

# 2023 Annual Groundwater Monitoring and Corrective Action Report

# Ash Disposal Area

# Big Stone Plant Big Stone City, South Dakota

Prepared for Otter Tail Power Company

January 2024; Updated April 2024

234 West Century Avenue Bismarck, ND 58503 701.255.5460 www.barr.com

# 2023 Annual Groundwater Monitoring and Corrective Action Report

## Ash Disposal Area

## Big Stone Plant Big Stone City, South Dakota

## January 2024; Updated April 2024

# Contents

Executiv	ve Summaryi	v
1.0	Introduction	1
1.1	Purpose	1
1.2	Status of the Groundwater Monitoring and Corrective Action Program	1
1.3	CCR Rule Requirements	1
2.0	Groundwater Monitoring and Corrective Action Program	3
2.1	Groundwater Monitoring System	3
2.7	1.1 Documentation	3
2.7	1.2 Changes to Monitoring System	3
2.2	Monitoring and Analytical Results	3
2.3	Key Actions Completed/Problems Encountered	4
2.4	Key Activities for Upcoming Year	4
3.0	References	5

### List of Tables

- Table 1CCR Rule Requirements
- Table 2
   Detection Monitoring Wells Groundwater Analytical Data Summary
- Table 3
   New Well Groundwater Analytical Data Summary

### List of Figures

- Figure 1 Ash Disposal Area Location
- Figure 2 Spring 2023 Groundwater Contours
- Figure 3 July 2023 Groundwater Contours
- Figure 4 Fall 2023 Groundwater Contours

## List of Appendices

- Appendix A 2023 Well Boring Logs
- Appendix B Laboratory Reports and Field Sheets
- Appendix C Groundwater Flow Calculations
- Appendix D Additional Groundwater Elevations
- Appendix E Alternative Source Determination: Calcium, Fall of 2022

## 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

# **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 2023 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.

# 1.0 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 2023 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

Except for recently installed wells H10, H11, and H12, 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 data collection efforts are subsequently described in Section 2.1.2.

Statistical evaluation of detection monitoring results began on October 17, 2017, and continued through 2023. In 2023, 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.

#### **CCR Rule Reference Content Required in Report** Location Map showing the CCR unit and all monitoring wells that are part of the Section 2.1.1 Documentation; see Figure 1 §257.90(e)(1) groundwater monitoring system Discuss any new or decommissioned Section 2.1.2 Changes to Monitoring §257.90(e)(2) monitoring wells System; Appendix A All monitoring data obtained under §257.90 through §257.98; provide the Section 2.2 Monitoring and Analytical §257.90(e)(3) number and date groundwater samples Results; Table 2, Figure 2, Figure 4, Appendix were collected, and the monitoring (i.e., B, Appendix C detection or assessment) Discuss any transition between monitoring Not applicable – no transition between §257.90(e)(4) programs monitoring programs was necessary Other information specified in §257.90 §257.90(e)(5) Throughout report through §257.98 §257.90(e)(6) Overview at beginning of annual report **Executive Summary**

#### Table 1 CCR Rule Requirements

# 2.0 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the ADA for 2023. 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, 2016).

### 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; Appendix A). Baseline sample collection began on October 17, 2023 and will continue in spring 2024.

In 2022, two downgradient monitoring wells were installed (H10 and H11). Baseline sample collection for these wells began on May 15, 2023. Additional baseline samples were collected on June 12, August 21, and October 17, 2023. Baseline samples were also collected on December 11, 2023; however, the lab results from that event are not available at this time. Baseline sample collection will continue in spring 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 and from H8 for one verification resampling event. A total of 12 groundwater samples (six monitoring wells and two sampling events) were collected and analyzed for the constituents listed in Appendix III (Part 257) in 2023 under the detection monitoring program, consistent with the requirements of §257.94(c). An elevated total dissolved solids (TDS) concentration was observed in the sample collected from monitoring well H8 during the spring 2023 detection monitoring event. Monitoring well H8 was subsequently resampled for TDS on July 21, 2023. The resampled results indicated that TDS concentrations were not statistically significantly higher than background. Dates of sampling are reported on the field data sheets, and analytical laboratory reports are presented in Appendix B. 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 4, and Appendix C.

## 2.3 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program during 2023:

- 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 a statistically significant increase (SSI) over background levels occurred for Calcium at downgradient monitoring well H6 during the fall 2022 detection monitoring sampling event. A successful Alternative Source Demonstration (ASD) was completed for this SSI in April of 2023 finding the SSI was attributed to an error in sampling. The written ASD is provided in Appendix E.
- 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 2023 detection monitoring sampling events.
- A partial closure of approximately 7.7 acres of the landfill was completed in 2023.

# 2.4 Key Activities for Upcoming Year

The following key groundwater monitoring program activities are planned for 2024:

- Continue the detection monitoring program in accordance with the CCR Rule.
- Evaluate analytical results from the 2024 semiannual detection monitoring events for SSIs according to the Statistical Analysis Plan (Carlson McCain, 2017).
- Continue collection of background water samples from monitoring wells H10, H11, and H12. Appendix III and Appendix IV parameters will be analyzed.
- Update the Groundwater Monitoring Network to include monitoring wells H10, H11, and H12.

# 3.0 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, 2016. Groundwater Monitoring System Report, Big Stone Plant Ash Disposal Area. Prepared for Otter Tail Power Company. December 2016.
- 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

	Locatio			H2OX	H3OX	НЗОХ	H4OX	H4OX	H6	H6	H8	H8	H8	H9	H9
	Date			10/17/2023	5/15/2023	10/17/2023	5/15/2023	10/17/2023	5/15/2023	10/17/2023	5/15/2023	7/21/2023	10/17/2023	5/15/2023	10/17/2023
	San	nple Type	Ν	Ν	N	Ν	N	Ν	N	Ν	Ν	Resample	Ν	Ν	Ν
Parameter	Analysis Location	Units													
Appendix III Parameters															
Boron, total	Lab	mg/l	0.251	0.258	6.540	7.310	0.518	0.564	3.260	2.350	3.020		3.360	1.100	1.230
Calcium, total	Lab	mg/l	229.0	521.0	364.0	405.0	330.0	321.0	36.60	64.70	125.0		128.0	488.0	640.0
Chloride	Lab	mg/l	4.1	3.5	66.0	65.3	42.8	41.7	3.2	< 3 U	4.3		3.4	40.9	81.6
Fluoride	Lab	mg/l	0.350	0.320	0.430	0.370	0.530	0.480	0.500	0.430	0.550		0.510	0.360	0.310
рН	Lab	pH units	7.3	7.2	7.2	7.2	7.1	7.2	7.7	7.6	7.4		7.5	6.9	7.0
рН	Field	pH units	6.74	6.52	6.62	6.43	6.61	6.52	7.54	7.56	7.24		7.22	6.71	6.62
Solids, total dissolved	Lab	mg/l	3850	3610	3160	2880	2140	2160	536	558	5270 R 951 H 964 H	1050	973	2580	2900
Sulfate, as SO4	Lab	mg/l	1950	1720	1490	1340	1050	987	93.0	80.6	359		321	1510	1620
Groundwater elevation	Field	ft amsl	1097.68	1096.64	1088.36	1087.26	1091.98	1091.17	1089.94	1082	1077.03	1071.48	1074.63	1079.46	1074.64

-- Not analyzed/Not available.

N Sample Type: Normal Detection Monitoring

H Recommended sample preservation, extraction or analysis holding time was exceeded.

R The data are unusable. The samples results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

U The analyte was analyzed for, but was not detected.

# Table 3New Well Groundwater Analytical Data SummaryBig Stone PlantOtter Tail Power Company

	Location	H10	H10	H10	H10	H11	H11	H11	H11	H12
	Date	5/15/2023	6/12/2023	8/21/2023	10/17/2023	5/15/2023	6/12/2023	8/21/2023	10/17/2023	10/17/2023
s	ample Type	N	N	Ν	Ν	N	N	N	N	N
Parameter	Units									
Appendix III										
Boron, Total	mg/l	0.292	0.284	0.298	0.358	0.232	0.247	0.245	0.271	0.402
Calcium, Total	mg/l	284.0	489.0	492.0	509.0	217.0	547.0	543.0	573.0	25.60
Chloride	mg/l	7.1	6.6	6.3	6.3	4.7	3.9	3.5	3.6	< 3 U
Fluoride	mg/l	0.200	0.180	0.180	0.190	0.140	0.130	0.140	0.140	0.290
pН	pH units	7.0	7.1	7.0	7.2	7.0	7.0	6.9	6.9	8.2
pH, Field	pH units	6.34	7.00	6.88	6.51	6.37	6.80	6.70	6.59	7.99
Solids, total dissolved	mg/l	4810	4820	4840	4840	4270	4230	4220	4220	197
Sulfate, as SO4	mg/l	2590	2650	2270	2590	2640	2170	2440	2580	20.8
Appendix IV										
Antimony, Total	mg/l	< 0.0025 U	< 0.001 U	< 0.001 U	< 0.0025 U	< 0.0005 U	< 0.0005 U	< 0.001 U	< 0.0025 U	< 0.0005 U
Arsenic, Total	mg/l	< 0.0025 U	< 0.001 U	< 0.001 U	< 0.0025 U	< 0.0025 U	< 0.001 U	< 0.001 U	< 0.0025 U	0.00274
Barium, Total	mg/l	0.026	0.026	0.023	0.027	0.036	0.035	0.034	0.030	0.058
Beryllium, Total	mg/l	< 0.005 U	< 0.005 U	< 0.00005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.0001 U	< 0.005 U	< 0.005 U
Cadmium, Total	mg/l	< 0.0005 U	0.00025	< 0.0002 U	< 0.0005 U	0.00038	0.00035	0.00027	< 0.0005 U	< 0.0001 U
Chromium, Total	mg/l	< 0.01 U	< 0.01 U	< 0.0005 U	< 0.0025 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.0025 U	0.00371
Cobalt, Total	mg/l	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	0.008	0.009	0.008	< 0.005 U	< 0.005 U
Lead, Total	mg/l	< 0.0025 U	< 0.001 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.001 U	< 0.001 U	< 0.0025 U	0.00153
Lithium, Total	mg/l	0.226	0.235	0.271	0.298	0.223	0.251	0.303	0.332	< 0.02 U
Mercury, Total	mg/l	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U	0.000012
Molybdenum, Total	mg/l	0.017	< 0.015 U	0.00865	0.0123	< 0.015 U	< 0.015 U	0.00490	0.00303	0.0342
Selenium, Total	mg/l	0.00495	0.00474	0.00454	0.00379 J+	< 0.0025 U	0.00172 J+	< 0.002 U	< 0.0025 U	< 0.0005 U
Thallium, Total	mg/l	< 0.0005 U	< 0.0002 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0002 U	< 0.0002 U	< 0.0005 U	< 0.0001 U
Radium 226	pCi/l	4.42 +/- 0.989	0.390 +/- 0.250	0.290 +/- 0.217	0.0723 +/- 0.186 ND	1.27 +/- 0.422	0.171 +/- 0.205 ND	1.83 +/- 0.496	0.0392 +/- 0.107 ND	0.182 +/- 0.170 ND
Radium 228	pCi/l	0.726 +/- 0.251	0.402 +/- 0.331 ND	0.465 +/- 0.265 ND	0.238 +/- 0.287 ND	0.875 +/- 0.201	0.772 +/- 0.328	0.798 +/- 0.293 UB	0.538 +/- 0.242	0.465 +/- 0.228
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	2.15 +/- 0.467	0.943 +/- 0.387 q	1.83 +/- 0.496	0.577 +/- 0.265 q	0.647 +/- 0.284 q
Other										
Groundwater elevation, Field	ft amsl	1079.81	1078.28	1075.36	1073.73	1082.58	1082.19	1079.29	1078.43	1109.26

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.

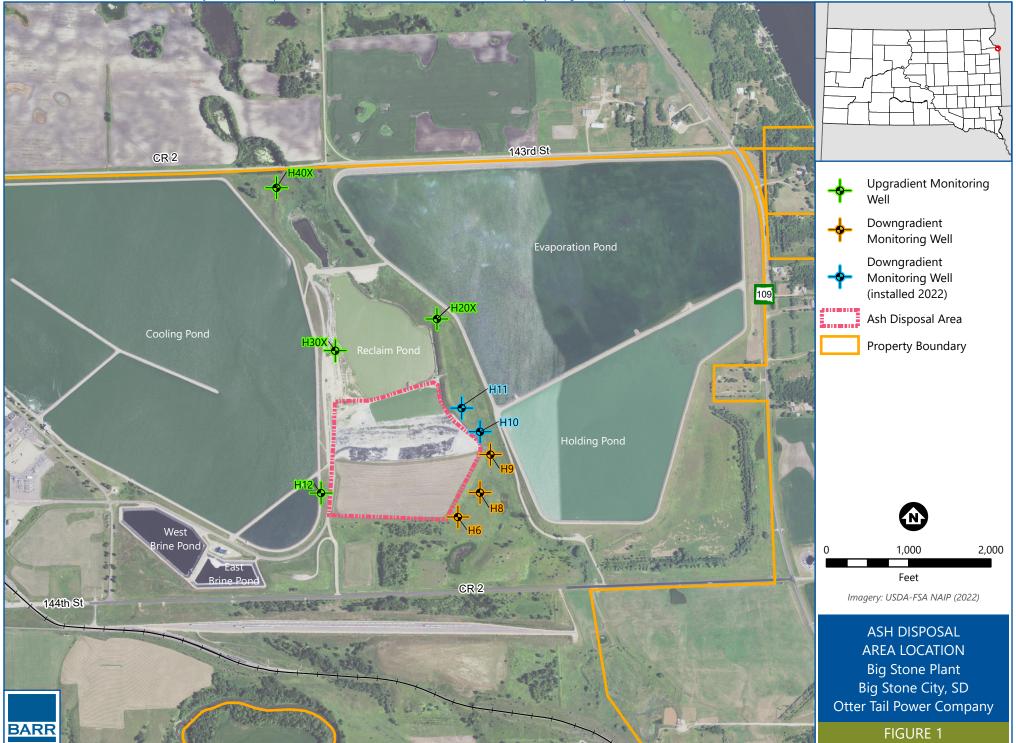
q The combined radium result includes both detected and not detected values.

U The analyte was analyzed for, but was not detected.

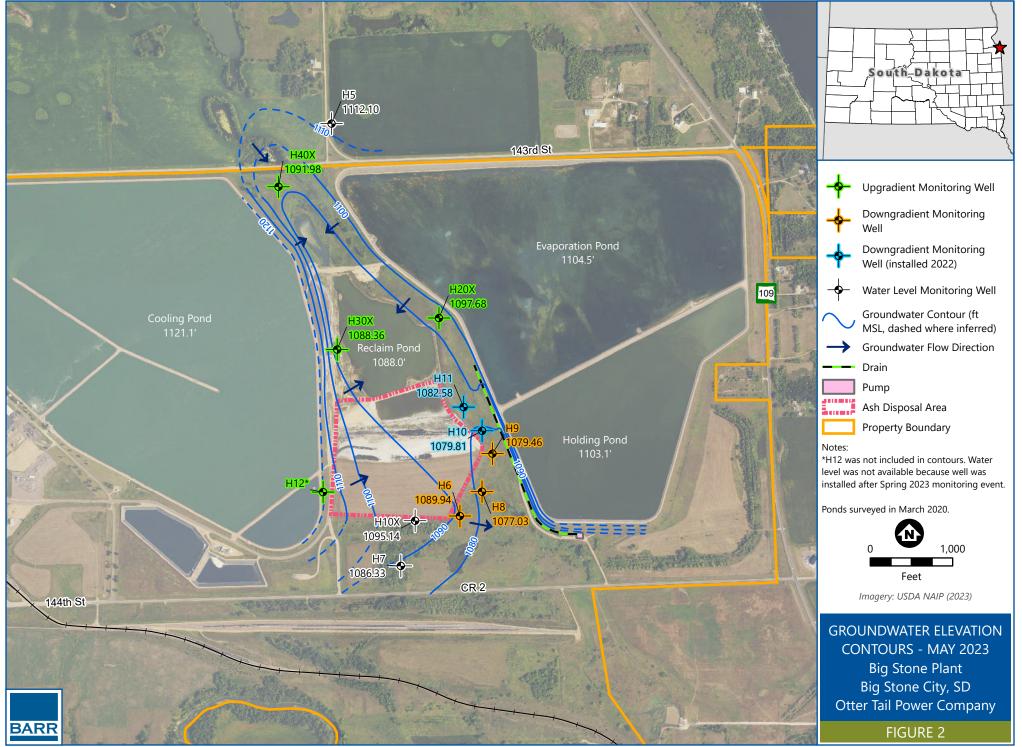
UB The analyte was detected in one of the associated laboratory, equipment, field or trip blank samples and is considered non-detect at the concentration reported by the laboratory.

# Figures

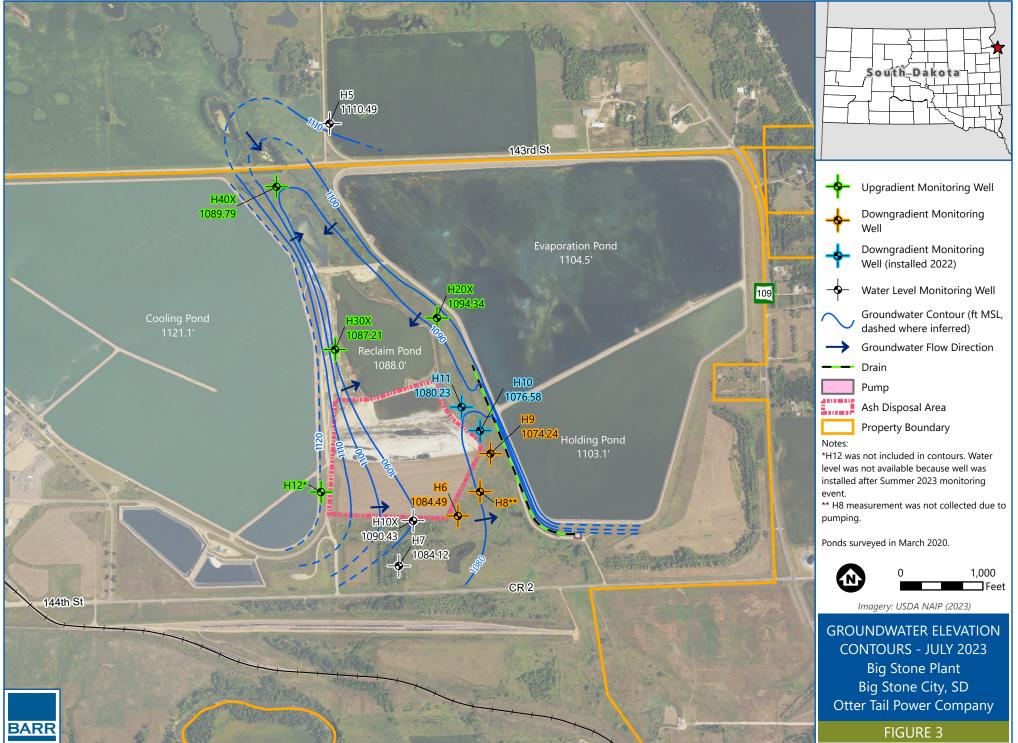
Barr Footer: ArcGISPro 3.1.3, 2023-10-23 09:16 File: I:\Projects\41\25\008\Maps\2023 Well Installation\2023 Well Installation\2023 Well Installation.aprx Layout: Figure01 Ash Disposal Area Location User: MRQ



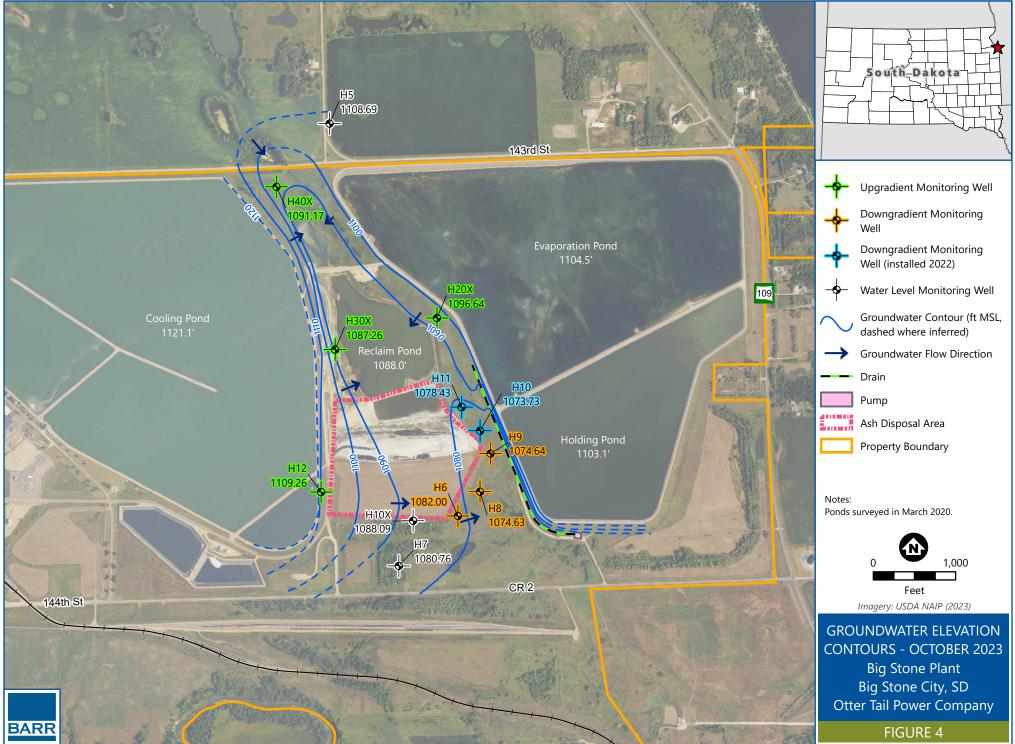
Barr Footer: ArcGISPro 3.1.3, 2024-01-29 16:17 File: I:\Projects\41\25\1005\Maps\2023\_CCR\_Annual\_Report\2023 CCR AMR Figures.aprx Layout: Fig02 Groundwater Elevation Contours May 2023 User: MRQ



Barr Footer: ArcGISPro 3.1.3, 2024-01-30 09:05 File: I:\Projects\41\25\1005\Maps\2023\_CCR\_Annual\_Report\2023 CCR AMR Figures.aprx Layout: Fig03 Groundwater Elevation Contours July 2023 User: MRQ



Barr Footer: ArcGISPro 3.1.3, 2024-01-30 09:12 File: I:\Projects\41\25\1005\Maps\2023\_CCR\_Annual\_Report\2023 CCR AMR Figures.aprx Layout: Fig04 Groundwater Elevation Contours Oct 2023 User: MRQ



Appendices

# Appendix A

2023 Well Boring Logs

	Barr Enginee				LOG O	F WELL H	12
BARR	Minneapolis,	Pointe Drive Suite 200 MN 55435 152-832-2600				SHEET 1 OF 1	
Project: Project No.: Location: Coordinates: Datum:	CCR Monit 41251005 Big Stone F NAD83	bring Well Network	1124.6 ft Hollow Stem Auger Dual tube 30.0 ft	Top of Casing Elev	и.: 1127.4 ft		
Depth, feet Sample Type & Recovery	Sample No.	LITHOLOGIC D	DESCRIPTION		WELL OR PI CONSTR DET	UCTION	Elevation, feet
	1 CL 2	SILT WITH SAND (ML): fine to medium sand; trac grayish brown (10YR 3/2); moist; non-plastic plast soil]. SANDY LEAN CLAY (CL): fine to medium sand; tr orange mottling; increasing silt with depth; Light of 0% gravel, 30% sand, 70% fines. 1.5-1.6: Strong brown oxidation; sand increased to	ticity; 0% gravel, 25% ; race coarse sand; trac live brown (2.5Y 5/3);	sand, 75% fines, [top	Diameter: Type: Interval: RISE Diameter: Type:	Steel 2.75' ags-4.25' bgs ER CASING 2'' PVC SCH 40 2.5' ags-12' bgs	- - - 1120 - - - -
10 - - 15 <u>¥</u>	<sup>3</sup> SP- SM	POORLY GRADED SAND WITH SILT (SP-SM): fi coarse); trace fine gravel; grain size coarsens dow brown (10YR 5/6); moist; non-plastic plasticity; 90 15: Wet.	vnward; trace strong b	0% of sand fraction rown oxidation; Yellowish	Type: Interval: SEA Type: Interval: SAN Type: Interval:	Bentonite 2-10' bgs L Bentonite chips 2-20' bgs IDPACK Red Flint Sand #40 10-22' bgs	1115 - - - 1110 - - -
	4 5 CL	<ul> <li>SANDY LEAN CLAY (CL): fine to medium sand; tr Yellowish brown (10YR 5/4); moist; stiff; low plasti</li> <li>19: 1 mm organic lamination.</li> <li>20-23.5: soft; gray and orange mottling; sand decr</li> <li>23: 1 " granitic gravel.</li> <li>23.3-23.5: clayey sand (SC) lens; 60% coarse san fines; red oxidation.</li> <li>23.5: 0.1' poorly graded sand (SP) lens; very fine s</li> </ul>	icity; 0% gravel, 35% s reased to 20%; siltier f nd; 5-10% fine to medi	sand, 65% fines.	Diameter:	REEN 2" PVC SCH 40 12-22' bgs	- - 1105 - - - - 1100
- - - -30	6 SP CL	POORLY GRADED SAND (SP): medium to coars (10YR 5/6); wet; angular to subangular; 5% gravel LEAN CLAY WITH SAND (CL): fine to coarse san organics; Yellowish brown (10YR 5/4); moist; stiff; End of well 30.0 feet	l, 90% sand, 5% fines. Id; fine gravel; strong b ; low plasticity; 5% gra	orown mottling; black avel, 20% sand, 75% fines.			- - - 1095
Date Boring S Date Boring C Logged By: Drilling Contra Drill Rig:	completed:	9/14/23 10:00 am Remark 9/14/23 12:00 pm KJN3 Dakota Technologies		ded by Otter Tail Power on			

# Appendix B

Laboratory Reports and Field Sheets



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:



FINAL REPORT COMPLETION DATE: 8 A 4933 AS

Date Reported: 4 Aug 2023

1 of 10

JOSH HOLLEN OTTER TAIL POWER CO PO BOX 496 FERGUS FALLS MN 56538-0496 Work Order #: 31~0147 Account #: 006106 PO #: 59601

Project Name: BIG STONE PLANT-CCR

Reviewed e Manager/Date 24 Aug 23 Lab Reviewed Manager/Date Chemistry 0A pug 2023 Assurance Director/Date Reviewed Quality

- 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.

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



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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H20X

2 of 10 Page:

Report Date: 4 Aug 2023 Lab Number: 23-A7487 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 12:04 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.74 * 7.3 1950 ~ 4.1 3850 229.0 # 0.251 0.350 @	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 Cl E SM 2540 C-97 SW6010D SW6010D EPA 300.0	16 May 23 15 May 23 12:04 16 May 23 12:27 18 May 23 11:15 18 May 23 11:17 17 May 23 9:45 25 May 23 12:52 23 May 23 11:06 25 May 23 6:18	LS CC RMV RMV

\* Holding Time Exceeded

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

 KL = 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



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



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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H30X

Page: 3 of 10

Report Date: 4 Aug 2023 Lab Number: 23-A7488 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 10:49 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.62 * 7.2 1490 ~ 66.0 3160 364.0 ~ 6.540 ~ 0.430	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 Cl E SM 2540 C-97 SW6010D SW6010D EPA 300.0	16       May 23         15       May 23       10:49         16       May 23       12:27         18       May 23       11:15         18       May 23       11:17         17       May 23       9:45         25       May 23       12:52         23       May 23       11:106         25       May 23       6:18	SS LS CC RMV RMV

\* 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 INI standards.

