project Name: BIG STONE PLANT - CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

The percent recovery of mercury was above the acceptable range in the matrix spike and matrix spike duplicate for samples 24-A370 through 23-A372. Since the spikes failed high, results below the reporting limit were reported.

No other problems were encountered with these analyses.

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Page: 1 of 1

Quality Control Report

Lab IDs: 24-A370 to 24-A372

Project: BIG STONE PLANT - CCR

Work Order: 202431-0022

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	104	85-115	25.0	41150001qc	< 0.5	26.5	106	75-125	26.5	27.1	108	2.2	10	98	90-110	< 0.5
Arsenic ug/L	25.0	105	85-115	25.0	41150001qc	1.35	29.0	111	75-125	29.0	29.2	111	0.7	10	102	90-110	< 0.5
Barium mg/L	1.000	100	85-115	1.00	24A351dissq	0.029	1.060	103	75-125	1.060	1.040	101	1.9	10	99	90-110	< 0.005
Beryllium ug/L	2.50	102	85-115	2.50	41150001qc	< 0.05	2.46	98	75-125	2.46	2.38	95	3.3	10	100	90-110	< 0.05
Boron mg/L	1.000	104	85-115	1.00	24A351dissq	0.392	1.480	109	75-125	1.480	1.480	109	0.0	10	99	90-110	< 0.1
Cadmium ug/L	5.00	106	85-115	5.00	41150001qc	< 0.1	5.22	104	75-125	5.22	5.35	107	2.5	10	99	90-110	< 0.1
Calcium mg/L	50.00	103	85-115	50.0	24A351dissq	20.40	73.10	105	75-125	73.10	72.20	104	1.2	10	104	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	24-A372	< 3	62.1	104	80-120	62.1	60.8	101	2.1	10	96	90-110	< 3
Chromium mg/L	1.000	98	85-115	1.00	24-A351qc	< 0.01	0.984	98	75-125	0.984	0.975	98	0.9	10	100	90-110	< 0.01
Cobalt mg/L	1.000	102	85-115	1.00	24A351dissq	< 0.005	1.010	101	75-125	1.010	1.010	101	0.0	10	100	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00	41044001	< 0.1	1.03	103	80-120	1.03	1.05	105	1.9	10	102	90-110	< 0.02
Lead ug/L	25.0	101	85-115	25.0	41150001qc	< 0.5	26.3	105	75-125	26.3	26.6	106	1.1	10	102	90-110	< 0.5
Lithium mg/L	1.000	98	90-110	1.00	24-A351qc	< 0.02	0.978	98	90-110	0.978	0.971	97	0.7	10	100	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	24-A372	< 0.005	0.114	114	63-111	0.114	0.114	114	0.0	18	98	76-113	< 0.005
Molybdenum ug/L	25.0	100	85-115	25.0	41150001qc	9.91	36.6	107	75-125	36.6	37.8	112	3.2	10	99	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.9	8.0	-	1.3	2.5	101	90-110	-
Selenium ug/L	25.0	105	85-115	25.0	41150001qc	< 1	28.4	114	75-125	28.4	28.7	115	1.1	10	99	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	5100	4970	-	2.6	7	101	85-115	< 10
Sulfate mg/L	-	-	-	50.0	24-A372	7.1	48.9	84	80-120	48.9	49.6	85	1.4	10	104	80-120	< 5
Thallium ug/L	5.00	101	85-115	5.00	41150001qc	< 0.1	5.41	108	75-125	5.41	5.43	109	0.4	10	102	90-110	< 0.1

Mercury matrix spikes recoveries were outside of acceptance limits, see narrative.

Approved by:





Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

April 05, 2024

Todd Rieger
MVTL Laboratories
1126 North Front Street
New Ulm, MN 56073

RE: Project: 31-0022 Ottertail Power Co.
Pace Project No.: 10684495

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on February 21, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Piper Gibbs".

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-1700
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 31-0022 Ottertail Power Co.
Pace Project No.: 10684495

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10684495001	24A370 - H10	Water	02/19/24 13:13	02/21/24 10:43
10684495002	24A371 - H11	Water	02/19/24 12:46	02/21/24 10:43
10684495003	24A372 - H12	Water	02/19/24 12:09	02/21/24 10:43

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: **MVTL**

Address: **1126 NORTH FRONT BLDG #2**

NEW ULM, MN 56073

Email To: **alieder@mvtl.com**

Phone: **507-233-7134** Fax:

Requested Due Date/TAT: **standard**

Required Project Information:

Report To: **Todd Rieger**

Copy To: **trieger@mvtl.com**

Purchase Order No.: **CL13299**

Project Name: **Ottertail Power Co**

Project Number: **Work Order: 31-0022**

Section C

Invoice Information:

Attention: **AP**

Company Name: **MVTL**

Address: **1126 NORTH FRONT BLDG 2**

Pace Quote Reference:

Pace Project Manager:

Pace Profile #:

Page: **1** of **1**

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE: **MN**

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓	Requested Analysis Method (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	2,3,7,8 TCDD method161	Radium 226/228		PFAs State Pricing	Dioxins/Furans																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
<i>Handwritten signature</i>	<i>21 Feb 24</i>			<i>Handwritten signature</i>	<i>2-21-24</i>	<i>1043</i>	<i>1.7</i>	<i>Y</i>	<i>N</i>	<i>Y</i>

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

ENV-FRM-MIN4-0150 v15_Sample Condition Upon Receipt

 CLIENT NAME: MVTL

PROJECT #:

WO#: 10684495

 COURIER: ☒ Client ☐ Commercial ☐ FedEx ☐ Pace
☐ SpeedDee ☐ UPS ☐ USPS

PM: PG Due Date: 03/21/24

CLIENT: MVTL

 TRACKING NUMBER: ☐ See Exceptions form ENV-FRM-MIN4-0142

 Custody Seal on Coole/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
 Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
 Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☒ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate in West Virginia: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Were All Container Temps taken: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
Correction Factor: <u>-0.1</u> Cooler Temp Read w/Temp Blank: <u>1.8</u> °C	Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: <u>1.7</u> °C	<input type="checkbox"/> See Exceptions Form ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: <input checked="" type="checkbox"/> N/A - (Water) Sample/Other (describe): _____	Initials & Date of Person Examining Contents: <u>EC2-2/24</u>
Did Samples originate from one of the following states (check maps) - AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: <input type="checkbox"/> YES <input type="checkbox"/> NO	Did samples originate from a foreign source (International, including Hawaii and Puerto Rico): <input type="checkbox"/> YES <input type="checkbox"/> NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): <input type="checkbox"/> DULUTH <input checked="" type="checkbox"/> MINNEAPOLIS <input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		1.								
Chain of Custody Relinquished?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		2.								
Sampler Name and/or Signature on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.								
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No								
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____								
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		6.								
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		7.								
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.								
- Pace Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		9.								
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11.	<input checked="" type="checkbox"/>	<input type="checkbox"/>		11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other												
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <u>901-003</u> <input checked="" type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO pH Paper Lot # <table border="1"> <tr> <td>Residual Chlorine</td> <td>0-6 Roll</td> <td>0-6 Strip</td> <td>0-14 Strip</td> </tr> <tr> <td></td> <td>213923</td> <td></td> <td></td> </tr> </table>	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip		213923		
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip									
	213923											
NOTE: If adding preservative to a container, it must be added to associated field and equipment blanks—verify with PM first.				<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.								
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.								
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
Trip Blanks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.								
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION

 FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

 Project Manager Review: Piper J. Gabelas

 Date: 2/21/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

 Labeled By: EC Line: 2



ANALYTICAL REPORT

March 22, 2024

Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Pace Analytical - Minnesota

Sample Delivery Group: L1708270
Samples Received: 02/22/2024
Project Number: 10684495
Description: 31-0022 Ottertail Power Co.
Site: 001
Report To: Piper Gibbs
1700 Elm Street Suite 200
Minneapolis, MN 55414

Entire Report Reviewed By:

Haley Torrence

Haley Torrence
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

ACCOUNT:
Pace Analytical - Minnesota

PROJECT:
10684495

SDG:
L1708270

DATE/TIME:
03/22/24 14:58

PAGE:
1 of 13

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24A371-H11 L1708270-02	6	⁴ Cn
24A372-H12 L1708270-03	7	⁵ Sr
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SAMPLE SUMMARY

24A370-H10 L1708270-01 Non-Potable Water

Collected by: Collected date/time: 02/19/24 13:13 Received date/time: 02/22/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2240337	1	03/06/24 18:38	03/15/24 23:27	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2237432	1	03/04/24 09:48	03/06/24 10:44	ZRG	Mt. Juliet, TN

24A371-H11 L1708270-02 Non-Potable Water

Collected by: Collected date/time: 02/19/24 12:46 Received date/time: 02/22/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2240337	1	03/06/24 18:38	03/15/24 23:27	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2237432	1	03/04/24 09:48	03/06/24 10:44	ZRG	Mt. Juliet, TN

24A372-H12 L1708270-03 Non-Potable Water

Collected by: Collected date/time: 02/19/24 12:09 Received date/time: 02/22/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2240337	1	03/06/24 18:38	03/15/24 23:27	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2237432	1	03/04/24 09:48	03/06/24 10:44	ZRG	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

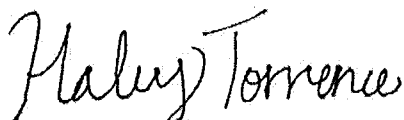
7 Gl

8 Al

9 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Haley Torrence
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ GI

⁸ AI

⁹ Sc

24A370-H10

SAMPLE RESULTS - 01

Collected date/time: 02/19/24 13:13

L1708270

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.467		0.197	1.15	0.358	0.190	03/15/2024 23:27	WG2240337
(T) Barium	138					30.0-143	03/15/2024 23:27	WG2240337
(T) Yttrium	94.8					30.0-136	03/15/2024 23:27	WG2240337

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.719		0.380	0.169	0.342	0.235	03/06/2024 10:44	WG2237432
(T) Barium-133	89.7					30.0-143	03/06/2024 10:44	WG2237432

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

24A371-H11

SAMPLE RESULTS - 02

Collected date/time: 02/19/24 12:46

L1708270

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.421	<u>U</u>	0.381	2.03	0.733	0.382	03/15/2024 23:27	WG2240337
(T) Barium	122					30.0-143	03/15/2024 23:27	WG2240337
(T) Yttrium	92.8					30.0-136	03/15/2024 23:27	WG2240337

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.260	<u>J</u>	0.264	0.104	0.337	0.238	03/06/2024 10:44	WG2237432
(T) Barium-133	82.5					30.0-143	03/06/2024 10:44	WG2237432

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

24A372-H12

SAMPLE RESULTS - 03

Collected date/time: 02/19/24 12:09

L1708270

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.710		0.274	1.26	0.496	0.263	03/15/2024 23:27	WG2240337
(T) Barium	135					30.0-143	03/15/2024 23:27	WG2240337
(T) Yttrium	115					30.0-136	03/15/2024 23:27	WG2240337

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	-0.00784	U	0.114	0.0426	0.273	0.195	03/06/2024 10:44	WG2237432
(T) Barium-133	97.6					30.0-143	03/06/2024 10:44	WG2237432

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 AI

9 Sc

WG2240337

QUALITY CONTROL SUMMARY

Radiochemistry by Method 904/9320

L1708270-01,02,03

Method Blank (MB)

(MB) R4047930-1 03/15/24 23:27

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0701	U	0.165	0.310	0.163
(T) Barium	104		104		
(T) Yttrium	104		104		

L1708671-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1708671-01 03/15/24 23:27 • (DUP) R4047930-5 03/15/24 23:27

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.78	0.314	0.534	0.282	2.55	0.298	0.466	0.248	35.8	1.79		20	3
(T) Barium	117				117	117							
(T) Yttrium	103				97.1	97.1							

Laboratory Control Sample (LCS)

(LCS) R4047930-2 03/15/24 23:27

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.83	96.6	80.0-120	
(T) Barium			137		
(T) Yttrium			109		

L1706901-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1706901-06 03/15/24 23:27 • (MS) R4047930-3 03/15/24 23:27 • (MSD) R4047930-4 03/15/24 23:27

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.136	16.2	16.6	96.9	99.5	1	70.0-130			2.62		20
(T) Barium		131			113	125							
(T) Yttrium		106			116	100							

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG2237432

QUALITY CONTROL SUMMARY

Radiochemistry by Method SM7500Ra B M

L1708270-01.02.03

Method Blank (MB)

(MB) R4046172-1 03/06/24 10:44

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0272	J	0.0381	0.0572	0.0373
(T) Barium-133	91.0		91.0		

L1707848-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1707848-02 03/06/24 10:44 • (DUP) R4046172-5 03/06/24 10:44

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.783	0.342	0.235	0.171	0.163	0.247	0.364	0.238	131	1.47	J	20	3
(T) Barium-133	91.9				81.4	81.4							

Laboratory Control Sample (LCS)

(LCS) R4046172-2 03/06/24 10:44

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.76	95.1	80.0-120	
(T) Barium-133			83.6		

L1707848-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1707848-05 03/06/24 10:44 • (MS) R4046172-3 03/06/24 10:44 • (MSD) R4046172-4 03/06/24 10:44

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.274	18.9	18.2	92.9	89.8	1	75.0-125			3.29		20
(T) Barium-133		89.2			84.9	82.1							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

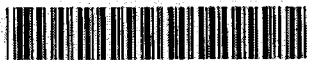
⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

B033



State Of Origin: MN

Cert. Needed: ☐ Yes ☐ No

Workorder Name: 31-0022 Ottertail Power Co.

Owner Received Date: 2/21/2024 **Results Requested By:** 3/21/2024

Report To		Subcontract To						Requested Analysis																		
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-1700		Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858						<div style="display: flex; justify-content: space-between;"> <div> Radium 226/228 C2 </div> <div> LAB USE ONLY 6708270 -01 -02 -03 </div> </div>																		
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers						X														
						HNO3																				
1	24A370 - H10	PS	2/19/2024 13:13	10684495001	Water	1							X													
2	24A371 - H11	PS	2/19/2024 12:46	10684495002	Water	1							X													
3	24A372 - H12	PS	2/19/2024 12:09	10684495003	Water	1							X													
4																										
5																										
Transfers													Comments													
Transfers	Released By		Date/Time	Received By		Date/Time																				
1	Bri Coen / PACE		2/19/24 16:00	C. R. W. W. W.		02-22-24 09:40																				
2																										
3																										
Cooler Temperature on Receipt		°C	Custody Seal		(Y) or N	Received on Ice		(Y) or N	Samples Intact (Y) or N																	

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the ow

6047656423110

PH-10BDH5021 TRC-2352352
CR6-202214

Sample Receipt Checklist

001 Seal Present/Intact:	Y N	If Applicable
002 Signed/Accurate:	Y N	VGA Zero Headspace: Y N
Bottles arrive intact:	Y N	Pres. Correct/Check: Y N
Correct bottles used:	Y N	
Sufficient volume sent:	Y N	
RA Screen <0.5 mV/hr:	Y N	

1.1 + 0 = 1.1 TL

$$1.1 + 0 = 1.1 \text{ TLA}^\circ$$



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10684495

(To be completed by sending lab)

Sending Project No:	10684495
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	02/21/24
REQUESTED COMPLETION DATE:	3/21/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N		HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☐ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

1126 North Front Street New Ulm, MN 56003
Phone: 800 782 3557 Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of
the original document

By AR Date 19 Feb 24
pages 1-8

Project Otter Tail Power Company	Project Type: Big Stone Plant CCR	Name of Samplers: DS SW
Report Otter Tail Power Company	Carbon Copy: Barr Engineering	
Attn: Paul Vukonich	Attn:	Quote Number:
Address P.O. Box 496	Address:	Work Order Number: 31-0022
Fergus Falls, MN 56538-0496		Lab Numbers:
Phone: 218-739-8349		

[illegible]

Comments:

Samples Relinquished By: <u>Paul J</u>			Samples Received By: <u>A. Lueder</u>		
Date: <u>19 Feb 24</u>	Time: <u>1605</u>	Temp: <u>0.87°C</u>	Date: <u>19 Feb 24</u>	Time: <u>1605</u>	Temp: <u>0.8°C</u>
Samples Relinquished into: <u>Fridge</u> Log in Cart Other:					
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: <u>Samplers</u> Other:			Seal Number(s) - If Used		
Transport: <u>Ambient</u> <u>(Ice)</u> Other:			Seals Intact? Yes No		

CCR - Appendix IV - Assessment Monitoring

Total Concentration Parameters

<i>Total Concentration Parameters</i>	Method
Antimony	SW6020A
Arsenic	SW602A
Barium	SW6010C
Beryllium	SW6020A
Cadmium	SW6020A
Chromium, Total	SW6020A
Cobalt	SW6010C
Fluoride	EPA 300
Lead	SW6020A
Lithium	SW6010C
Mercury	EPA 245.7
Molybdenum	SW6020A
Selenium	SW6020A
Thallium	SW6020A
Radium 226 + 228	

Note: These are non-filtered samples.

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

Method

Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
pH	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97

Note: These are non-filtered samples.

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW
DS

Site:

Otter Tail Power Co./ Big Stone

Facility ID:

Date: 19 Feb 24

Unique Station ID:

Sample ID:

H10

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? Yes ☒ No ☐

State ID Tag? ☒ Yes ☐ No

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 35.49

Constructed Depth: —

Casing Diameter: 2"

Water Level Before Purge: 14.98

Well Volume: 3.35 Gallons

Well Casing Elevation: 1090.83

Static Water Elevation: 1075.85

Previous Static: 1075.36

Water Level After Sample: 26.71

Measurement Method: ☒ Elec. WLI ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 33

Wind: NW10

Sky: cloudy

Sampling Method: Grundfos ☒ Bladder S/T

Disp. Bailer

Whale

Grab Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Begar 1254 am (pm)

Time Purged Dry? 1308

Time of Sampling: 1313 am (pm)

Duplicate Sample? Yes ☒ No

ID:

Sample EH: 111.1

Sample Appearance: General: Clear

Color: none

Phase: none

Odor: none

(14) Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1308	7.01	5064	8.16	NA	NA	3.5	1	
				I	I		2	
							3	
							4	
1313	6.95	4938	8.35	I	I	-	5	Recharge

Stabiliz Yes

☒ No

Amount Water Removed:

3.5

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site:

Otter Tail Power Co./ Big Stone

Facility ID:

Date:

19 Feb 74

Unique Station ID:

Sample ID:

H11

Well Condition

Well Locked? Yes ☒ No

Well Labeled? ☒ Yes No

Casing Straight? ☒ Yes No

Repairs Necessary:

Protective Posts? Yes ☒ No

State ID Tag? Yes ☒ No

Grout Seal Intact? ☒ Yes No

Well Information

Well Depth: 42.15

Constructed Depth: -

Casing Diameter: 2"

Water Level Before Purge: 10.63

Well Volume: 5.14 Gallons

Well Casing Elevation: 1093.24

Static Water Elevation: 1082.61

Previous Static: 1079.25

Water Level After Sample: 32.48

Measurement Method: ☒ Elec. WL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 34° Wind: SE @ 12 Sky: Mostly Cloudy

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment? ☒ Yes No

Pumping Rate: 0.25 gpm

Well Purged Dry? ☒ Yes No

Time Pump Began: 1220 am ☒ pm

Time Purged Dry: 1241

Time of Sampling: 1248 am ☒ pm

Duplicate Sample? Yes ☒ No

ID: -

Sample EH: 111.3

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1241	6.55	4289	8.08	0.71 MA	0.04 M	5.25	1	
							2	
							3	
							4	
1248	6.71	4302	7.24			-	5	recharge

Stabiliz Yes ☒ No

Amount Water Removed: 5.25 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

JS

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date:

19Feb24

Unique Station ID:

Sample ID:

H12

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Protective Posts? Yes ☒ No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 22.63

Constructed Depth: 24.00

Casing Diameter: 2"

Water Level Before Purge: 18.11

Well Volume: 0.74 Gallons

Well Casing Elevation: NA

Static Water Elevation:

Previous Static:

Water Level After Sample: 18.74

Measurement Method: ☒ Elec. WLI ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 34° Wind: SE@12 Sky: Mostly Cloudy

Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: Yes ☒ No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No

Time Pump Began: 1200 am ☒ pm

Time Purged Dry: -

Time of Sampling: 1209 am ☒ pm

Duplicate Sample? Yes ☒ No ID: -

Sample EH: 76.5

Sample Appearance: General: S/C cloudy Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1203	7.99	297	10.53	NA	NA	0.75	1	
1206	8.00	297	10.50	1	1	1.5	2	
1209	8.00	297	10.49	1	1	2.25	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 2.25 Gallons

Comments:

CCR + State

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

A352-A368

Groundwater Level Measurements

Sampling Personnel:

BW

Site:

Facility ID:

Date: 19 Feb 24

Well Number	Well 10	Well 11	Well 12	Well 1	H10X	H1INT	H20X
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	19 Feb 24						
Time	1240	1236	1231	1226	1216	1215	1203
Well Casing Elevation	1098.7	1104	1071.89	1090.71	1115.89	1115.81	1103.86
Depth to Water	16.34	96.12	65.11	64.65	25.01	25.54	8.89
Static Elevation	1082.36	1007.88	1006.78	1026.06	1090.88	1090.27	1094.97
Casing Diameter	4"	4"	4"	4"	2"	2"	2"
Well Depth	47.01	127.22	112.40	78.00	32.33	60.15	32.83
Well Volume	20.04	20.32	30.91	8.73	1.19	5.65	3.91
Well Locked	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Well Labeled	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Well Straight	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Protective Posts	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Grout Seal Intact	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Dedicated Equipment	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no

Well Number	H2INT	H30X	H3INT	H40X	H4INT	H5	H6
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	19 Feb 24						
Time	1202	1151	1152	1145	1147	1250	1226
Well Casing Elevation	1103.91	1095.26	1095.17	1108.25	1108.61	1122.8	1097.76
Depth to Water	61.44	5.74	26.19	16.66	16.10	10.63	12.14
Static Elevation	1042.47	1089.52	1068.98	1091.59	1092.51	1112.17	1085.62
Casing Diameter	2"	2"	2"	2"	2"	2"	2"
Well Depth	62.45	22.68	54.42	27.48	60.10	44.90	17.92
Well Volume	1.16	2.76	4.61	1.77	7.18	5.59	9.4
Well Locked	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Well Labeled	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Well Straight	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Protective Posts	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Grout Seal Intact	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Dedicated Equipment	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no

19 Feb 24

507 354 8517

Date: 19 Feb 24

[illegible]



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvttl.com



Page: 1 of 11

FINAL REPORT COMPLETION DATE: 20 Jun 24

Date Reported: 19 Jun 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 31-0050
Account #: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

Josh Hollen 20 June 24
Field Service Manager/Date Reviewed

[Signature] 19 June 24
Chemistry Lab Manager/Date Reviewed

[Signature] 19 June 2024
Quality Assurance Director/Date Reviewed

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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Page: 2 of 11

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A931
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 12:29
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H20X

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 24	JN
pH, Field	7.18	units	1.00	SM4500-H+-2011	15 Apr 24 12:29	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Sulfate	2230 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	4.1	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:32	KRM
Solids, Total Dissolved	3840	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	514.0 ~	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Boron	0.248	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Fluoride	0.350 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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Page: 3 of 11

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A932
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 10:39
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H30X

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 24	JN
pH, Field	6.88	units	1.00	SM4500-H+-2011	15 Apr 24 10:39	BMW
pH	* 7.3	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Sulfate	1380 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	63.6	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:32	KRM
Solids, Total Dissolved	3040	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	425.0 ~	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Boron	7.640 ~	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Fluoride	0.420 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
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www.mvttl.com



Page: 4 of 11

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A933
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 11:23
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H40X

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 24	JN
pH, Field	6.93	units	1.00	SM4500-H+-2011	15 Apr 24 11:23	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Sulfate	1070 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	40.8	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:32	KRM
Solids, Total Dissolved	2160	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	318.0	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Boron	0.572	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Fluoride	0.520 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A934
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 12:44
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H6

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 24	JN
pH, Field	7.24	units	1.00	SM4500-H+-2011	15 Apr 24 12:44	DGF
pH	* 7.5	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Sulfate	104	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	< 3	mg/L	3	SM 4500 Cl E	18 Apr 24 8:32	KRM
Solids, Total Dissolved	599	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	53.40	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Boron	2.400	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Fluoride	0.430 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

RL = Reporting Limit

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The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A935
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 13:27
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H8

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 24	JN
pH, Field	7.16	units	1.00	SM4500-H+-2011	15 Apr 24 13:27	DGF
pH	* 7.4	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Sulfate	245 @	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	3.7	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:32	KRM
Solids, Total Dissolved	951	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	119.0	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Boron	3.160	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Fluoride	0.530 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A936
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 14:22
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H9

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 24	JN
pH, Field	6.58	units	1.00	SM4500-H+-2011	15 Apr 24 14:22	DGF
pH	* 6.9	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Sulfate	1410 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	69.5	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:32	KRM
Solids, Total Dissolved	2820	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	615.0 ~	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Boron	1.290	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Fluoride	0.330 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A937
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 13:27
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H10

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					17 Apr 24	KAM
Water Digestions					16 Apr 24	JN
pH, Field	7.01	units	1.00	SM4500-H+-2011	15 Apr 24 13:27	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:18	JR
Radium 226	0.43	pCi/L	0.60		30 Apr 24 23:29	OL
Radium 228	-0.49	pCi/L	3.00	EPA M9320	14 May 24 16:50	OL
Sulfate	2930 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	6.7	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:32	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	24 Apr 24 10:55	RMB
	See Narrative					
Solids, Total Dissolved	4990	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	496.0 ~	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Lithium	0.321	mg/L	0.020	SW6010D	17 Apr 24 12:22	SS
Barium	0.023	mg/L	0.005	SW6010D	17 Apr 24 12:22	SS
Cobalt	< 0.005	mg/L	0.005	SW6010D	17 Apr 24 12:22	SS
Boron	0.369	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Antimony	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Arsenic	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Beryllium	< 0.25 @	ug/L	0.05	SW6020B	19 Apr 24 13:29	KAM
Cadmium	< 0.5 @	ug/L	0.1	SW6020B	19 Apr 24 13:29	KAM
Chromium	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Lead	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Molybdenum	17.6 @	ug/L	0.50	SW6020B	19 Apr 24 13:29	KAM
Selenium	3.60 @	ug/L	0.50	SW6020B	19 Apr 24 13:29	KAM
Thallium	< 0.5 @	ug/L	0.1	SW6020B	19 Apr 24 13:29	KAM
Fluoride	0.240 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A938
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 13:02
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					17 Apr 24	KAM
Water Digestions					16 Apr 24	JN
pH, Field	6.64	units	1.00	SM4500-H+-2011	15 Apr 24 13:02	BMW
pH	* 6.9	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:30	JR
Radium 226	0.12	pCi/L	0.60		30 Apr 24 23:29	OL
Radium 228	0.01	pCi/L	3.00	EPA M9320	14 May 24 16:50	OL
Sulfate	2280 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 8:11	LNK
Chloride	4.0	mg/L	3.0	SM 4500 Cl E	18 Apr 24 8:49	KRM
Mercury	0.005	ug/L	0.005	EPA 245.7	24 Apr 24 10:55	RMB
	See Narrative					
Solids, Total Dissolved	4660	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
	See Narrative					
Calcium	553.0 ~	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Lithium	0.332	mg/L	0.020	SW6010D	17 Apr 24 12:22	SS
Barium	0.028	mg/L	0.005	SW6010D	17 Apr 24 12:22	SS
Cobalt	< 0.005	mg/L	0.005	SW6010D	17 Apr 24 12:22	SS
Boron	0.261	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Antimony	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Arsenic	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Beryllium	< 0.25 @	ug/L	0.05	SW6020B	19 Apr 24 13:29	KAM
Cadmium	< 0.5 @	ug/L	0.1	SW6020B	19 Apr 24 13:29	KAM
Chromium	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Lead	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Molybdenum	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Selenium	< 2.5 @	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Thallium	< 0.5 @	ug/L	0.1	SW6020B	19 Apr 24 13:29	KAM
Fluoride	0.160 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

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! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 19 Jun 2024
Lab Number: 24-A939
Work Order #: 31-0050
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 15 Apr 2024 13:36
Sampled By: MVTL FIELD PERSONNEL
Date Received: 15 Apr 2024 17:00
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H12

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					17 Apr 24	KAM
Water Digestions					16 Apr 24	JN
pH, Field	8.21	units	1.00	SM4500-H+-2011	15 Apr 24 13:36	DS
pH	* 8.2	units	1.0	SM 4500 H+ B-2000	16 Apr 24 12:30	JR
Radium 226	0.10	pCi/L	0.60		30 Apr 24 23:29	OL
Radium 228	1.85	pCi/L	3.00	EPA M9320	17 May 24 17:37	OL
Sulfate	485 ~	mg/L	5.0	ASTM D516-11	18 Apr 24 9:15	LNK
Chloride	< 3	mg/L	3	SM 4500 Cl E	18 Apr 24 8:49	KRM
Mercury	0.009	ug/L	0.005	EPA 245.7	24 Apr 24 10:55	RMB
	See Narrative					
Solids, Total Dissolved	184	mg/L	10	SM 2540 C-97	17 Apr 24 8:05	KFL
Calcium	23.20	mg/L	0.500	SW6010D	17 Apr 24 12:22	SS
Lithium	< 0.02	mg/L	0.02	SW6010D	17 Apr 24 12:22	SS
Barium	0.041	mg/L	0.005	SW6010D	17 Apr 24 12:22	SS
Cobalt	< 0.005	mg/L	0.005	SW6010D	17 Apr 24 12:22	SS
Boron	0.381	mg/L	0.100	SW6010D	17 Apr 24 12:22	SS
Antimony	< 0.5	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Arsenic	1.64	ug/L	0.50	SW6020B	19 Apr 24 13:29	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	19 Apr 24 13:29	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	19 Apr 24 13:29	KAM
Chromium	1.84	ug/L	0.50	SW6020B	19 Apr 24 13:29	KAM
Lead	0.59	ug/L	0.50	SW6020B	19 Apr 24 13:29	KAM
Molybdenum	37.8	ug/L	0.50	SW6020B	19 Apr 24 13:29	KAM
Selenium	< 0.5	ug/L	0.5	SW6020B	19 Apr 24 13:29	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	19 Apr 24 13:29	KAM
Fluoride	0.320 @	mg/L	0.020	EPA 300.0	18 Apr 24 19:47	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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Date Reported: 19 Jun 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202431-0050
Account Number: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

The mercury matrix spike duplicate recovery was outside of acceptable limits for samples 24-A937 through 24-A939. Mercury was reported based on acceptable matrix spike recovery and acceptable duplication of the matrix spikes.

Sample 24-A938 failed to achieve constant weight in Total Dissolved Solids analysis.

No other problems were encountered with these analyses.

Quality Control Report
Lab IDs: 24-A931 to 24-A939

Project: BIG STONE PLANT CCR

Work Order: 202431-0050

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Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (≤)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	103	85-115	25.0	45739004qc	0.82	28.1	109	75-125	28.1	26.4	102	6.2	10	102	90-110	< 0.5
Arsenic ug/L	25.0	101	85-115	25.0	45739004qc	< 0.5	27.5	110	75-125	27.5	26.7	107	3.0	10	99	90-110	< 0.5
Barium mg/L	1.000	100	85-115	1.00	24A943qc	0.080	1.100	102	75-125	1.100	1.100	102	0.0	10	100	90-110	< 0.005
Beryllium ug/L	2.50	100	85-115	2.50	45739004qc	< 0.05	2.33	93	75-125	2.33	2.36	94	1.3	10	93	90-110	< 0.05
Boron mg/L	1.000	102	85-115	1.00	24A943qc	< 0.1	1.110	111	75-125	1.110	1.120	112	0.9	10	98	90-110	< 0.1
Cadmium ug/L	5.00	102	85-115	5.00	45739004qc	< 0.1	5.04	101	75-125	5.04	5.06	101	0.4	10	96	90-110	< 0.1
Calcium mg/L	50.00	101	85-115	50.0	24A943qc	127.0	179.0	104	75-125	179.0	181.0	108	1.1	10	102	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	24-A937	6.7	65.3	98	80-120	65.3	66.8	100	2.3	10	91	90-110	< 3
	-	-	-	600	24-A950	3.9	591	98	80-120	591	591	98	0.0	10	90	90-110	< 3
Chromium ug/L	25.0	98	85-115	25.0	45739004qc	0.94	24.8	95	75-125	24.8	24.6	95	0.8	10	98	90-110	< 0.5
Cobalt mg/L	1.000	101	85-115	1.00	24A943qc	< 0.005	0.958	96	75-125	0.958	0.974	97	1.7	10	100	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00	24-A939	0.320	1.36	104	80-120	1.36	1.35	103	0.7	10	104	90-110	< 0.02
Lead ug/L	25.0	98	85-115	25.0	45739004qc	< 0.5	25.8	103	75-125	25.8	25.3	101	2.0	10	99	90-110	< 0.5
Lithium mg/L	1.000	102	85-115	1.00	24-A943qc	0.021	1.040	102	75-125	1.040	1.040	102	0.0	10	101	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	24-A958	0.017	0.128	111	63-111	0.128	0.132	115	3.1	18	88	76-113	< 0.005
Molybdenum ug/L	25.0	97	85-115	25.0	45739004qc	0.90	26.9	104	75-125	26.9	26.7	103	0.7	10	95	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.3	7.3	-	0.0	2.5	101	90-110	-
	-	-	-	-	-	-	-	-	-	6.9	6.9	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	103	85-115	25.0	45739004qc	1.19	28.7	110	75-125	28.7	27.7	106	3.5	10	100	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	3840	3890	-	1.3	10	101	85-115	< 10
	-	-	-	-	-	-	-	-	-	201	191	-	5.1	10	-	-	-
Sulfate mg/L	-	-	-	500	24-A938	2280	2780	100	80-120	2780	2730	90	1.8	10	98	80-120	< 5
	-	-	-	50.0	24-A943	199	240	82	80-120	240	242	86	0.8	10	98	80-120	< 5
Thallium ug/L	5.00	97	85-115	5.00	45739004qc	< 0.1	5.12	102	75-125	5.12	5.04	101	1.6	10	98	90-110	< 0.1

Mercury matrix spike duplicate recovery was above acceptance limits, see narrative.

Approved by:





Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

June 12, 2024

Todd Rieger
MVTL Laboratories
1126 North Front Street
New Ulm, MN 56073

RE: Project: 31-0050 Otter Tail Power
Pace Project No.: 10689780

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on April 17, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-6456
Project Manager

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.



SAMPLE SUMMARY

Project: 31-0050 Otter Tail Power
Pace Project No.: 10689780

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10689780001	24A937 H10	Water	04/15/24 13:27	04/17/24 10:40
10689780002	24A938 H11	Water	04/15/24 13:02	04/17/24 10:40
10689780003	24A939 H12	Water	04/15/24 13:36	04/17/24 10:40

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CLIENT NAME: MVTL

PROJECT #:

WO#: 10689780

COURIER: ☐ Client ☐ Commercial ☒ FedEx ☐ Pace
☐ Speedee ☐ UPS ☐ USPS

PM: PG

Due Date: 05/16/24

CLIENT: MVTL

TRACKING NUMBER: 7151 6113 7978 ☐ See Exceptions form
ENV-FRM-MIN4-0142Custody Seal on Coole/Box Present: ☒ YES ☐ NO Seals Intact: ☒ YES ☐ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/APacking Material: ☐ Bubble Bags ☒ Bubble Wrap ☐ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ WetThermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)☐ Melted ☐ None☒ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710)Did Samples Originate in West Virginia: ☐ YES ☐ NO AGG 4-17-24 (2.7)Were All Container Temps taken: ☐ YES ☐ NO ☐ N/ACorrection Factor: 0.9 Cooler Temp Read w/Temp Blank: 1.3 °C

Average Corrected Temp (no Temp Blank Only): _____ °C

Cooler Temp Corrected w/Temp Blank: 2.3 °C

NOTE: Temp should be above freezing to 6°C.

☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 ContainerUSDA Regulated Soil: ☒ N/A - Water Sample/Other (describe):Initials & Date of Person Examining Contents: AGG 4-17-24Did Samples originate from one of the following states (check maps) - AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☐ NODid samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☐ NO

NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one):	<input type="checkbox"/> DULUTH	<input checked="" type="checkbox"/> MINNEAPOLIS	<input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		1.								
Chain of Custody Relinquished?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		2.								
Sampler Name and/or Signature on COC?		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.								
Samples Arrived within Hold Time?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No								
Short Hold Time Analysis (<72 hr)?		<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____								
Rush Turn Around Time Requested?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		6.								
Sufficient Sample Volume?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		7. 2 containers each, not 1								
Correct Containers Used?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		8.								
- Pace Containers Used?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		9.								
Containers Intact?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO								
Field Filtered Volume Received for Dissolved Tests?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		12. Sample #: <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO pH Paper Lot # <table border="1"><thead><tr><th>Residual Chlorine</th><th>0-6 Roll</th><th>0-6 Strip</th><th>0-14 Strip</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td></tr></tbody></table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip				
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip												
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Collform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS NOTE: If adding preservative to a container, it must be added to associated field and equipment blanks—verify with PM first.		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
Headspace in Methyl Mercury Container?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		13.								
Extra labels present on soil VOA or WIDRO containers?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		14. <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
Headspace in VOA Vials (greater than 6mm)?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>										
Trip Blanks Present?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		15.								
Trip Blank Custody Seals Present?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Rupert J. ShicklesDate: 4/17/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: AGGLine: 9

Internal Transfer Chain of Custody



☐ Rush Multiplier ☒ X
☐ Samples Pre-Logged into eCOC

State Of Origin: MN

Cert. Needed: ☒ Yes ☐ No

Workorder: 10689780 Workorder Name: 31-0050 Otter Tail Power

Owner Received Date: 4/17/2024 Results Requested By: 5/16/2024

Report To		Subcontract To		Requested Analysis																
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-1700		Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858																		
				Radium 226/228																
				J095																
				U-727507 LAB USE ONLY																
				-01 -02 -03																
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HN03														
1	24A937 H10	PS	4/15/2024 13:27	10689780001	Water	1														
2	24A938 H11	PS	4/15/2024 13:02	10689780002	Water	1														
3	24A939 H12	PS	4/15/2024 13:36	10689780003	Water	1														
4																				
5																				
Comments																				
Transfers	Released By	Date/Time	Received By	Date/Time																
1	B. Cerv / PAE	4/18/24 11:30																		
2																				
3			Hopkins / [Signature]	4/19/24 0900																
Cooler Temperature on Receipt °C		Custody Seal Y or N		Received on Ice Y or N		Samples Intact Y or N														

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Receipt Checklist
 COC Seal Present/Intact: ☒ If Applicable
 COC Signed/Accurate: ☒ VOA Zero Headspace: ☒
 Bottles active intact: ☒ Pres. Correct/Check: ☒
 Correct bottles used: ☒
 Sufficient volume sent: ☒
 RA Screen <0.5 mB/hr: ☒

AMB
 647656433956



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10689780

(To be completed by sending lab)

Sending Project No	10689780
Receiving Project No	
Check Box for Consolidated Invoice	<input type="checkbox"/>
Date Prepared	04/17/24
REQUESTED COMPLETION DATE	5/16/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units std Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed MN

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N		HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C), FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.



ANALYTICAL REPORT

May 21, 2024

Pace Analytical - Minnesota

Sample Delivery Group: L1727507
Samples Received: 04/19/2024
Project Number: 10689780
Description: 31-0050 Otter Tail Power
Site: 001
Report To: Piper Gibbs
1700 Elm Street Suite 200
Minneapolis, MN 55414

Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

Haley Torrence

Haley Torrence
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:
Pace Analytical - Minnesota

PROJECT:
10689780

SDG:
L1727507

DATE/TIME:
05/21/24 16:44

PAGE:
1 of 14

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Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	³ Ss
Sr: Sample Results	5	⁴ Cn
24A937 H10 L1727507-01	5	
24A938 H11 L1727507-02	6	
24A939 H12 L1727507-03	7	⁵ Sr
Qc: Quality Control Summary	8	⁶ Qc
Radiochemistry by Method 904/9320	8	
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Gl: Glossary of Terms	11	
Al: Accreditations & Locations	12	⁸ Al
Sc: Sample Chain of Custody	13	⁹ Sc

SAMPLE SUMMARY

24A937 H10 L1727507-01 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2283150	1	05/09/24 13:13	05/14/24 16:50	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2275054	1	04/26/24 13:39	04/30/24 23:29	ZRG	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

04/15/24 13:27
04/19/24 09:00

24A938 H11 L1727507-02 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2283150	1	05/09/24 13:13	05/14/24 16:50	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2275054	1	04/26/24 13:39	04/30/24 23:29	ZRG	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

04/15/24 13:02
04/19/24 09:00

24A939 H12 L1727507-03 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2283150	1	05/09/24 13:13	05/17/24 17:37	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2275054	1	04/26/24 13:39	04/30/24 23:29	ZRG	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

04/15/24 13:36
04/19/24 09:00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

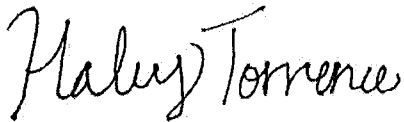
⁷ Gl

⁸ Al

⁹ Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Haley Torrence
Project Manager

Project Narrative

Insufficient sample volume provided resulting in smaller sample sizes taken.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

24A937 H10

SAMPLE RESULTS - 01

Collected date/time: 04/15/24 13:27

L1727507

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.486	<u>U</u>	0.306	0.438	0.585	0.308	05/14/2024 16:50	WG2283150
(T) Barium	94.5					30.0-143	05/14/2024 16:50	WG2283150
(T) Yttrium	71.9					30.0-136	05/14/2024 16:50	WG2283150

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.433		0.324	0.120	0.329	0.244	04/30/2024 23:29	WG2275054
(T) Barium-133	74.6					30.0-143	04/30/2024 23:29	WG2275054

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

24A938 H11

SAMPLE RESULTS - 02

Collected date/time: 04/15/24 13:02

L1727507

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.0113	<u>U</u>	0.279	0.379	0.511	0.267	05/14/2024 16:50	WG2283150
(T) Barium	98.3					30.0-143	05/14/2024 16:50	WG2283150
(T) Yttrium	110					30.0-136	05/14/2024 16:50	WG2283150

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.119	<u>J</u>	0.184	0.0691	0.287	0.218	04/30/2024 23:29	WG2275054
(T) Barium-133	78.9					30.0-143	04/30/2024 23:29	WG2275054

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

24A939 H12

SAMPLE RESULTS - 03

Collected date/time: 04/15/24 13:36

L1727507

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.85		2.81	3.01	1.58	0.820	05/17/2024 17:37	WG2283150
(T) Barium	114					30.0-143	05/17/2024 17:37	WG2283150
(T) Yttrium	95.0					30.0-136	05/17/2024 17:37	WG2283150

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.0967	U	0.187	0.0791	0.305	0.213	04/30/2024 23:29	WG2275054
(T) Barium-133	94.3					30.0-143	04/30/2024 23:29	WG2275054

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG2283150

Radiochemistry by Method 904/9320

QUALITY CONTROL SUMMARY

L1727507-01,02,03

Method Blank (MB)

(MB) R4070256-1 05/14/24 16:50

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE +/-	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.248	<u>U</u>	0.198	0.372	0.194
(T) Barium	102		102		
(T) Yttrium	89.5		89.5		

Method Blank (MB)

(MB) R4070256-6 05/17/24 21:37

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE +/-	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.497	<u>U</u>	0.188	0.176	0.0912
(T) Barium	96.4		96.4		
(T) Yttrium	98.3		98.3		

L1732347-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1732347-04 05/14/24 16:50 • (DUP) R4070256-5 05/14/24 16:50

Analyte	Original Result pCi/l	Original 2 sigma CE +/-	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE +/-	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.619	0.350	0.625	0.327	-0.300	0.322	0.611	0.323	200	1.93	<u>U</u>	20	3
(T) Barium	79.6				84.0	84.0							
(T) Yttrium	91.4				97.9	97.9							

Laboratory Control Sample (LCS)

(LCS) R4070256-2 05/14/24 16:50

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.61	92.3	80.0-120	
(T) Barium			111		
(T) Yttrium			101		

L1732366-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1732366-01 05/14/24 16:50 • (MS) R4070256-3 05/14/24 16:50 • (MSD) R4070256-4 05/14/24 16:50

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.664	16.8	18.7	96.4	108	1	70.0-130			10.8		20
(T) Barium		101			112	118							

Page 15 of 21

ACCOUNT:
Pace Analytical - MinnesotaPROJECT:
10689780SDG:
L1727507DATE/TIME:
05/21/24 16:44PAGE:
8 of 14

WG2283150

QUALITY CONTROL SUMMARY

Radiochemistry by Method 904/9320

L1727507-01,02,03

L1732366-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1732366-01 05/14/24 16:50 • (MS) R4070256-3 05/14/24 16:50 • (MSD) R4070256-4 05/14/24 16:50

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
(T) Yttrium		94.9			91.2	78.2							

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

WG2275054

Radiochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY

L1727507-01,02,03

Method Blank (MB)

(MB) R4064940-5 05/01/24 15:54

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0644		0.0385	0.0416	0.0275
(T) Barium-133	84.5		84.5		

L1727509-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1727509-02 04/30/24 23:29 • (DUP) R4064940-4 04/30/24 23:29

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.272	0.263	0.325	0.233	0.144	0.210	0.317	0.231	61.4	0.379	J	20	3
(T) Barium-133	83.0				79.7	79.7							

Laboratory Control Sample (LCS)

(LCS) R4064940-1 04/30/24 23:29

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.97	119	80.0-120	
(T) Barium-133			83.6		

L1727509-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1727509-09 04/30/24 23:29 • (MS) R4064940-2 04/30/24 23:29 • (MSD) R4064940-3 04/30/24 23:29

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.0408	20.8	18.0	104	89.8	1	75.0-125			14.4		20
(T) Barium-133		92.0			93.1	92.8							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

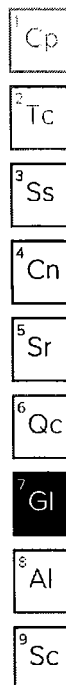
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits; Indicates that the analyte was not detected.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey—NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio—VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LA80152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA—Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



State Of Origin: MN

Cert. Needed: ☒ Yes ☐ No

Workorder: 10689780 Workorder Name: 31-0050 Otter Tail Power

Owner Received Date: 4/17/2024 **Results Requested By:** 5/16/2024

Report To							Subcontract To								Requested Analysis																		
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-1700							Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858																										
							Preserved Containers								Radium 226 / 228																		J095
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO ₃																										U TCTE50T LAB USE ONLY	
1	24A937 H10	PS	4/15/2024 13:27	10689780001	Water	1								X																-01			
2	24A938 H11	PS	4/15/2024 13:02	10689780002	Water	1								X																-02			
3	24A939 H12	PS	4/15/2024 13:36	10689780003	Water	1								X																-03			
4																																	
5																																	
															Comments																		
Transfers		Released By			Date/Time		Received By			Date/Time																							
1		B - Conn/PACE			4/18/24 11:30																												
2																																	
3							Hoxley Polster			4/19/24 0900																							
Cooler Temperature on Receipt °C				Custody Seal Y or N				Received on Ice Y or N				Samples Intact Y or N																					