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

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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H40X

4 of 10 Page:

Report Date: 4 Aug 2023 Lab Number: 23-A7489 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 11:15 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.61 * 7.1 1050 ~ 42.8 2140 330.0 0.518 0.530	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 Cl E SM 2540 C-97 SW6010D SW6010D EPA 300.0	16 May 23 15 May 23 11:15 16 May 23 12:27 18 May 23 11:15 18 May 23 11:15 18 May 23 11:17 17 May 23 9:45 25 May 23 13:24 23 May 23 11:03	KFL SS LS CC RMV RMV

\* 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:

 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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H-6

5 of 10 Page:

Report Date: 4 Aug 2023 Lab Number: 23-A7490 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 12:53 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

#### Temp at Receipt: 3.9C

	As Receiv Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	7.54 * 7.7 93.0 @ 3.2 536 36.60 3.260 0.500	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 Cl E SM 2540 C-97 SW6010D SW6010D EPA 300.0	16 May 23 15 May 23 12:53 16 May 23 12:27 18 May 23 11:33 18 May 23 11:33 18 May 23 11:34 17 May 23 9:45 23 May 23 11:41 23 May 23 11:41 25 May 23 11:33	KFL SS LS CC RMV RMV

\* Holding Time Exceeded

 RL = Reporting Limit

 Analyses performed under our Minnesote 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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H-8

Page: 6 of 10

Report Date: 4 Aug 2023 Lab Number: 23-A7491 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 13:34 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	7.24 * 7.4 359 ~ 4.3 5270 125.0 3.020 0.550	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 Cl E SM 2540 C-97 SW6010D SW6010D EPA 300.0	16 May 23 15 May 23 13:34 16 May 23 12:27 18 May 23 11:33 18 May 23 11:34 17 May 23 9:45 23 May 23 11:41 23 May 23 11:41 25 May 23 11:33	SS LS CC RMV RMV

\* 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 # 027-0J5-125
 ND WW/DW # R-040

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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H-9

MVTL

Page: 7 of 10

Report Date: 4 Aug 2023 Lab Number: 23-A7492 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 14:27 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Received Result	đ	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.71 * 6.9 1510 ~ 40.9 2580 488.0 ~ 1.100 0.360 @	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 C1 E SM 2540 C-97 SW6010D SW6010D EPA 300.0	16 May 23 15 May 23 14:27 16 May 23 12:27 18 May 23 11:33 18 May 23 11:34 17 May 23 9:45 23 May 23 11:41 23 May 23 11:41 25 May 23 11:33	KFL SS LS CC RMV RMV

\* 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:

 8 = 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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H-10

8 of 10 Page:

Report Date: 4 Aug 2023 Lab Number: 23-A7493 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 13:02 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Received Result		no nootivou		Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions Water Digestions pH, Field pH Radium 226 Radium 228 Sulfate Chloride Mercury Solids, Total Dissolved Calcium Lithium Barium Beryllium Chromium Cobalt Molybdenum		d units pCi/L pCi/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg	RL 1.00 1.0 0.60 3.00 5.0 3.0 0.005 10 0.500 0.020 0.005 0.005 0.005 0.01 0.005 0.015	Reference SM4500-H+-2011 SM 4500 H+ B-2000 EPA M9320 ASTM D516-11 SM 4500 C1 E EPA 245.7 SM 2540 C-97 SW6010D SW6010D SW6010D SW6010D SW6010D SW6010D SW6010D	Analyzed 16 May 23 16 May 23 15 May 23 13:02 16 May 23 12:27 23 Jun 23 17:46 21 Jun 23 21:31 18 May 23 11:33 18 May 23 11:34 23 May 23 13:53 17 May 23 9:45 23 May 23 11:41 23 May 23	KH KH EMW KFL OL OL SS LS RMB CC RMV RMV RMV RMV RMV RMV RMV RMV RMV RMV		
Boron Antimony Arsenic Cadmium Lead Selenium Thallium Fluoride	0.292 < 2.5 @ < 2.5 @ < 0.5 @ < 2.5 @ 4.95 @ < 0.5 @ 0.200 @	mg/L ug/L ug/L ug/L ug/L ug/L ug/L mg/L	0.100 0.5 0.1 0.5 0.50 0.1 0.50 0.1 0.020	SW6010D SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B EPA 300.0	23 May 23 11:41 18 May 23 23:03 18 May 23 23:03 18 May 23 23:03 22 May 23 11:43 22 May 23 11:43 22 May 23 11:43 25 May 23 11:33	KAM KAM KAM KAM KAM KAM		

\* 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:

 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/D# # R-040

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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: H-11

Page: 9 of 10

Report Date: 4 Aug 2023 Lab Number: 23-A7494 Work Order #: 31-0147 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 15 May 2023 12:35 Sampled By: MVTL FIELD PERSONNEL Date Received: 15 May 2023 16:29 PO #: 59601

Temp at Receipt: 3.9C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions	··				16 May 23	кн
Water Digestions					16 May 23	KH
pH, Field	6.37	units	1.00	SM4500-H+-2011	15 May 23 12:35	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	16 May 23 12:27	KFL
Radium 226	1.27	pCi/L	0.60		23 Jun 23 17:46	OL
Radium 228	0,88	pCi/L	3.00	EPA M9320	28 Jun 23 17:46	OL
Sulfate	2640 ~	mg/L	5.0	ASTM D516-11	18 May 23 11:33	SS
Chloride	4.7	mg/L	3.0	SM 4500 Cl E	18 May 23 11:34	LS
Mercury	< 0.005	ug/L	0.005	EPA 245.7	23 May 23 13:53	RMB
Solids, Total Dissolved	4270	mg/L	10	SM 2540 C-97	17 May 23 9:45	CC
Calcium	217.0	mg/L	0.500	SW6010D	23 May 23 11:41	RMV
Lithium	0.223	mg/L	0.020	SW6010D	23 May 23 11:41	RMV
Barium	0,036	mg/L	0.005	SW6010D	23 May 23 11:41	RMV
Beryllium	< 0.005	mg/L	0.005	SW6010D	23 May 23 11:41	
Chromium	< 0.01	mg/L	0.01	SW6010D	23 May 23 11:41	RMV
Cobalt	0.008	mg/L	0.005	SW6010D	23 May 23 11:41	RMV
Molybdenum	< 0.015	πg/L	0.015	SW6010D	23 May 23 11:41	RMV
Boron	0.232	mg/L	0.100	SW6010D	23 May 23 11:41	
Antimony	< 0.5	ug/L	0.5	SW6020B	18 May 23 23:03	KAM
Arsenic	< 2.5 @	ug/L	0.5	SW6020B	18 May 23 23:03	
Cadmium	0.38	ug/L	0.10	SW6020B	18 May 23 23:03	
Lead	< 2.5 @	ug/L	0.5	SW6020B	22 May 23 11:43	
Selenium	< 2,5 0	ug/L	0.5	SW6020B	22 May 23 11:43	
Thallium	< 0.5 @	uq/L	0.1	SW6020B	22 May 23 11:43	
Fluoride	0.140	mg/L	0.020	EPA 300.0	25 May 23 11:33	MDH

\* Holding Time Exceeded

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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.

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Page: 10 of 10

Date Reported: 4 Aug 2023

Work Order #: 202331-0147 Account Number: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT-CCR

LABORATORY NARRATIVE

INORGANIC & METALS ANALYSES: No problems were encountered.

AMENDED REPORT 03 AUGUST 2023: The report was amended to include the following details of re-analysis:

Sample 23-A7491 was re-analyzed in duplicate for total dissolved solids on 14 July 2023 when it was noticed that the result did not align with historical data. The re-analysis results were 951 mg/L and 964 mg/L. It is unknown why the originally reported results were biased.

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MEMBER ACIL

## Quality Control Report

ab IDs: 23-A7487 to 23-A7494 Project: BIG STONE PLANT-CCR					ર	Work Order: 202331-0147					Page: 1 of 1						
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	23A7465q	< 2.5	26.6	106	75-125	26.6	26.9	108	1.1	10	100	90-110	< 0.5
Arsenic ug/L	25.0	98	85-115	25.0	23A7465q	21.5	49.3	111	75-125	49.3	49.0	110	0.6	10	98	90-110	< 0.5
Barium mg/L	1.000	103	85-115	1.00	23A7491q	0.033	1.050	102	75-125	1.050	1.050	102	0.0	10	100	90-110	< 0.005
Beryllium mg/L	1.000	101	85-115	1.00	23A7491q	< 0.005	1.010	101	75-125	1.010	1.010	101	0.0	10	101	90-110	< 0.005
Boron mg/L	1.000	102	85-115	1.00	23A7491q	3.020	4.130	111	75 <b>-</b> 125	4.130	4.120	110	0.2	10	98	90-110	< 0.1
Cadmium ug/L	5.00	103	85-115	5.00	23A7465q	< 0.5	5.06	101	75-125	5.06	5.43	109	7.1	10	102	90-110	< 0.1
Calcium mg/L	50.00	103	85-115	50.0	23A7491q	125.0	174.0	98	75-125	174.0	174.0	98	0.0	10	100	90-110	< 0.5
Chloride mg/L	-	-	-	60.0 600	23-A7489 23-A7516	42.8 305	103 906	100 100	80-120 80-120	103 906	103 907	100 100	0.0	10 10	93 93	90-110 90-110	< 3 < 3
Chromium mg/L	1.000	96	85-115	1.00	23A7491q	< 0.01	0.944	94	75-125	0.944	0.948	95	0.4	10	96	90-110	< 0.01
Cobalt mg/L	1.000	102	85-115	1.00	23A7491q	< 0.005	0.948	95	75-125	0.948	0.950	95	0.2	10	101	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00 1.00	23-A7487 23-A77492qc	0.350 0.360	1.49 1.42	114 106	75-125 75-125	1.49 1.42	1.48 1.47	11 <b>3</b> 111	0.7 3.5	10 10	102 103	90-110 90-110	< 0.02
Lead ug/L	25.0	95	85-115	25.0	23A7465q	< 5	26.5	106	75-125	26.5	26.6	106	0.4	10	99	90-110	< 0.5
Lithium mg/L	1.000	104	85-115	1.00	23-A7491	0.044	1.080	104	75-125	1.080	1.080	104	0.0	10	103	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	23-A7434	< 0.005	0.069	69	63-111	0.069	0.069	69	0.0	18	94	76-113	< 0.005
Molybdenum mg/L	1.000	100	85-115	1.00	23A7491q	< 0.015	1,020	102	75-125	1.020	1.020	102	0.0	10	102	90-110	< 0.015
pH units	-	-	-	-	-	_	-	_	-	7.0	7.0	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	103	85-115	25.0	23A7465q	8.70	36.1	110	75-125	36.1	39.1	122	8.0	10	102	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	4270	4400	-	3.0	7	99	85-115	< 10
	-	-	-	-	-		-	-	_	951	964	-	1.4	7	100	85-115	< 10
Sulfate mg/L	-		-	500 50.0	23-A7486 23-A7516	509 6.2	996 59.0	97 106	80-120 80-120	996 59.0	985 59.6	95 107	1.1 1.0	10 10	99 99	80-120 80-120	< 5 < 5
Thallium ug/L	5.00	96	85-115	5.00	23A7465q	< 1	5.36	107	75-125	5.36	5.29	106	1.3	10	99	90-110	< 0.1

Approved by:



# Pace Analytical ANALYTICAL REPORT

June 28, 2023

#### Pace Analytical - Minnesota Sample Delivery Group: L1618172

Samples Received:	05/19/2023
Project Number:	10653516
Description:	31-0147 Ottertail
Site:	001
Report To:	Piper Gibbs
	1700 Elm Street Suite 200
	Minneapolis, MN 55414

Entire Report Reviewed By:

Im

#### 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-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

SDG:

PROJECT:

ACCOUNT:

DATE/TIME:

# TABLE OF CONTENTS

1
2
3
4
5
5
6
7
7
8
9
10
11

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S.	AMPLE	SUMN	MARY			ener anne genera
23A7493-H-10 L1618172-01 Non-Potable Water	annatha kan's stady allowers a	·, <i>E</i> ,	Collected by	Collected date/time 05/15/23 13:02	Received da 05/19/23 09:	
Method .	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2077154	1	06/14/23 18:57	06/21/23 21:31	SNR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2078608	1	06/22/23 12:18	06/23/23 17:46	RGT	Mt, Juliet, TN
			Collected by	Collected date/time	Received da	te/time
23A7494-H-11 L1618172-02 Non-Potable Water				05/15/23 12:35	05/19/23 09:	05
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Radiochemistry by Method 904/9320	WG2077154	1	06/14/23 18:57	06/21/23 21:31	SNR	ML Juliet, TN
Radiochemistry by Method SM7500Ra 8 M	WG2078608	1	06/22/23 12:18	06/23/23 17:46	RGT	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.

Donna Eidson Project Manager

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SDG:

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SAMPLE RESULTS - 01 L1618172

### Radiochemistry by Method 904/9320

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,	Parult Our				
	Result <u>Qua</u>	lifier Uncertainty	MDA	Analysis Date	<u>Batch</u>
Analyte	рСіЛ	+/-	pCi/l	date / time	
RADIUM-228	0,726	0.251	0.442	06/21/2023 21:31	<u>WG2077154</u>
(T) Barium	85.5	۵	30.0-143	06/21/2023 21:31	WG2077154
(T) Yttrium	100		30.0-136	06/21/2023 21:31	WG2077154

### Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+/-	pCi/l	date / time	
RADIUM-226	4.42		0.989	0.432	06/23/2023 17:46	WG2078608
(T) Borium-133	63.4			30.0-143	06/23/2023 17:46	WG2078608

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### 23A7494-H-11 Collected date/time: 05/15/23 12:35

SAMPLE RESULTS - 02

### Radiochemistry by Method 904/9320

		20	_				1
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	рСіЛ	date / time		
RADIUM-228	0.875		0.201	0.342	06/21/2023 21:31	WG2077154	
(T) Barium	111			30.0-143	06/21/2023 21:31	WG2077154	·
(T) Yttrium	106			30.0-136	06/21/2023 21:31	WG2077154	3

### Radiochemistry by Method SM7500Ra B M

	Result <u>Qu</u>	alifier Uncertainty	MDA	Analysis Date	Batch
Analyte	рСИ	+/-	pCi/l	date / time	
RADIUM-226	1.27	0.422	0.188	06/23/2023 17:46	WG2078608
, <i>(T) Barium</i> -133	87.1		30.0-143	06/23/2023 17:46	WG2078608

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#### QUALITY CONTROL SUMMARY L1618172-01,02

Radlochemistry by Method 904/9320

### Method Blank (MB)

(MB) R3940781-1 06	5/21/23 21: <b>3</b> 1				
	M8 Result	MB Qualifier	M8 Uncertainty	DA	
Analyte	рСіЛ		+/-		
Radium-228	0.163	7	0.134		
(T) Barium	111	· · · · · · · · · · · · · · · · · · ·	111	a a a a a antiquementa de la adore que a the filmeda a filmenta e filmenta e de la construction de la const	
(T) Yttrium	109	ALL	109	иние маля сал пр. Тирей лаламая, и «И маля и на ок област и наибра ди са рире с Хальнийск так стять и как на статить с так на ток на статить с	ta agent men arban a r - men arban mé

### L1620768-42 Original Sample (OS) • Duplicate (DUP)

(OS) L1620768-42 06/21/	'23 21:31 • (DUP)	R3940781-5	06/21/23 21:31									
	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCI/i	+/-	рСі/І	рСИ	+/-	рСИ		%			%	
Radium-228	0.258	0.326	0.602	1.02	0.329	0.602	1	119	1.64		20	3
(T) Barium	122		······································	108	108	36 CMM 932302 - W			·			the second se
(1) Yttrium	114			109	109			4 f Est no e ap	·		•••••	

### Laboratory Control Sample (LCS)

(LCS) R3940781-2 06/21	23 21:31					Í
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	-
Analyte	рСіЛ	pCi/l	%	%		
Radium-228	5.00	4.98	99.7	80.0-120		
(T) Barium		e ye ye day a ta ta ta ta	112			
(T) Yttrium			110		NART & A RE-REPRESENTING ARE A' ST ARROW RANT VEREAR MATTER AND AND A MATE A THEATER AND A THE BALL AND A THEAT AND A THE ART AND A THEAT ARRAY AND A THEAT	

### L1618373-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1618373-01 06/2	21/23 21:31 • (MS) R3	8940781-3 06/	21/23 21:31 • (1	VSD) R3940781	-4 06/21/23 2	1:31						· · · · · · · · · · · · · · · · · · ·	
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	-0.124	9.11	9.19	91.1	91.9	1	70.0-130			0.874	ilitiitii a almahada in in in in an	20
(T) 8arium		107		× ·	115	124			Al Andrew Joger and Alary and A			مدها مربودي رمحانين محا الرم ي فرم مردمه الانت ي	
(T) Yttrium		108			105	106							a and the second second second second second second

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### WG2078608

#### QUALITY CONTROL SUMMARY L1618172-01,02

\_\_\_Radiochemistry by Method SM7500Ra B M

### Method Blank (MB)

(MB) R3941782-1 06/2	MB Result	MB Qualifier	MB Uncertaint	MB MDA	ג ז
Analyte	pCi/l		+/-	pCi/l	
adium-226	0.0104	<u>u</u>	0.0583	0.109	I
(T) Barium-133	64.8	ч ш т Ч ч ч ч	64,8		:

### L1620768-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1620768-20 06/2	23/23 17:46 • (DUP	9) R3941782-5	06/23/23 17:4	6								
	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	рСИ	+/-	pCi/l	рСИ	+/-	рСіЛ		%			%	
Radium-226		0.160	0.270	0.0852	0.183	0.270	1	4.12	0,0142	<u> </u>	20	3 
(T) Barium-133	92.4	n to have allow	~~ ~	81.8	81.8			79 mm m m				in an an an anna an an an an an an an an

### Laboratory Control Sample (LCS)

Laboratory Cor	ntrol Sample (L	CS)								8
(LCS) R3941782-2 0	6/23/23 17:46									A
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier					
Analyte	pCi/l	рСИ	%	%						Sc
Radium-226	5.01	5.72	114	80.0-120						<b></b>
(T) Barium-133			69.2			- ne a avas.	 · · · · · · · · · · · · · · ·	 	 	

### L1620768-27 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1620768-27 06/2	(OS) L1620768-27 06/23/23 17:46 • (MS) R3941782-3 06/23/23 17:46 • (MSD) R3941782-4 06/23/23 17:46												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec, Limits	<u>MS Qualifier</u>	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	рСИ	рСіЛ	рСіЛ	рСіЛ	%	%		%			%		%
Radium-226	20.0	0.133	21.8	19.9	108	98.6	1	75.0-125			9,31		20
(T) Barlum-133		99.2		2	80.1	90.4							

ACCOUNT:

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### 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.
	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.
Casë 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.
الا بيرك مناموم الدام ما وال	and a serie programme of the series of the Manager and an and a series and a series and and and a series and a
<b>↓</b> ] ∻	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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Seorgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
dah <b>o</b>	TN00003	Ohio-VAP	CL0069
llinois	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>16</sup>	KY90010	South Carolina	84004002
Centucky <sup>2</sup>	16	South Dakota	n/a
ovisiana	Al30792	Tennessee 14	2006
ovisiana	LA018	Texas	T104704245-20-18
laine	TN00003	Texas <sup>s</sup>	LAB0152
laryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
lichigan	<b>9</b> 958	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 - 150 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003	······································	

<sup>1</sup>Orinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aqualic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.

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Internal Transfer Ch	order Name	] Samples	Pre-Logged inder: 31-0147		).		Cert.	Of Orig Needed r Receiv	: 🔽	Yes	5/17/20		esuits R			e Analyti www.paceleb /: 6/16/20	a.com
Report Torman Andrew State	Mag A. T	Subcontract	To the state														
Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-1700		Pace N 12065 I Mt. Julio							dium 226/228								
					¥ <b>P</b> r کو⊴	eserve	d Cont	alners i i c	Rac		و (بیلایه) مراجع اور افغا اور افغا						
Item Sample ID 1	Sample, Co Type: Dat	loct e/Time	Lab ID	Matrix 2	Unprese	î.						9.				LAB USE C	DNLY
1 23A7493-H-10	PS 5/1	5/2023 13:02	10653516001	Water	1				X								-01
2 23A7494-H-11	PS 5/1	5/2023 12:35	10653516002	Water	1			<u> </u>	X				+ + + -				
3					$\dashv$								$\left  - \right $				
5	1-1-	·					,								Ĺ,		
	新 <b>建筑</b> 的141	1			÷	<u> </u>	制植物			St 1 10	1.8.3	计控	日 会 Comn	ients Pate	1. 2. 2. 1.		
Transfers Released By	-	Date/Time	Received B	У		<u> </u>	1	Date/Tim									OK
1 pr pre		5-18-151	/39	··· ·	-4	<u>u#</u>	-	┝━━╾╳╼┽	9.23	—	n						ve
2				<u></u>		_/_			<u>,985</u>							-	
Cooler Temperature on Receipt	0.9 °C	Cust	ody Seal	or N		Τ	Rece	ived on	lce		N		Sam	ples In	tact (	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.

0.9°.1-0.9°2 Count= 20 Sample Receipt Checklist Intact: \_\_\_\_\_N If Applicable :e: \_\_\_\_\_N VOA Zero Headspace: COC Seal Present/Intact: \_\_\_\_N COC Signed/Accurate: \_\_\_\_N N N Pres.Correct/Check: Y N Bottles arrive intact: Correct bottles used: \_Y Sufficient volume sent: \_Y RAD Screen <0.5 mR/hr: \_Y -พ PHIADS SIQ ISUR ΠN. N

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This is an exact copy of the original document By <u>AS Date 15 May 23</u> Pages 1-12

### **Minnesota Valley Testing Laboratories**

1126 North Front StreetNew Ulm, MN 56003Phone: 800 782 3557Fax: 507 359 2890Field Service Chain of Custody Record

Project	Otter Ta	il Power Com	npany	Project Ty	pe:	Big Sto	ne Plant	CCR										
Report	Otter Ta	il Power Com	npany	Carbon Co	py:	Barr Er	gineering	g	MS, DF, DS, BW									
Attn:	Paul Vul	konich		Attn:					Quote Number:									
Address	ddress P.O. Box 496			Address:				Wo	rk Or	der N	lumb	ber:	31-1	14	7			
	Fergus I	Falls, MN 56	538-0496						Work Order Number: 31-0147 Lab Numbers:			/						
Phone:	218-739	-8349							100				_			_		
Sample Information											Bott	le Ty	ype					Analys
	1	1	1	1	1	1	1.1		1	1	1	1	1	0/	T	1	×1	1
10	1	/	/	/	Sample Type	/	1000 HNO3 Inner 500 None	/	/		2 /	1:	2 / 2	1000 Amber	/	Other: 150 Hack	Other 150 AL	une /
Lab Number	Sample ID	/	/	/	1F	1 -	33	10	10	Filter? Y ou	5 / 7	or I	- / a	er l	1-	13		D D
1n	ole	195		1	ole	ble tion	NI UN	- Log	10	12	SS	12	1 H	IE.	1 OF	15	150	lire
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	0	1220			0	107	50 20	10		Ē	20	Ē	100	53	20	of	0	A R
47487	H2OX		15 Amy 23	1204	GW			1	1	N		1	-	-				CCR 3
88	H3OX	4	""/	1049/	GW			1	1	N								CCR 3
89	H4OX			115	GW			1	1	N								CCR 3
	H-6			1253	GW			1	1	N								CCR 3
91	H-8			1334	GW			1	1	N								CCR 3
92	H-9			1427	GW			1	1	N							1	CCR 3
92	H10			1302	GW			1	1	N			1					CCR 3&4
94	H11		L	1035	GW			1	1	N			1					CCR 3&4
	-	-													-	-		
Commo	nto												_			_	-	1

Comments:

		$\bigcirc$					
Samples Reline	quished By: 7	mil		Samples Received By		)	
Date: 15 May	23	Time: 16	29 Temp: 3.97 19	Date: 15 May 23	Time:	1629	Temp: 3.90
Samples Relind		Fridge	Log in Cart Other:	1			
Samples Relind	quished By:			Samples Received By	<i>!</i> :		
Date:	0	Time:	Temp:	Date:	Time:		Temp:
Delivery:	Samplers	Other:		Seal Number(s) - If Us	sed		
Transport:	Ambient	Tce)	Other:	Seals Intact?	Yes	No	

April 2023 WAC

### 2023 Big Stone Sampling - CCR

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### 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 See highlighted
H11		CCR 3 and 4	42.15	2	1093.24	Bladder	Yes	100		note below

Note: Wells H10 and H11 need to be sampled 8 times for CCR this year. Background sampling like 5 years ago. We want to sample in April - November. Each event has to be about 30 days apart. Also, durning every sampling event for the CCR, we will need water levels on the CCR wells not sampled.

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

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

CCR - Appendix III Detection Monitoring <i>Field Parameters</i> 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

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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	

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Note: These are non-filtered samples.

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Exceptions to Protocol:

Groundwater Assessment	Site:	Otter Tail P	il Power Co./ Big Stone		
Sampling Personnel;	Facility	ID:			
Bir	Date	15 MRY 23			
	Unique	Station ID:			
	Sample	D: W	/ell H2OX		
Well ConditionWell Locked?YesNoWell Labeled?YesNoCasing Straight?YesNoRepairs Necessary:Image: Straight	State II	ive Posts? Yes D Tag? Yes Seal Intact? (es)	No		
Well Information					
Well Depth: 32.83	Well C	asing Elevation:	1103.91		
Constructed Depth: 32.20	Static V	Nater Elevation: 10	77.73		
Casing Diameter. 2"	Previo	us Static: 1097.0	52		
Water Level Before Purge: 6.18	Water	Level After Sample:	clow fump		
Well Volume: 4:35 Ga	lons Measu	rement Method: Elec	: WL Steel Tape		
Sampling Information			<u>ر</u>		
Weather Conditions: Temp: 71	Wind: LIV	Sky: /0	" <sup>(</sup>		
	der SSA Disp. Bailer Whale	Grab Other:	·····		
Dedicated Equipment: (es No	Pumpi	ng Rate: , 25	gpm		
Well Purged Dry? Yes No	Time F	Pump Began: 1/41	<u>କେଲ୍) pm</u>		
Time Purged Dry? 159	Time o	of Sampling: 1204	am / (pp)		
Duplicate Sample? Yes No ID:	Sampl	e EH: 44.6			
Sample Appearance: General:	Icar Color. Non	Phase: 107	Odor. Nogu		
Time <sup>1°</sup> pH Cond. <sup>o</sup> C 1159 6.65 3990	mp D. O. Turbid mg/L. NTU 8.79 NA N	Removed #	Comments:		
1204 6.74 3976 8	··32 - «		Recharge		
		5			
Stabilized? Yes No	Amount Water Ren		Gallons		
Comments:	HCCR				

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Groundwater Assessmen	t ·	3	Site:	Otter T	tter Tail Power Co./ Big Stone			
Sampling Personnel:		_	Facility ID:		-			
Sir			Date: 15 /	yay 23				
		-	Unique Static	· /				
			Sample ID:		Well	H3OX		
Well Condition	<u></u>	<u> </u>	· · · · · •					
Weli Locked? Mes N	0	_	Protective Po			NQ_		
Well Labeled?	<u> </u>		State ID Tag			No		
Casing Straight? Yes N	0	-	Grout Seal In	tact? Yes		No7		
Repairs Necessary:		· · · · · · · · · · · · · · · · · · ·						
Well Information	• •							
Well Depth:22.	( <u>2 X.</u>	•	Well Casing			1095.19		
Constructed Depth: 22.5	5		Static Water		1088	29		
Casing Diameter. 2"		Previous Static: 1088.56						
Y	<u>, 90</u>		Water Level	After Sample:	<u> </u>	low pump		
Well Volume: 2-57	Gallons	•	Measuremer	t Method:	Elec. V	VL/ Steel Tape		
Sampling Information		,			<u>.</u>			
Weather Conditions: Temp:	107~	Wind: L	~〔ノ	Sky: ;	Fu.r			
Sampling Method: Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		<u></u>		
Dedicated Equipment: Yes A	200 - Maria		Pumping Ra	te: . 7-5		gpm		
Well Purged Dry? Yes N	0		Time Pump	33	/ pm			
Time Purged Dry?	;		Time of Sam	(am) pm				
Duplicate Sample? Yes	ຄົງ iD: 🔶 🔶	-	Sample EH:					
Sample Appearance: Genera	: Clevr	Color. A	270 Phase	NOIL		Odor. 2000		
) Specific	Тетр	D. O.	Turbidity	Gallons	SEQ			
Time // pH Cond.	°C	mg/L	NTU	Removed	#	Comments:		
1044 6.57 281		NA	NA	2.75	1			
	0 1-0-				2			
1049 6.62 376	1 10.38				3	Richarp		
1 1 0.02 - 14			<b> </b> · · · · · · · · · · · · · · · · · ·		1			
		· · · ·			4	· · · · · ·		
		· · ·			5	<u>}</u>		
Stabilized? Yes		Amount Wa	ter Removed	: <u> </u> ノ・フら		Gallons		
Comments:		a ch						
		YEEK						

Groundwater Assessment		Site:	Otter Ta	ail Power C	o./ Big Stone
Sampling Personnel		Facility ID: Date: 5M	1423		
		Unique Station	n ID:		
		Sample ID:		Well H40	DX XC
Well Condition         Well Locked?       Yey       No         Well Labeled?       Yey       No         Casing Straight?       Yes       No         Repairs Necessary:       Yes       No		Protective Pos State ID Tag? Grout Seal Inte	Yes	No No	
Well Information					
Well Depth:27.48Constructed Depth:27.20Casing Diameter:2"Water Level Before Purge:16	- - - <b>- - 7</b>	Well Casing E Static Water E Previous Stati Water Level A	Elevation: c: 109	1108 1091.21 2.16 BJOCK	
Well Volume: 1.83	Gallons	Measurement		Elec. WLI	Steel Tape
Sampling Information				<u> </u>	
Weather Conditions: Temp:	72 Wind:	LUV	Sky: /	Far	
Sampling Method: Grundfos (	Bladder SSA Disp. Bailer	Whale G	Grab Other.		
Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       No         Time Purged Dry?       110         Duplicate Sample?       Yes       Yes	- - ID:	Pumping Rate Time Pump B Time of Samp Sample EH:	legan: //C	gpm ひん /ち	am)/ pm am)/ pm
Sample Appearance: General:	Clear Color. /	Voj~ Phase:	Non	Ódo	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Temp D. O. <sup>o</sup> C mg/L 9.46 MA	NTU	Gallons Removed	1	nments:
1115 6.61 2674	9.11 L			$\frac{2}{3}$ R	<i>cilian</i>
				4	
				5	
Stabilized? Yes No	Amount	Water Removed:	2	<u></u>	lions
Comments:	Yundahi	((R		0	

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New Ulm, MN 56073

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Groundwater Assessment		Site: Otter Tail Power Co./ Big Stone	
Sampling Personnel:		Facility ID:	
DF		Date: 15 May 23	
		Unique Station ID:	
		Sample ID: Well H6	
Well Condition			
Well Locked? Tes No		Protective Posts? Co No	
Well Labeled? Yes No		State ID Tag? Yes Mo?	
Casing Straight? Yes No		Grout Seal Intact? Yes	
Repairs Necessary:			
Well Information			
Well Depth: 17.92		Well Casing Elevation:	
Constructed Depth: 17.70	·	Static Water Elevation:	
Casing Diameter. 2"		Previous Static:	
Water Level Before Purge: 7,82		Water Level After Sample: 8.70	
Well Volume: 16 Gallons		Measurement Method: Tec. VAL Steel Tape	
Sampling Information			
		. /	
Weather Conditions: Temp: 65	Wind:	L+V. Sky: Surry	
	Wind:	L+V. Sky: Surry Whats Grab Other: BA	MyB
Weather Conditions: Temp: 65	Wind: Disp. Baser		Ayzz Ze
Weather Conditions:     Temp:     65       Sampling Method:     Grundfos     Bladder SSR	Wind: Disp Bater	Utrais Grab Other:	MyB Ze
Weather Conditions:       Temp:       55         Sampling Method:       Grundfos       Bladder SSR         Dedicated Equipment:       YES No	Wind: Disp. Baser	Pumping Rate: 0,25 gpm	74.433 74
Weather Conditions:       Temp:       5         Sampling Method:       Grundfos       Blatder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       No	Wind: Disp Baser	Grab     Other:     BA       Pumping Rate:     0.25     gpm       Time Pump Began:     1232     am / 660	λ. 73 74
Weather Conditions:       Temp:       5         Sampling Method:       Grundfos       Bladder SSR         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       —       —	Desp. Baser	Grab     Other:     back       Pumping Rate:     0,25     gpm       Time Pump Began:     1232     am / 666       Time of Sampling:     1253     am / 1666	74.73 74
Weather Conditions:       Temp:       5         Sampling Method:       Grundfos       Blatder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       Upplicate Sample?       Yes         Sample Appearance:       General:       General:	Color.	Grab       Other:       BAR         Pumping Rate:       0,25       gpm       D         Time Pump Began:       1,232       am / 100         Time of Sampling:       1,253       am / 100         Sample EH:       83,1         Image:       Nave       Odor:         None       Phase:       Nave       Odor:	?т. <sub>7</sub> 23 74
Weather Conditions:       Temp:       5         Sampling Method:       Grundfos       Bladder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       Yes       ID:         Duplicate Sample?       Yes       Yes         Sample Appearance:       General:       Class	Color: A	Grab     Other:     BAR       Pumping Rate:     0125     gpm       Time Pump Began:     1232     am / 600       Time of Sampling:     1253     am / 600       Sample EH:     83.1       Image:     1242       Odor:     None       Turbidity     Gallons	74. <i>73</i> 3 24
Weather Conditions:       Temp:       5         Sampling Method:       Grundfos       Blatder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       Yes       ID:         Duplicate Sample?       Yes       Yes         Sample Appearance:       General:       Jeast         Time       pH       Cond.       °C	Color.	Grab       Other:       BAR         Pumping Rate:       0,25       gpm         Time Pump Began:       1,232       am / 100         Time of Sampling:       1,253       am / 100         Sample EH:       83,1         One       Phase:       Odor:         Turbidity       Gallons       SEQ         NTU       Removed       #	йч <i>уз</i> з 7
Weather Conditions:       Temp:       55         Sampling Method:       Grundfos       Blatder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       No         Time Purged Dry?       Temp:       ID:         Duplicate Sample?       Yes       No         Sample Appearance:       General:       Code         Time       pH       Cond.       °C         1239       7.56       10%       6.65	Diep. Baser Color. A D. O. mg/L MA	Grab       Other:       BAR         Pumping Rate:       0,25       gpm         Time Pump Began:       1,232       am / 600         Time of Sampling:       1,253       am / 600         Sample EH:       83,1         One       Phase:       Odor:         NTU       Gallons       SEQ         NTU       Removed       #         MA       1,75       1	74. <i>73</i> 3 74
Weather Conditions:       Temp:       5         Sampling Method:       Grundfos       Blatder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       Yes       ID:         Duplicate Sample?       Yes       Yes         Sample Appearance:       General:       Jeast         Time       pH       Cond.       °C	Diep. Baser Color. A D. O. mg/L MA	Grab       Other:       BAR         Pumping Rate:       0125       gpm       D         Time Pump Began:       1232       am / 600         Time of Sampling:       1253       am / 600         Sample EH:       83.1         Import Phase:       Nave       Odor:       Nore         Turbidity       Gallons       SEQ       Comments:         MA       1.75       1       1         1       3.5       2       1	74.433 74
Weather Conditions:       Temp:       55         Sampling Method:       Grundfos       Bladder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       -       -         Duplicate Sample?       Yes       Yes         Sample Appearance:       General:       General:         Time       pH       Cond.       °C         1239       7.55       1024       6.53         1246       7.55       1024       6.53	Diep. Baler Color. A D. O. mg/L	Grab       Other:       BAR         Pumping Rate:       0,25       gpm         Time Pump Began:       1,232       am / 600         Time of Sampling:       1,253       am / 600         Sample EH:       83,1         One       Phase:       Odor:         NTU       Gallons       SEQ         NTU       Removed       #         MA       1,75       1	in 133
Weather Conditions:       Temp:       55         Sampling Method:       Grundfos       Bladder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       -       -         Duplicate Sample?       Yes       Yes         Sample Appearance:       General:       General:         Time       pH       Cond.       °C         1239       7.55       1024       6.53         1246       7.55       1024       6.53	Diep. Baler Color. A D. O. mg/L	Grab       Other:       BAR         Pumping Rate:       0125       gpm       D         Time Pump Began:       1232       am / 600         Time of Sampling:       1253       am / 600         Sample EH:       83.1         Import Phase:       Nave       Odor:       Nore         Turbidity       Gallons       SEQ       Comments:         MA       1.75       1       1         1       3.5       2       1	1. 133 A
Weather Conditions:       Temp:       55         Sampling Method:       Grundfos       Bladder SSP         Dedicated Equipment:       Yes       No         Well Purged Dry?       Yes       Yes         Time Purged Dry?       -       -         Duplicate Sample?       Yes       Yes         Sample Appearance:       General:       General:         Time       pH       Cond.       °C         1239       7.55       1024       6.53         1246       7.55       1024       6.53	Diep. Baler Color. A D. O. mg/L	Grab       Other:       Barrier         Pumping Rate:       0,25       gpm         Time Pump Began:       1232       am / 100         Time of Sampling:       1253       am / 100         Sample EH:       83,1         Sore       Phase:       Nove         Turbidity       Gallons       SEQ         NTU       Removed       #         MA       1.75       1         3.55       2       2         5.25       3       3	in 133

Comments:

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Groundwater Assessment			Site:	Otter	Tail Po	ower Co.	/ Big Stone	
Sampling Personnel:			Facility ID:					
DF			Date: ISMay 23					
	_		Unique Station ID:					
та на селото на селот Селото на селото на с Селото на селото на с	_		Sample ID:			Vell H8		
Well Condition	<u></u>		•					
Well Locked? Yes No	_		Protective F			No		
Well Labeled? Xes No	-		State ID Tag					
Casing Straight? Cos No	-		Grout Seal I	ntact? Yes	-	<u>M</u>		
Repairs Necessary: Well Information	<u> </u>		<del>.</del>			<u> </u>		
Well Depth: 22.33		ſ	Well Casing	Elevation:		1081.2	2	
Constructed Depth: 22.05	_		Static Water		107	7.03		
Casing Diameter: 2"	_		Previous Sta		/\_/ 	7.05	<u>.</u>	
······································								
Well Volume: 2.96	Gallons		Measureme		Elec.		Steel Tape	
Sampling Information								
Weather Conditions: Temp:	6	Wind: L	-+1/	Sky:	5			
Sampling Method: Grundfos	Bloader S8/T	Disp. Bailer	Whale	Grab Other:	<u>74nm</u>	y		
Dedicated Equipment: Yes No			Pumping Ra		5	gpm		
Well Purged Dry? Yes	_		Time Pump Began: 1258				am / 🔊	
Time Purged Dry?	-		Time of San		334		am / 😡	
Duplicate Sample? Yes	– ID:		Sample EH: 81.2					
Sample Appearance: General:	Cleas	Color: N	an Phase		· · · · · · · · ·	Odor:	None	
j2 Specific	Temp	D. O.	Turbidity	Gallons	SEQ			
Time pH Cond.	°C	mg/L	NTU	Removed	#	Comm	ents:	
1310 7.25 1552	7.68	NA	NA	3	1		-	
1322 7.24 1553	7.65			6	2			
1334 7.24 1553	7.66	<u>    - </u>		9	3	<u> </u>		
		<u>    '</u>	<u>├─</u> / ─	· · · ·				
		<u> </u>	<u>├ </u>		4 5			
Stabilized? Xes No	<u></u>	Amount \//-	ter Removed:	9		<u> </u>		
Comments:			itel rtemoved:			Gallon	<u> </u>	

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Exceptions to Protocol:

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Groundwater Assessment			Site:	Otte	r Tail P	ower Co./ Big Stone
Sampling Personnel:			Facility ID	):	<b>-</b>	
DF	_		Date:	15May 2	3	
	_		Unique St			
· ·	_		Sample I	):		Well H9
Well Condition		<u> </u>				
Well Lócked? Yes No	_		Protective		<b>)</b>	No
Well Labeled? Cost No	-		State ID T			<u>(108</u>
Casing Straight? (es No	_		Grout Sea	al Intact? Yes		
Repairs Necessary:						
Well Information						
Well Depth: 30.71	<b>→</b>		Well Casi	ng Elevation:		1086.21
Constructed Depth: 30.20	_		Static Wa	ter Elevation:	0	79.46
Casing Diameter. 2"			Previous	Static:		
Water Level Before Purge: 6.7	5		Water Lev	vel After Sampl	le:	7.00
Well Volume: 3.9	Gallons	_	Measuren	ent Method:	Elec.	WD Steel Tape
Sampling Information	1.1					
Weather Conditions: Temp:	<u>6                                    </u>	Wind:	LAV	Sky:	_Gung	~
Sampling Method: Grundfos	Bloader S8/T	Disp. Baile	Whale	Grab Other		/
Dedicated Equipment: 763 No			Pumping	Rate: 0,2	15	gpm
Well Purged Dry? Yes			Time Pur	np Began: 13	am / 🐠	
Time Purged Dry?			Time of S	ampling: //	127	am / 🛱
Duplicate Sample? Yes No	ID: 🛩			Sample EH: 07.0		
Sample Appearance: General:	Clas		Pha Pha			Odor: None
	Tomp	 				, <del></del>
Time pH Cond.	Temp <sup>o</sup> C	D. O.	Turbidity	Gallons	SEQ	
		mg/L		Removed	#	Comments:
355 6.71 332	9.04	<u>NA</u>		4	-  1	
1411 6.71 3133	9.03	$\downarrow \dots \downarrow$		8	2	
1427 6.71 3134	9.04			12	3	
					4	
						· · · · · · · · · · · · · · · · · · ·
					5	
Stabilized? Tes No	<u> </u>	Amount V	Vater Remove	ed: 12	5	Gallons

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Exceptions to Protocol:

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Groundwater Assessment		Site:	Otter Tail Power Co./ Big Stone				
Sampling Personnel:		Facility ID:					
Bv		Date: 15 MGY	23				
		Unique Station ID:					
		Sample ID:	H10				
Well Condition							
Well Locked? Yes No		Protective Posts?	Yes No				
Well Labeled? Yes No Casing Straight? Yes No		State ID Tag?	Yes Ko				
Repairs Necessary: Nocol (		Grout Seal Intact?	(tes) No				
Well Information			<u> </u>				
Well Depth: 35.49		Well Casing Elevat	ion: 1090.83				
Constructed Depth: 35.49		Static Water Elevat	1 30 0.1				
Casing Diameter: 2"		Previous Static:	<u> </u>				
Water Level Before Purge: 11.02		Water Level After Sample:					
Well Volume: 3-99' G	allons	Measurement Meth	od: Felec. WL) Steel Tape				
Sampling Information	<u> </u>	1					
Weather Conditions: Temp: //	7 Wind:	LUV	sky: Fair				
Sampling Method: Grundfos Bia	idder SS/T Disp. Bailer	Whale Grab	Other:				
Dedicated Equipment: Yes No		Pumping Rate:	-25 gpm				
Well Purged Dry? (Yes) No		Time Pump Began:	1241 am / pm				
Time Purged Dry? 1257		Time of Sampling: 1302 an					
Duplicate Sample? Yes No ID		Sample EH: 194					
Sample Appearance: General: S1	Clarly Color: Tu	n Phase: Lig	oht Sect. Odor: Non				
	mp D.O.	Turbidity Gallon	s SEQ				
Time pH Cond. C	mg/L	NTU Remov	ved # Comments:				
1257 6.36 5087	8-52 NA	NA 4	1				
			2				
1302 6.34 5094 8	5.34 1						
			4				
			5				
Stabilized? Yes	Amount Wa	ter Removed: 4	Gallons				
Comments:	<u> </u>		· · · · · · · · · · · · · · · · · · ·				

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Groundwater Assessment		Site: Otter Tail Power Co./ Big Stone				
Sampling Personnel:		Facility ID:				
BW		Date: 15 May 2:	3			
		Unique Station ID:	r			
		Sample ID:	H11			
Well Condition						
Well Locked? Yes No Well Labeled? Yes No		Protective Posts? Ye				
Well Labeled? Yes No Casing Straight? Yes No		State ID Tag? Ye Grout Seal Intact? Ye	s (No) S No			
Repairs Necessary: Necd 10014						
Well Information						
Well Depth: 42.15		Well Casing Elevation	1093.24			
Constructed Depth: 42.15		Static Water Elevation	082.58			
Casing Diameter: 2"		Previous Static:	<b>~</b>			
Water Level Before Purge: 10-66		Water Level After San	iple: 37.60			
Well Volume: 5.14 Gallons	_	Measurement Method:	Elec. WL Steel Tape			
Sampling Information						
Weather Conditions: Temp: 75	Wind:	LVV SK	y: Fair			
Sampling Method: Grundfos Bladder SS/T	Disp. Bailer	Whale Grab Oth				
Dedicated Equipment: Yes No		·	-5 gpm			
Well Purged Dry? Co No		Time Pump Began:	209 am / [p])			
Time Purged Dry? 1730		Time of Sampling: 1236 am / m				
Duplicate Sample? Yes No ID:		Sample EH: 165-8	<u>}</u>			
Sample Appearance: General: Cleur	Color: 1	O) -Phase: NO.	Codor: NO74			
ZI Specific Temp Time pH Cond. ℃	D. O.	Turbidity Gallons	SEQ # Comments:			
	mg/L NA					
1230 6.87 4334 9.02		N/K 5.25				
1226 ( 2) 1/22 200	╉━┤──					
1235 6.37 4320 8-90	·		3 Richarge			
	-		4			
			5			
Stabilized? Yes (No)	Amount Wa	ter Removed: 5.2.	5 Gallons			
Comments:		1	· ·			
	tccr					
Exceptions to Protocol:	TUCK					



MINNESOTA VALLEY TESTING LABORATORIES, INC. 1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2016 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 4

FINAL REPORT COMPLETION DATE: 10 Aug 23 0%

Date Reported: 10 Aug 2023

Work Order #: 31-0177 Account #: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT-CCR

10 Aug 25 ክሪሌ nager/Date Reviewed Field <u>10 Aug</u> 23 Lab Manager/Date Revi ēm str 10PNA 2023 uality 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

MVIL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVIL 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 MVIL. 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

Project Name: BIG STONE PLANT-CCR

Sample Description: H10

Page: 2 of 4

Report Date: 10 Aug 2023 Lab Number: 23-A7634 Work Order #: 31-0177 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 12 Jun 2023 12:38 Sampled By: MVTL FIELD PERSONNEL Date Received: 12 Jun 2023 15:30 PO #: 59601

Temp at Receipt: 1.5C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					13 Jun 23	KAM
Water Digestions		,			14 Jun 23	KH
pH, Field	7.00	units	1.00	SM4500-H+-2011	12 Jun 23 12:38	DS
рН	* 7.1	units	1.0	SM 4500 H+ B-2000	13 Jun 23 10:43	KFL
Radium 226	0.39	pCi/L	0.60		13 Jul 23 19:58	QL
Radium 228	0.40	pCi/L	3.00	EPA M9320	18 Jul 23 16:53	OL
Sulfate	2650 ~	mg/L	5.0	ASTM D516-11	15 Jun 23 8:35	LS
Chloride	6.6	mg/L	3.0	SM 4500 C1 E	15 Jun 23 8:30	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	16 Jun 23 13:58	RMB
Solids, Total Dissolved	4820	mg/L	10	SM 2540 C-97	14 Jun 23 9:34	CC
Calcium	489.0	mg/L	0.500	SW6010D	15 Jun 23 14:53	TMM
	~See Narr	ative				
Lithium	0.235	mg/L	0.020	SW6010D	15 Jun 23 14;53	TMM
Barium	0.026	mg/L	0.005	SW6010D	15 Jun 23 14:53	TMM
Beryllium	< 0.005	mq/L	0.005	SW6010D	15 Jun 23 14:53	TMM
Chromium	< 0.01	mg/L	0,01	SW6010D	15 Jun 23 14:53	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	15 Jun 23 14:53	TMM
Molybdenum	< 0,015	mg/L	0.015	SW6010D	15 Jun 23 14:53	TMM
Boron	0.284	mg/L	0.100	SW6010D	15 Jun 23 14:53	TMM
Antimony	< 1 0	ug/L	0.5	SW6020B	14 Jun 23 12:11	KAM
Arsenic	< 1 0	ug/L	0.5	SW6020B	14 Jun 23 12:11	KAM
Cadmium	0.25 0	ug/L	0,10	SW6020B	14 Jun 23 12:11	KAM
Lead	< 1 0	ug/L	0.5	SW6020B	14 Jun 23 12:11	KAM
Selenium	4.74	uq/L	0.50	SW6020B	14 Jun 23 12:11	KAM
	@ See Nar					
Thallium	< 0.2 @	ug/L	0.1	SW6020B	14 Jun 23 12:11	KAM
Fluoride	0.180 0	mg/L	0.020	EPA 300.0	15 Jun 23 16:44	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.

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

#### Project Name: BIG STONE PLANT-CCR

Sample Description: Hll

Page: 3 of 4

Report Date: 10 Aug 2023 Lab Number: 23-A7635 Work Order #: 31-0177 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 12 Jun 2023 12:13 Sampled By: MVTL FIELD PERSONNEL Date Received: 12 Jun 2023 15:30 PO #: 59601

Temp at Receipt: 1.5C

					•			
	As Receiv	ed	Method	Method	Date			
	Result		RL	Reference	Analyzed	Analyst		
MS Water Digestions					13 Jun 23	КАМ		
Water Digestions					14 Jun 23	кн		
pH, Field	6.80	units	1.00	SM4500-H+-2011	12 Jun 23 12:13	DS		
Н	* 7.0	units	1.0	SM 4500 H+ B-2000	13 Jun 23 10:43	KFL		
Radium 226	0.17	pCi/L	0.60		13 Jul 23 19:58	OL		
Radium 228	0,77	pCi/L	3.00	ЕРА М9320	18 Jul 23 16:53	0L		
Sulfate	2170 ~	mg/L	5.0	ASTM D516-11	15 Jun 23 8:35	$\mathbf{LS}$		
Chloride	3.9	mg/L	3.0	SM 4500 Cl E	15 Jun 23 8:30	KRM		
Mercury	< 0.005	ug/L	0.005	EPA 245.7	16 Jun 23 13:58	RMB		
Solids, Total Dissolved	4230	mg∕L	10	SM 2540 C-97	14 Jun 23 9:34	CC		
Calcium	547.0	mg/L	0,500	SW6010D	15 Jun 23 14:53	TMM		
	~See Narr	ative						
Lithium	0.251	mg/L	0.020	SW6010D	15 Jun 23 14:53	TMM		
Barium	0.035	mg/L	0.005	SW6010D	15 Jun 23 14:53	TMM		
Beryllium	< 0.005	mg/L	0.005	SW6010D	15 Jun 23 14:53	TMM		
Chromium	< 0.01	mg/L	0,01	SW6010D	15 Jun 23 14;53	TMM		
Cobalt	0.009	mg/L	0.005	SW6010D	15 Jun 23 14:53	TMM		
Molybdenum	< 0.015	mg/L	0.015	SW6010D	15 Jun 23 14:53	TMM		
Boron	0.247	mg/L	0,100	SW6010D	15 Jun 23 14:53	TMM		
Antimony	< 0.5	ug/L	0.5	SW6020B	14 Jun 23 12:11	KAM		
Arsenic	< 1 0	ug/L	0.5	SW6020B	14 Jun 23 12:11	KAM		
Cadmium	0.35	ug/L	0.10	SW6020B	14 Jun 23 12:11	KAM		
Lead	< 1 @	ug/L	0.5	SW6020B	14 Jun 23 12:11	KAM		
Selenium	1,72	ug/L	0.50	SW6020B	14 Jun 23 12:11	KAM		
	0 See Nar	rative						
Thallium	< 0.2 @	ug/L	0.1	SW6020B	14 Jun 23 12:11	KAM		
Fluoride	0.130 0	mg/L	0.020	EPA 300.0	15 Jun 23 16:44	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

MVIL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVIL 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 MVIL. 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: 4 of 4

Date Reported: 10 Aug 2023

Work Order #: 202331-0177 Account Number: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT-CCR

LABORATORY NARRATIVE

INORGANIC & METALS ANALYSES:

Due to the high concentration of calcium in the spiked sample, the matrix spike recovery was outside of acceptance range for samples 23-A7634 and 23-A7635. Results were reported based on the acceptable recoveries of calcium in the laboratory control spike and the relative percent difference between the matrix spikes.

Due to matrix composition, percent recovery of selenium was outside acceptable range in the matrix spike and matrix spike duplicate for samples 23-A7634 through 23-A7635. Data was reported based on acceptable laboratory control spike recovery and relative percent difference between matrix spikes.

No other problems were encountered.