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Receipt Checklist

NO Seal Present/Intact.	Y <u>N</u>	If Applicable	
CC signed/accurate.	Y <u>N</u>	VSA Zero Headspace:	Y <u>N</u>
Bottles active/Intact.	Y <u>N</u>	Pres. Correct/Check.	Y <u>N</u>
Correct bottles used.	Y <u>N</u>		
Sufficient volume sent.	Y <u>N</u>		
PA screen <0.5 mR/hr.	Y <u>N</u>		

Amb
647656433956



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10689780

(To be completed by sending lab)

11727507

Sending Project No:	10689780
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	04/17/24
REQUESTED COMPLETION DATE:	5/16/2024

Page 21 of 21

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units std Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? ☐ Cert. Needed MN

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N		HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

Minnesota Valley Testing Laboratories

1126 North Front Street New Ulm, MN 56003
Phone: 800 782 3557 Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of the original document
By AS Date 16 Apr 24
pages 1-13

Project Otter Tail Power Company	Project Type: Big Stone Plant CCR	Name of Samplers: BWS, DS, DF, JH, NM
Report Otter Tail Power Company	Carbon Copy: Barr Engineering	Quote Number:
Attn: Paul Vukonich	Attn:	Work Order Number: 31-0050
Address P.O. Box 496	Address:	Lab Numbers:
Fergus Falls, MN 56538-0496		
Phone: 218-739-8349		

Phone: 216-759-5549

Sample Information						Bottle Type										Analysis			
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	1000 HNO3 Inner Mountain	500 None	1000 none	500 HNO3	Filter? Y or N	500 H2SO4	Filter? Y or N	1000 HNO3 Pace	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
A931	H2OX		15 Apr 24	1229	GW				1	1	N								CCR 3
A932	H3OX			1039	GW				1	1	N								CCR 3
A933	H4OX			1123	GW				1	1	N								CCR 3
A934	H6			1244	GW				1	1	N								CCR 3
A935	H8			1327	GW				1	1	N								CCR 3
A936	H9			1422	GW				1	1	N								CCR 3
A937	H10			1327	GW				1	1	N			2					CCR 3&4
A938	H11			1302	GW				1	1	N			2					CCR 3&4
A939	H12			1336	GW				1	1	N			2					CCR 3&4

Comments:

0.2°C
Jm 870

ROI MR 16 Apr 24 07:48

Samples Relinquished By: <u>[Signature]</u>			Samples Received By: <u>[Signature]</u>		
Date: <u>15 Apr 24</u>	Time: <u>1700</u>	Temp: <u>20.1°C</u>	Date:	Time:	Temp:
Samples Relinquished into: <u>Fridge</u>			Log in Cart Other:		
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: <u>Samplers</u> Other:			Seal Number(s) - If Used		
Transport: <u>Ambient</u> <u>Ice</u> Other:			Seals Intact? Yes No		

Apr 2024

2024 Big Stone Sampling - CCR

Landfill or ADA wells

Site	Parameter List	Well Depth (constructed)	Diameter (Inches)	Well Elevation (TOC)	Sample Equipment	Dedicated?	Pump Rate (ml/minute)	Goes Dry?	Sampling Seasons**
H2OX	CCR 3	32.20	2	1103.86	Bladder	Yes	100	Yes	April & Oct
H3OX	CCR 3	22.55	2	1095.26	Bladder	Yes	100	Yes	April & Oct
H4OX	CCR 3	27.20	2	1108.25	Bladder	Yes	100	No	April & Oct
H6	CCR 3	15.00	2	1097.76	Bladder	Yes	100	Yes	April & Oct
H8	CCR 3	22.05	2	1081.23	Bladder	Yes	100	No	April & Oct
H9	CCR 3	30.20	2	1086.21	Bladder	Yes	100	No	April & Oct
H10	CCR 3 and 4	35.49	2	1090.83	Bladder	Yes	100		See highlighted note below
H11	CCR 3 and 4	42.15	2	1093.24	Bladder	Yes	100		See highlighted note below
H12	CCR 3 and 4	22.00	2	1127.40	Bladder	Yes	100		See highlighted note below

Note: Wells H10 and H11 need to be sampled in February, April, and June for CCR 3 and CCR 4. This will complete CCR Background sampling for these wells. Wells H10 and H11 will then be sampled in October for CCR 3 like a normal, CCR event.

Well H12 will be sampled in February, April, June, August, October, and December for CCR 3 and CCR 4. This will complete CCR Background sampling for this well.

Note: CCR sampling is for total recoverable metals. They are not filtered in the field.

CCR 3 & 4 parameters see the first two tabs labeled CCR 3 and CCR 4

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters**Method**

Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
pH	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97

Note: These are non-filtered samples.

H 10
H 11
H 12

4

CCR - Appendix IV - Assessment Monitoring

Total Concentration Parameters	Method
Antimony	SW6020A
Arsenic	SW602A
Barium	SW6010C
Beryllium	SW6020A
Cadmium	SW6020A
Chromium, Total	SW6020A
Cobalt	SW6010C
Fluoride	EPA 300
Lead	SW6020A
Lithium	SW6010C
Mercury	EPA 245.7
Molybdenum	SW6020A
Selenium	SW6020A
Thallium	SW6020A
Radium 226 + 228	

Note: These are non-filtered samples.

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 15 Apr 24

Unique Station ID:

Sample ID: Well H2OX

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? ☐ Yes ☒ No
State ID Tag? ☐ Yes ☒ No
Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 32.83
Constructed Depth: 32.20
Casing Diameter: 2"
Water Level Before Purge: 5.90
Well Volume: 4.39 Gallons

Well Casing Elevation: 1103.91
Static Water Elevation: 1198.01
Previous Static: 1097.73
Water Level After Sample: Below pump
Measurement Method: ☒ Elec. W/L ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 59 Wind: WNW Sky: Fair
Sampling Method: Grundfos ☒ Bladder SS ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:
Dedicated Equipment: ☒ Yes ☐ No
Well Purged Dry? ☒ Yes ☐ No
Time Purged Dry: 1224
Duplicate Sample? ☐ Yes ☒ No ID: —
Sample Appearance: General: Clear Color: None Phase: None Odor: None
Pumping Rate: 25 gpm
Time Pump Began: 1206 am / pm
Time of Sampling: 1229 am / pm
Sample EH: 53.7

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
18 1224	7.16	3284	7.99	NA	NA	4.5	1	
							2	
1229	7.18	3296	8.20	↓	↓	—	3	Recharge
							4	
							5	

Stabilized? Yes

☒ No

Amount Water Removed: 4.5

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 15 Apr 24

Unique Station ID:

Sample ID: Well H3OX

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? Yes ☒ No
State ID Tag? Yes ☒ No
Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 22.68
Constructed Depth: 22.55
Casing Diameter: 2"
Water Level Before Purge: 6.68
Well Volume: 2.61 Gallons

Well Casing Elevation: 1095.19
Static Water Elevation: 1088.51
Previous Static: 1088.19
Water Level After Sample: Below pump
Measurement Method: Elec. WL Steel Tape

Sampling Information

Weather Conditions: Temp: 55 Wind: NW Sky: Fair
Sampling Method: ☒ Grounds ☐ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:
Dedicated Equipment: ☒ Yes ☐ No
Well Purged Dry? ☒ Yes ☐ No
Time Purged Dry? 1034
Duplicate Sample? Yes ☒ No ID: -
Pumping Rate: 25 gpm
Time Pump Began: 1023 (am) pm
Time of Sampling: 1039 (am) pm
Sample EH: 195.3
Sample Appearance: General: Clear Color: none Phase: none Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1034	6.63	2931	8.48	NA	NA	2.75	1	
							2	
1039	6.88	2969	9.55	I	I	-	3	Recharge
							4	
							5	

Stabilized? Yes ☒ No

Amount Water Removed: 2.75 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 15 Apr 24

Unique Station ID:

Sample ID:

Well H4OX

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? ☐ Yes ☒ No
State ID Tag? ☒ Yes ☐ No
Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 27.48

Well Casing Elevation: 1108.22

Constructed Depth: 27.20

Static Water Elevation: 1092.24

Casing Diameter: 2"

Previous Static: 1091.25

Water Level Before Purge: 15.98

Water Level After Sample: Below pump

Well Volume: 1.88 Gallons

Measurement Method: ☒ Elec. WL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 57 Wind: W@10 Sky: Fair

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1110 (am) / 1 pm

Time Purged Dry: 1118

Time of Sampling: 1123 (am) / 1 pm

Duplicate Sample? Yes ☒ No ☐ ID: —

Sample EH: 116-6

Sample Appearance: General: Clear Color: NO2- Phase: NO2- Odor: NO2-

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1118	6.80	2180	8.75	NA	NA	2	1	
							2	
1123	6.93	2183	9.09	↓	+	—	3	Recharge
							4	
							5	

Stabilized? Yes ☒ No ☐

Amount Water Removed: 2 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DF

Site: Otter Tail Power Co./ Big Stone

Facility ID: —

Date:

15 Apr 24

Unique Station ID: —

Sample ID:

Well H6

Well Condition

Well Locked? ☒ Yes No

Well Labeled? ☒ Yes No

Casing Straight? ☒ Yes No

Repairs Necessary:

Protective Posts? ☒ Yes No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Well Information

Well Depth: 17.92

Constructed Depth: 17.70

Casing Diameter: 2"

Water Level Before Purge: 10.63

Well Volume: 1.19 Gallons

Well Casing Elevation: NA

Static Water Elevation: 1

Previous Static: 1

Water Level After Sample: 11.25

Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 61 Wind: ESE 19 Sky: Sunny

Sampling Method: Grundfos ☒ Bladder S&T Disp. Bailer Whale Grab Other:

Dedicated Equipment: ☒ Yes No

Well Purged Dry? Yes ☒ No

Time Purged Dry: —

Duplicate Sample? Yes ☒ ID: —

Pumping Rate: 0.25 gpm

Time Pump Began: 1229 am / ☒ PM

Time of Sampling: 1244 am / ☒ PM

Sample EH: 101.1

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
5 1234	7.27	1030	7.62	NA	NA	1.25	1	
1239	7.26	1031	7.59			2.5	2	
1244	7.24	1032	7.58			3.75	3	
							4	
							5	

Stabilized? ☒ Yes No

Amount Water Removed: 3.75 Gallons

Comments:

+CCR

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DF

Site: Otter Tail Power Co./ Big Stone

Facility ID: —

Date:

15 Apr 24

Unique Station ID: —

Sample ID:

Well H8

Well Condition

Well Locked? ☒ Yes No

Well Labeled? ☒ Yes No

Casing Straight? ☒ Yes No

Repairs Necessary:

Protective Posts? ☒ Yes No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Well Information

Well Depth: 22.33

Constructed Depth: 22.05

Casing Diameter: 2"

Water Level Before Purge: 5.47

Well Volume: 2.75 Gallons

Well Casing Elevation: 1081.23

Static Water Elevation: 1075.76

Previous Static: —

Water Level After Sample: 5.72

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 61 Wind: ESE 19 Sky: Sunny

Sampling Method: Grundfos ☒ Bladder S&T Disp. Bailer Whale Grab Other:

Dedicated Equipment: ☒ Yes No

Well Purged Dry? Yes ☒ No

Time Purged Dry? —

Duplicate Sample? Yes ☒ No

ID: —

Pumping Rate: 0.25 gpm

Time Pump Began: 1254 am / pm

Time of Sampling: 1327 am / pm

Sample EH: 99.0

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1306	7.16	1453	7.75	NA	NA	2.75	1	
1316	7.16	1454	7.76			5.5	2	
1327	7.16	1454	7.78			8.25	3	
							4	
							5	

Stabilized? ☒ Yes No

Amount Water Removed: 8.25 Gallons

Comments:

+CCR

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DF

Site: Otter Tail Power Co./ Big Stone

Facility ID: —

Date:

15 Apr 24

Unique Station ID: —

Sample ID:

Well H9

Well Condition

Well Locked? ☒ Yes No

Well Labeled? ☒ Yes No

Casing Straight? ☒ Yes No

Protective Posts? ☒ Yes No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 30.71

Well Casing Elevation: 1086.21

Constructed Depth: 30.20

Static Water Elevation: 1078.19

Casing Diameter: 2"

Previous Static: —

Water Level Before Purge: 8.02

Water Level After Sample: 8.30

Well Volume: 3.70 Gallons

Measurement Method: ☒ Elec. WD ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 61 Wind: ESE 19 Sky: Sunny

Sampling Method: Grundfos ☒ Bladder SSR ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other: ☐

Dedicated Equipment: ☒ Yes No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No

Time Pump Began: 1337 am / ☒ pm

Time Purged Dry? —

Time of Sampling: 1422 am / ☒ pm

Duplicate Sample? Yes ☒ No ID: —

Sample EH: 116.6

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1352	6.59	3305	9.31	NA	NA	3.75	1	
1407	6.58	3315	9.30			7.5	2	
1422	6.58	3328	9.33			11.25	3	
							4	
							5	

Stabilized? ☒ Yes No

Amount Water Removed: 11.25 Gallons

Comments:

+CCR

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 15 Apr 24

Unique Station ID:

Sample ID: H10

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? Yes ☒ No
State ID Tag? Yes ☒ No
Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 39.49

Well Casing Elevation: 1090.83

Constructed Depth: 35.49

Static Water Elevation: 1080.06

Casing Diameter: 2"

Previous Static: 1079.81

Water Level Before Purge: 10.77

Water Level After Sample: 33.65

Well Volume: 4.03 Gallons

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 60 Wind: W@10 Sky: Fair

Sampling Method: Grundfos ☒ Bladder S&T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1306 am ☒ pm

Time Purged Dry: 1322

Time of Sampling: 1327 am ☒ pm

Duplicate Sample? Yes ☒ No ☐ ID: -

Sample EH: 121.2

Sample Appearance: General: Clear Color: Non Phase: Non Odor: Non

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
16 1322	7.06	4317	9.06	NA	NA	4.25	1	
							2	
1327	7.01	4330	9.00	↓	↓	~	3	Recharge
							4	
							5	

Stabilized? Yes

☒ No

Amount Water Removed: 4.25 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 15 Apr 24

Unique Station ID:

Sample ID: H11

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? Yes ☒ No
State ID Tag? Yes ☒ No
Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 42.15

Well Casing Elevation: 1093.24

Constructed Depth: 42.15

Static Water Elevation: 1083.12

Casing Diameter: 2"

Previous Static: 1082.58

Water Level Before Purge: 10.12

Water Level After Sample: 38.09

Well Volume: 5.23 Gallons

Measurement Method: Elec. WDI Steel Tape

Sampling Information

Weather Conditions: Temp: 59 Wind: W@10 Sky: Fair

Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1236 am ☒ pm

Time Purged Dry: 1257

Time of Sampling: 1302 am ☐ pm

Duplicate Sample? Yes ☒ No ☐ ID: —

Sample EH: 123.5

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1257	6.58	3645	9.43	MA	MA	5.25	1	
							2	
1302	6.64	3628	9.81	↓	↓	—	3	Recharge
							4	
							5	

Stabilized? Yes ☒ No ☐

Amount Water Removed: 5.25 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date:

15 Apr 24

Unique Station ID:

Sample ID:

H12

Well Condition

Well Locked? Yes ☒ No

Well Labeled? ☒ Yes No

Casing Straight? ☒ Yes No

Protective Posts? Yes ☒ No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 22.63

Constructed Depth: 24.00

Casing Diameter: 2"

Water Level Before Purge: 18.52

Well Volume: 0.67 Gallons

Well Casing Elevation: NA

Static Water Elevation: 1

Previous Static: 1

Water Level After Sample: 19.23

Measurement Method: ☒ Elec. W/L ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 55° Wind: E @ 15 Sky: Partly Cloudy

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No

Time Pump Began: 1327 am ☒ pm

Time Purged Dry: —

Time of Sampling: 1336 am ☒ pm

Duplicate Sample? Yes ☒ No ID: —

Sample EH: 14.9

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1330	8.20	302	11.00	NA	NA	0.75	1	
1333	8.21	300	10.95	1	1	1.5	2	
1336	8.21	299	10.94	1	1	2.25	3	
							4	
							5	

Stabilized? ☒ Yes No

Amount Water Removed: 2.25 Gallons

Comments:

Exceptions to Protocol:

State + CCR



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www.mvttl.com



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FINAL REPORT COMPLETION DATE: 13 Aug 24 *as*

Date Reported: 8 Aug 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 31-0090
Account #: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

[Signature] 09 Aug 24
Field Service Manager/Date Reviewed
[Signature] 08 Aug 24
Chemistry Lab Manager/Date Reviewed
[Signature] 08 Aug 2024
Quality Assurance Director/Date Reviewed

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

~~All data for this report has been approved by MVTL Laboratory Management~~

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1636
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:12
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H10

Temp at Receipt: 1.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					11 Jun 24	JN
Water Digestions					11 Jun 24	JN
pH, Field	6.91	units	1.00	SM4500-H+-2011	10 Jun 24 11:12	NM
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	11 Jun 24 17:07	HO
Radium 226	0.24	pCi/L	0.60		5 Jul 24 12:08	OL
Radium 228	0.37	pCi/L	3.00	EPA M9320	10 Jul 24 17:01	OL
Sulfate	2620 ~	mg/L	5.0	ASTM D516-11	13 Jun 24 10:02	AKF
Chloride	7.5	mg/L	3.0	SM 4500 Cl E	13 Jun 24 8:53	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	11 Jun 24 11:35	RMB
Solids, Total Dissolved	4970	mg/L	10	SM 2540 C-97	12 Jun 24 8:58	KFL
Calcium	469.0 ~	mg/L	0.500	SW6010D	12 Jun 24 10:59	TMM
Lithium	0.354	mg/L	0.020	SW6010D	12 Jun 24 10:59	TMM
Barium	0.022	mg/L	0.005	SW6010D	12 Jun 24 10:59	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	12 Jun 24 10:59	TMM
Boron	0.368	mg/L	0.100	SW6010D	12 Jun 24 10:59	TMM
Antimony	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Arsenic	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Beryllium	< 0.1 @	ug/L	0.05	SW6020B	14 Jun 24 11:56	KAM
Cadmium	< 0.2 @	ug/L	0.1	SW6020B	12 Jun 24 14:37	KAM
Chromium	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Lead	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Molybdenum	14.5 @	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Selenium	2.48 @	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Thallium	< 0.2 @	ug/L	0.1	SW6020B	12 Jun 24 14:37	KAM
Fluoride	0.220 @	mg/L	0.020	EPA 300.0	11 Jun 24 23:26	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix
! = Due to sample quantity

= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
 OTTER TAIL POWER CO
 PO BOX 496
 FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
 Lab Number: 24-A1637
 Work Order #: 31-0090
 Account #: 006106
 Sample Matrix: GROUNDWATER
 Date Sampled: 10 Jun 2024 11:50
 Sampled By: MVTL FIELD PERSONNEL
 Date Received: 10 Jun 2024 15:48
 PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Temp at Receipt: 1.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					11 Jun 24	JN
Water Digestions					11 Jun 24	JN
pH, Field	6.67	units	1.00	SM4500-H+-2011	10 Jun 24 11:50	NM
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	11 Jun 24 17:07	HO
Radium 226	0.16	pCi/L	0.60		5 Jul 24 12:08	OL
Radium 228	-0.12	pCi/L	3.00	EPA M9320	10 Jul 24 17:01	OL
Sulfate	1950 ~	mg/L	5.0	ASTM D516-11	13 Jun 24 10:02	AKF
Chloride	3.9	mg/L	3.0	SM 4500 Cl E	13 Jun 24 8:53	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	11 Jun 24 11:35	RMB
Solids, Total Dissolved	4060	mg/L	10	SM 2540 C-97	12 Jun 24 8:58	KFL
Calcium	551.0 ~	mg/L	0.500	SW6010D	12 Jun 24 10:59	TMM
Lithium	0.358	mg/L	0.020	SW6010D	12 Jun 24 10:59	TMM
Barium	0.027	mg/L	0.005	SW6010D	12 Jun 24 10:59	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	12 Jun 24 10:59	TMM
Boron	0.260	mg/L	0.100	SW6010D	12 Jun 24 10:59	TMM
Antimony	< 0.5	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Arsenic	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	14 Jun 24 11:56	KAM
Cadmium	0.14	ug/L	0.10	SW6020B	12 Jun 24 14:37	KAM
Chromium	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Lead	0.55	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Molybdenum	2.06	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Selenium	< 1 @	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	12 Jun 24 14:37	KAM
Fluoride	0.160 @	mg/L	0.020	EPA 300.0	11 Jun 24 23:26	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

Radium 228 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

~ Sample diluted due to result above calibration of linear range.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit
 Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
 The reporting limit was elevated for any analyte requiring a dilution as coded below:
 @ = Due to sample matrix # = Due to concentration of other analytes
 ! = Due to sample quantity + = Due to internal standard response
 CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1638
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 12:28
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H12

Temp at Receipt: 1.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					11 Jun 24	JN
Water Digestions					11 Jun 24	JN
pH, Field	7.79	units	1.00	SM4500-H+-2011	10 Jun 24 12:28	NM
pH	* 7.8	units	1.0	SM 4500 H+ B-2000	11 Jun 24 17:07	HO
Radium 226	0.15	pCi/L	0.60		12 Jul 24 15:13	OL
Radium 228	0.60	pCi/L	3.00	EPA M9320	10 Jul 24 17:01	OL
Sulfate	90.7	mg/L	5.0	ASTM D516-11	13 Jun 24 10:02	AKF
Chloride	< 3	mg/L	3	SM 4500 Cl E	13 Jun 24 8:53	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	11 Jun 24 11:35	RMB
Solids, Total Dissolved	207	mg/L	10	SM 2540 C-97	12 Jun 24 8:58	KFL
Calcium	39.90	mg/L	0.500	SW6010D	12 Jun 24 10:59	TMM
Lithium	0.031	mg/L	0.020	SW6010D	12 Jun 24 10:59	TMM
Barium	0.089	mg/L	0.005	SW6010D	12 Jun 24 10:59	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	12 Jun 24 10:59	TMM
Boron	0.610	mg/L	0.100	SW6010D	12 Jun 24 10:59	TMM
Antimony	< 0.5	ug/L	0.5	SW6020B	12 Jun 24 14:37	KAM
Arsenic	1.42	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	14 Jun 24 11:56	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	12 Jun 24 14:37	KAM
Chromium	1.97	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Lead	0.52	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Molybdenum	27.7	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Selenium	1.99	ug/L	0.50	SW6020B	12 Jun 24 14:37	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	12 Jun 24 14:37	KAM
Fluoride	0.380 @	mg/L	0.020	EPA 300.0	11 Jun 24 23:26	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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Date Reported: 8 Aug 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202431-0090
Account Number: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

The final Total Dissolve Solids certified reference sample for the analysis batch associated with samples 24-A1636 through 24-A1638 failed to recover within acceptance limits. Data accepted based on all other QC for the batch being acceptable.

No other problems were encountered with these analyses.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1639
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:35
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 10

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	47.01	feet	NA	Field	10 Jun 24 11:35	DS
Water Level Before Purge	14.79	feet	NA	NA	10 Jun 24 11:35	DS
Static Elevation, Field	1083.91	ft	NA	Field	10 Jun 24 11:35	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1640
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:31
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 11

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	127.22	feet	NA	Field	10 Jun 24 11:31	DS
Water Level Before Purge	95.33	feet	NA	NA	10 Jun 24 11:31	DS
Static Elevation, Field	1008.67	ft	NA	Field	10 Jun 24 11:31	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

/ @ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1641
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:26
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 12

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	112.40	feet	NA	Field	10 Jun 24 11:26	DS
Water Level Before Purge	62.13	feet	NA	NA	10 Jun 24 11:26	DS
Static Elevation, Field	1009.76	ft	NA	Field	10 Jun 24 11:26	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1642
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:21
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 1

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	78.00	feet	NA	Field	10 Jun 24 11:21	DS
Water Level Before Purge	60.65	feet	NA	NA	10 Jun 24 11:21	DS
Static Elevation, Field	1030.06	ft	NA	Field	10 Jun 24 11:21	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1643
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:10
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H10X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	32.33	feet	NA	Field	10 Jun 24 11:10	DS
Water Level Before Purge	21.06	feet	NA	NA	10 Jun 24 11:10	DS
Static Elevation, Field	1094.83	ft	NA	Field	10 Jun 24 11:10	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1644
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:12
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H1INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	60.15	feet	NA	Field	10 Jun 24 11:12	DS
Water Level Before Purge	21.77	feet	NA	NA	10 Jun 24 11:12	DS
Static Elevation, Field	1094.04	ft	NA	Field	10 Jun 24 11:12	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
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Report Date: 8 Aug 2024
Lab Number: 24-A1645
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:50
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H20X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	32.83	feet	NA	Field	10 Jun 24 10:50	DS
Water Level Before Purge	4.87	feet	NA	NA	10 Jun 24 10:50	DS
Static Elevation, Field	1098.99	ft	NA	Field	10 Jun 24 10:50	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
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PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1646
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:48
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H2INT -

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	62.45	feet	NA	Field	10 Jun 24 10:48	DS
Water Level Before Purge	55.21	feet	NA	NA	10 Jun 24 10:48	DS
Static Elevation, Field	1048.70	ft	NA	Field	10 Jun 24 10:48	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1647
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:40
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H30X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	22.68	feet	NA	Field	10 Jun 24 10:40	DS
Water Level Before Purge	2.71	feet	NA	NA	10 Jun 24 10:40	DS
Static Elevation, Field	1092.55	ft	NA	Field	10 Jun 24 10:40	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1648
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:42
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H3INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	54.42	feet	NA	Field	10 Jun 24 10:42	DS
Water Level Before Purge	22.05	feet	NA	NA	10 Jun 24 10:42	DS
Static Elevation, Field	1073.12	ft	NA	Field	10 Jun 24 10:42	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1649
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:35
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H40X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	27.48	feet	NA	Field	10 Jun 24 10:35	DS
Water Level Before Purge	12.79	feet	NA	NA	10 Jun 24 10:35	DS
Static Elevation, Field	1095.46	ft	NA	Field	10 Jun 24 10:35	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1650
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:37
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H4INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	60.10	feet	NA	Field	10 Jun 24 10:37	DS
Water Level Before Purge	13.25	feet	NA	NA	10 Jun 24 10:37	DS
Static Elevation, Field	1095.36	ft	NA	Field	10 Jun 24 10:37	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

0 = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1651
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:46
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H5

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	44.90	feet	NA	Field	10 Jun 24 11:46	DS
Water Level Before Purge	6.21	feet	NA	NA	10 Jun 24 11:46	DS
Static Elevation, Field	1116.59	ft	NA	Field	10 Jun 24 11:46	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1652
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:15
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H6

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	17.92	feet	NA	Field	10 Jun 24 11:15	DS
Water Level Before Purge	7.59	feet	NA	NA	10 Jun 24 11:15	DS
Static Elevation, Field	1090.17	ft	NA	Field	10 Jun 24 11:15	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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Report Date: 8 Aug 2024
Lab Number: 24-A1653
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 11:02
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H7

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	35.60	feet	NA	Field	10 Jun 24 11:02	DS
Water Level Before Purge	18.71	feet	NA	NA	10 Jun 24 11:02	DS
Static Elevation, Field	1087.35	ft	NA	Field	10 Jun 24 11:02	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvttl.com



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1654
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:58
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H8

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	22.33	feet	NA	Field	10 Jun 24 10:58	DS
Water Level Before Purge	14.66	feet	NA	NA	10 Jun 24 10:58	DS
Static Elevation, Field	1066.57	ft	NA	Field	10 Jun 24 10:58	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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Page: 22 of 22

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 8 Aug 2024
Lab Number: 24-A1655
Work Order #: 31-0090
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 10 Jun 2024 10:55
Sampled By: MVTL FIELD PERSONNEL
Date Received: 10 Jun 2024 15:48
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H9

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	30.71	feet	NA	Field	10 Jun 24 10:55	DS
Water Level Before Purge	12.73	feet	NA	NA	10 Jun 24 10:55	DS
Static Elevation, Field	1073.48	ft	NA	Field	10 Jun 24 10:55	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Page: 1 of 1

Quality Control Report
Lab IDs: 24-A1636 to 24-A1638

Project: BIG STONE PLANT CCR

Work Order: 202431-0090

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	102	85-115	25.0	51073001qc	2.13	28.4	105	75-125	28.4	29.0	107	2.1	10	98	90-110	< 0.5
Arsenic ug/L	25.0	107	85-115	25.0	51073001qc	1.11	28.0	108	75-125	28.0	27.5	106	1.8	10	103	90-110	< 0.5
Barium mg/L	1.000	98	85-115	1.00	51085001qc	< 0.005	0.990	99	75-125	0.990	0.995	100	0.5	10	98	90-110	< 0.005
Beryllium ug/L	2.50	113	85-115	2.50	51073001qc	< 0.1	2.97	119	75-125	2.97	2.72	109	8.8	10	94	90-110	< 0.05
Boron mg/L	1.000	98	85-115	1.00	51085001qc	0.426	1.490	106	75-125	1.490	1.480	105	0.7	10	97	90-110	< 0.1
Cadmium ug/L	5.00	105	85-115	5.00	51073001qc	< 0.1	5.03	101	75-125	5.03	5.20	104	3.3	10	97	90-110	< 0.1
Calcium mg/L	50.00	98	85-115	50.0	51085001qc	109.0	158.0	98	75-125	158.0	158.0	98	0.0	10	102	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	24-A1638	< 3	65.3	109	80-120	65.3	64.2	107	1.7	10	94	90-110	< 3
Chromium ug/L	25.0	101	85-115	25.0	51073001qc	< 1	25.5	102	75-125	25.5	24.7	99	3.2	10	97	90-110	< 0.5
Cobalt mg/L	1.000	98	85-115	1.00	51085001qc	< 0.005	1.010	101	75-125	1.010	1.010	101	0.0	10	100	90-110	< 0.005
Fluoride mg/L	-	-	-	4.00	51013001qc	0.490	4.71	106	75-125	4.71	4.69	105	0.4	10	104	90-110	< 0.02
Lead ug/L	25.0	105	85-115	25.0	51073001qc	< 0.5	26.8	107	75-125	26.8	26.5	106	1.1	10	101	90-110	< 0.5
Lithium mg/L	1.000	101	85-115	1.00	51085001qc	0.073	1.110	104	75-125	1.110	1.130	106	1.8	10	103	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	50945001qc	0.091	0.155	64	63-111	0.155	0.157	66	1.3	18	102	76-113	< 0.005
Molybdenum ug/L	25.0	98	85-115	25.0	51073001qc	0.53	24.8	97	75-125	24.8	25.9	101	4.3	10	97	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.2	7.2	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	100	85-115	25.0	51073001qc	< 1	27.1	108	75-125	27.1	25.8	103	4.9	10	103	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	4970	4840	-	2.7	7	92	85-115	< 10
Sulfate mg/L	-	-	-	5000	24-A1636	2620	8330	114	80-120	8330	8510	118	2.1	10	100	80-120	< 5
Thallium ug/L	5.00	104	85-115	5.00	51073001qc	< 0.1	5.25	105	75-125	5.25	5.18	104	1.3	10	100	90-110	< 0.1

Approved by:





July 18, 2024

Todd Rieger
MVTL Laboratories
1126 North Front Street
New Ulm, MN 56073

RE: Project: 31-0090 Otter Tail Power Co
Pace Project No.: 10696218

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on June 12, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-6456
Project Manager

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 31-0090 Otter Tail Power Co
Pace Project No.: 10696218

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10696218001	24A1636 - H10	Water	06/10/24 11:12	06/12/24 10:36
10696218002	24A1637 - H11	Water	06/10/24 11:50	06/12/24 10:36
10696218003	24A1638 - H12	Water	06/10/24 12:28	06/12/24 10:36

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: MVTL

PROJECT #:

WO#: 10696218

COURIER: ☒ Client ☐ Commercial ☐ FedEx ☐ Pace
☐ Speedee ☐ UPS ☐ USPS

PM: PG

Due Date: 07/12/24

CLIENT: MVTL

TRACKING NUMBER: ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
Thermometer: ☒ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate in West Virginia: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Were All Container Temps taken: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
Correction Factor: <u>True</u> Cooler Temp Read w/Temp Blank: <u>1.3</u> °C	Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: <u>1.3</u> °C	<input type="checkbox"/> See Exceptions Form ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: ☒ N/A, Water Sample/Other (describe): _____ Initials & Date of Person Examining Contents: EC-12-24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☐ NO Did samples originate from a foreign source (International, including Hawaii and Puerto Rico): ☐ YES ☐ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one): <input type="checkbox"/> DULUTH <input checked="" type="checkbox"/> MINNEAPOLIS <input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.								
Chain of Custody Relinquished?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.								
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.								
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No								
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <input type="checkbox"/> BOD / cBOD: <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli. <input type="checkbox"/> Other: _____								
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.								
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.								
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.								
– Pace Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.								
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <u>001-003</u> <input checked="" type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO <p style="text-align: center;">pH Paper Lot #</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Residual Chlorine</th> <th>0-6 Roll</th> <th>0-6 Strip</th> <th>0-14 Strip</th> </tr> <tr> <td></td> <td><u>213923</u></td> <td></td> <td></td> </tr> </table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip		<u>213923</u>		
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip									
	<u>213923</u>											
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.								
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.								
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140								
Trip Blanks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.								
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____

Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Paper J. Gileas

Date: 6/13/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: EC

Line: 3

H151



☐ Rush Multiplier_____X
☐ Samples Pre-Logged into eCOC

Cert. Needed: ☒ Yes ☐ No

Owner Received Date: 6/12/2024 Results Requested By: 7/25/2024

Report To						Subcontract To						Requested Analysis											
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456						Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858																	
						Preserved Containers						Radium 226/228											
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3																	
1	24A1636 - H10	PS	6/10/2024 11:12	10696218001	Water	12													X				
2	24A1637 - H11	PS	6/10/2024 11:50	10696218002	Water	24													X				
3	24A1638 - H12	PS	6/10/2024 12:28	10696218003	Water	22													X				
4																							
5																							
												Comments											
Transfers		Released By		Date/Time		Received By		Date/Time															
1		Ben Lee / PACE		6/27/24 16:30		Eastern Org.		6/28/24 09:00															
2																							
3																							
Cooler Temperature on Receipt °C				Custody Seal Y or N				Received on Ice Y or N				Samples Intact Y or N											

This chain of custody is considered complete as is since this information is available in the owner laboratory.

$$4.6 \pm 0.3 = 4.9 \text{ EV} \approx 7$$

4.6+0.7 = 4.9 cm
 Sample Receipt Checklist
 If Applicable
 QCC Seal Present/Intact: ☒ Y ☐ N VOA Zero HeadSpace: ☐ Y ☒ N
 QCC Signed/Accurate: ☒ Y ☐ N Pres. Correct/Check: ☐ Y ☒ N
 Bottles arrive intact: ☒ Y ☐ N
 Correct bottles used: ☒ Y ☐ N
 Sufficient volume sent: ☒ Y ☐ N
 FA Screen <0.5 mR/hr: ☒ Y ☐ N

6476 5644 6340



251517

INTER_LABORATORY WORK ORDER # 10696218

(To be completed by sending lab)

Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

Sending Project No:	10696218
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	06/13/24
REQUESTED COMPLETION DATE:	7/25/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units std Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed MN

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP3N	6	HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

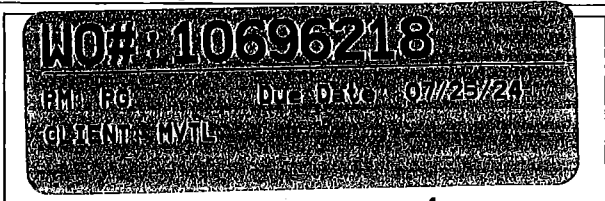
When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

ENV-FRM-MIN4-0150 v17_Sample Condition Upon Receipt

CLIENT NAME: mvth PROJECT #: W0# 10696218

COURIER: ☒ Client ☐ Commercial ☐ FedEx ☐ Pace
☐ Speedee ☐ UPS ☐ USPS

TRACKING NUMBER: _____ ☐ See Exceptions form ENV-FRM-MIN4-0142



Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☐ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
Thermometer: ☒ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☒ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate in West Virginia: ☐ YES ☒ NO Were All Container Temps taken: ☐ YES ☐ NO ☒ N/A
Correction Factor: -0.3 Cooler Temp Read w/Temp Blank: 2.3 °C Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: 2.0 °C
NOTE: Temp should be above freezing to 6°C ☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: ☒ N/A (Water) Sample/Other (describe): _____ Initials & Date of Person Examining Contents: SMC 6/21/24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☐ NO Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☐ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one):	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		1.
Chain of Custody Relinquished?	<input type="checkbox"/>	<input type="checkbox"/>		2.
Sampler Name and/or Signature on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho-Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		6.
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		7.
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
– Pace Containers Used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		9.
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>		11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <u>001 - 003</u> <u>1/1</u> <input checked="" type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO pH Paper Lot # Residual Chlorine: <u>213923</u> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pace Trip Blank Lot # (If purchased): _____

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Piper J. Stiles

Date: 6/21/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: SMC Line: 2

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: MVTI

PROJECT #:

WO#: 10696218

COURIER: ☒ Client ☐ Commercial ☐ FedEx ☐ Pace
☐ SpeedDee ☐ UPS ☐ USPS

PM: PG

Due Date: 07/12/24

CLIENT: MVTI

TRACKING NUMBER: ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
Thermometer: ☒ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate In West Virginia: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Were All Container Temps taken: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
Correction Factor: <u>True</u> Cooler Temp Read w/Temp Blank: <u>1.3</u> °C	Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: <u>1.3</u> °C	<input type="checkbox"/> See Exceptions Form ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: ☒ N/A ☒ Water Sample/Other (describe): _____ Initials & Date of Person Examining Contents: EC 6-12-24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☐ NO Did samples originate from a foreign source (International, including Hawaii and Puerto Rico): ☐ YES ☐ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one)	<input type="checkbox"/> DULUTH	<input checked="" type="checkbox"/> MINNEAPOLIS	<input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		1.
Chain of Custody Relinquished?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		2.
Sampler Name and/or Signature on COC?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		3.
Samples Arrived within Hold Time?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)?		<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coll. <input type="checkbox"/> Other:
Rush Turn Around Time Requested?		<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.
Sufficient Sample Volume?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		7.
Correct Containers Used?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		8.
– Pace Containers Used?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Containers Intact?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		9.
Field Filtered Volume Received for Dissolved Tests?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11.		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142
Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other							
All containers needing acid/base preservation have been checked?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		12. Sample #: <u>001-003</u>
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO
NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.							pH Paper Lot # Residual Chlorine: <u>213923</u> 0-6 Roll 0-6 Strip 0-14 Strip
Headspace in Methyl Mercury Container?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		13.
Headspace in VOA Vials (greater than 6mm)?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		14. <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		15.
Trip Blank Custody Seals Present?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____

Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Rupert J. Shickles

Date: 6/13/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: EC

Line: 3

Todd Rieger

From: Piper Gibbs <Piper.Gibbs@pacelabs.com>
Sent: Thursday, June 20, 2024 10:52 AM
To: Todd Rieger
Subject: Low Volume 10696218
Attachments: 10696218_coc.pdf

Importance: High

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Todd,

The lab just informed me they do not have enough volume for Radium 226/228. They need 1L per sample and only received 250mL. Would you be able to send in additional volume? Let me know if you need additional containers. I have also updated in our system to send out 1L for future orders.

Thanks,

Piper Gibbs (she/her/hers)
Project Manager | Client Services
1700 Elm St SE Minneapolis, MN 55414
612-607-6456 | pacelabs.com



PROCESS PAYMENTS ONLINE – click on the link below

[Online Bill Pay](#)

A 2.5% surcharge may be added to your payment should you choose to use a credit card for payment. Debit and ACH/e-checks incur no additional fee.

Pace[®] Analytical Services will be closed on Thursday, July 4th, 2024, in observance of Independence Day.

Please contact me in advance of submitting any samples to the laboratory over the holiday as hours of operation will be reduced.

All Rush requests must be pre-approved by the laboratory. Please contact me before submitting a Rush project. Bottle orders requested with less than 48 hours notice will incur a minimum \$100 surcharge.

Please note starting January 1, 2024, a minimum workorder fee of \$275 may apply to your projects.

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others is strictly prohibited. If you are not the intended recipient, please contact the sender immediately and delete any copies.

 Please consider the environment before printing this email



ANALYTICAL REPORT

July 18, 2024

Pace Analytical - Minnesota

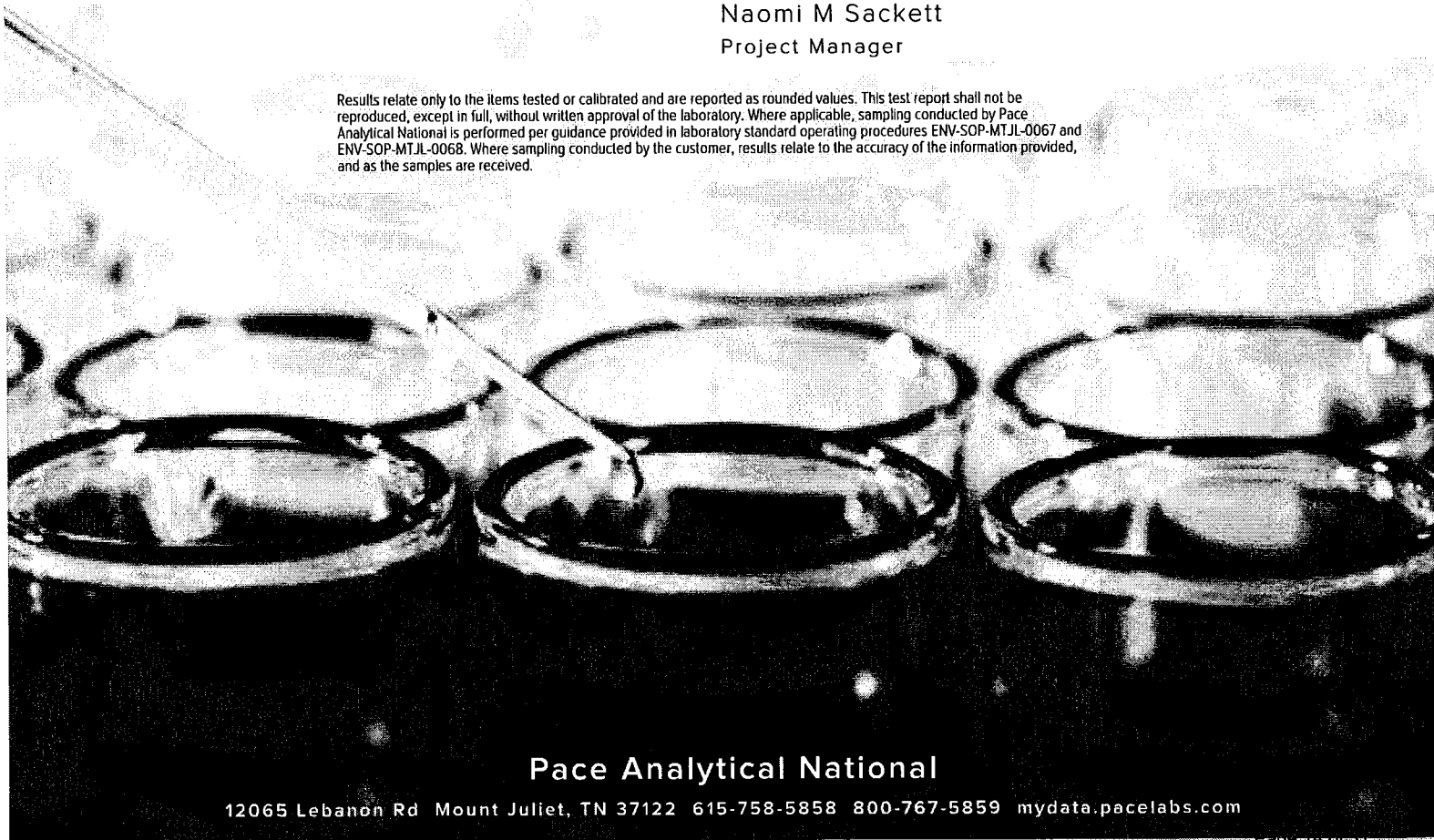
Sample Delivery Group: L1751482
Samples Received: 06/28/2024
Project Number: 10696218
Description: 31-0090 Otter Tail Power Co
Site: 001
Report To: Piper Gibbs
1700 Elm Street Suite 200
Minneapolis, MN 55414



Entire Report Reviewed By:

Naomi M Sackett
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:
Pace Analytical - Minnesota

PROJECT:
10696218

SDG:
L1751482

DATE/TIME:
07/18/24 13:59

PAGE:
1 of 18

Page 14 of 31

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24A1637-H11 L1751482-02	6	⁴ Cn
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SAMPLE SUMMARY

24A1636-H10 L1751482-01 Non-Potable Water

Collected by
Collected date/time
Received date/time

06/10/24 11:12 06/28/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2317917	1	07/05/24 18:12	07/10/24 17:01	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2316133	1	07/02/24 16:28	07/05/24 12:08	ZRG	Mt. Juliet, TN

24A1637-H11 L1751482-02 Non-Potable Water

Collected by
Collected date/time
Received date/time

06/10/24 11:50 06/28/24 09:00

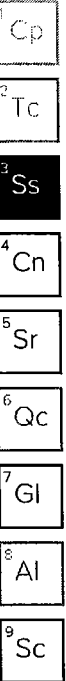
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2317917	1	07/05/24 18:12	07/10/24 17:01	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2316133	1	07/02/24 16:28	07/05/24 12:08	ZRG	Mt. Juliet, TN

24A1638-H12 L1751482-03 Non-Potable Water

Collected by
Collected date/time
Received date/time

06/10/24 12:28 06/28/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2317917	1	07/05/24 18:12	07/10/24 17:01	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2319521	1	07/10/24 13:03	07/12/24 15:13	ZRG	Mt. Juliet, TN



CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Naomi M Sackett
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

24A1636-H10

Collected date/time: 06/10/24 11:12

SAMPLE RESULTS - 01

L1751482

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.371	<u>U</u>	0.496	0.601	0.937	0.496	07/10/2024 17:01	WG2317917
(T) Barium	97.0					30.0-143	07/10/2024 17:01	WG2317917
(T) Yttrium	91.8					30.0-136	07/10/2024 17:01	WG2317917