MVTL

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MEMBER ACIL

						1	age. I	01 1									
Quality Control Rep Lab IDs: 23-A7634 to 23-A76		Dw	inat. DI	2 STONE	E PLANT-CCI	<b>,</b>	Work (	Drder: 21	02331-01	77							
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 %		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	98	85-115	25.0	23A7635q	< 0.5	25.0	100	75-125	25.0	25.4	102	1.6	10	99	90-110	< 0.5
Arsenic ug/L	25.0	97	85-115	25.0	23A7635q	< 1	26.8	107	75-125	26.8	27.5	110	2.6	10	97	90-110	< 0.5
Barium mg/L	1.000	104	85-115	1.00	23A7616qc	0.034	1.070	104	75-125	1.070	1.080	105	0.9	10	101	90-110	< 0.005
Beryllium mg/L	1.000	103	85-115	1.00	23A7616qc	< 0.005	1.000	100	75-125	1.000	1.010	101	1.0	10	103	90-110	< 0.005
Boron mg/L	1.000	101	85-115	1.00	23A7616qc	0.237	1.300	106	75-125	1.300	1.300	106	0.0	10	99	90-110	< 0.1
Cadmium ug/L	5.00	102	85-115	5.00	23A7635q	0.35	5.10	95	75-125	5.10	5.34	100	4.6	10	106	90-110	< 0.1
Calcium mg/L	50.00	103	85-115	50.0	23A7616qc	533.0	570.0	74	75-125	570.0	577.0	88	1.2	10	103	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	23-A7635	3.9	65.8	103	80-120	65.8	67.5	106	2.6	10	95	90-110	< 3
Chromium mg/L	1.000	98	85-115	1.00	23A7616qc	< 0.01	0.904	90	75-125	0.904	0.911	91	0.8	10	98	90-110	< 0.01
Cobalt mg/L	1.000	103	85-115	1.00	23A7616qc	0.009	0.964	96	75-125	0.964	0.967	96	0.3	10	102	90-110	< 0.005
Fluoride mg/L				1.00	23-A7635qc	0.130	1.10	97	75-125	1.10	1.12	99	1.8	10	98	90-110	< 0.02
Lead ug/L	25.0	97	85-115	25.0	23A7635q	<1	25.2	101	75-125	25.2	24.9	100	1.2	10	100	90-110	< 0.5
Lithium mg/L	1.000	105	82-115	1.00	23-A7616qc	0.245	1.330	108	75-125	1.330	1.350	110	1.5	10	102	<b>90-1</b> 10	< 0.02
Mercury ug/L	-	-	-	0.10	23-A7634	< 0.005	0.077	77	63-111	0.077	0.079	79	2.6	_18	96	76-113	< 0.005
Molybdenum mg/L	1.000	98	85-115	1.00	23A7616qc	< 0.015	0.995	100	75-125	0.995	1.000	100	0.5	10	101	90-110	< 0.015
pH units	-	-	-	-	-	-		-		7.0	7.0	-	0.0	2.5	101	90-110	
Selenium ug/L	25.0	105	85-115	25.0	23A7635q	1.72	35.1	134	75-125	35.1	34.9	133	0.6	10	103	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-		-	4230	4110	-	2.9	7	99	85-115	< 10
Sulfate mg/L	-	-	-	5000	23-A7635	2170	6960	96	80-120	6960	7070	98	1.6	10	99	80-120	< 5
Thallium ug/L	5.00	98	85-115	5.00	23A7635q	< 0.2	5.17	103	75-125	5.17	5.18	104	0.2	10	99	90-110	< 0.1

#### Page: 1 of 1

Calcium matrix spike recovery was outside of acceptance limits, see narrative.

Selenium matrix spike / matrix spike duplicate recoveries were outside of acceptance limits, see narrative.

Approved by:

This is an exact copy of the original document By  $\underline{Date 12}$  une as  $\frac{12}{16}$ 

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### Minnesota Valley Testing Laboratories

1126 North Front StreetNew Ulm, MN 56003Phone: 800 782 3557Fax: 507 359 2890Field Service Chain of Custody Record

Project Otter Tail Powe		Project Type:	Big Stone Plant CCR	<u>Name of Samplers:</u> $0 \leq M \leq$
Report Otter Tail Powe		Carbon Copy:	Barr Engineering	
Attn: Paul Vukonich		<u>Attn:</u>		Quote Number:
Address P.O. Box 496		<u>Address:</u>		Work Order Number: 31-177
Fergus Falls, M	N 56538-0496			Lab Numbers:
Phone: 218-739-8349				
Sam	ple Information			Bottle Type Analysis
nber ID	Station 15 Date	∑ Not time Sample Type	Sample Location 1000 HNO3 Inner 500 None L 1 1000 none	Image: Construction of the state of the

Comments:

Samples Relind	quished By:			Samples Received By:	11- Kud	<u>к)                                    </u>	
Date:		Time:	Temp:	Date: 12 June 23	Time:	1530	Temp: 1.5()
Samples Relind	quished into:	Fridge	Log in Cart Other:				
Samples Reline	quished By:			Samples Received By:			
Date:		Time:	Temp:	Date:	Time:		Temp:
Delivery:	Samplers	Other:		Seal Number(s) - If Used			
Transport:	Ambient	lce	Other:	Seals Intact?	Yes	No	

June 2023

### 2023 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		66	32.20	2	1103.86	Bladder	Yes	100	Yes	April & Oct
H3OX		CONSTRUCT	22.55	2	1095.26	Bladder	Yes	100	Yes	April & Oct
H4OX			27.20	2	1108.25	Bladder	Yes	100	No	April & Oct
H6		-CCD 3	15.00	2	1097.76	Bladder	Yes	100	Yes	April & Oct
H8		COD	22.05	2	1081.23	Bladder	Yes	100	No	April & Oct
H9			30.20	2	1086.21	Bladder	Yes	100	No	April & Oct
		·								See highlighted
H10		CCR 3 and 4	35.49	2	1090.83	Bladder	Yes	100		note below See highlighted
H11		CCR 3 and 4	42.15	2	1093.24	Bladder	Yes	100		note below

Note: Wells H10 and H11 need to be sampled 8 times for CCR this year. Background sampling like 5 years ago. We want to sample in April - November. Each event has to be about 30 days apart. Also, durning every sampling event for the CCR, we will need water levels on the CCR wells not sampled.

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

1000 NONe 500 HINO3 Total 1000 Amber None (Pace)

CCR - Appendix III Detection Monitoring	
pH*	
* Field and Laboratory Measurements	
Total Concentration Parameters	Method
Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
рН	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97
Note: These are non-filtered samples.	

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### CCR - Appendix IV - Assessment Monitoring

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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.

Groundwater Ass Sampling Personnel:	essment			Site: Facility ID:			wer Co./ Big Stone
<u>US</u>		-		Date:		ne 23	
MS		-		Unique Stati	on ID:		
		-		Sample ID:			H10
Well Condition	····	. <u></u>		<u>-</u>			
Well Locked?	Yes No			Protective P	osts? Yes	< <	No)
Well Labeled?	(Yes ) No	-		State ID Tag	? Yes	(	No
Casing Straight?	Kes) No	-		Grout Seal			No
Repairs Necessary:		-					
Well Information		<u> </u>	<u> </u>				
Well Depth:	35.49			Well Casing	Elevation:		1090.8]
Constructed Depth:		-		Static Water			1078.28
Casing Diameter:	2"	-		Previous Sta	atic:		077.81
Water Level Before Pi	urge: /Z.	55		Water Level	After Sample		5.2.7
Well Volume:	3.74	Gallons	_	Measureme	nt Method:	Elec.	WLI) Steel Tape
				<u>\</u>			
Sampling Informat	ion					0	1/ () 1
Weather Conditions:	Temp:	<u>75                                    </u>	Wind:	NW28	Sky:	Pa	artly (malx
Sampling Method:	Grundfos	Bladder SSIT	Disp. Bailer	Whale	Grab Other:		<u>    (       0                         </u>
<b>Dedicated Equipment</b>				Pumping Ra			gpm
Well Purged Dry?	(es) No	_		Time Pump		2/8	am ( pm )
Time Purged Dry?	T233	-		Time of San		38	<u>am /(pm)</u>
Duplicate Sample?	Yes (NO)	ID:		Sample EH:		<u>17.6</u>	
Sample Appearance:	General:	acor	Color: N	Phase Phase	e: None	<u></u>	Odor: A Day
	Specific	Temp	D. O.	Turbidity	Gallons	SEQ #	Comments:
Time pH	Cond.	°C	mg/L	NTU	Removed	- #	Comments.
1233 6.97	559V	<u>8.2z</u>	NA	NO	3,75	12	
L						3	<u> </u>
<b>└──</b>	╂──‐-──	<b>↓-</b>	┼┈┼──	++		4	
1000 - 700	4916	8.62			+	5	cechan
1238 7.00		0.02	Amount M	ater Removed	: 37	<u> </u>	Gallons
Stabiliz Yes	(NO)					<b>-</b>	·

Comments:

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New Ulm, MN 56073

<b>Groundwater Assessn</b>	nent		Site:	Ou	er Tail Power C	Stone
Sampling Personnel:			Facility ID:			
Qs			Date:	12June	273	
<u>As</u>			Unique Stat	tion ID:	HII	
			Sample ID:			
Well Condition			<b></b>			
Well Locked? Yes	NO		Protective F	Posts? Yes	No	
Well Labeled? (Yes)	No		State ID Ta	g? Yes	No	
Casing Straight? (es)	No			Intact? Yes	No	
Repairs Necessary:	· · · · · · · · · · · · · · · · · · ·	,				
Well Information				<del>-</del>		
Well Depth: 42.	15		Well Casing	Elevation:	10%	
Constructed Depth:				r Elevation:	108	-
Casing Diameter:	2"		Previous St	atic:	108	
Water Level Before Purge:	71.05		Water Leve	After Sampl	e:	· <del></del>
Well Volume: 5:0-	7 Gallons		Measureme	ent Method:	Elec. WL	el Tape
			1			
Sampling Information	7.6					
Weather Conditions: Temp	, 75°	Wind: N	u@8	Sky:	Partly C	Y
Sampling Method: Grundfo	os Bladder SSAT	Disp. Bailer	Whate	Grab Other:	<u> </u>	й <b></b>
Dedicated Equipment: Ves	No		Pumping R	ate: 0,2	S gpm	
Well Purged Dry? Ces	No		Time Pump	Began	1147	ንpm
	28 J		Time of Sa		713	/(pm)
	<u>(No)</u> ID:	<u> </u>	Sample EH		24.6	
Sample Appearance: Gene	ral: <u>Clerc</u>	Color: NA	کمر Phas	ie: None	Odor	$\lambda \nu$
() Speci	10	D. O.	Turbidity	Gallons	SEQ	
Time pH Cond.		mg/L	NTU	Removed	# Com	
1208 6:79 41	22 8.51	NA	NA_	5.25	1	
				ļ	2	
			<b>↓ ↓</b>		3	
		_ <b></b> ]	<b>↓ ↓</b>		4	
	34 8.70	_ <u></u>	<u>Internet</u>		5 ( < ,	<u> </u>
Stabiliz Yes No	-'	Amount Wa	ater Removed	<u>sz, 2</u>	<b>S</b> Galle	
Comments:						

+CCR

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

July 24, 2023

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

RE: Project: Work order: 31-177 Otter Tail Pace Project No.: 10657633

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 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,

Puper 1 Siles

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

Enclosures



#### **REPORT OF LABORATORY ANALYSIS**

Pace

#### SAMPLE SUMMARY

Project:Work order: 31-177 Otter TailPace Project No.:10657633

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10657633001	 23A7364 - H10	Water	06/12/23 12:3B	06/15/23 10:09
10657633002	23A7364 - H11	Water	06/12/23 12:13	06/15/23 10:09

**REPORT OF LABORATORY ANALYSIS** 

	Tent Information:						ÿ			Invoid		matior	_							-						age:	1	of	1
ipany:	MVTL				_	<u>.</u> .				Attent		AP								-	144.00061	. Ale colto	(ring)	ang ang bag ang b	275562	ane al faith	antinan	11.25/1592102200	n an
ress:	1126 NORTH FRONT BLDG #2	Сору То	trie:	jer@i	nvtl.com					Company Name: MVTL REGULATORY A Address: 1126 NORTH FRONT BLDG 2									1-1-1 Harr	an di second		2010/01/2							
	NEW ULM, MN 56073									Addre		11	26 1		THF	FRO		DG 2	2		NPD					WATE		DRINKING	S WATER
ali To;	alieder@mvtl.com		e Order		CL13299					Reference:									RCRA	CRA II OTHER									
ne: 50	07-233-7134 Fax:	Project	Name;	Otte	r Tail Pov	wer				Manag				_						ŝ	Site Location MN								
uested [	Due Date/TAT: standard	Project	Number	Wor	k order: 3	31-177			~	Pace F	Profile	R.								的時間		ATE:	-		_	<u>- l</u>			
		_						_	<b>.</b>		<b></b>							Rec	ueste	d Ana	liysis.	Filte	réd (	Y/N)./					
	equired Client Information MATRIX	atrix Codes <u>CODE</u>	(liel ol :	C=COMP]		COLL	ECTED					Pre	ser	vative	es		Ĩ ŅŽ								$\square$	ĮĮĮ			
	DRIMKING WASTER PRODUC SOLUSOL	WT ATER WW P	e valid codes to left)	(G=GRAB C=C	COMP STA		COMPO	SITE	DILECTION																	(N)			
*	SAMPLE ID WIPE (A-Z, 0-9 /) OTHER Sample IDS MUST BE UNIQUE TISSUE	OL WP AR OT TS	MATRIX CODE (1889	SAMPLE TYPE (G=C	DATE	тіме	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO4 HNO3	HCI	NaOH	NazozO3 Melhanol	Other	LAnalysis Test	2,3,7,8 TCDD Radium 226/228								Residual Chlorine (Y/N)	Pace	Project N	10/ Lab ].
	23A7364 - H10		w			,	06/12/23	12:38		1							107-14 1214 (1	X					i t		+ 1	N	. 2	001	
2	23A7365 - H11	<u> </u>	WT	1			06/12/23	12:13		1								X								N		302	
20132 <b>3:</b> 2:4									1								房業									N			
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010943 50-245										ļ	┫			Ц					┢╌┼			—	⊢		$\downarrow \downarrow$	N	<u> </u>	<u> </u>	
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والمتحادة ويرجى والواحية والانبية المردية ومستحاديته متشتين فتنور موركي بقطيته فراعي ويستحا ف

F-ALL-Q-020rev.08, 12-Oct-2007

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"Important Note; By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days,

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### DC#\_Title: ENV-FRM-MIN4-0150 v13\_Sample Condition Upon Receipt (SCUR) Effective Date: 4/14/2023

:

Sample Condition Client Name:	i	Project A	( nn	THE FOILS A GREAT THE
Upon Receipt MVT1	_			and a surface of the second
ourier: FedEx UPS USPS Client				i Cini - Inf Cini C L'Angel Angel - Angel angel angel angel angel angel angel
Tracking Number:		Kapikan MIN4-0142	line and the second state	
Custody Seal on Cooler/Box Present? Yes No S		-		Biological Tissue Frozen? 🗌 Yes 🗌 No 🖒 N/A
Packing Material: Bubble Wrap Bubble Bags	None	—	Other	
	— .		—	· · · ·
Thermometer: T1 (0461) T2 (0436) T3 (04 T6 (0235) T7 (0042) T8 (07			T5 (0178)   0133925;	
Did Samples Originate in West Virginia? 🔲 Yes 📐 No			_	ntainer Temps Taken? 🗌 Yes 🗌 No 🔪 N/A
femp should be above freezing to 6 *C Cooler temp Read w/T	remp Blank:	1.1	•C	Average Corrected Temp
Correction Factor: Cooler Temp Corrected w/	temp blank:	1.0	•C	(no temp blank only): °C
ISDA Regulated Soll: 📉 N/A, water sample/other:		)		Date/Initials of Person Examining Contents: $126.15$
Did samples originate in a quarantine zone within the United Sta 3A, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check ma			<b>,</b>	Did samples originate from a foreign source (internationaliy, Including Hawaii and Puerto Rico)?
		—		0154) and include with SCUR/COC paperwork.
Location (Check one): Duluth Minnea		Virginia		
Chain of Custody Present and Filled Out?	N Yes			1.
Chain of Custody Relinquished?	Yes	No	-	2.
Sampler Name and/or Signature on COC?	Yes	No	N/A	3.
amples Arrived within Hold Time?	Yes	No		4. If fecal: <8 hrs >8 hr, <24 No
hort Hold Time Analysis (<72 hr)?	L_ Yes	<b>N</b> №		5. Fecal Coliform HPC Total Coliform/E.coli BOD/cBOD Hex Chrom Turbidity Nitrate Nitrite Orthophos Other
Rush Turn Around Time Requested?	Yes	<u>Nvo</u>		6.
Sufficient Sample Volume?	Yes	∐ No	_	7
Correct Containers Used?	Yes	No	N/A	8. ACHIE
-Pace Containers Used?	Yes 1	No No		"AGIN'S lea
Containers Intact?	Yes	<u>No</u>	•	9.
Field Filtered Volume Received for Dissolved Tests?	Yes	<u>No</u>	N/A	10. Is sediment visible in the dissolved container? Yes No
s sufficient information available to reconcile the samples to the	e Ves	[_] No		11. If no, write ID/Date/Time of container below:
				See Exceptions
Matrix: Water Soil Oll Other	- <u></u> -	· · · · ·	•	ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	U Yes	[] No	<b>N/A</b>	12. Sample #
All containers needing preservation are found to be in	🗌 Yes	No No	<b>N</b> N/A	
compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)			—	H2SO4 Zinc Acetate
Exceptions: VOA, Collform, TOC/DOC Oll and Grease, DRO/8015	☐ Yes			Positive for Residual Yes See Exceptions
water) and Dloxins/PFAS				Positive for Residual         Yes         See Exceptions           Chlorine?         No         ENV-FRM-MIN4-0142
* If adding preservative to a container, it must be added to				pH Paper Lot #
issociated field and equipment blanksverify with PM first.)				Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
leadspace in Methyl Mercury Container?	Yes	No		13.
Extra labels present on soil VOA or WIDRO containers?	Yes			14. See Exceptions
leadspace in VOA Vials (greater than 6mm)?				ENV-FRM-MIN4-0142
I Trip Blanks Present? Trip Blank Custody Seals Present?	Yes Yes	No   No		15, Pace Trip Blank Lot # (if purchased):
				Field Data Regulred? Yes No
Person Contacted:			_	Date/Time:
Comments/Resolution:	that			
Project Manager Review:			-	Date: 6/15/23
IOTE: Whenever there is a discrepancy affecting North Carolina compliance samples emp, incorrect containers).	, a copy of this fo	orm will be sen		(1)
	-			Labeled By: Line: Page 4 of
aitrax ID: 52742 Pa	ace® Anal	lytical Se	ervices, l	LLC Page 1 of

# Pace Analytical ANALYTICAL REPORT

### Pace Analytical - Minnesota

Sample Delivery Group: Samples Received: Project Number: Description: Site: Report To:

L1627193 06/17/2023 10657633 Work Order: 31-177 Otter tail 001 Piper Gibbs

Тc Ŝs Cn Śr Qc GI ΑI Sc

### Entire Report Reviewed By:

Lidson

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 willen 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, d as the samples are received.

### **Pace Analytical National**

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

ACCOUNT: Pace Analytical - Minnesola PROJECT: 10657633

SDG: L1627193

DATE/TIME: 07/24/23 09:25 PAGE: 1 of 11

#### TABLE OF CONTENTS

Cp: Cover Page	1						
Tc: Table of Contents	2						
Ss: Sample Summary	3						
Cn: Case Narrative	4						
Sr: Sample Results	5						
23A7364-H10 L1627193-01	5						
23A7364-H11 L1627193-02	6						
Qc: Quality Control Summary	7						
Radiochemistry by Method 904/9320	7						
Radiochemistry by Method SM7500Ra B M	8						
GI: Glossary of Terms	9						
Al: Accreditations & Locations							
Sc: Sample Chain of Custody	11						

Cp 3Ss 3Ss 4Cn 5Sr 6Qc 7GI 8AI 9Sc

ACCOUNT: Pace Analytical - Minnesola PROJECT: 10657633 SDG: L1627193 D/ 07/2

DATE/TIME: 07/24/23 09:25 Page 7 of 16 PAGE:

2 of 11

#### SAMPLE SUMMARY

23A7364-H10 L1627193-01 Non-Potable Water			Collected by	Collected date/time 06/12/23 12:38	Received dat 06/17/23 09:	
Method	Balch	Dilution	Preparation date/time	Analysis date/lime	Analyst	Localion
Radlochemistry by Method 904/9320	WG2092493	1	07/11/23 10:27	07/18/23 16:53	SNR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2093326	1	07/12/23 16:57	07/13/23 19:58	RGT	ML. Juliel, TN
			Collected by	Collected date/time	Received da	te/time
23A7364-H11 L1627193-02 Non-Potable Water				06/12/23 12:38	06/17/23 09:	.10
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	dale/time		
Radiochemistry by Method 904/9320	WG2092493	1	07/11/23 10:27	07/18/23 16:53	SNR	Mt. Juliet, TN
RadiochemIstry by Method SM7500Ra B M	WG2093326	1	07/12/23 16:57	07/13/23 19:58	RGT	ML Juliet, TN

Ss Cn Sr . Qc GI Â Sc

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Тc

ACCOUNT: Pace Analytical - Minnesota PROJECT: 10657633

SDG: L1627193

DATE/TIME: 07/24/23 09:25

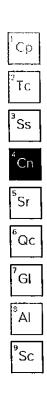
Page 8 of 16

PAGE: 3 of 11

#### 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 data.

Donna Eidson Project Manager



ACCOUNT: Pace Analytical - Minnesota PROJECT: 10657633 SDG: L1627193

-- DATE/TIME: 07/24/23 09:25 Page 9 of 16

PAGE: 4 of 11

### 23A7364-H10 Collected date/time: 06/12/23 12:38

### SAMPLE RESULTS - 01

#### Radiochemistry by Method 904/9320

Radiochemistry by	/ Method 904/9	d 904/9320										
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Baich						
Analyle	pCi/l		+/-	pCi/l	date / time		2					
RADIUM-228	0.402	ī	0.331	0.595	07/18/2023 16:53	<u>WG2092493</u>	Tc					
(1) Barium	68.1			30 0-143	07/18/2023 16:53	WG2092493						
(1) Yltrium	<b>93</b> .5			30.0-136	07/18/2023 16:53	WG2092493	<sup>3</sup> Ss					

#### Radiochemistry by Method SM7500Ra B M

	 Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / time		21 - 21 3 27 - 21 3 27 27 3 - 27 27 - <b>27</b> 27 27 27 - 27 29 <b>3</b> 27 27 27 3 28 - 27 28
RADIUM-226	0.390		0.250	0.217	07/13/2023 19:58	WG2093326	
(1) Barium 133	105			30.0-143	07/13/2023 19.58	WG2093326	

<sup>3</sup> Ss
<sup>⁴</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
'GI
<sup>°</sup> Al
<sup>ຈ</sup> ິSc

ACCOUNT: Pace Analytical - Minnesota PROJECT: 10657633

SDG: L1627193

DATE/TIME: 07/24/23 09:25 -Page 10 of 16

PAGE: 5 of 11

#### 23A7364-H11 Collected date/lime: 06/12/23 12:38

### SAMPLE RESULTS - 02

#### Radiochemistry by Method 904/9320

Radiochemistry b	y Method 904/9	320					1
	Result	Qualifler	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/i		+/-	pCi/l	date / lime		2
RADIUM-228	0.772	1971-775 200 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.328	0.577	07/18/2023 16:53	WG2092493	TC
(T) Borlum	78.2			30.0-143	07/18/2023 16:53	WG2092493	
(T) Yttrium	98.8		•	30.0-136	07/18/2023 16:53	WG2092493	<sup>3</sup> Ss

#### Radiochemistry by Method SM7500Ra B M

·						<b>A</b>	 
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / lime		 
RADIUM-226	0.171	Ţ	0.205	0.282	07/13/2023 19:58	WG2093326	
(T) 8arium-133	88.7	· · ·		30.0-143	07/13/2023 19:58	WG2093326	

Ss 'Cn Sr Qc GI ΑI Sc

ACCOUNT: Pace Analytical - Minnesola PROJECT: 10657633

SDG: 1.1627193

DATE/TIME: 07/24/23 09 25 Page 11 of 16:

PAGE: 6 of 11

#### WG2092493

#### QUALITY CONTROL SUMMARY L1627193-01.02

Radiochemistry by Method 904/9320

#### Method Blank (MB)

Method Blank (	(MB)					. Cp
(MB) R3951293-1 07/	/18/23 16:53					
	MB Result	MB Qualifier	MB Uncertain	ty MB MDA		$^{2}Tc$
Analyte	pCi/l		+/-	pCi/l		
Radium-228	-0.019B	<u>n</u>	0 <b>.19</b> 1	0,352		3
(T) Barium	87.4		87.4		rangaan ahar madax in shallar bahar ba	Ss
(T) Yttrium	87.3		87.3			
						f Cn

#### L1627704-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1627704-06 07/	18/23 16:53 • (DUP)	R3951293-5	07/18/23 16:53									
	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	+/-	pCi/I	pCi/l	+/-	pCi/l		%			%	
Radium-228	0.466	0.421	0.756	0.0978	0.469	0.756	1	131	0.584	<u>빈</u>	20	3
(T) Barium	84.6			78.9	78.9			na serie de la composición de la compos La composición de la c				
(T) Yttrium	117			107	107							

#### Laboratory Control Sample (LCS)

(LCS) R3951293-2 07/	18/23 16:53				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	pCi/I	p <b>Ci/</b> l	%	%	
Radium-228	5.00	5.26	105	80.0-120	
(T) Barium			90.4		
(T) Yttrium			109		

#### L1627704-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1627704-0	04 07/18/23 16:53 - (M	S) R3951293-3 0	7/18/23 16:53	• (MSD) R39512	93-4 07/18/2	3 16:53							
	Spike Amou	nt Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MS0 Qualifier</u>	RPD	MS RER	RPD Limits
Analyte	pCl/I	рСі⁄І	pCi/l	pCi/l	%	%		%			%	ا مىسى بىرى بىرى بىرى بىرى بىرى بىرى بىرى ب	*
Radium-228	33.3	0.461	36.0	18.9	107	110	1	70.0-130			3.35		20
(T) Barium	and the second	78.2			90.7	79.3							
(T) Yttrium		101			71.0	99.4							

PROJECT:

10657633

SDG:

L1627193

⁵Sr
<sup>5</sup> Qc
<sup>7</sup> Gł
<u> </u>
<sup>s</sup> Al
0

Sc

NEAR WATCH PARTY CONTRACTOR OF THE CONTRACTOR

#### WG2093326

#### QUALITY CONTROL SUMMARY L1627193-01.02

Radiochemistry by Method SM7500Ra B M

#### Method Blank (MB)

Method Blank (1 (MB) R3948871-1 07/1						
	MB Result	MB Qualifier	MB Uncertai	ty MB MDA		2
Analyte	pCi/I		+/-	pCi/l		
Radium-226	0.0202	7	0.0281	0.0410		3
(T) Barium-133	100	· · · · ·	100	1997 - 1997 1997 - 1997 - 1997	en e	Ss

#### L1627718-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1627718-08 07/13	/23 19:58 - (DUP)	R3948871-5	07/13/23 19:58									
	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	+/-	pCi/I	pCi/l	+/-	pCi/l		%			%	
Radium-226	0.244	0.242	0.309	0.331	0.231	0.309	1	30.2	0.259		20	<b>3</b>
(T) Barium-133	88.6	ana an		99.1	99.1				$(1,1)^{k}$			

#### Laboratory Control Sample (LCS)

(LCS) R3948871-2	07/13/23 19:58					L
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	9
Analyte	pCi/l	pCi/l	%	%		1
Radium-226	5.01	4,52	90.2	80.0-120		£
(T) Barium-133	et di prosessione de la		<i>93.8</i>		이는 사람들은 말에 가슴 감독하는 것은 것이 있다. 이는 바람이 가슴 가슴 가슴이 가슴 가슴이 있는 것이 있다. 이는 것이 있는 것이 있다. 이는 것이 있는 것이 있다. 이는 것이 있는 것이 있는 가 같은 사람들은 말에 있는 것이 같은 것이 있는 것이 있는 것이 있는 것이 있다. 것이 있는 것 같은 사람들은 말에 있는 것이 같은 것이 있는 것이 없는 것이 있는 것이 있는 것이 없는 것이 없는 것이 있는 것이 없는 것이 없는 것이 있는 것이 없다. 것이 없는 것이 없는 것이 없는 것이 있는 것이 없는 것이 있는 것이 없는	

#### L1627704-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1627704-05 07/13/2	3 19:58 • (MS) F	R3948871-6 07	/14/23 19:10 • (	MSD) R39488	71-4 07/13/23	3 19:58							
. ,	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	MSO Qualifier	RPD	MS RER RPD Limits	
Analyte	pCī/l	pCi/l	pCi/I	pCi/l	%	%		%			%	%	
Radium-226	20.0	0.133	15.4	15.2	76.5	75.3	1	75.0-125			1.57	<b>20</b>	
(T) Barium-133		86.3			91.8	95.0					1		

PROJECT:

10657633

SDG:

L1627193

MERCHARD STOLEN

#### GLOSSARY OF TERMS

#### Guide to Reading and Understanding Your Laboratory Report

The information below is designed to betler 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 Dupticates, 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 Cuslody (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
	The Identification of the analyte is acceptable; the reported value is an estimate.
u distriction di	Below Detectable Limits: Indicates that the analyte was not detected.