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.241		0.202	0.341	0.191	0.158	07/05/2024 12:08	WG2316133
(T) Barium-133	80.0					30.0-143	07/05/2024 12:08	WG2316133

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

24A1637-H11

SAMPLE RESULTS - 02

Collected date/time: 06/10/24 11:50

L1751482

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.115	<u>U</u>	0.699	0.822	1.34	0.709	07/10/2024 17:01	WG2317917
(T) Barium	84.1					30.0-143	07/10/2024 17:01	WG2317917
(T) Yttrium	77.9					30.0-136	07/10/2024 17:01	WG2317917

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.160	<u>J</u>	0.169	0.309	0.194	0.161	07/05/2024 12:08	WG2316133
(T) Barium-133	79.1					30.0-143	07/05/2024 12:08	WG2316133

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

24A1638-H12

Collected date/time: 06/10/24 12:28

SAMPLE RESULTS - 03

L1751482

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.604	J	0.488	0.596	0.915	0.487	07/10/2024 17:01	WG2317917
(T) Barium	91.9					30.0-143	07/10/2024 17:01	WG2317917
(T) Yttrium	91.8					30.0-136	07/10/2024 17:01	WG2317917

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.147	J	0.155	0.289	0.178	0.147	07/12/2024 15:13	WG2319521
(T) Barium-133	86.7					30.0-143	07/12/2024 15:13	WG2319521

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG2317917

Radiochemistry by Method 904/9320

QUALITY CONTROL SUMMARY

L1751482-01,02,03

Method Blank (MB)

(MB) R4092316-1 07/10/24 17:01

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.206	<u>U</u>	0.234	0.451	0.236
(T) Barium	101		101		
(T) Yttrium	71.4		71.4		

L1753253-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1753253-01 07/10/24 17:01 • (DUP) R4092316-4 07/10/24 17:01

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	-0.162	0.285	0.554	0.293	0.217	0.337	0.639	0.339	200	0.860	<u>U</u>	20	3
(T) Barium	94.2				88.9	88.9							
(T) Yttrium	99.4				85.7	85.7							

Laboratory Control Sample (LCS)

(LCS) R4092316-2 07/10/24 17:01

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.72	114	80.0-120	
(T) Barium			88.4		
(T) Yttrium			83.0		

L1751170-29 Original Sample (OS) • Matrix Spike (MS)

(OS) L1751170-29 07/10/24 17:01 • (MS) R4092316-3 07/10/24 17:01

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Radium-228	16.7	50.5	69.4	113	1	70.0-130	
(T) Barium		93.4		54.1			
(T) Yttrium		86.0		78.1			

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG2316133

Radiochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY

L1751482-01,02

Method Blank (MB)

(MB) R4091092-1 07/05/24 12:08

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0238	J	0.0300	0.0456	0.0293
(T) Barium-133	89.8		89.8		

L1751245-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1751245-06 07/05/24 12:08 • (DUP) R4091092-5 07/05/24 12:08

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	-0.00829	0.0363	0.191	0.158	0.0916	0.256	0.418	0.272	200	0.386	U	20	3
(T) Barium-133	82.2				93.7	93.7							

Laboratory Control Sample (LCS)

(LCS) R4091092-2 07/05/24 12:08

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.74	115	75.0-125	
(T) Barium-133			86.6		

L1751245-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1751245-02 07/05/24 12:08 • (MS) R4091092-3 07/05/24 12:08 • (MSD) R4091092-4 07/05/24 12:08

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	1.02	20.2	20.5	95.6	97.4	1	75.0-125			1.77		20
(T) Barium-133		94.7			90.5	94.2							

1
Co2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG2319521

QUALITY CONTROL SUMMARY

Radiochemistry by Method SM7500Ra.B.M

L1751482-03

Method Blank (MB)

(MB) R4093914-6 07/12/24 15:13

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0103	<u>U</u>	0.0394	0.0726	0.0467
(T) Barium-133	57.2		57.2		

L1751476-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1751476-01 07/12/24 15:13 • (DUP) R4093914-10 07/12/24 15:13

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.240	0.202	0.191	0.158	-0.0342	0.0749	0.266	0.197	200	1.27	<u>U</u>	20	3
(T) Barium-133	80.6				87.9	87.9							

Laboratory Control Sample (LCS)

(LCS) R4093914-7 07/12/24 15:13

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.29	106	75.0-125	
(T) Barium-133			65.0		

L1751656-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1751656-06 07/12/24 15:13 • (MS) R4093914-8 07/12/24 15:13 • (MSD) R4093914-9 07/12/24 15:13

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.163	20.8	18.5	103	91.4	1	75.0-125			12.1		20
(T) Barium-133		76.8			65.3	69.7							

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

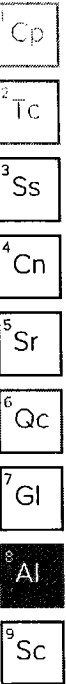
⁹ Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Internal Transfer Chain of Custody



☐ Rush Multiplier ☒ X
☐ Samples Pre-Logged into eCOC

State Of Origin: MN

Cert. Needed: ☒ Yes ☐ No

Owner Received Date: 6/12/2024 Results Requested By: 7/25/2024

Workorder: 10696218

Workorder Name: 31-0090 Otter Tail Power Co

Report To		Subcontract To		Requested Analysis													
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456		Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858															
						Preserved Containers						LAB USE ONLY					
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3											
1	24A1638 - H10	PS	6/10/2024 11:12	10696218001	Water	1/2											
2	24A1637 - H11	PS	6/10/2024 11:50	10696218002	Water	1/2											
3	24A1638 - H12	PS	6/10/2024 12:28	10696218003	Water	1/2											
4																	
5																	
														Comments			
Transfers	Released By	Date/Time	Received By	Date/Time													
1	Ben Lee / PACE	6/27/24 16:30	Eastern Org	6/28/24 14:00													
2																	
3																	
Cooler Temperature on Receipt		°C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N												

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

9.6403 = 4.9 E047

Sample Receipt Checklist
 If Applicable
 COC Seal Present/Intact: ☒ Y ☐ N
 COC Signed/Accurate: ☒ Y ☐ N
 Bottles arrive intact: ☒ Y ☐ N
 Correct bottles used: ☒ Y ☐ N
 Sufficient volume sent: ☒ Y ☐ N
 PA Screen <0.5 mR/hr: ☒ Y ☐ N
 VOA Zero Headspace: ☐ Y ☒ N
 Pres. Correct/Check: ☐ Y ☒ N
 6476 5644 6340



291517

Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER LABORATORY WORK ORDER # 10696218

(To be completed by sending lab)

Sending Project No:	10696218
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	06/13/24
REQUESTED COMPLETION DATE:	7/25/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units std Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed MN

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP3N	6	HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

Internal Transfer Chain of Custody



☐ Rush Multiplier ____X
☐ Samples Pre-Logged into eCOC

State Of Origin: MN

Cert. Needed: ☒ Yes ☐ No

Owner Received Date: 6/12/2024 Results Requested By: 7/25/2024

Workorder: 10696218

Workorder Name: 31-0090 Otter Tail Power Co

Report To		Subcontract To		Requested Analysis													
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456		Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858															
						Preserved Containers						Radium 226/228					
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3											
1	24A1636 - H10	PS	6/10/2024 11:12	10696218001	Water	7/10/24									X		
2	24A1637 - H11	PS	6/10/2024 11:50	10696218002	Water	7/10/24									X		
3	24A1638 - H12	PS	6/10/2024 12:28	10696218003	Water	7/10/24									X		
4																	
5																	
Comments																	
Transfers		Released By		Date/Time		Received By		Date/Time									
1		B. C. ONE		6/14/24 1700		[Signature]		6/15/24 900									
2																	
3																	
Cooler Temperature on Receipt		°C		Custody Seal Y or N		Received on Ice Y or N		Samples Intact Y or N									

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	If Applicable	
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	VOA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Pres. Correct/Check:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
PA Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N		

4.8 + 0.3 = 5.1



21751482

Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10696218

(To be completed by sending lab)

Sending Project No:	10696218
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	06/13/24
REQUESTED COMPLETION DATE:	7/25/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units std Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed MN

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP3N	6	HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

15 NCF-PACEMN WO#10696218

R5

Time estimate: oh

Time spent: oh

Members



Nicolle Faulk (responsible)



Naomi Sackett

Due on 21 June 2024 5:00 PM for target Done

- ☒ Login Clarification needed
- ☐ Chain of custody is incomplete
- ☐ Please specify Metals requested
- ☐ Please specify TCLP requested
- ☐ Received additional samples not listed on COC
- ☐ Sample IDs on containers do not match IDs on COC
- ☐ Client did not "X" analysis
- ☐ Chain of Custody is missing
- ☐ If no COC: Received by: _____
- ☐ If no COC: Date/Time: _____
- ☐ If no COC: Temp./Cont.Rec./pH: _____
- ☐ If no COC: Carrier: _____
- ☐ If no COC: Tracking #: _____
- ☐ Client informed by call
- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☐ Date/Time: _____
- ☐ PM initials: _____
- ☐ Client Contact: _____

Comments

Nicolle Faulk

15 June 2024 1:04 PM

Client requesting RA-226 & RA-228. Only received a 250ml HNO₃. insufficient sample volume

Nicolle Faulk

19 June 2024 12:52 PM

any word?

Naomi Sackett

20 June 2024 10:44 AM

contacting client

Naomi Sackett

20 June 2024 1:52 PM

client sending more volume tomorrow

*Nicolle Faulk**25 June 2024 10:16 AM*

I do not see this logged anywhere, any update on additional volume

*Nicolle Faulk**26 June 2024 2:35 PM*

Any update?

*Nicolle Faulk**2 July 2024 8:02 AM*

Any word?

*Nicolle Faulk**2 July 2024 8:56 AM*This has been logged under L1751482. Would you like the 250ml HNO₃ containers added or disposed of?*Naomi Sackett**2 July 2024 12:13 PM*

please add them for now

*Nicolle Faulk**2 July 2024 12:24 PM*

done

Field Service Chain of Custody Record

pages 1-8

Comments:

Samples Relinquished By: <i>Dy. [Signature]</i>			Samples Received By: <i>A. [Signature]</i>		
Date: <i>10 June 24</i>	Time: <i>1548</i>	Temp: <i>1.2°C</i>	Date: <i>10 Jun 24</i>	Time: <i>1548</i>	Temp: <i>1.2°C</i>
Samples Relinquished into: <i>Fridge</i> Log in Cart Other:					
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: <i>Samplers</i> Other:			Seal Number(s) - If Used		
Transport: <i>Ambient</i> <i>(ice)</i>	Other:		Seals Intact? Yes No		

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

Method

Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
pH	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97

Note: These are non-filtered samples.

CCR - Appendix IV - Assessment Monitoring

<i>Total Concentration Parameters</i>	Method
Antimony	SW6020A
Arsenic	SW602A
Barium	SW6010C
Beryllium	SW6020A
Cadmium	SW6020A
Chromium, Total	SW6020A
Cobalt	SW6010C
Fluoride	EPA 300
Lead	SW6020A
Lithium	SW6010C
Mercury	EPA 245.7
Molybdenum	SW6020A
Selenium	SW6020A
Thallium	SW6020A
Radium 226 + 228	

Note: These are non-filtered samples.

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

NM

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 10 Jun 24

Unique Station ID:

Sample ID: H10

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? Yes ☒ No
State ID Tag? Yes ☒ No
Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 38.53
Constructed Depth: 35.49
Casing Diameter: 2"
Water Level Before Purge: 5.83
Well Volume: 5.30 Gallons

Well Casing Elevation: 1090.83
Static Water Elevation: 1085
Previous Static:
Water Level After Sample: 25.70
Measurement Method: ☒ Elec. WLI ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 105° Wind: 7 SE Sky: Clear
Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:
Dedicated Equipment: ☒ Yes ☐ No
Well Purged Dry? ☒ Yes ☐ No
Time Purged Dry? 1107
Duplicate Sample? Yes ☒ No ☐ ID: —
Sample Appearance: General: clear Color: none Phase: none Odor: none
Pumping Rate: 0.25 gpm
Time Pump Began 1045 am / pm
Time of Sampling: 1112 am / pm
Sample EH: 136.3

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1107	6.89	5228	8.70	0.47	0	5.5	1	
							2	
							3	
							4	
1112	6.91	5205	8.8	0.34	5.3	—	5	recharge

Stabiliz Yes ☒ No

Amount Water Removed: 5.5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

NM

Site:

Otter Tail Power Co./ Big Stone

Facility ID:

Date:

10 June 24

Unique Station ID:

Sample ID:

H11

Well Condition

Well Locked? Yes No

Well Labeled? Yes No

Casing Straight? Yes No

Repairs Necessary:

Protective Posts? Yes

No

State ID Tag? Yes

No

Grout Seal Intact? Yes

No

Well Information

Well Depth:

44.32

Constructed Depth:

42.15

Casing Diameter:

2"

Water Level Before Purge:

6.35

Well Volume:

6.19

Gallons

Well Casing Elevation:

1093.24

Static Water Elevation:

1086.69

Previous Static:

Water Level After Sample:

30.80

Measurement Method:

Elec. WLI

Steel Tape

Sampling Information

Weather Conditions: Temp:

67

Wind:

7 SE

Sky:

Clear

Sampling Method:

Grundfos

Bladder S&T

Disp. Bailer

Whale

Grab

Other:

Dedicated Equipment: Yes No

Well Purged Dry? Yes No

Time Purged Dry:

1145

Duplicate Sample? Yes No

ID:

Sample Appearance: General:

Clear

Color:

none

Phase:

none

Odor: none

Pumping Rate:

2.25

gpm

Time Pump Began:

1120

am / pm

Time of Sampling:

1150

am / pm

Sample EH:

170.0

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1145	6.71	4257	8.9°	1.31	20.13	6.25	1	
							2	
							3	
							4	
1150	6.67	4305	9.0°	1.35	13.52	6.25	5	recharge

Stabiliz Yes

No

Amount Water Removed:

6.25

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date:

10 Jun 24

Unique Station ID:

Sample ID:

H12

Well Condition

Well Locked? Yes ☒ No ☐
Well Labeled? Yes ☒ No ☐
Casing Straight? Yes ☒ No ☐

Protective Posts? Yes ☐ No ☒
State ID Tag? Yes ☐ No ☒
Grout Seal Intact? Yes ☐ No ☒

Repairs Necessary:

Well Information

Well Depth: 22.63

Well Casing Elevation: NA

Constructed Depth: 24.00

Static Water Elevation:

Casing Diameter: 2"

Previous Static:

Water Level Before Purge: 15.63

Water Level After Sample: 15.85

Well Volume: 1.14 Gallons

Measurement Method: Elec. W/L Steel Tape

Sampling Information

Weather Conditions: Temp: 68° Wind: 7SE Sky: Clear

Sampling Method: Grundfos ☒ Bladder SS/T Disp. Bailer Whale Grab Other:

Dedicated Equipment: Yes ☒ No ☐

Pumping Rate: .25 gpm

Well Purged Dry? Yes ☒ No ☐

Time Pump Began: 1203 am / pm

Time Purged Dry: —

Time of Sampling: 1228 am / pm

Duplicate Sample? Yes ☒ No ☐ ID: —

Sample EH: 89.1 91.0

Sample Appearance: General: Clear Color: none Phase: none Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1208	7.97	459.7	10.20	2.19	51.87	1.25	1	
1213	7.96	466.4	10.20	2.32	29.84	2.50	2	
1218	7.92	472.6	10.20	2.95	28.39	3.75	3	
1223	7.87	546	10.20	3.05	20.61	5.00	4	
1228	7.79	604	10.20	3.41	20.81	6.25	5	

Stabilized? Yes ☒ No ☐ NM 10 Jun 24

Amount Water Removed: 3.75 NM 10 Jun 24 Gallons

Comments:

6.25

Exceptions to Protocol:

507 354 8517

Date: 10 June 24

	3	2	1	6			
Well Number	H2INT	H30X	H3INT	H4OX	H4INT	H5	H6
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	June 24						
Time	1048	1040	1042	1035	1037	1146	1115
Well Casing Elevation	1103.91	1095.26	1095.17	1108.25	1108.61	1122.8	1097.76
Depth to Water	55.21	2.71	22.05	12.79	12.28	6.21	7.59
Static Elevation	1048.70	1092.55	1073.12	1095.46	1083.6	1116.59	1090.17
Casing Diameter	2"	2"	2"	2"	2"	2"	2"
Well Depth	62.45	22.68	54.42	27.48	60.10	44.90	17.92
Well Volume	1.18	3.26	5.28	2.40	7.64	6.31	1.69
Well Locked	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Well Labeled	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Well Straight	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Protective Posts	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Grout Seal Intact	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no
Dedicated Equipment	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no	yes / no

507 354 8517

Date: 10 June 24

[illegible]



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvttl.com



Page: 1 of 20

FINAL REPORT COMPLETION DATE: 8 Oct 24 AX

Date Reported: 4 Oct 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 31-0122
Account #: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

Jeff Hoffman 07 Oct 24
Field Service Manager/Date Reviewed

[Signature] 04 Oct 24
Chemistry Lab Manager/Date Reviewed

[Signature] 04 Oct 2024
Quality Assurance Director/Date Reviewed

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

All data for this report has been approved by MVTL Laboratory Management.

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
 OTTER TAIL POWER CO
 PO BOX 496
 FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
 Lab Number: 24-A2341
 Work Order #: 31-0122
 Account #: 006106
 Sample Matrix: GROUNDWATER
 Date Sampled: 12 Aug 2024 12:12
 Sampled By: MVTL FIELD PERSONNEL
 Date Received: 12 Aug 2024 15:32
 PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H12

Temp at Receipt: 0.8C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					15 Aug 24	NS
Water Digestions					15 Aug 24	NS
pH, Field	7.80	units	1.00	SM4500-H+-2011	12 Aug 24 12:12	DS
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	13 Aug 24 13:17	KFL
Radium 226	0.84	pCi/L	0.60		26 Aug 24 16:32	OL
Radium 228	0.06	pCi/L	3.00	EPA M9320	26 Aug 24 14:44	OL
Sulfate	8.8	mg/L	5.0	ASTM D516-11	15 Aug 24 12:59	KRM
Chloride	< 3	mg/L	3	SM 4500 Cl E	15 Aug 24 13:02	AKF
Mercury	< 0.005	ug/L	0.005	EPA 245.7	29 Aug 24 13:37	RMB
Solids, Total Dissolved	133	mg/L	10	SM 2540 C-97	16 Aug 24 10:00	CC
Calcium	20.70	mg/L	0.500	SW6010D	16 Aug 24 16:57	KAM
Lithium	< 0.02	mg/L	0.02	SW6010D	16 Aug 24 16:57	KAM
Barium	0.039	mg/L	0.005	SW6010D	16 Aug 24 16:57	KAM
Cobalt	< 0.005	mg/L	0.005	SW6010D	16 Aug 24 16:57	KAM
Boron	0.369	mg/L	0.100	SW6010D	21 Aug 24 23:44	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	19 Aug 24 12:44	SS
Arsenic	1.27	ug/L	0.50	SW6020B	19 Aug 24 9:52	SS
Beryllium	< 0.1 ^	ug/L	0.05	SW6020B	19 Aug 24 12:44	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	19 Aug 24 9:52	SS
Chromium	1.77 ^	ug/L	0.50	SW6020B	19 Aug 24 12:44	SS
Lead	< 0.5	ug/L	0.5	SW6020B	19 Aug 24 9:52	SS
Molybdenum	39.4	ug/L	0.50	SW6020B	19 Aug 24 12:44	SS
Selenium	< 0.5	ug/L	0.5	SW6020B	19 Aug 24 12:44	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	19 Aug 24 12:44	SS
Fluoride	0.340 @	mg/L	0.020	EPA 300.0	14 Aug 24 2:21	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

Radium 228 subcontracted to:
 Pace Analytical Services Inc.
 1700 Elm Street Suite 200
 Minneapolis, MN 55414
 1-612-607-1700

^ The reporting limit (RL) was elevated due to instrument performance at the lower limit of quantitation (LLOQ). This will only impact results that are found to be below the elevated RL. Results above the elevated RL are unaffected.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards. The reporting limit was elevated for any analyte requiring a dilution as coded below:

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 ! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WN/DW # R-040



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Date Reported: 4 Oct 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202431-0122
Account Number: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

No problems were encountered with these analyses.