5: 193 PAGE: 9 of 11

Page 14 of 16

Cp

Τc

Ss

Cn

Sr

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GI

AI

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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
lorida	E87487	North Carolina <sup>1</sup>	0W21704
Georgia	NELAP	North Carolina <sup>9</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinols	200008	Oklahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvanla	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>16</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
oulsiana	AI30792	Tennessee 14	2006
ouislana	LA018	Texas	T104704245-20-18
Valne	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Ulah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Yichigan	9958	VirgInla	110033
Minnesola	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Monlana	CERT0086	Wyoming	A2LA
A2LA - ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA - ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
ΕΡΑ	TN00003		

<sup>1</sup>Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.

ACCOUNT: Pace Analytical - Minnesota PROJECT: 10657633 SDG: L1627193 DATE/TIME: 07/24/23 09:25 Page 15 of 16

PAGE: 10 of 11

<sup>2</sup> Tc <sup>3</sup> Ss <sup>4</sup> Cn <sup>5</sup> Sr <sup>6</sup> Qc <sup>7</sup> GI <sup>8</sup> Al

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Pace Analytical

#### CHAIN-OF-CUSTODY / Analytical Request Document

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

-	Client Information:	Section B Required Pr	-						Invoi	ice Inf	forma						_			-					ſ	Page:	1	of	1
Company:	MVTL	Report To:	Todd F	lieger					Atter	ntion:		AP																	
Address;	1126 NORTH FRONT BLDG #2	Сору То: т	rieger	@mvtl.con	1				Com	pany	Name	e: N	/√TL							RE	GUL	ATOR	RY A	GENC	:Y				
	NEW ULM, MN 56073								Addr	ress:		1126	6 NO	RTH	FRC	NT E	BLD	G 2			NPD	DES	2	GRO	UND \	WATE	R 厂	DRINKING	WATER
Email To:	alieder@mvtl.com	Purchase Or	der Nó.:	CL1329	9					Quote	•									1-	UST	г	Γ.	RCR/	4		Г	OTHER	<u> </u>
Phone: §	507-233-7134 Fax	Project Name	e: O	ter Tail Po	wer					Projec	ct						_			Si	te Loo	cation	ų –						
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ITEM #	AIR		MATRIX CODE		TIME	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO4	HNO <sub>3</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol Other	LAnalysis Test	2,3,7,8 TCDD	Radium 226/228								Residual Chlorine (Y/N)	Pace	Project N	o./ Lab 1.D.
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Page:



FINAL REPORT COMPLETION DATE: 8 Aug 230%

Date Reported: 4 Aug 2023

1 of 3

Work Order #: 31-0220 Account #: 006106 PO #: 59601

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

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Project Name: BIG STONE PLANT CCR

ALG 2 07 Field anager/Date Reviewed HAng23 Lab Manager/Date Reviewed hemistry 04 Aug 2023 Au 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 clicate, 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: 2 of 3

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

Work Order #: 31-0220 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 21 Jul 2023 11:27 Sampled By: MVTL FIELD PERSONNEL Date Received: 21 Jul 2023 14:10 PO #: 59601

Sample Description: H8

Project Name: BIG STONE PLANT CCR

Temp at Receipt: 1.0C

Report Date: 4 Aug 2023 Lab Number: 23-A8117

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Solids, Total Dissolved	1050 mg/L See Narrative	10	SM 2540 C-97	25 Jul 23 9:36	CC

 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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Page: 3 of 3

Date Reported: 4 Aug 2023

Work Order #: 202331-0220 Account Number: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC & METALS ANALYSES:

In the Total Dissolved Solids analysis batch containing sample 23-A8117, there were 16 samples analyzed before a duplicate rather than 10 samples as required. Data was reported based on all other QC being acceptable.

No other problems were encountered.

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. MVTL

#### MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 N. Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 E. Broadway Ave. ~ Bismarck, ND 58502 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com

MEMBER ACIL

#### Page: 1 of 1

#### **Quality Control Report** Work Order: 202331-0220 Lab ID: 23-A8117 Project: BIG STONE PLANT CCR MSD/ Matrix Matrix MSD/ Matrix Spike Known Known MSD/ MSD MSD/ Dup Matrix Spike Dup LCS LCS Matrix Matrix Spike LCS % Rec Method RPD Rec Rec Dup Orig Spike Rec % Rec Orig Dup % Rec Spike Spike Spike Rec Limit (<) (%) Limits Blank RPD Result % % Limits Result Limits Amt m Result Result Analyte % Amt 85-115 < 10 1.0 10 101 300 303 -Solids, Total Dissolved mg/L ---------

Oll Approved by:

This is an exact copy of the original document By <u>Agres</u> 1-2

### Minnesota Valley Testing Laboratories

1126 North Front StreetNew Ulm, MN 56003Phone: 800 782 3557Fax: 507 359 2890Field Service Chain of Custody Record

Project	Otter Tail F	Power Com	pany	Project Ty	pe:	Big Sto	ne Pl	ant (	CCR	Nan	ne of	f San	npler	s:					-		
Report	Otter Tail F	Power Com	pany	<u>Carbon Co</u>	py:	Barr En	iginee	ering		Ì				<u>)</u> F,	<u>βi</u>						
Attn:	Paul Vuko	nich		<u>Attn:</u>						Quo	te N	umbe	<u>er:</u>	· /							
Address	P.O. Box 4	96		Address:						Wor	<u>k Or</u>	der N	lumb	<u>er:</u> ;	31-	22	0				
	Fergus Fal	lls, MN 565	38-0496							Lab	Nurr	bers	<u>:</u>			-					
Phone:	218-739-8	349							•										<u> </u>		
		Sample In	formation		·	•					_ · _ i	Bott	le Ty	pe					An	alysis	
Ed Lab Number	Sample ID	Unique Station ID	0)EQ 217úy23	Time	Sample Type	Sample Location	1000 HNO3 Inc.	500 None	- <sup>1000 hone</sup>	500 HNO3			ř		1000 Amber	500 NaOH	Olher: 150 Har	Other 150 Ac-	Analysis Solutied		/
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Comments:

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Samples R	elinquished into:	Fridge	Log in Calt	Othe	er: J			
Samples R	elinquished By:				Samples Received	By:		
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Delivery:	Samplars	Other:		•••	Seal Number(s) - If	Used		
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# Minnesota Valley Testing Laboratories, Inc. New Ulm, MN 56073 507 354 8517

New Ulm, MN 56073

<b>Groundwater As</b>	sessment			Site:		Ott	er Taii Po	ower Co./ Big Stone
Sampling Personnel:				Facilit	y ID:	<u> </u>		· .
Vr	·	_		Date:		2 Dulya	3	
<u> </u>	<u> </u>	_			e Statio	on ID:		
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Well Condition			_			<u>·</u>	·	
Well Locked?	No No			Protec	tive Po	sts?		No
Well Labeled?	No No				ID Tag'			
Casing Straight?	Cos No	_			Seal In			NØ
Repairs Necessary:		_						<u> </u>
Well Information								
Well Depth:	22.33			Well (	Casina I	Elevation:		1081.23
Constructed Depth:	22.05	_				Elevation:	1071	48
Casing Diameter:	2"	_			ous Stat		<u>1~ / IC</u>	
Water Level Before F	Purge: 9,75	F				After Sample:	1	0,00
Well Volume:	2,05	Gallons				t Method:	THEC.	
· · · · · · · · · · · · · · · · · · ·			-	1				
Sampling Informa	tion							
Weather Conditions:	Temp:	77	Wind:	21		Sky:	Sugar	1
Sampling Method:	Grundfos	Pladder SS/T	Disp. Bailer	Whale		Grab Other:		
Dedicated Equipmen					ing Rat		5	gpm
Well Purged Dry?	Yes 🐠	_			Pump E		0	ano / pm
Time Purged Dry?		_		Time	of Sam	pling: 112		an / pm
Duplicate Sample?	Yes Mo	_ID:	<u></u>		le EH;	90.0	-	
Sample Appearance:	General:	Cleas	Color: $\Lambda$	lore	Phase	None		Odor: Nerr
F				_				
_ 9	Specific	Temp	D. O.	Turbio	lity	Gallons	SEQ	
Time pH	Cond.	°C	mg/L	NTU		Removed	#	Comments:
109 7.15	1526	4.0	AMA	<u> </u>	JA	2.25	1	
1118 7.15	1527	9.11			ļ	4.50	2	
127 714	1526	9.11				6.75	3	
	<u> </u>	· .					4	
							5	
Stabilized 169	No		Amount \	Nater F	Remove	6.75		Gallons

Comments:

Exceptions to Protocol:





Page: 1 of 6

FINAL REPORT COMPLETION DATE: 24 OCT 23 AR

Date Reported: 23 Oct 2023

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

Work Order #: 31~0235 Account #: 006106 PO #: 59601

Project Name: BIG STONE PLANT CCR

24001 23 Manager/Date Reviewed 23000 2023 Lab Manager/Date Reviewed em 1302 103 ality 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

#### MINNESOTA VALLEY TESTING LABORATORIES, INC.



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2 of 6 Page:

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

Project Name: BIG STONE PLANT CCR

Sample Description: H10

Report Date: 23 Oct 2023 Lab Number: 23-A8447 Work Order #: 31-0235 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 21 Aug 2023 10:35 Sampled By: MVTL FIELD PERSONNEL Date Received: 21 Aug 2023 15:17 PO #: 59601

Temp at Receipt: 2.6C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					23 Aug 23	N
Water Digestions					23 Aug 23	JN
pH, Field	6.88	units	1.00	SM4500-H+-2011	21 Aug 23 10:35	MS
на н	* 7.0	units	1.0	SM 4500 H+ B-2000	22 Aug 23 13:00	но
Radium 226	0.29	pCi/L	0.60		22 Sep 23 13:29	OL
Radium 228	0.46	pCi/L	3.00	EPA M9320	10 Oct 23 21:14	OL
Sulfate	2270 ~	mg/L	5.0	ASTM D516-11	24 Aug 23 9:04	LS
Chloride	6.3	mg/L	3.0	SM 4500 C1 E	24 Aug 23 8:54	KRM
Mercury	< 0.005	ug/L	0,005	EPA 245.7	25 Aug 23 14:07	RMB
Solids, Total Dissolved	4840	mg/L	10	SM 2540 C-97	23 Aug 23 9:15	cc
Calcium	492.0	mg/L	0.500	SW6010D	25 Aug 23 10:06	SS
	~ See Nar	rative				
Lithium	0.271	mg/L	0.020	SW6010D	25 Aug 23 10:06	
Barium	0.023	mg/L	0.005	SW6010D	25 Aug 23 10:06	
Cobalt	< 0.005	mg/L	0.005	SW6010D	25 Aug 23 10:06	
Boron	0.298	mg/L	0,100	SW6010D	25 Aug 23 10:06	
Antimony	< 1 0	ug/L	0.5	SW6020B	24 Aug 23 13:44	
Arsenic	< 1 0	ug/L	0.5	SW6020B	24 Aug 23 13:44	
Beryllium	< 0.05	ug/L	0.05	SW6020B	24 Aug 23 13:44	
Cadmium	< 0.2 @	ug/L	0.1	SW6020B	24 Aug 23 13:44	
Chromium	< 0.5	ug/L	0.5	SW6020B	24 Aug 23 13:44	
Lead	< 2.5 @	ug/L	0.5	SW6020B	24 Aug 23 13:44	
Molybdenum	8.65 @	ug/L	0.50	SW6020B	24 Aug 23 13:44	
Selenium	4.54 @^	ug/L	0.50	SW6020B	24 Aug 23 13:44	
Thallium	< 0.5 @	ug/L	0.1	SW6020B	24 Aug 23 13:44	
Fluoride	0.180 @	mg/L	0.020	EPA 300.0	25 Aug 23 11:09	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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Page: 3 of 6

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

Project Name: BIG STONE PLANT CCR

Lab Number: 23-A8447 Work Order #: 31-0235 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 21 Aug 2023 10:35 Sampled By: MVTL FIELD PERSONNEL Date Received: 21 Aug 2023 15:17 PO #: 59601

Temp at Receipt: 2.6C

Report Date: 23 Oct 2023

As Received	Method	Method	Date	Analyst
Result	RL	Reference	Analyzed	

\* Holding Time Exceeded

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

Sample Description: H10

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

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4 of 6 Page:

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

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Report Date: 23 Oct 2023 Lab Number: 23-A8448 Work Order #: 31-0235 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 21 Aug 2023 10:45 Sampled By: MVTL FIELD PERSONNEL Date Received: 21 Aug 2023 15:17 PO #: 59601

Temp at Receipt: 2.6C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					23 Aug 23	JN
Water Digestions					23 Aug 23	JN
pH, Field	6.70	units	1.00	SM4500-H+-2011	21 Aug 23 10:46	DS
Ha	* 6.9	units	1.0	SM 4500 H+ B-2000	22 Aug 23 13:00	НО
Radium 226	1.83	pCi/L	0.60		22 Sep 23 13:29	OL
Radium 228	0.80	pCi/L	3.00	ЕРА М9320	10 Oct 23 21:14	OL
Sulfate	2440 ~	mg/L	5.0	ASTM D516-11	24 Aug 23 9:04	LS
Chloride	3,5	mg/L	3.0	SM 4500 Cl E	24 Aug 23 8:54	KRM
Mercury	< 0.005	ug/L	0,005	EPA 245.7	25 Aug 23 14:07	RMB
Solids, Total Dissolved	4220	mg/L	10	SM 2540 C-97	23 Aug 23 9:15	CC
Calcium	543.0	mg/L	0.500	SW6010D	25 Aug 23 10:06	SS
OUTOTUM	~ See Nar	rative				
Lithium	0,303	mg/L	0.020	SW6010D	25 Aug 23 10:06	
Barium	0.034	mg/L	0.005	SW6010D	25 Aug 23 10:06	
Cobalt	0.008	mg/L	0.005	SW6010D	25 Aug 23 10:06	
Boron	0,245	mg/L	0,100	SW6010D	25 Aug 23 10:06	
Antimony	< 1 @	ug/L	0.5	SW6020B	24 Aug 23 13:44	KAM
Arsenic	< 1 0	ug/L	0.5	SW6020B	24 Aug 23 13:44	KAM
Beryllium	< 0.1 @	ug/L	0.05	SW6020B	24 Aug 23 13:44	
Cadmium	0.27 @	ug/L	0.10	SW6020B	24 Aug 23 13:44	
Chromium	< 1 @	ug/L	0.5	SW6020B	24 Aug 23 13:44	KAM
Lead	< 1 0	ug/L	0.5	SW6020B	24 Aug 23 13:44	кам
Molybdenum	4.90 0	ug/L	0.50	SW6020B	24 Aug 23 13:44	
Selenium	< 2 @^	ug/L	0.5	SW6020B	24 Aug 23 13:44	
Thallium	< 0.2 0	ug/L	0.1	SW6020B	24 Aug 23 13:44	
Fluoride	0.140 @	mg/L	0.020	EPA 300.0	25 Aug 23 11:09	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/D# # R-040

 RL = Reporting Limit

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 clicats, 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: 5 of 6

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

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Report Date: 23 Oct 2023 Lab Number: 23-A8448 Work Order #: 31-0235 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 21 Aug 2023 10:45 Sampled By: MVTL FIELD PERSONNEL Date Received: 21 Aug 2023 15:17 PO #: 59601

Temp at Receipt: 2.6C

As Received Meth	ood Method	Date	Analyst
Result RL	Reference	Analyzed	

\* 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

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: 6 of 6

Date Reported: 23 Oct 2023

Work Order #: 202331-0235 Account Number: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC ANALYSES:

Due to the high concentration of calcium in the spiked sample associated with samples 23-A8447 through 23-A8448, the matrix spike recovery was outside of acceptable limits. Calcium was reported based on acceptable laboratory control spike recovery and acceptable duplication of the matrix spikes.

No other problems were encountered.

MVTL guarantees the securacy 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 nutual protection to ellents, 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. **MVTL** 

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MEMBER ACIL

#### Page: 1 of 1

Lab IDs: 23-A8447 to 23-A8	LCS Spike Amt	LCS Rec %	[	Matrix Spike Amt	E PLANT CCI Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Order: 20 Matrix Spike Rec %	Matrix Spike	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
AnalyteAntimony ug/L	25.0	106	85-115	25.0	25251003qc	< 0.5	27.5	110	75-125	27.5	26.4	106	4.1	10	103	90-110	< 0.5
Antiniony ug/L	25.0	103	85-115	25.0	25251003qc	< 0.5	26.8	107	75-125	26.8	26.9	108	0.4	10	103	90-110	< 0.5
Barium mg/L	1.000	105	85-115	1.00	23A8450qc	0.030	1.040	101	75-125	1.040	1.030	100	1.0	10	100	90-110	< 0.005
Barum mg/L Beryllium ug/L	2.50	102	85-115	2.50	25251003qc	< 0.05	2.66	106	75-125	2.66	2.61	104	1.9	10	106	90-110	< 0.05
Boron mg/L	1.000	102	85-115	1.00	23A8450qc	0.219	1.210	99	75-125	1.210	1.200	98	0.8	10	98	90-110	< 0.1
Cadmium ug/L	5.00	10-	85-115	5.00	25251003qc	< 0.1	5.05	101	75-125	5.05	4.89	98	3.2	10	102	90-110	< 0.1
	50.00	105	85-115	50.0	23A8450qc	542.0	608.0	132	75-125	608.0	594.0	104	2.3	10	102	90-110	< 0.5
Calcium mg/L Chloride mg/L		-	-	60.0	23-A8450	3.6	64.0	101	86-117	64.0	63.0	99	1.6	5	98	90-110	< 0.5
Chromium ug/L	25.0	102	85-115	25.0	25251003gc	1.03	26.7	103	75-125	26.7	26.0	100	2.7	10	104	90-110	< 0.5
Cobalt mg/L	1.000	102	85-115	1.00	23A8450qc	0.010	0.995	98	75-125	0.995	0.994	98	0.1	10	100	90-110	< 0.00
Fluoride mg/L	-	-	-	1.00	23-A8447	0.180	1.09	91	75-125	1.09	1.10	92	0.9	10	94	90-110	< 0.02
	25.0	101	85-115	25.0	25251003qc	< 0.5	26.8	107	75-125	26.8	26.8	107	0.0	10	102	90-110	< 0.5
Lead ug/L	1.000	101	85-115		23-A8450qc	0.278	1.320	104	75-125	1.320	1.310	103	0.8	10	103	90-110	< 0.02
Lithium mg/L Mercury ug/L	-	-	-	0.10	23-A8481	< 0.005	0.073	73	63-111	0.073	0.073	73	0.0	18	98	76-113	< 0.00 < 0.00
Molybdenum ug/L	25.0	101	85-115	25.0	25251003qc	0.76	24.8	96	75-125	24.8	26.2	102	5.5	10	102	90-110	< 0.5
pH units	-	-	1 -		•	-		┼₋──	-	6.9	6.9	-	0.0	2.5	101	90-110	<u> </u>
Selenium ug/L	25.0	106	85-115	25.0	25251003qc	<1	30.4	122	75-125	30.4	28.0	112	8.2	10	106	90-110	< 0.5
	-	100		20.0	2020100040	+	-	-	<u> </u>	4220	4190	-	0.7	7	100	85-115	< 10
Solids, Total Dissolved mg/L	-		-	500	23-A8450	2320	2900	116	68-132	2900	2850	106	1.7	5	100	80-120	< 5
Sulfate mg/L Thallium ug/L	5.00	101	85-115	5.00	25251003qc	< 0.1	5.38	108	75-125	5.38	5.43	109	0.9	10	102	90-110	< 0.1

The calcium matrix spike recovery was above the acceptance limits, see narrative.

### **Minnesota Valley Testing Laboratories**

1126 North Front StreetNew Ulm, MN 56003Phone: 800 782 3557Fax: 507 359 2890Field Service Chain of Custody Record

Report Attn: Address	Otter Tail Paul Vuk P.O. Box	496 alls, MN 565	pany	Project Ty Carbon Co Attn: Address:		Big Stor Barr En			CR	Wor	<u>te Nı</u> k Oro	umbe	<u>er:</u> Jumb		31		5				_
Flione.	210-139-	Sample In	formation			· · · · · · · · · · · · · · · · · · ·				<u> </u>	 E	3oft	le Ty	/pe						Anal	ysis
Lab Number	Sample ID	Unique Statton ID	Date	Time	Sample Type	Sample Location	1000 HNO3 Inn	500 None	1000 none	500 HNO3		~ /		· · · · · · · · · · · · · · · · · · ·	1000 Amber	500 NaOH	Other: 150 Hac	Other 150 M-	Analysis		
<u>АВЧЧЭ</u> <u>Ч</u> С	H10 H11		214ug23 I	1035 104 <b>6</b>	GW GW				1	1 1	N N			1					CCR CCR		

Comments:

		(	$\searrow$		-	
Samples Relin	quished By: ブ	max	J	Samples Received By	a. Rieder)	
Date: 21Aw		Time:		Date: 21 Aug 23	Time: 1517	<u>Тетр: 2.6С</u>
Samples Reline		Fridge	Log in Cart Other			
Samples Reline	quished By:	$\bigcirc$		Samples Received By		
Date:		Time:	Temp:	Date:	Time:	Temp:
Delivery:	Sampler	s Other:	· · · · · · · · · · · · · · · · · · ·	Seal Number(s) - If Us	ed	
Transport:	Ambient		Other:	Seals Intact?	Yes No	

### Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073		507 354 85	. 17				
Groundwater Assessment			Site:	Otte	r Tail Po	wer Co./ Big Sto	ne
Sampling Personnel:			Facility ID:		·		
ms			Date: 21	40,23		· · ·	
	—		Unique Statio	on1D:			
	_		Sample ID:			H10	
Well Condition Well Locked?			Protective Po	nete? Voe		No/	
	—		State ID Tag			No	
Well Labeled? Yes No Casing Straight? Yes No			Grout Seal II			NO	
Repairs Necessary:	<del>_</del> .		Crout Cear II				
Well Information				<b>C</b> 1		64.62	
Well Depth: 35.46	<u> </u>		Well Casing		[0	075.36	
Constructed Depth: Casing Diameter: 2"	<u> </u>		Static Water Previous Sta		(	013.36	<u> </u>
					<u>.</u>		ĉ
	<u>5.47</u>		Measureme	After Sample	Elec.	$\sim 22.2$	<b>Б</b> I Таре
Well Volume: 3, 26	Gallons		Neasureme	nt Method.			Γιαμο
						<u>.</u>	
Sampling Information	SEID		i Gi				
Weather Conditions: Temp:			69		tail		
Sampling Method: Grundfos	Bladder SSPT	Disp. Bailer	Whale	Grab Other:			
Dedicated Equipment: (res No			Pumping Ra			gpm	1
Well Purged Dry? Kes No			Time Pump				/ pm
Time Purged Dry? 1030		-	Time of San		103	<u>s</u> (am	//pm
Duplicate Sample? Yes (No	— · · · · · · · · · · · · · · · · · · ·	Oalam	Sample EH:			Odor: 🔊 🤇	
Sample Appearance: General:	Clar	Color:	<u>None</u> Phas	e: <i>sine</i>			šrQ
Specific	Temp	D, O,	Turbidity	Gallons	SEQ	1	
Time pH Cond.	°C	mg/L	UTN	Removed	#	Comments:	
1030 6.83 4552	8.73			3.25	1		
1035 6.88 4693	8,73				2	Nechors	Q
		TH			3		
		101	1 0 7 - 1		4		
			[-		5		
Stabiliz Yes /No >		Amount V	Vater Removed	1:		Gallons	
Comments:							
	(						
-OK (	to harge						
	170						
Exceptions to Protocol:							
W.L. @113	Acres - D	3 90					
	- 9111 - 64	~11					
start purge @	? 1132am (w	O. Kaom	الدمير فأقر	L. Q.O	<i>E</i> 15	1 1 Î	4.1
start puige @		- 71-1		MY WIL	)U 4	m WL	re loi Pumf

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#### Minnesota Valley Testing Laboratories, Inc. New Ulm, MN 56073 507 354 8517

NEW UITH, MIN 20073			007 004 001	. 7				
Groundwater Asses	ssment			Site:	Otter	Tail Pow	ver Co./ Big	Stone
Sampling Personnel:				Facility ID:				
	2			Date:	Z/Aug	23		
				Unique Static	on ID:			
				Sample ID:			H11	
								<u>.</u>
Well Condition		- <del>-</del>					$\sim$	
Well Locked? Y	'es (No)			Protective Po	osts? Yes	$\langle$	No)	
Well Labeled? (Y	'es) No			State ID Tag	? Yes	(	No	
Casing Straight?	es No			Grout Seal Ir	ntact?(Yes)		No	
Repairs Necessary:	<u> </u>							
Well Information								
Well Depth:	42.15			Well Casing	Elevation:	· /c	293.24	4
Constructed Depth:	~	1		Static Water	Elevation:	7	79.25	
Casing Diameter:	2"			Previous Sta	tic:		82.58	
Water Level Before Purg	je: <u>13</u> .	95			After Sample	:3	3.68	
Well Volume: 4	.60	Galions	_	Measuremer	nt Method:	Eleć. '	<u>WD) s</u>	teel Tape
				<u>\</u>		$\sim$		
Sampling Informatio	n							_
Weather Conditions: 7	ſemp: (	587	Wind: U	<u>Jelo</u>	Sky:	<u>Clea</u>	<u> </u>	
	Grundfos	Bladder S8/T	Disp. Bailer	Whale	Grab Other:			
Dedicated Equipment:		-		Pumping Ra			gpm	
	(es) No	-		Time Pump		<u>1022</u>		m pm
	1641	-		Time of San		<u>378</u>	<u> </u>	m)/pm
	res (No)	ID:		Sample EH:		2		
Sample Appearance: C	General:	Claar.	Color: Ne	hase Phase	: Nore,		Odor: 🖊	au
	- •••				To u		<del>. –</del>	<u> </u>
	Specific	Temp	D. O.	Turbidity	Gallons	SEQ		
	Cond.	°C	mg/L		Removed	#	Commer	<u>nts:</u>
704 5-66	4219	9.01	1.32	S.S.	4.75	1		
		<u> </u>				2		
<b> </b> +				-				
1011 6 70	4298	9.68	215			4 5	- Cooch	- 0
1046 6.70		1 4.08	<u>3.15</u>	ater Removed		<u></u>	<u>  (Ceh</u> Gallons	<u>ryc</u>
	<u>10</u>		Amount W	ater removed	·	<u> ひ</u>	Gailons	
Comments:								

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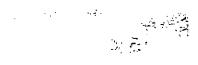
Exceptions to Protocol:

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State + CCR

W.L. @1135: 32.44 Steefood purge @11370.25 g/min. Went dry @1157

August 2023



### 2023 Big Stone Sampling - CCR

#### Landfill or ADA wells

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<u>م</u>	Site	Parameter List	Well Depth (constructed)	Diameter (Inches)	Well Elevation (TOC)	Sample Equipment	Dedicated?	Pump Rate (ml/minute)	Goes Dry?	Sampling Seasons**
, H2OX H3OX H4OX H6 H8 H9		CCR3 W L CCR3 CCR3 CCR3 CCR3 CCR3 CCR3	32.20 22.55 27.20 15.00 22.05 30.20	2 2 2 2 2 2 2	1103.86 1095.26 1108.25 1097.76 1081.23 1086.21	Bladder Bladder Bladder Bladder Bladder Bladder	Yes Yes Yes Yes Yes Yes	100 100 100 100 100 100	Yes Yes No Yes No No	April & Oct April & Oct April & Oct April & Oct April & Oct April & Oct
H10 H11		CCR 3 and 4 CCR 3 and 4	35.49 42.15	2 2	1090.83 1093.24	Bladder Bladder	Yes Yes	100 100		See highlighted note below See highlighted note below

Note: Wells H10 and H11 need to be sampled 8 times for CCR this year. Background sampling like 5 years ago. We want to sample in April - November. Each event has to be about 30 days apart. Also, durning every sampling event for the CCR, we will need water levels on the CCR wells not sampled.

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 <i>Field Parameters</i> pH*	
* Field and Laboratory Measurements	
Total Concentration Parameters	Method
Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
рН	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97
Note: These are non-filtered samples.	

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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	

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Note: These are non-filtered samples.



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

October 16, 2023

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

RE: Project: 31-0235 Otter Tail Power Pace Project No.: 10666268

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on August 23, 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,

Puper 1 Siles

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

Enclosures



#### **REPORT OF LABORATORY ANALYSIS**

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#### SAMPLE SUMMARY

Project:31-0235 Otter Tail PowerPace Project No.:10666268

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
10666268001	23A8447-H10	Water	08/21/23 10:35	08/23/23 09:54
10666268002	23A8448-H11	Water	08/21/23 10:45	08/23/23 09:54

**REPORT OF LABORATORY ANALYSIS** 

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## CHAIN-OF-CUSTODY / Analytical Reque The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be

Section Required Company	Client Information:	Section E Required I	Projec							Invo		format							1	066	6268									_	 
Address:		Report To:			<u> </u>	Attention; AP Company Name: MVTL							منابخترا بب										14:00 the cont								
Address:	1126 NORTH FRONT BLDG #2	Copy 10:	trie	ger@	mvtl.com	<u> </u>			-												17.8480	0044540	11.01	Viter	GENC	nandan	71542				
	NEW ULM, MN 56073	<u> </u>								Addr			1126	NO	RTH	FRC		3LDC	32		💭 NPDES 😿 GROUND WATER 🛄 DRINKING WATER									£R	
Email To:					CL13299	1				Refer	Quote rence:										ा	UST		<u>, 1</u>	RCRA	4		ा <del>सम्बद्</del>	OTHER		
	507-233-7134 Fax	Project Na			er Tail Powe		<i>.</i>			Mana											Site	Loc	ation		м	N	Ē	/////			9/////
Request	ed Due Date/TAT: standard	Project Nu	mber:	Wo	rk order: 31	-0235	,			Pace	Profile	e 朱 、					_						ATE:	-		_	<u> </u>	<u> ////////////////////////////////////</u>			
			_	_															eque	sted	Алађ	/sls	Filter	ed (	Ý/N)	ll vin	¥//	/////		/////	/////
	Section D Valid Matrix ( Required Client Information MATRIX	CODE	to left)	C=COMP)		COLL	ECTED			ŀ		f	Prese	rvat	ives		<b>I</b> WK													<u> ////////////////////////////////////</u>	<u> ////////////////////////////////////</u>
	SAMPLE ID	WT WW SL' OL WP	(see valid codes (o leit)	(G=GRAB C=C	COMPOS START		COMPO END/GF	SITE 149	T COLLECTION	ERS								method 16		Iscing							rine (Y/N)				
ITEM #	(A-Z, 0-9 /,-) OTHER Sample IDS MUST BE UNIQUE TISSUE	AR ÓT TS	MATRIX CODE	SAMPLE TYPE	DATE	TIME	DATE	Тіме	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	LAnalysis Test	2,3,7,8 TCDD method	Radium 226/2	PFAS State Pricing							Residual Chlorine (Y/N)	Paci	e Project	No./ La	b I.D.
	23A8447 - H10	-	wī	1			08/21/23	10:35		1				+				Ì	x			-				+			1		1
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Page 3					F	1	PRINT Nam																			1	Temp in "C	Received or Ice (Y/N)	Custody Sealed Cool (YIN)		Sign Sign Sign Sign Sign Sign Sign Sign
of 17							SIGNATUR	E of SAMP	LER										TE SI M/DD							<u> </u>	Ter	2 <u>2</u>	Seate		Semples Intact (Y/N)

## DC#\_Title: ENV-FRM-MIN4-0150 v13\_Sample Condition Upon Receipt (SCUR) Effective\_Date: 4/14/2023

Sample Condition Client Name: Upon Receipt MVTL		Project #:	MO	#:10666268
Courier: FedEx UPS USPS Client			PM: Clie	PG Due Date: 09/22/23 NT: MVTL
Tracking Number:		ceptions		· · · · · · · · · · · · · · · · · · ·
Custody Seal on Cooler/Box Present? Yes YNO Se	-			Biological Tissue Frozen? 🗍 Yes 🔲 No 🕅 N/
Packing Material: Bubble Wrap Bubble Bags	None	L Tes	U NO	
Thermometer:         T1 (0461)         T2 (0436)         T3 (045)           T6 (0235)         T7 (0042)         T8 (077)	9) 🛛 74 (0 5) 🔽 T9(0	0402) 🗌 1727) 🔲	T5 (0178) 0133925	) Type of Ice: Wet Blue Dry None 2/1710 Melted
Did Samples Orlginate in West Virginia? 🗌 Yes 🚺 No	_	w	ere All Co	ntainer Temps Taken? 📋 Yes 🔲 No 🛛 N/A
Temp should be above freezing to 6 'C Cooler temp Read w/Te	emp Blank:	3.4	°C	Average Corrected Temp
Correction Factor: -0,5 Cooler Temp Corrected w/te	emp blank:	2,9	°C	(no temp blank only): °C
USDA Regulated Soll: (VN/A, water sample/other;		)		Date/Initials of Person Examining Contents: $EL8 - 23 - 2$
Did samples originate in a quarantine zone within the United Stat GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps	s)? 🗌 Ye	es 🗌 No		Did samples originate from a foreign source (internationally, Including Hawail and Puerto Rico)?
If Yes to either question, fill out a Regulated Location (Check one): Duluth Minneap		ist (ENV-FRI Virginia	M-MIN4-0	0154) and Include with SCUR/COC paperwork.
Chain of Custody Present and Filled Out?	M Yes		<u> </u>	
Chain of Custody Relinguished?	Yes	IVI No		2.
Sampler Name and/or Signature on COC?	yes	MN <sub>0</sub>	N/A	
Samples Arrived within Hold Time?	<b>V</b> Yes	L.No	<u> </u>	4. If fecal: <8 hrs >8 hr, <24 No
Short Hold Time Analysis (<72 hr)?	Yes	M No		5. Fecal Coliform HPC Total Coliform/Ecoli     BOD/cBOD Hex Chrom Turbidity Nitrat     Nitrite Orthophos Other
Rush Turn Around Time Requested?	yes	V No		6.
Sufficient Sample Volume?	M Yes	L No		7.
Correct Containers Used?	<b>V</b> Yes	∐No	N/A	8.
-Pace Containers Used?	M Yes	No		
Containers Intact?	V Yes	No No	h	9
Field Filtered Volume Received for Dissolved Tests? Is sufficient information available to reconcile the samples to the COC?	Ves V Yes	No No	V N/A	10. Is sediment visible in the dissolved container? Yes No 11. If no, write ID/Date/Time of container below: See Exception
Matrix: Mater Soil Oil Other				ENV-FRM-MIN4-014
All_containers_needing.acid/base_preservation-have-been checked?	Yes	No	₩-N/A-	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation ? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	Yes	🗌 No	✓ N/A	NaOH HNO3 H25O4 Zinc Acetate
Exceptions: VOA, Collform, TOC/DOC Oll and Grease, DRO/8015 (water) and Dioxins/PFAS	🗌 Yes	No No		Positive for Residual [] Yes [] See Exception Chlorine? [] No ENV-FRM-MIN4-014
(*If adding preservative to a container, it must be added to				Chlorine? INO ENV-FRM-MIN4-014 pH Paper Lot #
associated field and equipment blanksverify with PM first.)			1	Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Headspace In Methyl Mercury Container?	Yes	No		13
Extra labels present on soll VOA or WIDRO containers?				14. See Exception
Headspace in VOA Vials (greater than 6mm)? 3 Trip Blanks Present?	Ves Ver		V/N/A	ENV-FRM-MIN4-014
Trip Blank Custody Seals Present?	Yes Yes	No No	M/N/A M/N/A	15. Pace Trip Blank Lot # (if purchased):
CLIENT NOTIFICATION/RESOLUTION				Field Data Required?
Person Contacted:	· A .		L	Date/Time:
	klas			
Project Manager Review:		m will be sent t		
	e® Analy	/tical Ser		abeled By: <u>FL</u> Line: <del>2 Page 5</del> LC Page 1

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# Pace Analytical" ANALYTICAL REPORT

October 16, 2023

#### Pace Analytical - Minnesota

Sample Delivery Group:
Samples Received:
Project Number:
Description:
Site:
Report To:

L1654185 09/08/2023 10666268 31-0235 Otter Tail Power 001 Piper Gibbs

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Entire	Report	Reviewed	Bv:

fidson

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 taboratory. 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 Analylical - Minnesola PROJECT: 10666268

SDG: L1654185

DATE/TIME: 10/16/23 16:40 PAGE:

1 of 11

# TABLE OF CONTENTS

La Conte Conservation

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
23A8447-H10 L1654185-01	5
23A8447-H11 L1654185-02	6
Qc: Quality Control Summary	7
Radiochemistry by Method 904/9320	7
Radiochemistry by Method SM7500Ra B M	8
GI: Glossary of Terms	9
Al: Accreditations & Locations	10
Sc: Sample Chain of Custody	11

Cp 3Ss 3Ss 4Cn 5Sr 6Qc 7GI 8AI 3Sc

ACCOUNT: Pace Analytical - Minnesota PROJECT: 10666268 SDG: L1654185 DATE/TIME: 10/16/23 16:40 Page 8 of 17 PAGE: 2 of 11

23A8447-H10 L1654185-01 Non-Potable Water			Collected by	Collected date/time 08/21/23 10:35	Received dat 09/08/23 09:	
Method	Baich	Dilution	Preparation date/lime	Analysis date/lime	Anatysi	Localion
Radiochemistry by Method 904/9320	WG2141139	1	09/28/23 12:39	10/10/23 21:14	DDD	Mt. Juliet, TN
RadiochemIstry by Method SM7500Ra B M	WG2135792	1	09/20/23 16:26	09/22/23 13:29	RGT	Mt. Juliet, TN
23A8447-H11 L1654185-02 Non-Potable Water			Collected by	Collected date/time 08/21/23 10:45	Received da 09/08/23 09	
Method	Batch	Dilution	Preparation date/lime	Analysis dale/lime	Analyst	Location
Radiochemistry by Method 904/9320	WG2141139	1	09/28/23 12:39	10/10/23 21:14	DDD	ML Juliet, TN
Radiochemistry by Method SM7500Ra 8 M	WG2135792	1	09/20/23 16:26	09/22/23 13:29	RGT	ML Jullet, TN

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ACCOUNT: Pace Analytical - Minnesota PROJECT: 10666268

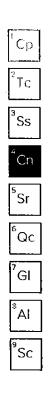
SDG: L1654185

DATE/TIME: 10/16/23 16:40 Page 9 of 17 PÁGE:

# 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, 1 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



ACCOUNT: Pace Analylical - Minnesola

PROJECT: 10666268

SDG: L1654185 DATE/TIME: 10/16/23 16:40 Page 10 of 17 PAGE: 4 of 11

#### 23A8447-H10 Collected date/11me: 08/21/23 10:35

# SAMPLE RESULTS - 01

# Radiochemistry by Method 904/9320

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	-
Analyte	pCi/I		+/-	pCi/l	dale / time		
RADIUM-228	0.465	Ţ	0.265	0.476	10/10/2023 21:14	<u>WG</u> 2141139	
(T) Borium	94.8		김 가 관람이 있다.	30.0-143	10/10/2023 21:14	WG2141139	
(T) Yttrium	108			30.0-136	10/10/2023 21:14	WG2141139	

# Radiochemistry by Method SM7500Ra B M

	Result	Qualifier L	Incertainty	MDA	Analysis Date	Batch	
Analyle	pC#/I	•	-1-	pCi/l	date / time		
RADIUM-226	0.290		),217	0.220	09/22/2023 13:29	WG2135792	an an Annahan a' ann an an an ann ann Annapartain ann arthu tairtean a' ann a' a' a' a' a' a' an anna a'
(T) Barium-133	103			30.0-143	09/22/2023 13:29	WG2135792	

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5 of 11

# 23A8447-H11 SAMPLE RESULTS - 02 Collected date/lime: 08/21/23 10:45

#### Radiochemistry by Method 904/9320

<b>-</b>	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCi/l	date / lime		
RADIUM-228	0.798		0.293	0.518	10/10/2023 21:14	<u>WG2141139</u>	n en fallen fonder en fallen.
(T) Borium	75.1			30.0-143	10/10/2023 21:14	<u>WG2141139</u>	
(T) Yttrium	109			30.0-136	10/10/2023 21:14	WG2141139	

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### Radiochemistry by Method SM7500Ra B M

	Result	Qualifter	Uncertainty	MDA	Analysis Date	Batch	
Analyte	pCi/l		+/-	pCI/I	dale / time		2
RADIUM-226	1.83		0.496	0.198	09/22/2023 13:29	WG2135792	*
(T) Barium-133	91.4	n garag	and a second	30.0-143	09/22/2023 13:29	WG2135792	

# QUALITY CONTROL SUMMARY

Radlochemistry by Method 904/9320

# Method Blank (MB)

(MB) R3986066-2 10/10	)/23 21:14				
	MB Result	MB Qualifier	MB Uncer	tainty MB MDA	
Analyte	pCi/l		+/-	pCi/l	
Radium-228	0.552	and the same an and the second s	0.250	0.216	
(T) Barium	90.6	a de la composición d	90.6	ner Andrea - Alexandra Alexandra - Alexandra	
(T) Yttrium	97.8		97.8		

# L1654164-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1654164-06 10/10/23	3 21:14 • (DUP) F	3986066-5 1	10/10/23 21:14									
	Original Result	Original Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	+/-	pCi/l	pCi/l	+/-	pCi/l		%			%	
Radium-228	3.28	0.527	0.888	4.84	0.426	0.642	1	38,6	2.31		20	3
(T) Barlum	85.5			89.8	89.8	e tet e M. Alexandre		an a		de la compañía		a de la factoria de la factoria. Estadouna de la factoria de la facto
(T) Yttrium	110	•		102	102							

# Laboratory Control Sample (LCS)

(LCS) R3986066-1 10/09	/23 21:1 <del>9</del>					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	L
Analyte	pCVI	pCi/l	%	%		
Radium-228	5.00	5.75	115	80.0-120		
(T) Barlum			88.2		an de la companya a companya (1996). Este a presente en la companya de la companya de la companya de la company Rector de la calación de la companya	
(T) Yttrium			96.6			

# L1654164-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1654164-02 10/10/	/23 21:14 - (MS) R3	3986066-3 10	/10/23 21:14 • (	(MSD) R398606	6-4 10/10/2	23 21:14							
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER RF	PD Limits
Analyte	pCi/I	pCi/l	рСі/І	pCi/l	%	%		%			%	%	
Radium-228	16.7	4.01	19.8	20.5	94.7	98.6	1	70.0-130			3.18	20	)
(T) Barium		107			84.9	75.5	an gana an Salah				dia ang	a da baran br>Baran da baran da bar	
(T) Yttrium		105			110	100							

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7 of 11

ACCOUNT:

# WG2135792

# Y CONTROL SUMMARY QUALIT

Radiochemistry by Method SM7500Ra B M

# Method Blank (MB)

Method Blank	(MB)				1 Cn
(MB) R3977554-1 0	9/22/23 13:29	· · · · ·	<u> </u>		
	MB Result	MB Qualifier	MB Uncertair	ity MB MDA	2
Analyte	pCi/l		+/-	pCi/ł	Tc
Radium-226	0.107	7	0.0977	0.123	
(T) Barium-133	62.4		62.4	e distante A productione	<sup>3</sup> Ss

# L1654251-06 Original Sample (OS) • Duplicate (DUP)

	Original Result	Originai Uncertainty	Original MDA	DUP Result	DUP Uncertainty	DUP MDA	Dilution	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	+/-	pCi/l	pCi/l	+/-	pCi/I		%			%	
Radium-226	0.177	0.231	0.331	0.0924	0.222	0.374	1	63.0	0.265	<u>U</u>	20	3
(T) Barium-133	90.1	an a		69.8	69.8			a da la composición de la composición d	a star y	a. Talana da		and the second

# Laboratory Control Sample (LCS)

(LCS) R3977554-2 C	9/22/23 13:29					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	5
Analyte	pCi/I	pCi/l	%	%		_   7
Radium-226	5.01	4.85	96.9	80.0-120		Ĺ
(T) Barium-133	a nya mangan sia. Nya		73.3	동 화가 하는 것 같	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	

# L1654251-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1654251-01 09/2	2/23 13:29 - (MS)	R3977554-3 0	9/22/23 13:29	• (MSD) R397	7554-4 09/2	2/23 13:29							
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER RPD Limit	.ts
Analyte	pCI/I	pCi/l	pCi/l	pCi/l	%	%		%			%	%	
Radium-226	20.0	1.09	20.0	19.6	94.3	92.5	1	75.0-125			1.77	20	
(T) Barium-133		85.8			83.7	60.8		n an					

Page 14-of 17

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# **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. As the second s
ER	Replicate Error Ratio,
PD	Relative Percent Difference.
DG	Sample Delivery Group.
<b>D</b>	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.
Orlginal 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.
Jncertainty 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.
	Below Delectable Limits: Indicates that the analyte was not detected.

SDG: L1654185

DATE/TIME: 10/16/23 16:40 Cp

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# ACCREDITATIONS & LOCATIONS

Ср

Tc

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Sc

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-0S-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
lorida	E87487	North Carolina <sup>1</sup>	DW21704
Seorgla	NELAP	North Carolina <sup>3</sup>	41
Seorgia <sup>1</sup>	923	North Dakota	R-140
daho	TN00003	Ohio-VAP	CL0069
llinols	200008	Okłahoma	9915
ndiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
(ansas	E-10277	Rhode Island	LA000356
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Kentucky <sup>2</sup>	16	South Dakota	n/a
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faine	TN00003	Texas <sup>5</sup>	LAB0152
faryland	324	Ulah	TN000032021-11
Massachuselts	M-TNOD3	Vermont	VT2006
Wichigan	9958	Virginia	110033
Minnesola	047-999-395	Washington	C847
Mississippi	TND0003	West VirgInla	233
Missouri	340	Wisconsin	998093910
Monlana	CERTOO86	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA - ISO 17025 <sup>s</sup>	1461.02	DOD	1461.01
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<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.

ACCOUNT: Pace Analytical - Minnesola PROJECT: 10666268 SDG: L1654185 DATE/TIME: 10/16/23 16:40

# Page 16 of 17-

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Pace 1700 Minne	Gibbs Analytical Minnesota Elm Street eapolis, MN 55414 e (612)607-1700		12 Mt	ce National 265 Lebanon Rd Juliet TN 37122 one (615) 758-58			,4			226/228									
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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.

	Client information:	Section B Required Proj							Invo	ction sice in	nforma										-					Pa	age:	1	of	1	
Company	· MVTL	Report To: To	dd Rie	eger					Atte	ntion:		AP																			
Address:	1126 NORTH FRONT BLDG #2	Copy To: tri	eger@	mvtl.com	1				Corr	npany	Nam	ne:	MVŤ	L							REG	ULA	TOR	YAC	SENCY	(					
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Phone:	507-233-7134 Fax:	Project Name:	Otte	er Tail Por	wer				Pace	e Proje ager:							_				Site	Loc	ation		MN						
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ITEM #	(A-Z, 0-9 / -) OTHER Sample IDs MUST BE UNIQUE TISSUE		SAMPLE TYPE	DATE	ТІМЕ	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO4	HNO <sub>3</sub>	HCI	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	+ Analysis lest	2,3,7,8 1CDU me Padium 226/228	PFAs State Pricing								Residual Chlorine (Y/N)	Pace	Project	No./ <u>La</u>	ab I.D.
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# MVTL

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 11

FINAL REPORT COMPLETION DATE: 27 Nov 23 an

Date Reported: 22 Nov 2023

Work Order #: 31-0271 Account #: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT CCR

22 Nov 23 ager/Date Reviewed 22 NINES Lab Manager/Date hemistry 22 NON 2023 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

Project Name: BIG STONE PLANT CCR

Sample Description: H20X

Page: 2 of 11

Report Date: 22 Nov 2023 Lab Number: 23-A9310 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 12:10 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

	As Receiv Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions				···	19 Oct 23	JN
pH, Fiela	6.52	units	1.00	SM4500-H+-2011	17 Oct 23 12:10	BMW
рН	* 7.2	units	1.0	SM 4500 H+ B-2000	18 Oct 23 10:53	ю
Sulfate	1720 ~	mg/L	5.0	ASTM D516-11	19 Oct 23 11:10	SS
Chloride	3,5	mg/L	3.0	SM 4500 Cl E	19 Oct 23 10:05	KRM
Solids, Total Pissolved	3610	mg/L	10	SM 2540 C-97	19 Oct 23 9:20	CC
Calcium	521.0	mg/L	0.500	SW6010D	23 Oct 23 12:34	RMV
	~See Nar:	rative				
Borch	0.258	mg/L	0.100	SW6010D	23 Oct 23 12:34	RMV
Fluoride	0.320	mg/L	0.020	EPA 300.0	28 Oct 23 0:59	RMV

\* Holding Time Exceeded

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

RL = Reporting Limit 

 ND - 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 LAD # 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

Project Name: BIG STONE PLANT CCR

Sample Description: H30X

Page: 3 of 11

Report Date: 22 Nov 2023 Lab Number: 23-A9311 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 10:22 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

	As Receiv Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					19 Oct 23	JN
pH, Field	6.43	units	1.00	SM4500-H+-2011	17 Oct 23 10:22	BMW
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	18 Oct 23 10:53	но
Sulfate	1340 ~	mg/L	5.0	ASTM D516-11	19 Oct 23 11:10	SS
Chloride	65.3	mg/L	3.0	SM 4500 Cl E	19 Oct 23 10:22	KRM
Solids, Total Dissolved	2880	mg/L	10	SM 2540 C-97	19 Oct 23 9:20	CC
Calcium	405.0	mg/L	0.500	SW6010D	23 Oct 23 12:34	RMV
	~See Nar	rative				
Beron	7.310 ~	ma/L	0.100	SW6010D	23 Oct 23 12:34	RMV
Fluoride	0.370	mg/L	0.020	EPA 300.0	28 Oct 23 0:59	RMV

\* Rolding Time Exceeded

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

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: 4 of 11

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

Project Name: BIG STONE PLANT CCR

Sample Description: H40X

Report Date: 22 Nov 2023 Lab Number: 23-A9312 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 11:04 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed		Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.52 * 7.2 987 ~ 41.7 2160 321.0 0.564 0.480	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 C1 E SM 2540 C-97 SW6010D SW6010D EPA 300.0	19 Oct 23 17 Oct 23 18 Oct 23 19 Oct 23 19 Oct 23 19 Oct 23 23 Oct 23 23 Oct 23 28 Oct 23	10:53 11:10 10:22 9:20 13:13 13:13	JN BMW HO SS KRM CC RMV RMV RMV RMV

\* 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

MVIL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVIL 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 MVIL. As a nutual protection to clicats, the public and ourselves, all reports are submitted as the confidential property of clicats, and suthorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.