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2343
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:45
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 11

	As Received Result		Method RL	Method Reference	Date Analyzed		Analyst
Well Depth, Field	127.22	feet	NA	Field	12 Aug 24	11:45	DS
Water Level Before Purge	97.65	feet	NA	NA	12 Aug 24	11:45	DS
Static Elevation, Field	1006.35	ft	NA	Field	12 Aug 24	11:45	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards. The reporting limit was elevated for any analyte requiring a dilution as coded below:

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ =	Due to sample matrix	# =	Due to concentration of other analytes
! =	Due to sample quantity	+ =	Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2344
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:38
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 12

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	112.80	feet	NA	Field	12 Aug 24 11:38	DS
Water Level Before Purge	65.74	feet	NA	NA	12 Aug 24 11:38	DS
Static Elevation, Field	1006.15	ft	NA	Field	12 Aug 24 11:38	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

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@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2345
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:33
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: WELL 1

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	78.00	feet	NA	Field	12 Aug 24 11:33	DS
Water Level Before Purge	61.18	feet	NA	NA	12 Aug 24 11:33	DS
Static Elevation, Field	1029.53	ft	NA	Field	12 Aug 24 11:33	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
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! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
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FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2346
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:09
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H10X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	32.33	feet	NA	Field	12 Aug 24 11:09	DS
Water Level Before Purge	25.33	feet	NA	NA	12 Aug 24 11:09	DS
Static Elevation, Field	1090.56	ft	NA	Field	12 Aug 24 11:09	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WH/DW # R-040

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JOSH HOLLEN
OTTER TAIL POWER CO
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FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2347
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:11
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H1INT

	As Received Result		Method RL	Method Reference	Date Analyzed		Analyst
Well Depth, Field	60.15	feet	NA	Field	12 Aug 24	11:11	DS
Water Level Before Purge	25.80	feet	NA	NA	12 Aug 24	11:11	DS
Static Elevation, Field	1090.01	ft	NA	Field	12 Aug 24	11:11	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards. The reporting limit was elevated for any analyte requiring a dilution as coded below:

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix	# = Due to concentration of other analytes
! = Due to sample quantity	+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
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FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2348
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 10:55
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H2Ox

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	32.83	feet	NA	Field	12 Aug 24 10:55	DS
Water Level Before Purge	7.95	feet	NA	NA	12 Aug 24 10:55	DS
Static Elevation, Field	1095.91	ft	NA	Field	12 Aug 24 10:55	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2349
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 10:57
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H2INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	62.45	feet	NA	Field	12 Aug 24 10:57	DS
Water Level Before Purge	61.36	feet	NA	NA	12 Aug 24 10:57	DS
Static Elevation, Field	1042.55	ft	NA	Field	12 Aug 24 10:57	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WN/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2350
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:04
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H30X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	22.68	feet	NA	Field	12 Aug 24 11:04	DS
Water Level Before Purge	5.13	feet	NA	NA	12 Aug 24 11:04	DS
Static Elevation, Field	1090.13	ft	NA	Field	12 Aug 24 11:04	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
I = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2351
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:02
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H3INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	54.42	feet	NA	Field	12 Aug 24 11:02	DS
Water Level Before Purge	27.09	feet	NA	NA	12 Aug 24 11:02	DS
Static Elevation, Field	1068.08	ft	NA	Field	12 Aug 24 11:02	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2352
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 10:45
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H40X

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	27.48	feet	NA	Field	12 Aug 24 10:45	DS
Water Level Before Purge	15.38	feet	NA	NA	12 Aug 24 10:45	DS
Static Elevation, Field	1092.87	ft	NA	Field	12 Aug 24 10:45	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2353
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 10:47
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H4INT

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	60.10	feet	NA	Field	12 Aug 24 10:47	DS
Water Level Before Purge	15.79	feet	NA	NA	12 Aug 24 10:47	DS
Static Elevation, Field	1092.82	ft	NA	Field	12 Aug 24 10:47	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2354
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:53
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H5

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	44.90	feet	NA	Field	12 Aug 24 11:53	DS
Water Level Before Purge	8.95	feet	NA	NA	12 Aug 24 11:53	DS
Static Elevation, Field	1113.85	ft	NA	Field	12 Aug 24 11:53	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2355
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:15
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H6

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	17.92	feet	NA	Field	12 Aug 24 11:15	DS
Water Level Before Purge	10.71	feet	NA	NA	12 Aug 24 11:15	DS
Static Elevation, Field	1087.05	ft	NA	Field	12 Aug 24 11:15	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvttl.com



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2356
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:30
Sampled By: MVTFL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H7

	As Received Result		Method RL	Method Reference	Date Analyzed		Analyst
Well Depth, Field	35.60	feet	NA	Field	12 Aug 24	11:30	DS
Water Level Before Purge	18.52	feet	NA	NA	12 Aug 24	11:30	DS
Static Elevation, Field	1087.54	ft	NA	Field	12 Aug 24	11:30	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

```
# = Due to concentration of other analytes
```

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2357
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:20
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H8

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	22.33	feet	NA	Field	12 Aug 24 11:20	DS
Water Level Before Purge	18.85	feet	NA	NA	12 Aug 24 11:20	DS
Static Elevation, Field	1062.38	ft	NA	Field	12 Aug 24 11:20	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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www.mvttl.com



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 4 Oct 2024
Lab Number: 24-A2358
Work Order #: 31-0122
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 12 Aug 2024 11:23
Sampled By: MVTL FIELD PERSONNEL
Date Received: 12 Aug 2024 15:32
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H9

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	30.71	feet	NA	Field	12 Aug 24 11:23	DS
Water Level Before Purge	16.93	feet	NA	NA	12 Aug 24 11:23	DS
Static Elevation, Field	1069.28	ft	NA	Field	12 Aug 24 11:23	DS

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

Quality Control Report

Lab ID: 24-A2341

Project: BIG STONE PLANT CCR

Work Order: 202431-0122

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	101	85-115	25.0	59237004qc	< 1	26.2	105	75-125	26.2	26.2	105	0.0	10	98	90-110	< 0.5
Arsenic ug/L	25.0	99	85-115	25.0	59237004qc	< 0.5	27.8	111	75-125	27.8	27.2	109	2.2	10	98	90-110	< 0.5
Barium mg/L	1.000	98	85-115	1.00	59170001qc	0.136	1.130	99	75-125	1.130	1.140	100	0.9	10	98	90-110	< 0.005
Beryllium ug/L	2.50	88	85-115	2.50	59237004qc	< 0.1	2.14	86	75-125	2.14	2.17	87	1.4	10	96	90-110	< 0.05
Boron mg/L	2.000	102	85-115	2.00	59560001qc	0.315	2.500	109	75-125	2.500	2.540	111	1.6	10	98	90-110	< 0.1
Cadmium ug/L	5.00	95	85-115	5.00	59237004qc	< 0.1	4.70	94	75-125	4.70	4.69	94	0.2	10	96	90-110	< 0.1
Calcium mg/L	50.00	100	85-115	50.0	59170001qc	82.80	135.0	104	75-125	135.0	135.0	104	0.0	10	103	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	3916qc	< 3	60.9	101	80-120	60.9	60.6	101	0.5	10	102	90-110	< 3
Chromium ug/L	25.0	97	85-115	25.0	59237004qc	3.32	26.0	91	75-125	26.0	25.2	88	3.1	10	98	90-110	< 0.5
Cobalt mg/L	1.000	98	85-115	1.00	59170001qc	< 0.005	0.967	97	75-125	0.967	0.972	97	0.5	10	101	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00	58564001qc	< 0.1	1.10	110	80-120	1.10	1.10	110	0.0	10	104	90-110	-
Lead ug/L	25.0	96	85-115	25.0	59237004qc	< 2.5	26.0	104	75-125	26.0	25.4	102	2.3	10	97	90-110	< 0.5
Lithium mg/L	1.000	102	85-115	1.00	59170001qc	< 0.02	1.020	102	75-125	1.020	1.020	102	0.0	10	99	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	24-A2341	< 0.005	0.107	107	63-111	0.107	0.108	108	0.9	18	91	76-113	< 0.005
Molybdenum ug/L	25.0	97	85-115	25.0	59237004qc	5.14	31.4	105	75-125	31.4	31.9	107	1.6	10	96	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.2	7.2	-	0.0	2.5	100	90-110	-
Selenium ug/L	25.0	107	85-115	25.0	59237004qc	< 1	28.8	115	75-125	28.8	28.8	115	0.0	10	100	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	133	126	-	5.4	50	100	85-115	< 10
Sulfate mg/L	-	-	-	50.0	24-A2341	8.8	57.3	97	85-115	57.3	61.4	105	6.9	10	97	80-120	< 5
Thallium ug/L	5.00	97	85-115	5.00	59237004qc	< 0.2	5.24	105	75-125	5.24	5.30	106	1.1	10	98	90-110	< 0.1

 Approved by: 



August 28, 2024

Todd Rieger
MVTL Laboratories
1126 North Front Street
New Ulm, MN 56073

RE: Project: 31-0122 Ottertail Power
Pace Project No.: 10704316

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on August 15, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-6456
Project Manager

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.



SAMPLE SUMMARY

Project: 31-0122 Ottertail Power
Pace Project No.: 10704316

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10704316001	24-A2341	Water	08/12/24 12:12	08/15/24 10:12

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 1 of 1	
Company: MVTL		Report To: Todd Rieger		Attention: AP			
Address: 1126 NORTH FRONT BLDG #2		Copy To: trieger@mvtl.com and bzins@mvtl.com		Company Name: MVTL		REGULATORY AGENCY:	
NEW ULM, MN 56073		alieder@mvtl.com		Address: 1126 NORTH FRONT BLDG 2		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
Email To: alieder@mvtl.com		Purchase Order No.: CR13299		Pace Quote Reference:		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input checked="" type="checkbox"/> OTHER <u>WW</u>	
Phone: 507-354-8517		Project Name: Ottertail Power		Pace Project Manager:		Site Location	
Requested Due Date/TAT: standard		Project Number: Work Order: 31-0122		Pace Profile #:		STATE: MN	

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test Y/N	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	2,3,7,8 TCDD method 161	Radium 226/228		PFAs State Pricing	Dioxins/Furans	VOC's by 8260																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	SAMPLE CONDITIONS			
						Pace		8/15/24	10:12	3,3	Y	N	Y

WO#: 10704316



SAMPLER NAME AND SIGNATURE:		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:					
SIGNATURE of SAMPLER:					
DATE Signed (MM/DD/YY):					

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: MVTL

PROJECT #:

WO#: **10704316**

COURIER: ☒ Client ☐ Commercial ☐ FedEx ☐ Pace
☐ Speedee ☐ UPS ☐ USPS

PM: PG Due Date: 09/16/24

CLIENT: MVTL

TRACKING NUMBER: ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A

Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☒ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710)

☐ Melted ☐ None

Did Samples Originate in West Virginia: <input type="checkbox"/> YES <input type="checkbox"/> NO	Were All Container Temps taken: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
Correction Factor: <u>-0.7</u> Cooler Temp Read w/Temp Blank: <u>3.5</u> °C	Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: <u>3.3</u> °C	<input type="checkbox"/> See Exceptions Form ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container
NOTE: Temp should be above freezing to 6°C.	

USDA Regulated Soil: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Water Sample/Other (describe): _____	Initials & Date of Person Examining Contents: <u>JMW 8/16/24</u>
Did Samples originate from one of the following states (check maps) - AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): <input type="checkbox"/> DULUTH <input checked="" type="checkbox"/> MINNEAPOLIS <input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.								
Chain of Custody Reinquished?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.								
Sampler Name and/or Signature on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.								
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No								
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho-Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____								
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.								
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.								
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.								
- Pace Containers Used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>									
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.								
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <u>Medium</u> <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO								
NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.				<p>pH Paper Lot #</p> <table border="1"> <tr> <th>Residual Chlorine</th> <th>0-6 Roll</th> <th>0-6 Strip</th> <th>0-14 Strip</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip				
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip									
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.								
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.								
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140								
Trip Blanks Present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15.								
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Rupert Sholas

Date: 8/16/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: JMW

Line: 5

Abstract

State Of Origin: MN
 Cert. Needed: ☒ Yes ☐ No
 Owner Received Date: 8/15/2024

[illegible]

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

 $0.963 \sim 1.2 \text{ TLA}$

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable
COC Signed/Accurate:	Y N	VCA Zero Headspace: <u>Y</u> N
Bottles arrive intact:	Y N	Pres. Correct/Check: <u>Y</u> N
Correct bottles used:	Y N	
Sufficient volume sent:	Y N	
RA Screen <0.5 mR/hr:	Y N	

647656456810

①

PH-10BDH0941
TRC-32234228



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

10/08/17

INTER LABORATORY WORK ORDER # 10704316
(To be completed by sending lab)

Sending Project No:	10704316
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	08/16/24
REQUESTED COMPLETION DATE:	9/16/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N	2	HNO3	1	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C), FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

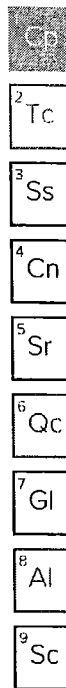


ANALYTICAL REPORT

August 27, 2024

Pace Analytical - Minnesota

Sample Delivery Group: L1769277
Samples Received: 08/20/2024
Project Number: 10704316
Description:
Site: 001
Report To: Piper Gibbs

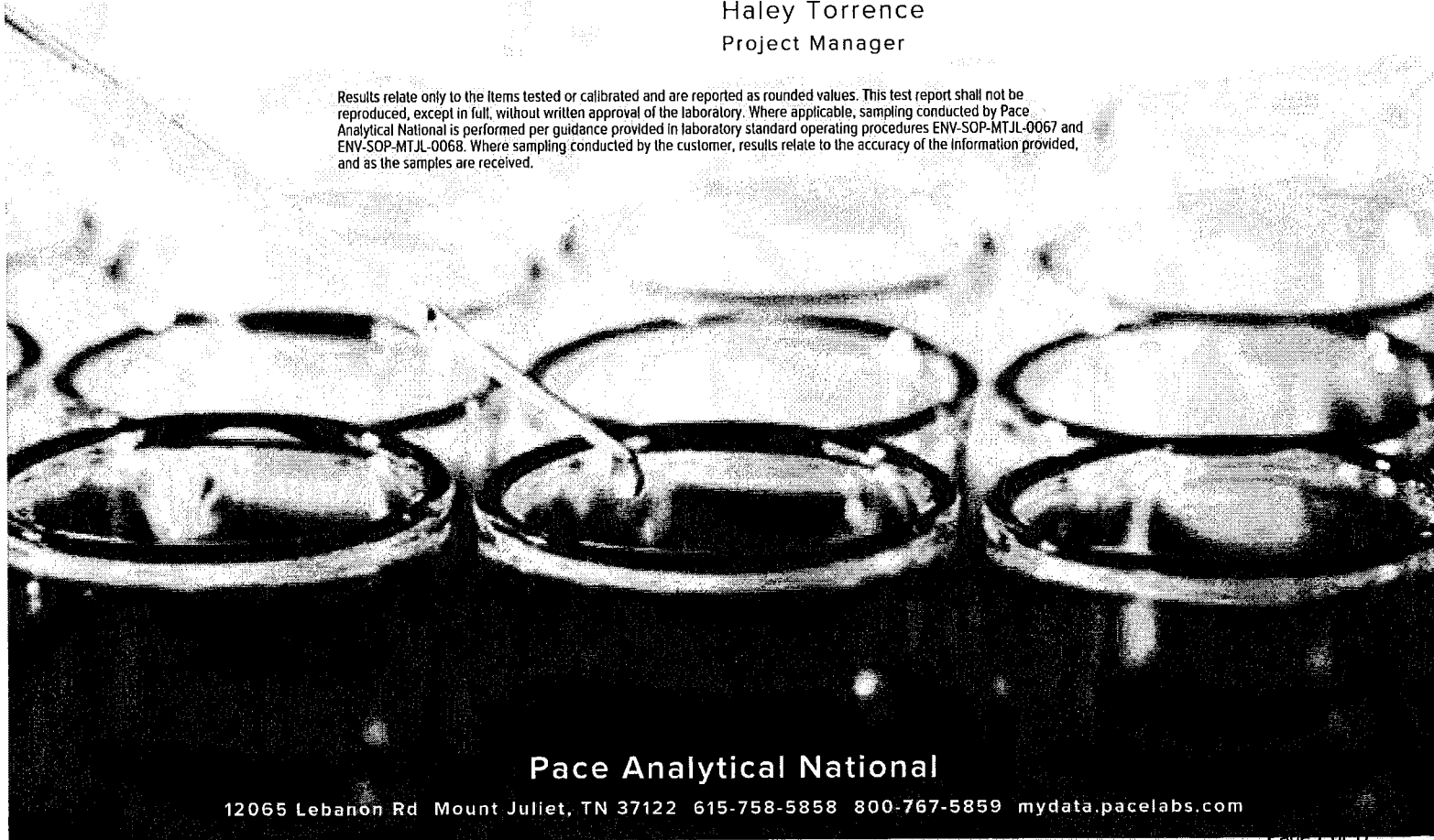


Entire Report Reviewed By:

Haley Torrence

Haley Torrence
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:
Pace Analytical - Minnesota

PROJECT:
10704316

SDG:
L1769277

DATE/TIME:
08/27/24 16:35

PAGE:
1 of 11

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Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
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Qc: Quality Control Summary	6	⁴ Cn
Radiochemistry by Method 904/9320	6	
Radiochemistry by Method SM7500Ra B M	7	⁵ Sr
Gl: Glossary of Terms	8	⁶ Qc
Al: Accreditations & Locations	9	⁷ Gl
Sc: Sample Chain of Custody	10	⁸ Al
		⁹ Sc

SAMPLE SUMMARY

Collected by
Collected date/time
Received date/time

24-A2341 L1769277-01 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2346919	1	08/20/24 17:04	08/26/24 14:44	ALG	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2349255	1	08/23/24 15:02	08/26/24 16:32	ZRG	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

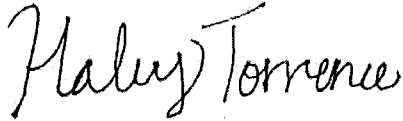
7Gl

8Al

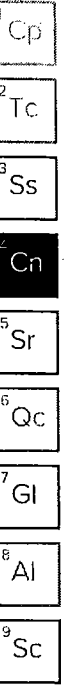
9Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Haley Torrence
Project Manager



24-A2341

Collected date/time: 08/12/24 12:12

SAMPLE RESULTS - 01

L1769277

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.0603	<u>U</u>	0.228	0.437	0.420	0.222	08/26/2024 14:44	WG2346919
(T) Barium	104					30.0-143	08/26/2024 14:44	WG2346919
(T) Yttrium	90.2					30.0-136	08/26/2024 14:44	WG2346919

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.836		0.345	0.750	0.249	0.174	08/26/2024 16:32	WG2349255
(T) Barium-133	108					30.0-143	08/26/2024 16:32	WG2349255



WG2346919

Radiochemistry by Method 904/9320

QUALITY CONTROL SUMMARY

L1769277-01

Method Blank (MB)

(MB) R4112196-1 08/26/24 14:44

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.238	J	0.143	0.257	0.135
(T) Barium	113		113		
(T) Yttrium	108		108		

L1769402-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1769402-01 08/26/24 14:44 • (DUP) R4112196-5 08/26/24 14:44

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.612	0.320	0.570	0.300	0.660	0.418	0.750	0.392	7.53	0.0910	J	20	3
(T) Barium	116				113	113							
(T) Yttrium	99.8				79.5	79.5							

Laboratory Control Sample (LCS)

(LCS) R4112196-2 08/26/24 14:44

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.36	107	80.0-120	
(T) Barium			117		
(T) Yttrium			94.0		

L1766049-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1766049-03 08/26/24 14:44 • (MS) R4112196-3 08/26/24 14:44 • (MSD) R4112196-4 08/26/24 14:44

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	2.05	15.9	17.7	82.8	93.8	1	70.0-130			10.9		20
(T) Barium		105			119	92.2							
(T) Yttrium		99.4			95.3	109							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG2349255

Radiochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY

L1769277-01

Method Blank (MB)

(MB) R4112000-1 08/26/24 16:32

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0275	<u>U</u>	0.0645	0.102	0.0659
(T) Barium-133	88.7		88.7		

L1770075-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1770075-01 08/26/24 16:32 • (DUP) R4112000-5 08/26/24 16:32

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.210	0.224	0.294	0.206	0.302	0.248	0.289	0.200	35.8	0.274		20	3
(T) Barium-133	96.4				90.0	90.0							

Laboratory Control Sample (LCS)

(LCS) R4112000-2 08/26/24 16:32

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.38	108	75.0-125	
(T) Barium-133			94.9		

L1770070-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1770070-04 08/26/24 16:32 • (MS) R4112000-3 08/26/24 16:32 • (MSD) R4112000-4 08/26/24 16:32

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.0754	18.3	19.2	90.9	95.5	1	75.0-125			4.91		20
(T) Barium-133		91.6			87.3	92.1							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radiolotope of known concentration added to a solution of chemically equivalent radiolotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

1	Cp
2	Tc
3	Ss
4	Cn
5	Sr
6	Qc
7	Gl
8	Al
9	Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

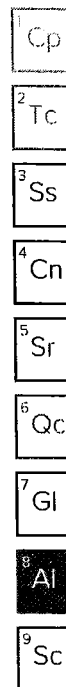
Alabama	40660
Alaska	17-026
Arizona	AZ0612
Arkansas	88-0469
California	2932
Colorado	TN00003
Connecticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia ¹	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky ^{1 6}	KY90010
Kentucky ²	16
Louisiana	AI30792
Louisiana	LA018
Maine	TN00003
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
AZLA – ISO 17025	1461.01
AZLA – ISO 17025 ⁵	1461.02
Canada	1461.01
EPA-Crypto	TN00003

Nebraska	NE-OS-15-05
Nevada	TN000032021-1
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico ¹	TN00003
New York	11742
North Carolina	Env375
North Carolina ¹	DW21704
North Carolina ³	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LA000356
South Carolina	84004002
South Dakota	n/a
Tennessee ^{1 4}	2006
Texas	T104704245-20-18
Texas ⁵	LAB0152
Utah	TN000032021-11
Vermont	VT2006
Virginia	110033
Washington	C847
West Virginia	233
Wisconsin	998093910
Wyoming	A2LA
AIHA-LAP, LLC EMLAP	100789
DOD	1461.01
USDA	P330-15-00234

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



State Of Origin: MN
 Cert. Needed: ☒ Yes ☐ No
 Owner Received Date: 8/15/2024



Workorder Name: 31-0122 Ottertail Power

Owner Received Date: 8/15/2024 Results Requested by:

Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

Requested Analysis

Radium 226/228 23

L 170977

LAB USE ONLY

①

Preserved Containers

[illegible]

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Bir Creech / PACE	8/19/24 1330	Denny	8/20/24 0900	
2					
3					

Cooler Temperature on Receipt °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N
----------------------------------	---------------------	------------------------	-----------------------

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature must be redacted.

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

 $0.963 \sim 1.2 \text{ TLA}$

Sample Receipt Checklist

COC Seal Present/Intact: Y N If Applicable
 COC Signed/Accurate: Y N VOR Zero Headspace: Y N
 Bottles arrive intact: Y N Pres. Correct/Check: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 RA Screen <0.5 mL/hr: Y N

647616456810

PH-10BDH0941

TRC-3223A228

Friday, August 16, 2024 2:22:57 PM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1
Page 16 of 17



Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

17

INTER LABORATORY WORK ORDER # 10704316
(To be completed by sending lab)

Sending Project No:	10704316
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	08/16/24
REQUESTED COMPLETION DATE:	9/16/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED						
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N	2	HNO3	1	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C), FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

31-0122

By AD Date 12 Aug 27
pages 1-7

Field Service Chain of Custody Record

Sample Information						Bottle Type								Analysis					
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	1000 HNO3 Inner Mountain	500 None	1000 none	500 HNO3	Filter? Y or N	500 H2SO4	Filter? Y or N	1000 HNO3 Pace	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other: 150 None	Analysis Required
A2341	H12		12Aug24	1212	GW				1	1	N			2					CCR 3&4

Comments:

Samples Relinquished By: <i>[Signature]</i>			Samples Received By:		
Date: 17 Aug 24	Time: 1532	Temp: 8.4	Date:	Time:	Temp:
Samples Relinquished into: <u>Eridge</u> Log in Cart Other: 85					
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: <u>Samplers</u>	Other:		Seal Number(s) - If Used		
Transport: Ambient <u>Ice</u>	Other:		Seals Intact? Yes No		

Big Stone

Daily Field Meter Calibration Sheet

pH Calibration: Cal Data: 4.0, 7.0, and 10.0

Conductivity Calibration: Cal Data: 1.412

D.O. Calibration: Cal Data: 8.73 @ 22.71 mg/L

Temperature Calibration: _____

Date: 12 Aug 24 Signed: DS

pH Calibration: Cal Data: 4.0, 7.0, and 10.0

Conductivity Calibration: Cal Data: 1.412

D.O. Calibration: Cal Data: _____ mg/L

Temperature Calibration: _____

Date: _____ Signed: _____

pH Calibration: Cal Data: 4.0, 7.0, and 10.0

Conductivity Calibration: Cal Data: 1.412

D.O. Calibration: Cal Data: _____ mg/L

Temperature Calibration: _____

Date: _____ Signed: _____

pH Calibration: Cal Data: 4.0, 7.0, and 10.0

Conductivity Calibration: Cal Data: 1.412

D.O. Calibration: Cal Data: _____ mg/L

Temperature Calibration: _____

Date: _____ Signed: _____

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

Method

Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
pH	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97

Note: These are non-filtered samples.

CCR - Appendix IV - Assessment Monitoring

Total Concentration Parameters

Method	
Antimony	SW6020A
Arsenic	SW602A
Barium	SW6010C
Beryllium	SW6020A
Cadmium	SW6020A
Chromium, Total	SW6020A
Cobalt	SW6010C
Fluoride	EPA 300
Lead	SW6020A
Lithium	SW6010C
Mercury	EPA 245.7
Molybdenum	SW6020A
Selenium	SW6020A
Thallium	SW6020A
Radium 226 + 228	

Note: These are non-filtered samples.

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

JS

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date:

12 Aug 24

Unique Station ID:

Sample ID:

H12

Well Condition

Well Locked? Yes ☒ No
Well Labeled? ☒ Yes No
Casing Straight? ☒ Yes No

Protective Posts? Yes ☒ No
State ID Tag? Yes ☒ No
Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 22.63

Well Casing Elevation: NA

Constructed Depth: 24.00

Static Water Elevation: 1

Casing Diameter: 2"

Previous Static: 1

Water Level Before Purge: 16.78

Water Level After Sample: 16.95

Well Volume: 0.95 Gallons

Measurement Method: ☒ Elec. Well ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 75° Wind: ESE@6 Sky: Partly Cloudy

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes No

Time Pump Began: 1200 am / ☒ pm

Time Purged Dry?