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5 of 11 Page:

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

Project Name: BIG STONE PLANT CCR

Sample Description: H6

Report Date: 22 Nov 2023 Lab Number: 23-A9313 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 11:57 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

· .	As Receiv Result	edi	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pK, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Finoride	7.56 * 7.6 80.6 < 3 558 64.70 @ 2.350 @ 0.430	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3 10 0.500 0.100 0.020	- SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 C1 E SM 2540 C-97 SW6010D SW6010D EPA 300.0	19 Oct 23 17 Oct 23 11:04 18 Oct 23 10:53 19 Oct 23 10:53 19 Oct 23 10:22 19 Oct 23 9:20 23 Oct 23 13:13 23 Oct 23 13:13 28 Oct 23 0:59	CC RMV RMV

\* Holding Time Exceeded

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6 of 11 Page:

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

Project Name: BIG STONE PLANT CCR

Sample Description: H8

Report Date: 22 Nov 2023 Lab Number: 23-A9314 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 12:35 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissorved Calcium Boron Fluoride	7.22 * 7.5 321 ~ 3.4 973 128.0 3.360 0.510	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-11 SM 4500 Cl E SM 2540 C-97 SW6010D SW6010D EPA 300.0	19 Oct 23 17 Oct 23 12:35 18 Oct 23 10:53 19 Oct 23 11:49 19 Oct 23 10:22 19 Oct 23 9:20 23 Oct 23 13:13 23 Oct 23 13:13 28 Oct 23 0:59	KRM CC RMV

\* Holding Time Exceeded

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

 KL = 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

 RL = Reporting Limit

MVIL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVIL 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 MVIL. 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

Project Name: BIG STONE PLANT CCR

Sample Description: H9

Page: 7 of 11

Report Date: 22 Nov 2023 Lab Number: 23-A9315 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 13:19 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digections pH, Field pH Sulfate Chloride Solids, Total Dissc.ved Calcium Boron Fluoride	6.62 * 7.0 1620 ~ 91.6 2900 640.0 ~ 1.230 6.310	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.100 0.020	SM4500-H+-2011 SM 4500 H+ P-2000 ASTM D516-11 SM 4500 C1 E SM 2540 C-97 SW6010D SW6010D EPA 300.0	19 Oct 23 17 Uct 23 13:19 18 Oct 23 10:53 19 Oct 23 11:49 19 Oct 23 10:22 19 Oct 23 9:20 23 Oct 23 13:13 23 Oct 23 13:13 28 Oct 23 0:59	JN DGF HO SS KRM CC RMV RMV RMV

\* 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:

 Image: 
MVIL guarantees the accuracy of the analysis done on the sample submitted as the strain is not possible for MVIL 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 MVIL. 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

Project Name: BIG STONE PLANT CCR

Sample Description: H10

Page: 8 of 11

Report Date: 22 Nov 2023 Lab Number: 23-A9316 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 12:34 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

Temp at Receipt: 0.5C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions Water Digestions pH, Field	6.51	units	1.00	SH4500-H+-2011	24 Oct 23 19 Oct 23 17 Oct 23 12:34	JN JN BMW HO
pH Radium 226	* 7.2 0.07	units pCi/L	1.0 0.60	SM 4500 H+ B-2000	18 Oct 23 10:53 27 Oct 23 18:42	OL
Radium 228	0.24	pCi/L	3.00	EPA M9320	27 Oct 23 15:46	
Sulfate	2590 ~	mg/L	5.0	ASTM D516-11	19 Oct 23 11:49	SS
Chloride	6.3	mg/L	3.0	SM 4500 C1 E	19 Oct 23 10:22	
Mercury	< 0.005	ug/L	0.005 10	EPA 245.7 SM 2540 C-97	24 Oct 23 14:54 19 Oct 23 9:20	
Solids, Total Dissolved Calcium	4840 509.0 ~	mg/L mg/L	0.500	SW6010D	23 Oct 23 13:13	
Lithium	0.298	mq/L	0.020	SW6010D	23 Oct 23 13:13	RMV
Barium	0.027	mg/L	0.005	SW6010D	23 Oct 23 13:13	
Beryllium	< 0.005	mg/L	0.005	SW6010D	23 Oct 23 13:13 23 Oct 23 13:13	
Cobalt	< 0,005 0.358	mg/L mg/L	0.005 0.100	SW6010D SW6010D	23 Oct 23 13:13 23 Oct 23 13:13	
Boron Antimony	< 2.5 @	ug/L	0.5	SW6020B	25 Oct 23 17:15	
Arsenic	< 2.5 0	ug/L	0.5	SW6020B	25 Oct 23 17:15	KAM
Cadmium	< 0.5 0	ug/L	0.1	SW6020B	25 Oct 23 17:15	
Chromium	< 2.5 @	ug/L	0.5 0.5	SW6020B SW6020B	25 Oct 23 17:15 25 Oct 23 17:15	
Lead Molybdenum	< 2.5 @ 12.3 @	ug/L ug/L	0.50	SW6020B	25 Oct 23 17:15	
Selenium	3.79	ug/L ug/L	0,50	SW6020B	25 Oct 23 17:15	
	@ See Nar					
Thallium	< 0.5 @	ug/L	0.1	SW6020B	25 Oct 23 17:15	
Fluoride	0.190	mg∕L	0.020	EPA 300.0	28 Oct 23 0:59	RMV
* 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.				• <u>-</u>		
1700 Elm Street Suite 200						
Minneapolis, MN 55414 1-612-607-1700					· · · ·	
1-012-007-1700					·	
~ Sample diluted due to result	; above cali	bration of li	.near range.	· ·	· · · · · · · · · · · · · · · · · · ·	•
OL = Analysis performed by an	Outside Lab	oratory.		•	1. State 1.	
- of - multiple performed by an	sucorue nai			•	· · · · · · · · · · · · · · · · · · ·	
				·		
					· ·	
! = Due		ing a dilution as ix # tity +	coded below;   = Due to conce	current TNI standards. ntration of other analytes nal standard response		
					••• •	

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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9 of 11 Page:

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

Project Name: BIG STONE PLANT CCR

Sample Description: H11

Report Date: 22 Nov 2023 Lab Number: 23-A9317 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 13:49 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 PO #: 59601

#### Temp at Receipt: 0.5C

	As Received Result	đ	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					24 Oct 23	JN
Water Digestions					19 Oct 23	ИС
pH, Field	6.59	units	1.00	SM4500-H+-2011	17 Oct 23 13:49	DS
pH *	6.9	units	1,0	SM 4500 H+ B-2000	18 Oct 23 10:53	HO
Radium 226	0.04	pCi/L	0.60		27 Oct 23 18:42	OL
Radium 228	0.54	pCi/L	3.00	ЕРА М9320	27 Oct 23 15:46	OL
Sulfate	2580 ~	mg/L	5.0	ASTM D516-11	19 Oct 23 11:49	SS
Chloride	3.6	mg/L	3.0	SM 4500 Cl E	19 Oct 23 10:22	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	24 Oct 23 14:54	RMB
Solids, Total Dissolved	4220	mg/L	10	SM 2540 C-97	19 Oct 23 9:20	CC
Calcium	573.0 ~	mg/L	0.500	SW6010D	23 Oct 23 13:13	RMV
Lithium	0.332	mg/L	0.020	SW6010D	23 Oct 23 13:13	RMV
Barium	0.030	mg/L	0.005	SW6010D	23 Oct 23 13:13	RMV
Beryllium	< 0.005	mg/L	0.005	SW6010D	23 Oct 23 13:13	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	23 Oct 23 13:13	RMV
Boron	0.271	mg/L	0.100	SW6010D	23 Oct 23 13:13	RMV
Antimony	< 2.5 @	ug/L	0.5	SW6020B	25 Oct 23 17:15	
Arsenic	< 2.5 @	ug/L	0.5	SW6020B	25 Oct 23 17:15	
Cadmium	< 0.5 @	ug/L	0.1	SW6020B	25 Oct 23 17:15	KAM
Chromium	< 2.5 0	ug/L	0.5	ŚW6020B	25 Oct 23 17:15	KAM
Lead	< 2.5 @	ug/L	0.5	SW6020B	25 Oct 23 17:15	
Molybdenum	3.03 @	ug/L	0.50	SW6020B	25 Oct 23 17:15	KAM
Selenium	< 2.5	ug/L	0.5	SW6020B	25 Oct 23 17:15	KAM
Serentand	0 See Narı		- • -			
Thallium	< 0.5 @	ug/L	0.1	SW6020B	25 Oct 23 17:15	KAM
Fluoride	0.140	mg/L	0.020	EPA 300.0	28 Oct 23 0:59	RMV

\* 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.

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 include 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 56538-0496 FERGUS FALLS MN

Project Name: BIG STONE PLANT CCR

Sample Description: H12

Page: 10 of 11

Report Date: 22 Nov 2023 Lab Number: 23-A9318 Work Order #: 31-0271 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 17 Oct 2023 13:19 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2023 16:30 20 #: 59601

#### Temp at Receipt: 0.5C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions	<u> </u>				24 Oct 23	JN
Water Digestions					20 Oct 23	JN
pH, Field	7.99	units	1,00	SM4500-H+-2011	17 Oct 23 13:19	DS
pH	* 8.2	units	1.0	SM 4500 H+ B-2000	18 Oct 23 11:13	но
Radium 226	0.18	pCi/L	0.60		27 Oct 23 18:42	OL
Radium 228	0.46	pCi/L	3.00	ЕРА М9320	7 Oct 23 15:46	OL
Sulfate	20.8	mg/L	5.0	ASTM D516-11	19 Oct 23 11:49	SS
Chloride	< 3	mg/L	3	SM 4500 C1 E	19 Oct 23 10:22	KRM
Mercury	0.012	ug/L	0.005	EPA 245.7	24 Oct 23 14:54	RMB
Solids, Total Dissolved	197	mg/L	10	SM 2540 C-97	19 Oct 23 9:20	CC
Calcium	25.60	mg/L	0.500	SW6010D	24 Oct 23 12:27	RMV
	See Narra					
Lithium	< 0.02	mg/L	0.02	SW6010D	23 Oct 23 14:25	RMV
Barium	0.058	mg/L	0.005	SW6010D	23 Oct 23 14:25	RMV
Beryllium	< 0.005	mg/L	0.005	SW6010D	23 Oct 23 14:25	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	23 Oct 23 14:25	RMV
Boron	0.402	mg/L	0.100	SW6010D	23 Oct 23 14:25	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	25 Oct 23 17:15	KAM
Arsenic	2.74	ug/L	0.50	SW6020B	25 Oct 23 17:15	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	25 Oct 23 17:15	KAM
Chromium	3.71	uq/L	0.50	SW6020B	25 Oct 23 17:15	KAM
Lead	1.53	ug/L	0.50	SW6020B	25 Oct 23 17:15	KAM
Molybdenum	34.2	ug/L	0.50	\$W6020B	25 Oct 23 17:15	KAM
Selenium	< 0,5	ug/L	0,5	SW6020B	25 Oct 23 17:15	кам
	See Narra				-	
Thallium	< 0.1	ug/L	0.1	SW6020B	25 Oct 23 17:15	
Fluoride	0,290	mg/L	0.020	EPA 300.0	28 Oct 23 0:59	RMV

\* 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 Minnéapolis, 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: XN LAB # 027-015-125
 ND WW/DW # R-040

 RL = Reporting Limit

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Page: 11 of 11

Date Reported: 22 Nov 2023

Work Order #: 202331-0271 Account Number: 006106 PO #: 59601

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

Project Name: BIG STONE PLANT CCR

LABORATORY NARRATIVE

INORGANIC & METALS ANALYSES:

Due to the matrix of the spiked sample the recovery for calcium was outside of acceptance range in the matrix spike for samples 23-A9310 and 23-A9311. Data was reported based on the acceptable recovery of calcium in the laboratory control spike and the relative percent difference between matrix spikes.

Due to the high concentration of calcium in the spiked sample the recovery for calcium was outside of acceptance range in the matrix spike duplicate for samples 23-A9318. Da.a was reported based on the acceptable recovery of calcium in the laboratory control spike and the relative percent difference between matrix spikes.

Due to matrix composition, percent recoveries of selenium in the matrix spike and duplicate associated with samples 23-A9316 through 23-A9318 were outside acceptable range. Data reported based on acceptable laboratory control spike recovery and relative percent difference between matrix spike recoveries.

No other problems were encountered.

- - M

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Quality Control Rep Lab IDs: 23-A9310 to 23-A93	318	Pro	ject: BI(	<u>G STONE</u>	E PLANT CCF		Work (		<u>02331-02</u>				·	NOT		1	
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	110	85-115	25.0	23A9316q	< 2.5	27.6	110	75-125	27.6	27.5	110	0.4	10	107	90- <u>11</u> 0	< 0.5
Arsenic ug/L	25.0	101	85-115	25.0	23A9316q	< 2.5	28.3	113	75-125	28.3	28.5	114	0.7	10	101	90-110	< 0.5
Barium mg/L	1.000 1.000	101 100	85-115 85-115	1.00 1.00	23A9317q 23A9290fq	0.030 0.011	1.060 0.984	103 97	75-125 75-125	1.060 0.984	1.040 1.040	101 103	1.9 5.5	10 10	96 97	90-110 <sup>.</sup> 90-110	< 0.005
Beryllium mg/L	1.000	100 100	85-115 85-115	1.00 1.00	23A9317q 23A9290fq	< 0.005 < 0.005	1.010 1.010	101 101	75-125 75-125	1.010 1.010	0.9900 1.010	99 101	2.0 0.0	10 10	101 101	90-110 90-110	< 0.005 < 0.005
Boron mg/L	1.000 1.000 1.000	107 104 104	85-115 85-115 85-115	1.00 1.00 1.00	23A9299q 23A9317q 23A9290fq	< 0.5 0.271 1.190	1.210 1.390 2.370	121 112 118	75-125 75-125 75-125	1.210 1.390 2.370	1.170 1.360 2.370	117 109 118	3.4 2.2 0.0	10 10 10	98 99 100	90-110 90-110 90-110	<0.1 <0.1 <0.1
Cadmium ug/L	5.00	99	85-115	5.00	23A9316q	< 0.5	5.07	101	75-125	5.07	4.96	99	2.2	10	96	90-110	< 0.1
Calcium mg/L	50.00 50.00 50.00	105 104 102	85-115 85-115 85-115	50.0 50.0 50.0	23A9299q 23A9317q 23A9290fq	568.0 573.0 567.0	638.0 614.0 621.0	140 82 108	75-125 75-125 75-125 75-125	638.0 614.0 621.0	611.0 612.0 644.0	86 78 154	4.3 0.3 3.6	10 10 10	102 102 102	90-110 90-110 90-110	< 0.5 < 0.5 < 0.5
Chloride mg/L	-	-	-	60.0 60.0	23-A9299 23-A9322	3.6 46.0	65.1 107	102 102	80-120 80-120	65.1 107	63.6 105	100 98	2.3 1.9	10 10	98 97	90-110 90-110	< 3 < 3
Chromium ug/L	25.0	101	85-115	25.0	23A9316q	< 2.5	24.9	100	75-125	24.9	25.5	102	2.4	10	103	90-110	< 0.5
Cobalt mg/L	1.000	103 102	85-115 85-115	1.00 1.00	23A9317q 23A9290fq	< 0.005 < 0.005	0.990 0.968	99 97	75-125 75-125	0.990 0.968	0.960 0.966	96 97	3.1 0.2	10 10	100 101	90-110 90-110	< 0.005 < 0.005
Fluoride mg/L	-	-	-	0.20	a9311qc	0.370	0.560	95	80-120	0.560	0.570	100	1.8	10	102	90-110	< 0.02
Lead ug/L	25.0	100	85-115	25.0	23A9316q	< 2.5	26.7	107	75-125	26.7	26.6	106	0.4	10	101	90-110	< 0.5
Lithium mg/L	1.000	104 102	85-115 85-115	1.00	23-A9317 23-A9290qc	0.332	1.440 1.160	111 102	75-125 75-125	1.440 1.160	1.400 1.230	107 108	2.8 5.9	10 10	101 101	90-110 90-110	< 0.02 < 0.02
Mercury ug/L	-	-	-	0.10	23-A9318	0.012	0.120	108	63-111	0.120	0.120	108	0.0	_18	100	76-113	< 0.005
Molybdenum ug/L	25.0	91	85-115	25.0	23A9316q	12.3	36.3	96	75-125	36.3	36.9	98	1.6	10	91	90-110	< 0.5
pH units		-	-	-	-	-	-	-	-	6.9 8.2	6.9 8.2	-	0.0 0.0	2.5 2.5	101 101	90-110 90-110	-

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# Quality Control Report

Lab IDs: 23-A9310 to 23-A93	318	Pro	iect: BIC	3 STONI	E PLANT CCH	ર	Work (	Order: 20	02331-02	71							
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
Selenium ug/L	25.0	110	85-115	25.0	23A9316q	3.79	36.2	130	75-125	36.2	35.2	126	2.8	10	107	90-110	< 0.5
Solids, Total Dissolved mg/L	-	_		-	-			-	-	197	204	-	3.5	10	99	85-115	< 10
Sulfate mg/L	 - -		-	500 500	23-A9295 23-A9321	610 213	1160 806	110 119	80-120 80-120	1160 806	1150 804	108 118	0.9 0.2	10 10	103 105	80-120 80-120	<5 <5
Thallium ug/L	5.00	99	85-115	5.00	23A9316q	< 0.5	5.41	108	75-125	5.41	5.41	108	0.0	10	101	90-110	< 0.1

One matrix spike and one matrix spike duplicate failed to recover acceptably for Calcium, see narrative. Selenium matrix spike / matrix spike duplicate failed to recover acceptably, see narrative.

Approved by:

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

November 07, 2023

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

RE: Project: 31-0271 Ottertail Power Pace Project No.: 10673317

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on October 20, 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,

Puper J. Shkess

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

Enclosures



### **REPORT OF LABORATORY ANALYSIS**

ace

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

#### SAMPLE SUMMARY

Project: 31-0271 Ottertail Power Pace Project No.: 10673317

10673317001         23A9316 - H10         Water         10/17/23 12:34         10/20/23 09:46           10673317002         23A9317 - H11         Water         10/17/23 13:49         10/20/23 09:46           10673317003         23A9318 - H12         Water         10/17/23 13:19         10/20/23 09:46	Lab ID	Sample ID	Matrix	Date Collected	Date Received
	10673317001	23A9316 - H10	Water	10/17/23 12:34	10/20/23 09:46
10673317003 23A9318 - H12 Water 10/17/23 13:19 10/20/23 09:46	10673317002	23A9317 - H11	Water	10/17/23 13:49	10/20/23 09:46
	10673317003	23A9318 - H12	Water	10/17/23 13:19	10/20/23 09:46

# **REPORT OF LABORATORY ANALYSIS**

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ceAnalvti www.caie

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1.0010-0-0-0

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f Section Required	A I Cient Information:	Section B Required Pro	ject infor	malion:	:				Invol	tion C	matio													P	age:	1	of	1
Company		Report To: T	odd Rie	eger					Átten	ntion:	A	P				_									_		Zahar da Pala na da si ana da	
Address:	1126 NORTH FRONT BLDG #2	Copy To: tr	ieger@	mvli.com					Comj	pany N	lame:	M	VTL						RE	GUL	ATO	<b>ΥΥ.</b> Α(	GENC	ŶŹŹ				
	NEW ULM, MN 56073	<u> </u>	<u> </u>					_	Addr	0\$5:	11	126	NOR	THE	RON	NT B	,DG 2	2		NP						RIJ	DRINKING	WATER
Emali To		Purchase Ord	ier No.;	CL13299	ə				Pace Refer	Quole ance:			,				_		<u> </u>	ເບຣ	т	L.	RCR/	۹		<u>, 1</u>	OTHER	
	507-233-7134 Fax	Project Name	Otte	ertail Pow	er	· · ·				Project									*S	ite Lo	cation			1N				///////
	ed Due Date/TAT: standard	Project Numb	er: Wo	rk order: 3	31-0271					Profile f	ft.									is is	TATE		14		- [			<u> Maaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa</u>
		<u> </u>	<u> </u>				<u>.</u>	_			-					li ili	Red	ueste	d'Ana	ilysis	Filte	red (	Y/N)	u nav				
	Section D Valid Matrix ( Regulzed Client Information MATRIX	Codes	vieit) :		COLL	ECTED			Γ		Pr	esei	rvativ	es		Į.												<u> </u>
TEM #	Referred Criefs information Drinking water Water PRODUCT SOLJOUD OL (A-Z, 0-9 /,-) Sample IDS MUST BE UNIQUE TISSUE		MATRIX CODE (seevald codes to led) SAMPLE TYPE (G=GRAB C=COMP)	COMP	OSITE	COMPO END/Q	SITE 145	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO, HNO,	HCI	NaOH	Mathanol Methanol	Other	SIS Te	2,3,7,8 TCDD method161	PFAs State Pricing							Residual Chtorine (Y/N)	Pace	Project No	o./ Lab l.D.
						10/17/23	12:34	1				+			+	2018 2019	<u>,</u> ,								N			00j
2 in	<u>23A9316 - H10</u> 23A9317 - H11		~~ ~~			10/17/23	13:49	╈	1		+	1	T				,								N			602
3	<u>23A9318 - H12</u>		ww	<u>                                      </u>	<u> </u>	10/17/23	13:19		1										_			┛			N		<u>.</u>	003
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5						PRINT Nam	e of SAM	LER											_						Temp In "C	celve Celve	Custody Sealed Cooly (Y/N)	Salates 기억
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"Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to fale charges of 1.5% per month for any involces not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

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# DC#\_Title: ENV-FRM-MIN4-0150 v13\_Sample Condition Upon Receipt (SCUR) Effective Date: 4/14/2023

Sample Condition	Pr	oject #:	U0#.10672217
Upon Receipt Hinnessta Willey-	lestino		WO#:10673317
ourier: FedEx UPS USPS Client			PM: PG Due Date: 11/20/23 CLIENT: MVTL
	See Exc		
Tracking Number:	ENV-FRM-M		Biological Tissue Frozen? 🏾 Yes 🗌 No 🛛 N/A
Custody Seal on Cooler/Box Present? 🔲 Yes 🗌 No Se			
Packing Material: 🗌 Bubble Wrap 🛛 Bubble Bags	None	Other	Temp Blank? LdYes No
Thermometer: T1 (0461) T2 (0436) T3 (045 T6 (0235) T7 (0042) T8 (077	i9) 🖊 T4 (04 /5) 📙 T9(07	402)   T5 (0178) 27)   01339252	Type of Ice: Wet Blue Dry None /1710 Melted
Did Samples Originate in West Virginia? 🏾 Yes 🛃 No		Were All Con	talner Temps Taken? 🗌 Yes 🔄 No 🗌 N/A
emp should be above freezing to 6 °C Cooler temp Read w/T	emp Blank:	<u>1-2_</u> °	Average Corrected Temp (no temp blank only): °C
Correction Factor: <u>+0 .  </u> Cooler Temp Corrected w/t	temp blank:		See Exceptions ENV-FRM-MIN4-0142 1 Container
ISDA Regulated Soil: ( N/A water sample/other:			Date/Initials of Person Examining Contents: $\frac{4052}{10/2}$
Did samples originate in a quarantine zone within the United Sta	tes: AL, AR, A	Z CA, FL, - 「プト」。	Did samples originate from a foreign source (internationally, Including Hawail and Puerto Rico)?
GA, ID, LA, MS, NC, NM, NY, OK, DR, SC, TN, TX, or VA (check maj			• – –
		st (ENV-FRIM-MINA-0 Virginia	154) and include with SCUR/COC paperwork. COMMENTS
Location (Check one): Duluth Minnea Chain of Custody Present and Filled Out?	I d Yes	No	1.
Chain of Custody Relinguished?	/ Yes	No	2
Sampler Name and/or Signature on COC?	1 Yes		3.
Samples Arrived within Hold Time?	Yes	<u>No</u>	4. If fecal: <8 hrs >8 hr, <24 No
Short Hold Time Analysis (<72 hr)?	Yes	No	5. Fecal Coliform HPC Total Coliform/Ecoli BOD/cBOD Hex Chrom Turbidity Nttrate
		<del>K</del>	Nitrite Orthophos Other
Rush Turn Around Time Requested?	Ves	No	6
Sufficient Sample Volume?	/Yes	No   No   N/A	7
Correct Containers Used?	1 Yes		o,
-Pace Containers Used?	17es		9.
Field Filtered Volume Received for Dissolved Tests?	Yes	N₀N/A	10, is sediment visible in the dissolved container?
Is sufficient information available to reconcile the samples to the	ne Yes	No No	11. If no, write ID/Date/Time of container below:
COC?			See Exceptions
Matrix: Water Soil Oil Other			ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	[]/Yes	∐ No ∐ N/A	12. Sample # H W HIZ
All containers needing preservation are found to be in	🗹 Yes	🗌 No 🗌 N/A	
compliance with EPA recommendation?			H2SO4 Zinc Acetate
(HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)		"•	
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/801	5 🗌 Yes		
(water) and Dioxins/PFAS			Chlorine? No ENV-FRM-MIN4-014
(*If adding preservative to a container, it must be added to			pH Paper Lot # Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
associated field and equipment blanksverify with PM first.)			Residual Chlorine 0-6 Roll 0-6 Strip 0-14 Strip アビジャンフ
Headspace In Methyl Mercury Container?	Yes		13.
Extra labels present on soll VOA or WIDRO containers?	Yes		
Headspace in VOA Vials (greater than 6mm)?	Yes	No // N//	
3 Trip Blanks Present?	Yes Yes		
Trip Blank Custody Seals Present?			Field Data Regulaed? Yes No
CLIENT NOTIFICATION/RESOLUTION			Date/Time:
Person Contacted:	1		
Comments/Resolution: // / ////	Clas		Date: 10/23/23
Project Manager Review: <u><u><u></u></u></u>		form will be sent to the Nor	th Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservalive, out of
NOTE: Whenever there is a discrepancy affecting North Corolina compliance samp temp, incorrect containers).	ves' a rohA of ture	with will be sent to the NDI	
Waltray ID: 52742	Pace® An	alvtical Services	LLC Page 1

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Pace® Analytical Services, LLC

Workorder:		order Na	Rush Mu Samples me: 31-0271	yX Pre-Logged i Ottertail Pow	nto eCO er			Cer Ów	t. N 'ner	of Ori leede Rece	d: eived	Dat	e:		20/20		Res			ueste	50 d By	7 <b>2CC</b> 7: 11/28/2023
Report To Service Piper Gibbs Pace Analytic: 1700 Elm Stre Minneapolis, f Phone (612)6	et MN 55414		Pace N 12065 Mt. Juli	7			reser	/ediC	onta	iners.	raidum 226/228 🕅											469578
item Sample (	Nation 위험하는 것 : Note 한 한 정도는 전 한 것 :		Coilect Date/Time	Lab D	Matrix	EONH																
1 23A9316 - 1	and the second second provide second s	98020 (1994). PS	10/17/2023 12:34	10673317001	Water	2					X	<u> </u>	<b> </b>	╏──┧					<u> </u>	+-		-02-
2 23A9317-1	411	PS	10/17/2023 13:49	10673317002 -	Water	2.		<u></u>		····· · ··	<u> .X</u>									<u></u>	••••	-07
3 23A9318-1	H12	PS	10/17/2023 13:19	10673317003	Water	2				╾┼╴	<u> </u>		┣—-	<u></u> _						╋		
4	,,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,					┣	┝╌┥					┿	–-	┥┥						╉─		
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Transfers I 1 2	Released By Bin (leh//PA	(F	10/23/23 16/			ð:	<i>&gt;</i>			0.24	1.130	20	)									· ·
3 Cooler Tem	perature on Receipt	4.9	°C Cus	tody Seal Y	or N	amn	ler's			ved o d sia				N t be j	prov	 ided	on ti					HA321 IRC 2572882

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

CR5-20221V PH-10BDH4321 TRC-2359362

CP6.20221V

Sample Receipt Checklist Con Seal Present/Intact: CCC Signed/Accurate: Bottles atrive intact: Correct bottles used: Sufficient volume sent: RA Screen <0.5 mR/hr: VOA Zero Headspace: Pres. Correct/Check; 4 īΝ 1. \_Y\_N \_\_Y\_N \_\_ IJ アチ 647656401160

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**Requested Reportable Units** 

Ship To: Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858 INTER\_LABORATORY WORK ORDER # 10673317 (To be completed by sending lab)

10673317
,
10/23/23
11/28/2023

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

All questions should be addressed to sending project manager.

Report Wet or Dry Weight? Dry Weight IRWO Lab Need to run? Cert. Needed

						and the state state state of
	WORK I	REQUEST	Direction		<u>多日前京</u> 公園	
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
raidum 226/228	BP1N	6	HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: <u>Report C, QC Limits (C), FR Only no EDD (0)</u>

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: Yes V 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.