Time of Sampling: 1212 am / ☒ pm

Duplicate Sample? Yes ☒ No ID: -

Sample EH: 107.5

Sample Appearance: General: Clear Color: none Phase: none Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1204	7.70	291	11.43	NA	NA	1	1	
1208	7.74	290	11.21	1	1	2	2	
1212	7.80	290	11.14	1	1	3	3	
							4	
							5	

Stabilized? ☒ Yes No

Amount Water Removed: 3 Gallons

Comments:

Exceptions to Protocol:

507 354 8517

Date: 12 Aug 24

DS

(A)
DS
12 Aug 24

[illegible]

507 354 8517

12 Aug 24

[illegible]



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com



Page: 1 of 12

FINAL REPORT COMPLETION DATE: 2 Dec 24 AH

Date Reported: 26 Nov 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 31-0147
Account #: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

Josh Hollen 27 Nov 24
Field Service Manager/Date Reviewed

[Signature] 26 Nov 24
Chemistry Lab Manager/Date Reviewed

[Signature] 26 Nov 2024
Quality Assurance Director/Date Reviewed

RL = Reporting Limits
NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
ND = Not Determined

All data for this report has been approved by MVTl Laboratory Management.

MVTl guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTl to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTl. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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www.mvttl.com



Page: 2 of 12

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2716
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 12:14
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H2OX

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					15 Oct 24	NS
pH, Field	6.45	units	1.00	SM4500-H+-2011	14 Oct 24 12:14	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:37	CC
Sulfate	2040 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	3.5	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	3760	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	500.0 ~	mg/L	0.500	SW6010D	22 Oct 24 12:11	RMV
Boron	0.233	mg/L	0.100	SW6010D	22 Oct 24 12:11	RMV
Fluoride	0.300	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2717
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 10:29
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H30X

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					15 Oct 24	NS
pH, Field	6.40	units	1.00	SM4500-H+-2011	14 Oct 24 10:29	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:37	CC
Sulfate	1190 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	65.4	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	2880	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	383.0 ~	mg/L	0.500	SW6010D	22 Oct 24 12:11	RMV
Boron	6.730 ~	mg/L	0.100	SW6010D	22 Oct 24 12:11	RMV
Fluoride	0.340	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2718
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 11:14
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H40X

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					15 Oct 24	NS
pH, Field	6.51	units	1.00	SM4500-H+-2011	14 Oct 24 11:14	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:56	CC
Sulfate	922 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	39.6	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	2090	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	272.0	mg/L	0.500	SW6010D	21 Oct 24 14:39	RMV
Boron	0.494	mg/L	0.100	SW6010D	22 Oct 24 12:11	RMV
Fluoride	0.480	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2719
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 12:40
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H8

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					22 Oct 24	NS
pH, Field	7.16	units	1.00	SM4500-H+-2011	14 Oct 24 12:40	DGF
pH	* 7.3	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:56	CC
Sulfate	276 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	3.4	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	941	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	112.0	mg/L	0.500	SW6010D	21 Oct 24 14:39	RMV
Boron	2.590 @	mg/L	0.100	SW6010D	22 Oct 24 12:11	RMV
Fluoride	0.510	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2720
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 13:21
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H9

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Oct 24	RMV
pH, Field	6.60	units	1.00	SM4500-H+-2011	14 Oct 24 13:21	DGF
pH	* 6.9	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:56	CC
Sulfate	1370 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	80.8	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	2800	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	610.0	mg/L	0.500	SW6010D	22 Oct 24 12:39	RMV
	~See Narrative					
Boron	1.290	mg/L	0.100	SW6010D	21 Oct 24 15:19	RMV
Fluoride	0.310	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2721
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 12:41
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H10

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Oct 24	RMV
pH, Field	6.38	units	1.00	SM4500-H+-2011	14 Oct 24 12:41	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:56	CC
Sulfate	2690 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	6.8	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	4200	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	356.0	mg/L	0.500	SW6010D	22 Oct 24 12:39	RMV
	See Narrative					
Boron	0.273	mg/L	0.100	SW6010D	21 Oct 24 15:19	RMV
Fluoride	0.190	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2722
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 14:12
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Oct 24	RMV
pH, Field	6.66	units	1.00	SM4500-H+-2011	14 Oct 24 14:12	DS
pH	* 6.8	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:56	CC
Sulfate	2250 ~	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	4.0	mg/L	3.0	SM 4500 Cl E	17 Oct 24 13:21	AKF
Solids, Total Dissolved	4140	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	607.0	mg/L	0.500	SW6010D	22 Oct 24 12:39	RMV
	~See Narrative					
Boron	0.218	mg/L	0.100	SW6010D	21 Oct 24 15:19	RMV
Fluoride	0.150	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

~ Sample diluted due to result above calibration of linear range.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2723
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 13:42
Sampled By: MVT L FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H12

Temp at Receipt: 0.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					15 Oct 24	NS
Water Digestions					16 Oct 24	RMV
pH, Field	8.23	units	1.00	SM4500-H+-2011	14 Oct 24 13:42	DS
pH	* 8.0	units	1.0	SM 4500 H+ B-2000	15 Oct 24 11:56	CC
Radium 226	0.09	pCi/L	0.60		6 Nov 24 18:46	OL
Radium 228	0.74	pCi/L	3.00	EPA M9320	8 Nov 24 20:00	OL
Sulfate	8.4	mg/L	5.0	ASTM D516-11	17 Oct 24 12:37	KRM
Chloride	< 3	mg/L	3	SM 4500 Cl E	17 Oct 24 13:21	AKF
Mercury	0.009	ug/L	0.005	EPA 245.7	22 Oct 24 11:26	RMB
Solids, Total Dissolved	197	mg/L	10	SM 2540 C-97	15 Oct 24 9:30	CC
Calcium	25.60	mg/L	0.500	SW6010D	22 Oct 24 12:39	RMV
	See Narrative					
Lithium	< 0.02	mg/L	0.02	SW6010D	22 Oct 24 12:39	RMV
Barium	0.067	mg/L	0.005	SW6010D	21 Oct 24 15:19	RMV
Beryllium	< 0.005	mg/L	0.005	SW6010D	21 Oct 24 15:19	RMV
Chromium	< 0.01	mg/L	0.01	SW6010D	21 Oct 24 15:19	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	21 Oct 24 15:19	RMV
Molybdenum	0.039	mg/L	0.015	SW6010D	21 Oct 24 15:19	RMV
Boron	0.358	mg/L	0.100	SW6010D	21 Oct 24 15:19	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	17 Oct 24 12:08	SS
Arsenic	2.52	ug/L	0.50	SW6020B	17 Oct 24 10:22	SS
Cadmium	< 0.2 ^	ug/L	0.1	SW6020B	17 Oct 24 12:08	SS
Lead	1.36	ug/L	0.50	SW6020B	17 Oct 24 10:22	SS
Selenium	< 0.5	ug/L	0.5	SW6020B	17 Oct 24 12:08	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	17 Oct 24 10:22	SS
Fluoride	0.310 @	mg/L	0.020	EPA 300.0	19 Oct 24 1:48	MDH

* Holding Time Exceeded

Radium 226 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

Radium 228 subcontracted to:
Pace Analytical Services Inc.
1700 Elm Street Suite 200
Minneapolis, MN 55414
1-612-607-1700

^ The reporting limit (RL) was elevated due to instrument performance at the lower limit of quantitation (LLOQ). This will only impact results that are found to be below the elevated RL. Results above the elevated RL are unaffected.

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards. The reporting limit was elevated for any analyte requiring a dilution as coded below:

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CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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Date Reported: 26 Nov 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202431-0147
Account Number: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

Due to the high concentration of calcium in the spiked sample, the matrix spike duplicate recovery was outside of acceptance range for samples 24-A2720 through 24-A2723. Data was reported based on the acceptable recovery of calcium in the laboratory control spike and the relative percent difference between matrix spikes.

No other problems were encountered with these analyses.



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JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Report Date: 26 Nov 2024
Lab Number: 24-A2724
Work Order #: 31-0147
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Oct 2024 12:11
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Oct 2024 16:20
PO #: 108267

Project Name: BIG STONE PLANT CCR

Sample Description: H6

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Well Depth, Field	17.92	feet	NA	Field	14 Oct 24 12:11	DGF
Water Level Before Purge	16.86	feet	NA	NA	14 Oct 24 12:11	DGF

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040



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Date Reported: 26 Nov 2024

JOSH HOLLEN
OTTER TAIL POWER CO
PO BOX 496
FERGUS FALLS MN 56538-0496

Work Order #: 202431-0147
Account Number: 006106
PO #: 108267

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INSUFFICIENT VOLUME TO PURGE/SAMPLE - NO SAMPLE



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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MEMBER
ACIL

Quality Control Report

Lab IDs: 24-A2716 to 24-A2723

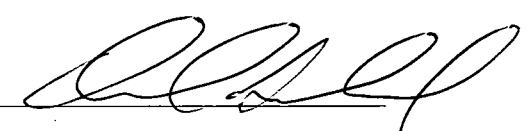
Project: BIG STONE PLANT CCR

Work Order: 202431-0147

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Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	102	85-115	25.0	24A2723q	< 0.5	26.2	105	75-125	26.2	26.2	105	0.0	10	102	90-110	< 0.5
Arsenic ug/L	25.0	105	85-115	25.0	24A2723q	2.52	28.0	102	75-125	28.0	27.4	100	2.2	10	100	90-110	< 0.5
Barium mg/L	1.000	99	85-115	1.00	a2720qc	0.011	1.050	104	75-125	1.050	1.040	103	1.0	10	97	90-110	< 0.005
Beryllium mg/L	1.000	95	85-115	1.00	a2720qc	< 0.005	0.9780	98	75-125	0.9780	0.9640	96	1.4	10	97	90-110	< 0.005
Boron mg/L	1.000	96	85-115	1.00	a2720qc	1.290	2.460	117	75-125	2.460	2.420	113	1.6	10	94	90-110	< 0.1
	1.000	97	85-115	1.00	24A2719q	2.590	3.450	86	75-125	3.450	3.490	90	1.2	10	94	90-110	< 0.1
Cadmium ug/L	5.00	106	85-115	5.00	24A2723q	< 0.2	5.39	108	75-125	5.39	5.33	107	1.1	10	100	90-110	< 0.1
Calcium mg/L	50.00	86	85-115	50.0	a2719qc	112.0	170.0	116	75-125	170.0	168.0	112	1.2	10	101	90-110	< 0.5
	50.00	87	85-115	50.0	24A2719q	112.0	157.0	90	75-125	157.0	158.0	92	0.6	10	101	90-110	< 0.5
	50.00	100	85-115	50.0	24A2720q	610.0	662.0	104	75-125	662.0	614.0	8	7.5	10	102	90-110	< 0.5
	-	-	-	50.0	24A2708q	164.0	213.0	98	75-125	213.0	215.0	102	0.9	10	-	-	-
Chloride mg/L	-	-	-	60.0	24-A2721	6.8	67.8	102	80-120	67.8	66.9	100	1.3	10	101	90-110	< 3
Chromium mg/L	1.000	92	85-115	1.00	a2720qc	< 0.01	0.959	96	75-125	0.959	0.957	96	0.2	10	96	90-110	< 0.01
Cobalt mg/L	1.000	98	85-115	1.00	a2720qc	< 0.005	0.946	95	75-125	0.946	0.936	94	1.1	10	99	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00	24-A2723qc	0.310	1.30	99	80-120	1.30	1.32	101	1.5	10	95	90-110	< 0.02
Lead ug/L	25.0	100	85-115	25.0	24A2723q	1.36	26.7	101	75-125	26.7	26.7	101	0.0	10	101	90-110	< 0.5
Lithium mg/L	1.000	101	85-115	1.00	24-A2720qc	0.138	1.240	110	75-125	1.240	1.220	108	1.6	10	98	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	24-A2822	< 0.005	0.111	111	63-111	0.111	0.102	102	8.5	18	84	76-113	< 0.005
Molybdenum mg/L	1.000	95	85-115	1.00	a2720qc	< 0.015	0.996	100	75-125	0.996	0.993	99	0.3	10	99	90-110	< 0.015
pH units	-	-	-	-	-	-	-	-	-	7.0	7.0	-	0.0	2.5	101	90-110	-
	-	-	-	-	-	-	-	-	-	7.0	7.0	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	109	85-115	25.0	24A2723q	< 0.5	28.3	113	75-125	28.3	28.0	112	1.1	10	103	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	3760	3720	-	1.1	10	100	85-115	< 10
Sulfate mg/L	-	-	-	5000	24-A2717	1190	6240	101	80-120	6240	6110	98	2.1	10	94	85-115	< 5
Thallium ug/L	5.00	101	85-115	5.00	24A2723q	< 0.1	5.20	104	75-125	5.20	5.23	105	0.6	10	102	90-110	< 0.1

One of the Calcium matrix spike duplicates failed to recover within acceptance limits, see narrative.

Approved by: 



Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

November 21, 2024

Todd Rieger
MVTL Laboratories
1126 North Front Street
New Ulm, MN 56073

RE: Project: 31-0147 Ottertail
Pace Project No.: 10712045

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Piper Gibbs
piper.gibbs@pacelabs.com
(612)607-6456
Project Manager

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



SAMPLE SUMMARY

Project: 31-0147 Ottertail
Pace Project No.: 10712045

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10712045001	24A2723 H-12	Water	10/14/24 13:42	10/16/24 10:53

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: MVTL

PROJECT #:

WO#: **10712045**

COURIER: ☒ Client ☐ Commercial ☐ FedEx ☐ Pace
☐ Speedee ☐ UPS ☐ USPS

PM: PG

Due Date: 11/14/24

CLIENT: MVTL

TRACKING NUMBER: ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☒ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate in West Virginia: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Were All Container Temps taken: <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
Correction Factor: <u>-0.5</u> Cooler Temp Read w/Temp Blank: <u>2.8</u> °C	Average Corrected Temp (no Temp Blank Only): <u>2.15</u> °C
NOTE: Temp should be above freezing to 6°C.	<input type="checkbox"/> See Exceptions Form ENV-FRM-MIN4-0142 <input type="checkbox"/> 1 Container

USDA Regulated Soil: <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Water Sample/Other (describe):	Initials & Date of Person Examining Contents: <u>EC/10-16-24</u>
Did Samples originate from one of the following states (check maps) - AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: <input type="checkbox"/> YES <input type="checkbox"/> NO	Did samples originate from a foreign source (International, including Hawaii and Puerto Rico): <input type="checkbox"/> YES <input type="checkbox"/> NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): <input type="checkbox"/> DULUTH <input checked="" type="checkbox"/> MINNEAPOLIS <input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Relinquished?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.
Sampler Name and/or Signature on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <input type="checkbox"/> BOD / cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other:
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.
Sufficient Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. <u>2 BPINs received</u>
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
— Pace Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Containers Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Sample #: <u>001</u> <input checked="" type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO
Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other				pH Paper Lot #
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residual Chlorine
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0-6 Roll
Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0-6 Strip
NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.				0-14 Strip
Headspace in Methyl Mercury Container?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Trip Blanks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
				Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION / RESOLUTION

Person Contacted:

Date & Time:

FIELD DATA REQUIRED: ☐ YES ☐ NO

Comments / Resolution:

Project Manager Review:

Date: 10/17/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By:

Line:



Minnesota Valley Testing
Laboratories, Inc.
1126 North Front Street
New Ulm, MN 56073
507-233-7131
Fax 507-359-1231

P.O. Number: CL13299

To: Pace Analytical 1700 Elm Street SE Suite# 200 Minneapolis, MN 55414	Ship To (if different address):
--	--

P.O. Date	Placed By	Date Expected	Ship Via	F.O.B.	Terms
15-Oct-24	Todd Rieger	N/A	N/A	N/A	Net 30

QTY.	Description	Unit Price	Total
			\$ -
	Lab ID# 24A2723		\$ -
	WO# 31-0147		\$ -
			\$ -
1	Radium 226/228	\$ [REDACTED]	\$ [REDACTED]
			\$ -
1	Disposal Fee	\$ [REDACTED]	\$ [REDACTED]
			\$ -
1	Environmental Impact	\$ [REDACTED]	\$ [REDACTED]
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
	email results to trieger@mvtl.com		\$ -
			\$ -
			\$ -

Authorized Signature

Shipping & handling	
Subtotal	\$ [REDACTED]
Sales Tax	
Total Due	\$ [REDACTED]

Internal Transfer Chain of Custody



☐ Rush Multiplier ☒ X
☐ Samples Pre-Logged into eCOC

State Of Origin: MN
 Cert. Needed: ☒ Yes ☐ No

F234



Workorder: 10712045 Workorder Name: 31-0147 Ottertail Owner Received Date: 10/16/2024 Results Requested By: 11/14/2024

Report To		Subcontract To		Requested Analysis																					
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456		Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858																							
						Preserved Containers						<div style="text-align: right;">LAB USE ONLY</div> <div style="font-size: 2em; transform: rotate(-15deg); position: absolute; right: 0; top: 0;">4790405</div>													
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3																			
1	24A2723 H-12	PS	10/14/2024 13:42	10712045001	Water	2																			
2																									
3																									
4																									
5																									
														Comments											
Transfers		Released By		Date/Time		Received By		Date/Time																	
1		V. de V. Pace		10/17/24 1600																					
2																									
3						Christopher J. Gallin		10/18/24 0900																	
Cooler Temperature on Receipt °C				Custody Seal Y or N				Received on Ice Y or N				Samples Intact Y or N													

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

0.3+0.3=0.6

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N If Applicable
 COC Signed/Accurate: ☒ Y ☐ N VCA Zero Headspace: ☒ Y ☐ N
 Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
 Correct bottles used: ☒ Y ☐ N
 Sufficient volume sent: ☒ Y ☐ N
 RA Screen <0.5 mR/hr: ☒ Y ☐ N

2-TOTAL



Schedule

Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10712045

(To be completed by sending lab)

Sending Project No:	10712045
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	10/17/24
REQUESTED COMPLETION DATE:	11/14/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED							
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc	
Radium 226/228	BP1N	2	HNO3	1	SI-38RAD	SUB PASI RAD	

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.



ANALYTICAL REPORT

November 21, 2024

Pace Analytical - Minnesota

Sample Delivery Group: L1790405
Samples Received: 10/18/2024
Project Number: 10712045
Description: 31-0147 Ottertail
Site: 001
Report To: Piper Gibbs
1700 Elm Street Suite 200
Minneapolis, MN 55414



²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Entire Report Reviewed By:

Haley Torrence

Haley Torrence
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:

Pace Analytical - Minnesota

PROJECT:

10712045

SDG:

L1790405

DATE/TIME:

11/21/24 10:16

PAGE:

1 of 11

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Sr: Sample Results	5	³ Ss
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Qc: Quality Control Summary	6	⁴ Cn
Radiochemistry by Method 904/9320	6	
Radiochemistry by Method SM7500Ra B M	7	⁵ Sr
Gl: Glossary of Terms	8	⁶ Qc
Al: Accreditations & Locations	9	⁷ Gl
Sc: Sample Chain of Custody	10	⁸ Al
		⁹ Sc

SAMPLE SUMMARY

24A2723 H -12 L1790405-01 Non-Potable Water

Collected by

Collected date/time

Received date/time

10/14/24 13:42

10/18/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2389747	1	11/04/24 22:11	11/08/24 20:00	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2394991	1	11/04/24 13:29	11/06/24 18:46	ZRG	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

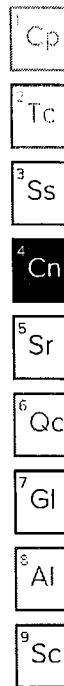
⁹ Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Haley Torrence
Project Manager



24A2723 H -12

SAMPLE RESULTS - 01

Collected date/time: 10/14/24 13:42

L1790405

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.742		0.238	0.436	0.416	0.219	11/08/2024 20:00	WG2389747
(T) Barium	108					30.0-143	11/08/2024 20:00	WG2389747
(T) Yttrium	99.6					30.0-136	11/08/2024 20:00	WG2389747

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	0.0912	U	0.196	0.305	0.325	0.225	11/06/2024 18:46	WG2394991
(T) Barium-133	101					30.0-143	11/06/2024 18:46	WG2394991



WG2389747

QUALITY CONTROL SUMMARY

Radiochemistry by Method 904/9320

L1790405-01

Method Blank (MB)

(MB) R4144729-1 11/08/24 20:00

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0958	U	0.161	0.296	0.156
(T) Barium	118		118		
(T) Yttrium	89.2		89.2		

L1790479-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1790479-03 11/08/24 20:00 • (DUP) R4144729-5 11/08/24 20:00

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.77	0.347	0.573	0.303	1.45	0.469	0.823	0.429	20.3	0.560		20	3
(T) Barium	114				117	117							
(T) Yttrium	85.0				77.9	77.9							

Laboratory Control Sample (LCS)

(LCS) R4144729-2 11/08/24 20:00

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.21	104	80.0-120	
(T) Barium			112		
(T) Yttrium			89.2		

L1788389-31 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1788389-31 11/08/24 20:00 • (MS) R4144729-3 11/08/24 20:00 • (MSD) R4144729-4 11/08/24 20:00

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	2.07	18.3	16.3	97.2	85.1	1	70.0-130			11.7		20
(T) Barium		104			106	91.0							
(T) Yttrium		84.4			85.0	95.0							

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG2394991

QUALITY CONTROL SUMMARY

Radiochemistry by Method SM7500Ra B M

L1790405-01

Method Blank (MB)

(MB) R4143170-1 11/06/24 18:46

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE +/-	MB MDA pCi/l	MB Lc pCi/l
Radium-226	-0.00712	<u>U</u>	0.0156	0.0554	0.0411
(T) Barium-133	88.3		88.3		

L1790935-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1790935-04 11/06/24 18:47 • (DUP) R4143170-5 11/06/24 18:46

Analyte	Original Result pCi/l	Original 2 sigma CE +/-	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE +/-	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.245	0.236	0.300	0.204	0.335	0.285	0.351	0.229	31.2	0.244	<u>J</u>	20	3
(T) Barium-133	98.7				103	103							

Laboratory Control Sample (LCS)

(LCS) R4143170-2 11/06/24 18:46

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.26	105	80.0-120	
(T) Barium-133			88.4		

L1788559-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1788559-01 11/06/24 18:46 • (MS) R4143170-3 11/06/24 18:46 • (MSD) R4143170-4 11/06/24 18:46

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.452	17.6	17.5	85.8	85.0	1	75.0-125			0.969		20
(T) Barium-133		94.2			99.1	102							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The Information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

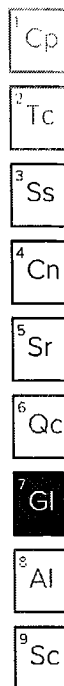
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.



ACCREDITATIONS & LOCATIONS

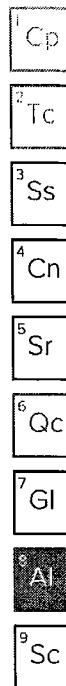
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Internal Transfer Chain of Custody



☐ Rush Multiplier ☒ X
☐ Samples Pre-Logged into eCOC

State Of Origin: MN
 Cert. Needed: ☒ Yes ☐ No
 Owner Received Date: 10/16/2024

F234



Workorder: 10712045

Workorder Name: 31-0147 Ottertail

Results Requested By: 11/14/2024

Report To		Subcontract To		Requested Analysis																					
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456		Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858																							
						Preserved Containers						<div style="text-align: center;">Radium 226/228</div> <div style="text-align: right; font-size: 2em; transform: rotate(-15deg);">4700105</div> <div style="text-align: right;">LAB USE ONLY</div>													
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3																			
1	24A2723 H-12	PS	10/14/2024 13:42	10712045001	Water	2																			
2																									
3																									
4																									
														Comments											
Transfers	Released By	Date/Time	Received By	Date/Time																					
1	Vicki Pace	10/14/24 1600																							
2																									
3			Christopher G. Bellin	10/16/24 0900																					
Cooler Temperature on Receipt °C		Custody Seal Y or N		Received on Ice Y or N		Samples Intact Y or N																			

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

D.3+D.3=D.6

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N If Applicable
 COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N
 Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
 Correct bottles used: ☒ Y ☐ N
 Sufficient volume sent: ☒ Y ☐ N
 RA Screen <0.5 mR/hr: ☒ Y ☐ N

2-TOTAL



Sample

Ship To:
Pace National
12065 Lebanon Rd
Mt. Juliet, TN 37122
Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10712045

(To be completed by sending lab)

Sending Project No:	10712045
Receiving Project No:	
Check Box for Consolidated Invoice:	<input type="checkbox"/>
Date Prepared:	10/17/24
REQUESTED COMPLETION DATE:	11/14/2024

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs
Receiving Region	IR850-Pace National	External Client	MVTL Laboratories
State of Sample Origin	MN	QC Deliverable	STD REPORT

All questions should be addressed to sending project manager.

Requested Reportable Units _____ Report Wet or Dry Weight? Dry Weight ☐ IRWO Lab Need to run? Cert. Needed _____

WORK REQUESTED							
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc	
Radium 226/228	BP1N	2	HNO3	1	SI-38RAD	SUB PASI RAD	

Special Requirements: Report C, QC Limits (C),FR Only no EDD (0)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: ☐ Yes ☒ No

DISPOSITION of FORM

Original sent to the receiving lab - Copy kept at the sending lab.

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

Minnesota Valley Testing Laboratories

1126 North Front Street New Ulm, MN 56003
Phone: 800 782 3557 Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of
the original document

By AR Date 14 Oct 24
Pages 1-14

Project Otter Tail Power Company	Project Type: Big Stone Plant CCR	Name of Samplers:
Report: Otter Tail Power Company	Carbon Copy: Barr Engineering	<u>DS DF BW NM</u>
Attn: Paul Vukonich	Attn:	Quote Number:
Address P.O. Box 496	Address:	Work Order Number: 31-0147
Fergus Falls, MN 56538-0496		Lab Numbers:
Phone: 218-739-8349		

Sample Information					Bottle Type										Analysis				
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	1000 HNO3 Inner Mountain	500 None	1000 none	500 HNO3	Filter? Y or N	500 H2SO4	Filter? Y or N	1000 HNO3 Pace	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
A2716	H2OX		14 Oct 24	1214	GW				1	1	N								CCR 3
17	H3OX			1029	GW				1	1	N								CCR 3
18	H4OX			1114	GW				1	1	N								CCR 3
24	H6			NS	GW				1	1	N								CCR 3
19	H8			1240	GW				1	1	N								CCR 3
20	H9			1321	GW				1	1	N								CCR 3
21	H10			1241	GW				1	1	N				2				CCR 3 & 3
22	H11			1412	GW				1	1	N				2				CCR 3 & 3
23	H12		+	1342	GW				1	1	N			2					CCR 3&4

Comments:

14 Oct 24
DF

Samples Relinquished By: <u>DF</u>			Samples Received By: <u>ROI</u>		
Date: <u>14 Oct 24</u>	Time: <u>1620</u>	Temp: <u>0.5°C</u>	Date: <u>14 Oct 24</u>	Time: <u>06:20</u>	Temp: <u>0.5°C</u>
Samples Relinquished into: <u>Fridge</u> <u>Log in Cart</u> Other:					
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: <u>Samplers</u> Other:			Seal Number(s) - If Used		
Transport: <u>Ambient</u> <u>Ice</u> Other:			Seals Intact? Yes No		

TM771

Oct 2024

2024 Big Stone Sampling - CCR

Landfill or ADA wells

Site	Parameter List	Well Depth (constructed)	Diameter (Inches)	Well Elevation (TOC)	Sample Equipment	Dedicated?	Pump Rate (ml/minute)	Goes Dry?	Sampling Seasons**
H2OX	CCR 3	32.20	2	1103.86	Bladder	Yes	100	Yes	April & Oct
H3OX	CCR 3	22.55	2	1095.26	Bladder	Yes	100	Yes	April & Oct
H4OX	CCR 3	27.20	2	1108.25	Bladder	Yes	100	No	April & Oct
H6	CCR 3	15.00	2	1097.76	Bladder	Yes	100	Yes	April & Oct
H8	CCR 3	22.05	2	1081.23	Bladder	Yes	100	No	April & Oct
H9	CCR 3	30.20	2	1086.21	Bladder	Yes	100	No	April & Oct
H10	CCR 3 and 4	35.49	2	1090.83	Bladder	Yes	100		See highlighted note below
H11	CCR 3 and 4	42.15	2	1093.24	Bladder	Yes	100		See highlighted note below
H12	CCR 3 and 4	22.00	2	1127.40	Bladder	Yes	100		See highlighted note below

Note: Wells H10 and H11 need to be sampled in February, April, and June for CCR 3 and CCR 4. This will complete CCR Background sampling for these wells. Wells H10 and H11 will then be sampled in October for CCR 3 like a normal, CCR event.

Well H12 will be sampled in February, April, June, August, October, and December for CCR 3 and CCR 4. This will complete CCR Background sampling for this well.

Note: CCR sampling is for total recoverable metals. They are not filtered in the field.

CCR 3 & 4 parameters see the first two tabs labeled CCR 3 and CCR 4

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters**Method**

Boron~	6010
Calcium~	6010
Chloride~	SM4500 CL E
Fluoride~	EPA 300
pH~	SM 4500 H+B-96
Sulfate~	ASTM D516
Dissolved Solids, Total~	SM 2540 C-97

Note: These are non-filtered samples.

CCR 2007

~~112~~
~~112~~

112 only

4

CCR - Appendix IV - Assessment Monitoring

Total Concentration Parameters	Method
-Antimony	SW6020A
-Arsenic	SW602A
-Barium	SW6010C
-Beryllium	SW6020A
-Cadmium	SW6020A
-Chromium, Total	SW6020A
-Cobalt	SW6010C
Fluoride	EPA 300
-Lead	SW6020A
-Lithium	SW6010C
Mercury	EPA 245.7
-Molybdenum	SW6020A
-Selenium	SW6020A
-Thallium	SW6020A
-Radium 226 + 228	

Note: These are non-filtered samples.

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 14 Oct 24

Unique Station ID:

Sample ID: Well H2OX

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Protective Posts? ☐ Yes ☒ No

State ID Tag? ☐ Yes ☒ No

Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 32.83

Well Casing Elevation: 1103.91

Constructed Depth: 32.20

Static Water Elevation: 1093.29

Casing Diameter: 2"

Previous Static: 1096.69

Water Level Before Purge: 10.62

Water Level After Sample: Below pump

Well Volume: 3.62 Gallons

Measurement Method: ☒ Elec. WLI ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 47

Wind: LLV

Sky: Fair

Sampling Method: Grundfos

☒ Bladder SS/T

☐ Disp. Bailer

☐ Whale

☐ Grab

☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1154 am

Time Purged Dry? 1209

Time of Sampling: 1214 am

Duplicate Sample? ☐ Yes ☒ No

ID: —

Sample EH: 63.8

Sample Appearance: General: Clear

Color: none

Phase: none

Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
15 1209	6.41	3503	9.27	NA	NA	3.75	1	
							2	
1214	6.45	3502	9.74	↓	↓	—	3	Recharge
							4	
							5	

Stabilized? Yes ☒ No

Amount Water Removed: 3.75 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 14 Oct 24

Unique Station ID:

Sample ID: / Well H3OX

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Protective Posts? Yes ☒ No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 22.68

Well Casing Elevation: 1095.19

Constructed Depth: 22.55

Static Water Elevation: 1087.34

Casing Diameter: 2"

Previous Static: 1087.19

Water Level Before Purge: 7.85

Water Level After Sample: Below Pump

Well Volume: 2.42 Gallons

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 45

Wind: LLV

Sky: Fair

Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other: ☐

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1014 am

Time Purged Dry: 1024

Time of Sampling: 1029 am / pm

Duplicate Sample? Yes ☒ No ☐ ID: /

Sample EH: 235.7

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1024	6.38	3131	13.28	NA	NA	2.5	1	
							2	
							3	
1029	6.40	3134	13.30			-	4	Recharge
							5	

Stabilized? Yes ☒ No ☐

Amount Water Removed: 2.5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date: 14 Oct 24

Unique Station ID:

Sample ID: Well H40X

Well Condition

Well Locked? ☒ Yes ☐ No
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? ☒ Yes ☐ No
State ID Tag? ☒ Yes ☐ No
Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 27.48

Well Casing Elevation: 1108.22

Constructed Depth: 27.20

Static Water Elevation: 1088.72

Casing Diameter: 2"

Previous Static: 1091.14

Water Level Before Purge: 19.50

Water Level After Sample: Below Pump

Well Volume: 1.30 Gallons

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 47 Wind: LCV Sky: Fair

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailor ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1103 am/pm

Time Purged Dry? 1109

Time of Sampling: 1114 am/pm

Duplicate Sample? Yes ☒ No ☐ ID: -

Sample EH: 158.4

Sample Appearance: General: Clear Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
6								
1109	6.44	2241	9.17	NA	NA	1.5	1	
							2	
1114	6.51	2218	9.16	↓	↓	-	3	Recharge
							4	
							5	

Stabilized? Yes ☒ No ☐

Amount Water Removed: 1.5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517.

Groundwater Assessment

Sampling Personnel:

DF

Site: Otter Tail Power Co./ Big Stone

Facility ID: —

Date:

14 Oct 24

Unique Station ID: —

Sample ID:

Well H8

Well Condition

Well Locked? ☒ Yes No
Well Labeled? ☒ Yes No
Casing Straight? ☒ Yes No

Protective Posts? ☒ Yes No
State ID Tag? Yes ☒ No
Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 22.33

Well Casing Elevation: 1081.23

Constructed Depth: 22.05

Static Water Elevation: 1070.46

Casing Diameter: 2"

Previous Static: —

Water Level Before Purge: 10.77

Water Level After Sample: 12.55

Well Volume: 1.89 Gallons

Measurement Method: Elec. WL Steel Tape

Sampling Information

Weather Conditions: Temp: 45 Wind: L+V Sky: Cldy.

Sampling Method: Grundfos ☒ Bladder S&T Disp. Baller Whale Grab Other:

Dedicated Equipment: ☒ Yes No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No

Time Pump Began: 1216 am / ☒ PM

Time Purged Dry? —

Time of Sampling: 1240 am / ☒ PM

Duplicate Sample? Yes ☒ No

ID: —

Sample EH: 79.0

Sample Appearance: General: Clear

Color: None

Phase: None

Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1224	7.16	1397	10.74	NA	NA	2	1	
1232	7.16	1397	10.72			4	2	
1240	7.16	1397	10.72			6	3	
							4	
							5	

Stabilized? ☒ Yes No

Amount Water Removed: 6

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DF

Site: Otter Tail Power Co./ Big Stone

Facility ID: —

Date:

14 Oct 24

Unique Station ID: —

Sample ID:

Well H9

Well Condition

Well Locked? ☒ Yes No
Well Labeled? ☒ Yes No
Casing Straight? ☒ Yes No

Protective Posts? ☒ Yes No
State ID Tag? Yes ☒ No
Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 30.71
Constructed Depth: 30.20
Casing Diameter: 2"
Water Level Before Purge: 13.10
Well Volume: 2.87 Gallons

Well Casing Elevation: 1086.21
Static Water Elevation: 1073.11
Previous Static: —
Water Level After Sample: 16.50
Measurement Method: ~~Elec. W21~~ Steel Tape

Sampling Information

Weather Conditions: Temp: 45 Wind: L+V Sky: Cldy.
Sampling Method: Grundfos ~~Bladder S&T~~ Disp. Bailer Whale Grab Other:
Dedicated Equipment: ☒ Yes No
Well Purged Dry? Yes ☒ No
Time Purged Dry? —
Duplicate Sample? Yes ☒ No ID: —
Sample Appearance: General: Clear Color: None Phase: None Odor: None
Pumping Rate: 0.25 gpm
Time Pump Began: 1245 am / ~~pm~~
Time of Sampling: 1321 am / ~~pm~~
Sample EH: 105.5

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1257	6.62	3246	9.89	NA	NA	3	1	
1309	6.60	3249	9.90			6	2	
1321	6.60	3265	9.92			9	3	
							4	
							5	

Stabilized? ☒ Yes No
Comments:

Amount Water Removed: 9 Gallons

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

BW

Site:

Otter Tail Power Co./ Big Stone

Facility ID:

Date: 14 Oct 24

Unique Station ID:

Sample ID:

H10

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Protective Posts? ☐ Yes ☒ No

State ID Tag? ☐ Yes ☒ No

Grout Seal Intact? ☒ Yes ☐ No

Repairs Necessary:

Well Information

Well Depth: 38.53

Well Casing Elevation: 1090.83

Constructed Depth: 35.49

Static Water Elevation: 1076.17

Casing Diameter: 2"

Previous Static: 1073.73

Water Level Before Purge: 14.66

Water Level After Sample: Below pump

Well Volume: 3.89 Gallons

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 47

Wind: LLV

Sky: Fair

Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1220 am / pm

Time Purged Dry: 1236

Time of Sampling: 1241 am / pm

Duplicate Sample? ☐ Yes ☒ No ID: —

Sample EH: -216.5

Sample Appearance: General: Clear Color: None Phase: None Odor: Sulfurous

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1236	6.28	4430	9.04	NA	NA	4	1	
							2	
1241	6.38	4396	9.06	↓	↓	—	3	Recharge
							4	
							5	

Stabilized? Yes ☒ No

Amount Water Removed: 4

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date:

14 Oct 24

Unique Station ID:

Sample ID:

H11

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? Yes ☐ No ☒

State ID Tag? Yes ☐ No ☒

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth:

44.32

Constructed Depth:

42.15

Casing Diameter:

2"

Water Level Before Purge:

13.96

Well Volume:

4.95

Gallons

Well Casing Elevation:

1093.24

Static Water Elevation:

1079.28

Previous Static:

1078.43

Water Level After Sample:

58.73

Measurement Method:

Elec. WLI

Steel Tape

Sampling Information

Weather Conditions:

Temp:

44°

Wind:

LTW

Sky:

Overcast

Sampling Method:

Grundfos

Bladder SS

Disp. Bailer

Whale

Grab

Other:

Dedicated Equipment: ☒ Yes ☐ No

Well Purged Dry? ☒ Yes ☐ No

(A) AS

14 Oct 24

Time Purged Dry:

1407

Pumping Rate:

0.25 gpm

Time Pump Began:

1347

am / (pm)

Time of Sampling:

1412

am / (pm)

Duplicate Sample? Yes ☐ No ☒

ID:

Sample EH:

-166.5

Sample Appearance: General:

Clear

Color:

None

Phase:

None

Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1407	6.66	5290	9.01	NA	NA	5	1	
							2	
							3	
							4	
1412	6.66	5284	9.00			-	5	recharge

Stabilized? Yes ☐ No ☒

Amount Water Removed:

5

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Otter Tail Power Co./ Big Stone

Facility ID:

Date:

14 Oct 24

Unique Station ID:

Sample ID:

H12

Well Condition

Well Locked? Yes ☒ No ☐
Well Labeled? ☒ Yes ☐ No
Casing Straight? ☒ Yes ☐ No

Protective Posts? Yes ☒ No ☐
State ID Tag? Yes ☒ No ☐
Grout Seal Intact? Yes ☒ No ☐

Repairs Necessary:

Well Information

Well Depth: 22.63

Well Casing Elevation: NA

Constructed Depth: 24.00

Static Water Elevation: 1

Casing Diameter: 2"

Previous Static:

Water Level Before Purge: 17.94

Water Level After Sample: 18.05

Well Volume: 0.77 Gallons

Measurement Method: ☒ Elec. WL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 44° Wind: LNV Sky: Mostly Cloudy

Sampling Method: Grundfos ☒ Bladder SSA ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No ☐

Time Pump Began: 1330 am ☒ pm

Time Purged Dry: —

Time of Sampling: 1342 am ☒ pm

Duplicate Sample? Yes ☒ No ☐ ID: —

Sample EH: 60.9

Sample Appearance: General: ☒ Cloudy Color: None Phase: None Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1334	8.22	385	11.29	NA	NA	1	1	
1338	8.23	382	11.23	1	1	2	2	
1342	8.23	380	11.18	1	1	3	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 3

Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DF

Site: Otter Tail Power Co./ Big Stone

Facility ID: —

Date:

14 Oct 24

Unique Station ID:

Sample ID:

Well H6

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Protective Posts? ☒ Yes ☐ No

State ID Tag? Yes ☒ No

Grout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth: 17.92

Constructed Depth: 17.70

Casing Diameter: 2"

Water Level Before Purge: 16.86

Well Volume: 0.17 Gallons

Well Casing Elevation: NA

Static Water Elevation: I

Previous Static:

Water Level After Sample: below pump

Measurement Method: Elec. W/L Steel Tape

Sampling Information

Weather Conditions: Temp: 45 Wind: L+V Sky: Cldy.

Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: — am / ☒ pm

Time Purged Dry: —

Time of Sampling: 1211 am / ☒ pm

Duplicate Sample? ☒ Yes ☐ No

ID: —

Sample EH: —

Sample Appearance: General: —

Color: —

Phase: —

Odor: —

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
							1	
							2	
							3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: —

Gallons

Comments:

— Insufficient volume to purge/sample

— No sample!

Exceptions to Protocol:



Appendix B

Groundwater Flow Calculations

Big Stone Ash Disposal Area Groundwater Velocity Calculation

Date 2/19/2024

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
	5.95E-01	ft/day	
n	0.25		Groundwater Monitoring System Report (Barr, 2016)

	Top of Casing Elevation (1)	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
H3OX	1095.26	5.74	1089.52
H9	1086.21	8.55	1077.66

(1) Groundwater Monitoring System Report (Barr, 2016)

horizontal distance, ft

	H3OX
H9	2272.3

difference in WL elevation, ft

	H3OX
H9	11.86

horizontal gradient, ft/ft

	H3OX
H9	0.00522

V, ft/d

	H3OX
H9	0.01243

V, ft/yr

	H3OX
H9	4.5

V avg, ft/y

	4.5
--	-----

Big Stone Ash Disposal Area Groundwater Velocity Calculation

Date 4/15/2024

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
	5.95E-01	ft/day	
n	0.25		Groundwater Monitoring System Report (Barr, 2016)

	Top of Casing Elevation (1)	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
H3OX	1095.26	6.68	1088.58
H9	1086.21	8.02	1078.19

(1) Groundwater Monitoring System Report (Barr, 2016)

horizontal distance, ft

	H3OX
H9	2272.3

difference in WL elevation, ft

	H3OX
H9	10.39

horizontal gradient, ft/ft

	H3OX
H9	0.00457

V, ft/d

	H3OX
H9	0.01089

V, ft/yr

	H3OX
H9	4.0

V avg, ft/y

	4.0
--	-----

Big Stone Ash Disposal Area Groundwater Velocity Calculation

Date 6/10/2024

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
	5.95E-01	ft/day	
n	0.25		Groundwater Monitoring System Report (Barr, 2016)

	Top of Casing Elevation (1)	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
H3OX	1095.26	2.71	1092.55
H9	1086.21	12.73	1073.48

(1) Groundwater Monitoring System Report (Barr, 2016)

horizontal distance, ft

	H3OX
H9	2272.3

difference in WL elevation, ft

	H3OX
H9	19.07

horizontal gradient, ft/ft

	H3OX
H9	0.00839

V, ft/d

	H3OX
H9	0.01998

V, ft/yr

	H3OX
H9	7.3

V avg, ft/y

7.3

Big Stone Ash Disposal Area Groundwater Velocity Calculation

Date 8/12/2024

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
	5.95E-01	ft/day	
n	0.25		Groundwater Monitoring System Report (Barr, 2016)

	Top of Casing Elevation (1)	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
H3OX	1095.26	5.13	1090.13
H9	1086.21	16.93	1069.28

(1) Groundwater Monitoring System Report (Barr, 2016)

horizontal distance, ft

	H3OX
H9	2272.3

difference in WL elevation, ft

	H3OX
H9	20.85

horizontal gradient, ft/ft

	H3OX
H9	0.00918

V, ft/d

	H3OX
H9	0.02185

V, ft/yr

	H3OX
H9	8.0

V avg, ft/y

8.0

Big Stone Ash Disposal Area Groundwater Velocity Calculation

Date 10/14/2024

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
	5.95E-01	ft/day	
n	0.25		Groundwater Monitoring System Report (Barr, 2016)

	Top of Casing Elevation (1)	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
H3OX	1095.26	7.85	1087.41
H9	1086.21	13.10	1073.11

(1) Groundwater Monitoring System Report (Barr, 2016)

horizontal distance, ft

	H3OX
H9	2272.3

difference in WL elevation, ft

	H3OX
H9	14.30

horizontal gradient, ft/ft

	H3OX
H9	0.00629

V, ft/d

	H3OX
H9	0.01498

V, ft/yr

	H3OX
H9	5.5

V avg, ft/y

5.5



Appendix C

Additional Groundwater Elevations

Appendix C
Additional 2024 Water Elevations
Big Stone Plant
Otter Tail Power Company

Location	Well Casing Elevation ft AMSL	2/19/2024 ft AMSL	4/15/2024 ft AMSL	6/10/2024 ft AMSL	8/12/2024 ft AMSL	10/14/2024 ft AMSL
H10	1090.83	1075.85	1080.06	1085	--	1076.17
H11	1093.24	1082.61	1083.12	1086.69	--	1079.28
H1INT	1115.81	1090.27	1090.61	1094.04	1090.01	1087.23
H1OX	1115.89	1090.88	1091.01	1094.83	1090.56	1088.19
H2I	1103.91	1042.47	1042.8	1048.7	1042.55	1042.14
H2OX	1103.86	1094.97	1097.96	1098.99	1095.91	1093.24
H3I	1095.17	1068.98	1066.93	1073.12	1068.08	1067.17
H3OX	1095.26	1089.52	1088.58	1092.55	1090.13	1087.41
H4I	1108.61	1092.51	1092.89	1095.36	1092.82	1088.47
H4OX	1108.25	1091.59	1092.27	1095.46	1092.87	1088.75
H5	1122.8	1112.17	1111.04	1116.59	1113.85	1110.59
H6	1097.76	1085.62	1087.13	1090.17	1087.05	1080.9
H7	1106.06	1084.34	1084.35	1087.35	1087.54	1082.68
H8	1081.23	1076.25	1075.76	1066.57	1062.38	1070.46
H9	1086.21	1077.66	1078.19	1073.48	1069.28	1073.11
WELL 1	1090.71	1026.06	1026.69	1030.06	1029.53	1025.26
WELL 10	1098.7	1082.36	1082.82	1083.91	1082.22	1082.59
WELL 11	1104	1007.88	1008.6	1008.67	1006.35	1008.1
WELL 12	1071.89	1006.78	1007	1009.76	1006.15	1006.01

Notes:

-- Not Measured