Page 7 of 20

# Pace Analytical\* ANALYTICAL REPORT

# Pace Analytical - Minnesota

Sample Delivery Group: Samples Received: Project Number: Description:

Report To:

L1669578 10/24/2023 10673317 31-0271 Ottertail Power

Piper Gibbs

# Entire Report Reviewed By:

fidson

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-MTLL-0067 and ENV-SOP-MTLL-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:

PROJECT:

SDG:

DATE/TIME: 11/07/23 08:45 PAGE: 1 of 13

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# TABLE OF CONTENTS

1
2
3
4
5
5
6
7
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10
11
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2 of 13

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23A9316 - H10 L1669578-01 Non-Potable Water			Collected by	Collected date/time 10/17/23 12:34	Received date 10/24/23 09:0	
Method	Baich	Dilulion	Preparation date/time	Analysis date/time	Analysi	Localion
Radiochemistry by Method 904/9320	WG2157309	1	10/24/23 21:37	10/27/23 15:46	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2158333	1	10/26/23 11:44	10/27/23 18:42	RGT	ML. Juliel, TN
23A9317 - H11 L1669578-02 Non-Potable Water			Collected by	Collected date/time 10/17/23 13:49	Received date 10/24/23 09:0	
Method	Balch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Radiochemistry by Method 904/9320	WG2157309	1	10/24/23 21:37	10/27/23 15:46	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2158333	1	10/26/23 11:44	10/27/23 18:42	RGT	MI. Juliet, TN
23A9318 - H12 L1669578-03 Non-Potable Water			Collected by	Collected date/lime 10/17/23 13:19	Received dat 10/24/23 09:0	
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
niculou .			dale/time	date/time		
Radlochemistry by Method 904/9320	WG2157309	1	10/24/23 21:37	10/27/23 15:46	DDD	Mt. Juliet, Th
Radiochemistry by Method SM7500Ra B M	WG2158333	1	10/26/23 11:44	10/27/23 18:42	RGT	Mt. Juliet, Ti
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SDG:

11669578

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45 --- Page-10-of-20.-

DATE/TIME:

11/07/23 08:45

PAGE: 3 of 13

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# 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.

PROJECT

SDG:

Donna Eidson Project Manager

ACCOUNT:

Page 11 of 20 PAGE:

4 of 13

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DATE/TIME:

11/07/23 08:45

# 23A9316 - H10 SAMPLE RESULTS - 01 Collected date/time: 10/17/23 12:34

Radiochemistry by Method 904/9320

Radiochemistry by M	emou 904/	3320						
···	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Dale	<u>Batch</u>
Analyle	pCI/I		+/-	+/-	pCi/I	pCi/l	date / time	an an an ann an an ann an ann an ann an
RADIUM-228	0.238	J	0.287		0.506		10/27/2023 15:46	WG2157309
(1) Borium	94.4-					30.0-143	10/27/2023 15;46 **	WG2157309
(1) Yttrium	, a.,	VIIV PERSONALI V				30.0-136	10/27/2023 15:46	WG2157309

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# Radiochemistry by Method SM7500Ra B M

	• •							
···	Result	Qualifier	2 sigma CE	 TPU	MDA	Lc	Analysis Date	Batch
Analyte	рСИ	-	+/-	+/-	рСiЛ	pCl/i	date / lime	
RADIUM-226	0.0723	<u>v</u>	0.186		0.328		10/27/2023 18:42	<u>WG2158333</u>
́ (Т) Ватійт-133	72.0					30.0-143	10/27/2023 18:42	WG2158333

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ACCOUNT:	PROJECT:	SDG:
A Second Second Second Second Second	10673317	11669578

# 23A9317 - H11 SAMPLE RESULTS - 02 Collected date/time: 10/17/23 13:49

#### Radiochemistry by Method 904/9320

	Result	Qualifier	2 sigma CE	TPU	MDA	۱c	Analysis Date	Batch
Analyle	pCi/l		+1-	+/-	pCi/l	pCI/i	date / lime	a the second state of the line of the line of the
RADIUM-228	0.538	al- 41 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -	0.242	anna an ann an an an an an an an an an a	0.418	and for the second s	10/27/2023 15:46	WG2157309
картоник-228 Д'Borium	116	۰. · · · · ·	にいていてき		$(1-\frac{2}{2}n) = \frac{1}{2} (1-\frac{2}{2}n)$	30.0-143		WG2157309
(T) Yitrium	103					30.0-136	10/27/2023 15:46	WG2157309

# Radiochemistry by Method SM7500Ra B M

	Result	Quallfier	2 sigma CE	TPU	MDA	LC	Analysis Date	Batch
Analyle	pCI/I		+/-	+/-	pCI/I	pCi/l	date / time	
RADIUM-226	0.0392	U	0.107	-	0.203		10/27/2023 18:42	<u>WG2158333</u>
(T) Borium-133	B8.5	4. –			<b>X</b>	30.0-143	- 10/27/2023 18:42	<u>WG2158333</u>

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Page-13 of 20----

6 of 13

DATE/TIME:

11/07/23 08:45

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SDG

### 23A9318 - H12

Collected date/time: 10/17/23 13:19

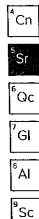
## SAMPLE RESULTS - 03

Radiochemistry by Method 904/9320

·	Result	Qualifier	2 slgma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCl/I	рСі/І	date / Ilme	and a start of the second s
RADIUM-228	0.465		0.228	panalonguningan interneting data interneting data interneting data interneting data interneting data internetin	0.395		10/27/2023 15:46	WG2157309
(T) Borium	120					<b>30.0-143</b> °	10/27/2023 15:46	<u>ŴĠ2157309</u>
(1) Yttrium	84.7	. , ,				30.0-136	10/27/2023 15:46	WG2157309

#### Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	2 sigma CE	TPU	MDA	LC	Analysis Date	<u>Batch</u>
Analyle	pCi/l		+/-	+1-	рСіЛ	pCi/l	date / time	
RADIUM-226	0.182	Ţ	0.170		0.196		10/27/2023 18:42	WG2158333
(T) Barium-133	·	÷	1			30.0-143	10/27/2023 18:42	WG2158333



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ACCOUNT:

PROJECT:

SDG: 11669578 DATE/TIME:

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PAGE: 7 of 13

### WG2157309

Radlochemistry by Method 904/9320

QUALITY CONTROL SUMMARY

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Method Blank (MB)

AB) R3993619-1 10/27	MB Result	MB Qualifier	MB 2 sigma	CE MB MDA	MB Lc	
naiyte	pCi/l		+/-	рСі/ї	рСИ	است ، سان دارید کرد. این کومک و بعد از میں کوکک کو ک
adium-228	-0,113		0.152	0.278		
(T) Borium	112	t e e	: 112			
(T) Yttrium	130		130			
	•		i.			

#### L1662857-12 Original Sample (OS) - Duplicate (DUP)

	L1662857-12 Original Sample (OS) - Duplicate (DUP)													
(OS) L1662857-12 10	/27/23 15:46 • (0		9-5 10/27/231	5:46							DUD Ovelline	DUP RPD	DUP RER Limit	
	Original Result	Original 2 sigma CE	Original MDA	Original Lc	DUP Result	DUP 2 sigma CE	DUP MDA	DUP Lc	DUP RPD	DUP RER	DUP Qualifier	Limits	DOI NEN EININ	QG
Analyte	рСИ	+/-	pCI/I	pCi/I	рСИ	+/-	pCi/l	pCi/l	%		al manufa manggunana di salar tan yang pantanaka nenye	% 		
	0.565	0.302	0.525		0.195	0.303	0,541	and the state of the	97.4	0.864	신문학교	20	3	7
) Barlum	115				132	132	· · ·			1. T. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	الم من من من من الم		an is gain an an an	G
(T) Yttrium	119				130	130								<sup>9</sup> Al

#### Laboratory Control Sample (LCS)

(LCS) R3993619-2 10/27/2	3 15:46				l	
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	pCI/I	рСіЛ	%	%		
Radium-228	5.00	5.13	103	80.0-120		
(П) Barium			140		· · · · · · · · · · · · · · · · · · ·	
(T) Yttnum			135			

## L1663046-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1663046-03 10/27	/23 15:46 • (MS)	R3993619-3 10	/27/23 15:46 •	(MSD) R39936	519-4 10/27/2	23 15:46						MS RER RPD Limits	
	Spike Amount			MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPU av	NO KEK IN D SINIE	
Analyte	pCVI	pCi/l	pCI/I	pCi/l	%	*	14 4. 15 - 14 4. 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8		يحدا بريوس فحريرين فارين فحواره فالاري	70 E 14		
Radium-228	16.7	0.215	18.9	18.0	112	106	1	70.0-130			J.14		
(T) Barium	4	130		- for in	140							and the product of the state state of the	. SL'S . AU
(T) Yttrium		62.1			94.0	99.9							



#### WG2158333

# QUALITY CONTROL SUMMARY

Radiochemistry by Method SM7500Ra B M

#### Method Blank (MB)

(MB)	R3996031-1	10/27/23 17:17

(MIB) R3550031-1 10/2//2	MB Result	MB Qualifier	MB 2 sigma (	E MB MDA	MB Lc	<sup>2</sup> Tc	Į
Analyte	pC1/I	- sea commental solo	+/-	pCi/l	pCI/I		1
Radium-226	-0.00314	<u>u</u>	0.00869	0,0367		<sup>3</sup> Ss	ļ
(T) Barium-133	58.0		58.0	•			J

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#### L1662857-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1662857-11 10/2	 27/23 18:42 • (D	UP) R3996031	-5 10/27/23 18:	:42							DUD Ovellines	DUP RPD	DUP RER Limit	⁵Sr
	Original Result	Orlginal 2 sigma CE	Original MDA	Original Lc	DUP Result	DUP 2 sigma CE	DUP MDA	DUP Lo	DUP RPD	DUP RER	<u>DUP Qualifier</u>	Limits		
Analyte	pCi/l	+/-	рСИ	рСіЛ	рСИ	+/-	pCi/l	pCi/l	%	0.400		_% 20	3	<sup>6</sup> Oc.
Radium-226	0.260	0.220	0.235		0.0920	0.255	0.425		95.5	0.499	<u>u</u>	20	4,	an sign an an
(T) Borlum-133	91.5			. *	73.3	73.3				. *				GI

#### Laboratory Control Sample (LCS)

(LCS) R3996031-2 10/27	/23 18:42					L L
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	9
Analyte	pCi/l	pCi/l	%	%		L
Radium-226	5.00	5.68	114	80.0-120		
(T) Barium-133			64.9		and the second	

## L1662857-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1662857-01 10/27/23	3 18:42 • (MS) R	3996031-3 10/	27/23 18:42 • (	MSD) R399603	31-4 10/27/23	8:42		<b>.</b>	MC Qualifian	MSD Qualifier	RPD	MS RER	RPD Limits
· · · / -	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits			×.		%
Analyte	pCi/l	рСИ	рСИ	pCl/1	<b>%</b>	<b>%</b>	فهجه فالجوا والمهادي والمع	<b>%</b>	aranaarawaa waxaa ina aha	• • • 2 · · • 2 mg • • • • • • • • • • • • • • • • • •	100	a provinsi provinsi 1949 na 2000 fi foto anto a Mandala Partan	20
Radium-226	20.0	0.249	21,4	21.8	106	108	1	75.0-125			1.55		1 4 G
(T) Barlum-133		76.2			83.3	83.2		•					241.5

an a	ار د بی او	na mangana sa saka kana na panantan sara mataka nana mata sata kata kata kata sa sa		 Page-16-of-20	
ACCOUNT: Pace Analytical - Minnesota	PROJECT: 10673317	SDG: L1669578	DATE/TIME: 11/07/23 08:45	PAGE: 9 of 13	

### **GLOSSARY OF TERMS**

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#### 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 Dupilcates, 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

	Minimum Detectable Activity.
Réc:	Recovery
R	Replicate Error Ratio.
ŖPĎ 🦗 🖞 🦂	Relative Percent Difference
SDG	Sample Delivery Group.
Тарана (П) ала стала	Tracer - A radiolsotope of known concentration added to a solution of chemically equivalent radiolsotopes 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.
Lìmits	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 larget all analytes recovered or duolicated 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 (Radlochemistry)	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

#### Description Qualifier

ACCOUNT:

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The Identification of the analyte is acceptable; the reported value is an estimate. Below Detectable Limits: Indicates that the analyte was not detected. **U\_**\_\_\_\_ ÷

PROJECT

SDG:

DATE/TIME:

11/07/23 08:45

PAGE:

10 of 13

### ACCREDITATIONS & LOCATIONS

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GI

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#### Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

labama	40660	Nebraska	NE-OS-15-05
laska	17-026	Nevada	TN000032021-1
ulzona	AZ0612	New Hampshire	2975
vkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
colorado	TN00003	New York	11742
Connecticul	PH-0197	North Carolina	Env375
lorida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia '	923	North Dakola	
ldaho	TN00003	Ohto-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
owa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky 16	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	A130792	Tennessee 14	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michlgan	9958	Virginia	110033
Minnesola	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

PROJECT: SDG: T

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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 Analylical.

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Piper Gibt Pace Anal 1700 Elm Minneapol	tical Minnesota	रून <u>: कुल्हार्थ, स</u>	Pace N 12065 Mt. Jul	lational Lebanon Rd iet, TN 37122 (615) 758-5858							idum 226/228												Lubar	
Item Sam	(中国) 1月、2日、中国) Ne ID		Collect Date/Time	Lab ID	Matrix	SONH SONH	reser	vedus													-   -   -   -			
<u></u>	<u>an a fean airtean an a</u>	1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	10/17/2023 12:34	10673317001	Water	2					X					_				+	-+-		-02	
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4						<u> </u>	Ŀ		_		<u> </u>						+				-+	-+	<u> </u>	
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Transfers	Released By		Date/Time	Received B		2	ळे																	
1	Bin Celw/PA	<u> <u>E</u></u>	10/23/23 16/	30 Taylore	Mara	Ŕ.			+	<u>0.2.4</u> .	40	400												
2 3 Cooler T	Cr ASU 9-19- emperature on Receipt	4.4	°C Cus	tody Seal	or N	· · ·		Re	ecei	ved or	ı ice	×.		N				_					For M	
tttle orde	emperature on Receipt r to maintain client confid nain of custody is consid	deofiality	location/name	of the sampli te this informa	ng site, s tion is a	am; vaila	bler's ble il	nam n the	e an own	id sign ier labo	ature orato	rmaj ry.	у по	t be	prov	video	d on i	this	CŎ	C doi		108Di -20221		52362 52362

 
 Sample Receipt Checklist

 t:
 \_Y\_\_N

 If Applicable

 \_Y\_\_N

 VQA Zero Haadspace:

 \_Y\_\_H

 Press. Correct/Check:

 \_Y\_\_H
 C10 Seal Present/Intact; C10 Seal Present/Intact; C00 Signed/Accurate; Sottles attlwe intact; Cotrect bottles used; Sufficient volume sent; R& Streen <0.5 mR/b; 647656401160

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Pagage df 201

'ace<sup>®</sup>

Ship To: Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858 INTER\_LABORATORY WORK ORDER # 10673317 (To be completed by sending lab)

Sending Project No:	10673317
Receiving Project No:	
Check Box for Consolidated Invoice:	教人 許倫國大士
Date Prepared	10/23/23
REQUESTED COMPLETION DATE	11/28/2023

Sending Region	IR10-Minnesota	Sending Project Mgr.	Piper Gibbs					
Receiving Region	on IR850-Pace National External Client		MVTL Laboratories					
State of Sample Origin	MN	QC Deliverable	STD REPORT					
the second second to conding project manager								

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 F	REQUEST	D			
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
raidum 226/228	BPIN	6 6	HNO3	3	SI-38RAD	SUB PASI RAD

Special Requirements: <u>Report C, QC Limits (C), FR Only no EDD (0)</u>

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: Yes V 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. Coples are made to corporate as needed.

Page 20 of 20

## This is an exact copy of the original document By $\frac{20}{23}$ Date $\frac{170ct33}{24}$

### **Minnesota Valley Testing Laboratories**

1126 North Front StreetNew Ulm, MN 56003Phone: 800 782 3557Fax: 507 359 2890Field Service Chain of Custody Record

Project Otter Tail Power Company	Project Type: Big Stone Plant CCR	Name of Samplers:	$\sim$		
Report Otter Tail Power Company	Carbon Copy: Barr Engineering	JH, DE, BW, DS_			
Attn: Paul Vukonich	Attn:	Quote Number:			
Address P.O. Box 496	Address:	Work Order Number: 31-271			
Fergus Falls, MN 56538-0496		Lab Numbers:			
Phone: 218-739-8349					
Sample Information	on	Bottle Type	Analysis		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		1     N     C       1     N     C       1     N     C       1     N     C       1     N     C       1     N     C       1     N     C       1     N     C       1     N     C       1     N     C       1     N     2       1     N     2	<sup>balinbay</sup> Sishibay CR 3 CR 3 CR 3 CR 3 CR 3 CR 3 CR 3 CR 3		

Comments:

Samples Relinquis	hed By:	$\mathbf{x}$		Samples Received By:	<u> </u>	All	der	
Date: 700		Time:	Temp: 05TM	7 Date: 17 Oct 23		Time:	1630	Temp: 0 5C
Samples Rélinquis		Fildge	Log in Cart Other:				<u> </u>	
Samples Relinquis		<u> </u>		Samples Received By:				
Date:	·····	Time:	Temp:	Date:		Time:		Temp:
Delivery:	Samplers	Other:		Seal Number(s) - If Use	ed			
Transport:		ACT.	Other:	Seals Intact?	Yes	<u> </u>	No	

2023 Big Stone Sampling - CCR

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Landfill or ADA wells

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

Note: Wells H10 and H11 need to be sampled 8 times for CCR this year. Background sampling like 5 years ago. We want to sample in April - November. Each event has to be about 30 days apart. Also, durning every sampling event for the CCR, we will need water levels on the CCR wells not sampled.

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

october 2023

CCR - Appendix III Detection Monitoring <i>Field Parameters</i> pH*	
* Field and Laboratory Measurements	
Total Concentration Parameters	Method
Boron	6010
Calcium	6010
Chloride	SM4500 CL E
Fluoride	EPA 300
pН	SM 4500 H+B-96
Sulfate	ASTM D516
Dissolved Solids, Total	SM 2540 C-97
Note: These are non-filtered samples.	i

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.

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Groundwater Asse	ssment			-	Site:	Otter	Tail Pov	er Co./ Big Stone		
Sampling Personnel:				_	Facility ID:					
Bu	√			_	Date: 7	00+23		<u></u>		
				-	Unique Static	on ID:				
				_	Sample ID:		We	Well H2OX		
Well Condition						<u></u>	<u>نے ان </u>			
Well Locked?	(es No			-	Protective Po	and the second se		<u>N9</u>		
Well Labeled? Casing Straight?	Yes No				State ID Tag Grout Seal Ir			No		
				-	Civat ocar ii		<u> </u>			
Repairs Necessary: Weil Information	<u> </u>				· •			<u></u>		
Well Depth:	32-83	3			Well Casing	Elevation:		1103.91		
Constructed Depth:	32.20	r		•	Static Water	Elevation:	Þ96.	64		
Casing Diameter:	2"	•		•	Previous Sta	itic: 109(	0.58			
Water Level Before Pu	<u> </u>	2		•	Water Level		- p	Wer Plane		
Well Volume:	4.17	Gallons	_		Measuremer	nt Method:	Elec. V	ND Steel Tape		
Sampling Information	on		<u> </u>				$\sim$			
Weather Conditions:	Temp:	51	Wind:		<u>-lv</u>	Sky:	Part			
Sampling Method:	Grundfos	pladder SS/1	Disp. Bailer	ſ	Whale	Grab Other:				
Dedicated Equipment:	Yes No				Pumping Ra	gpm				
Well Purged Dry?	(es) No				Time Pump	Began: //	48	an 1 pm		
Time Purged Dry?	1205	-			Time of Sam	pling: 12	10	ent an		
Duplicate Sample?	Yes No	ID:			Sample EH:					
Sample Appearance:	General:	Clean	Color:	$\mathcal{N}$	07~ Phase	NOIC		Odor: Nonc		
	Chaoifia	Temp	D. O.		Turbidity	Gallons	SEQ	· · · · · · · · · · · · · · · · · · ·		
Time 17 pH	Specific Cond.	°C	mg/L		NTU	Removed	#	Comments:		
		9.57	NA		NA	4.25	1			
					<u> </u>	·····	2			
1210 6.52	3849	9.59					3	Recharge		
1210 0.00				-	· · · · · · · ·		4			
<u>}</u>		<u> </u>				<b> </b>	 5			
			<u> </u>		<u> </u>	<u>1</u> (1)	_			
Stabilized? Yes	No		Amount	Wat	ter Removed	4.2	)	Gallons		
Comments:										

Exceptions to Protocol: - -

Groundwater Assessment		Site:	Otter	Tail Po	wer Co./ Big Stone
Sampling Personnel:		Facility ID:			
Bw			00+23		
		Unique Stati	on ID:		
		Sample ID:		We	ell H3OX
Well Condition		·			
Well Locked? Yes No		Protective P			<u>ND</u>
Well Labeled? //eg No		State ID Tag	/		
Casing Straight? Yes No		Grout Seal	ntact? Yes		0
Repairs Necessary:					
Well Information					
Well Depth: <u>22-68</u>		Well Casing			1095.19
Constructed Depth: 22.55		Static Water		1087	
Casing Diameter: 2"		Previous Sta	atic: /08	7,28	~
Water Level Before Purge: 8-00		Water Level	After Sample	ə:	Selon prog
Well Volume: 2.39 Gailons		Measureme	nt Method:	Elec.	WL Steel Tape
Sampling Information				<del>، بر</del>	
Weather Conditions: Temp: 47	Wind:	LUN	Sky:	Fai	<u> </u>
Sampling Method: Grundfos Bladder SSR	Disp. Bailer	Whale	Grab Olher:		
Dedicated Equipment: Yes No		Pumping Ra	te: <u>2</u> .5	• 	gpm
Well Purged Dry? Yes And Bud		Time Pump		<u>27</u>	(am) / pm
Time Purged Dry? 10/7		Time of San	npling: 10	22	🖌 / pm
Duplicate Sample? Yes No ID:		Sample EH:	328.2	_	· · · · · · · · · · · · · · · · · · ·
Sample Appearance: General: Cluqr	Color:	Voj Phase	: Noze	-	Odor: Naje
Specific Temp	D. O.	Turbidity	Gallons	SEQ	
Time pH Cond <sup>O</sup> C	ma/L	NTU	Removed	#	Comments:
1017 6.40 3465 12.97	· NA	NA	2.5	1	
				2	
1022 6.43 3479 13.30			-	3	Recharge
	•		·	4	
	<u> </u>			5	
			2.5		Collona
Stabilized? Cer No	Amount W	ater Removed:			Gallons
Comments:					

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## Minnesota Valley Testing Laboratories, Inc.

New Uim, MN 56073

507 354 8517

Groundwater Assessment		Site:	Otter Tail Pow	er Co./ Big Stone
Sampling Personnel:		Facility ID:		
Bw		Date: 17 OCF	23	
		Unique Station ID:		
		Sample ID:	Wel	I H4OX
Well Condition	<u></u>			
Well Locked? Correction No		Protective Posts?		NO2
Well Labeled? des No		State ID Tag?		No No
Casing Straight? Yes No		Grout Seal Intact?		
Repairs Necessary:			<del></del>	
Well Information				
Well Depth: 27.48		Well Casing Elevat		1108.22
Constructed Depth: 27.20		Static Water Eleva	tion: <u>1091.</u>	14
Casing Diameter: 2"		Previous Static:	1091.11	
Water Level Before Purge: 17-04	8	Water Level After 8	Sample: Ber	OU PUMP
Well Volume: 1,70 G	Sallons	Measurement Meth	nod: Blec. V	VD Steel Tape
Sampling Information	· · · · · · · · · · · · · · · · · · ·		·- (	
Weather Conditions: Temp: 5	0 Wind:	LUV	sky: Fair	
Sampling Method: Grundfos Bl	ladder SS/T Disp. Bailer	Whale Grab	O{her:	
Dedicated Equipment: Co No	$\bigcirc$	Pumping Rate:	. 25	gpm
Well Purged Dry?		Time Pump Began	: 1052	@ 1 pm
Time Purged Dry? 1059		Time of Sampling:	1104	( pm
	D:	Sample EH: 2(0	<u></u>	
Sample Appearance: General:	Clear Color: 1	VO1~ Phase: N	07-	Odor: Nor
Specific T	emp D. O.	Turbidity Gallo	ns SEQ	
	C mg/L	NTU Remo		Comments:
1059 6.51 2580	9.14 NA	NA 1.	75 1	
			2	
1104 10-52 2571	9.10 1		- 3	Recharge
107 007 001		+		- Juice
			4	<u> </u>
			5	
Stabilized? Yes	Amount Wa	ater Removed:	1.75	Gallons
Comments:				

	ent	Site:	Otter Tail Power C	.o./ Big Sto
Sampling Personnel:		Facility ID:		
DF		Date:	700+23	
		Unique Static	n ID:	
, <u></u> ,		Sample ID:	Well H	-16
Well Condition				
Well Locked?	No	Protective Po		
Well Labeled? Yes Casing Straight? Yes	No No	State ID Tag Grout Seal In		
		Glout Seal In	lactr res (Ny	,
Repairs Necessary:	·			
Well Depth: 1796	٤	Well Casing I	Elevation: NA	I
Constructed Depth: 1	7.70	Static Water	Elevation:	
Casing Diameter:	2"	Previous Stat	ic:	
Water Level Before Purge:	15.76		After Sample: below	Pump
Well Volume: 0.35	Gallons	Measuremen		Steel Ta
Sampling Information				
Weather Conditions: Tem	o: 55 Wir	d' 557	sky: Synny	
Weduler Conditions. Tom				
Sompling Method: Grund		Railer Mihale		
Sampling Method: Grund			Grab Other: /	
Dedicated Equipment:	No	Pumping Rat	Grab Other: e: 0725 gpn	-
Dedicated Equipment:	No No	Pumping Rat Time Pump B	Grab Other: / e: Or25 gpn Began: 1150	(and / pr
Dedicated Equipment:       Image: Contract of the second sec	No No Z	Pumping Rat Time Pump E Time of Sam	Grab Other: / e: 0725 gpn Began: 1150 pling: 11.57	(and / pr
Dedicated Equipment:Well Purged Dry?Time Purged Dry?Duplicate Sample?Yes	No No Z ID:	Pumping Rat Time Pump E Time of Sam Sample EH:	$\begin{array}{c cccc} Grab & Other: \\ \hline e: & \mathcal{O}_{1}\mathcal{F} & gpn\\ \hline Began: & 1150\\ \hline pling: & 1157\\ \hline 01.3\\ \hline 01.3\\ \hline \end{array}$	(am) / pr (m) / pr
Dedicated Equipment:       Image: Contract of the second sec	No No Z ID:	Pumping Rat Time Pump E Time of Sam Sample EH:	$\begin{array}{c cccc} Grab & Other: \\ \hline e: & \mathcal{O}_{1}\mathcal{F} & gpn\\ \hline Began: & 1150\\ \hline pling: & 1157\\ \hline 01.3\\ \hline 01.3\\ \hline \end{array}$	() pr () pr
Dedicated Equipment:       Image: Constraint of the second s	No No Z ID: eral: Sh. Cloudy Col iffic Temp D. C	Pumping Rat Time Pump E Time of Sam Sample EH: or: Ten Phase	Grab Other: e: Or 35 gpn Began: 1150 pling: 1157 101.3 Nove Ode Gallons SEQ	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	$\frac{No}{2}$ $\frac{1}{2}$ $1$	Pumping Rat Time Pump E Time of Sam Sample EH: or: Ten Phase	Grab       Other:       /         e:       Other:       gpn         Began:       //50         pling:       //57         JOI.3       Ode         Gallons       SEQ         Removed       #	and / pr
Dedicated Equipment:       Image: Constraint of the second s	$\frac{No}{2}$ $\frac{1}{2}$ $1$	Pumping Rat Time Pump E Time of Sam Sample EH: or: Ten Phase	Grab       Other:       Image: Constraint of the second se	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	$\frac{No}{2}$ $\frac{1}{2}$ $1$	Pumping Rat Time Pump E Time of Sam Sample EH: Dr: Ten Phase	Grab       Other:       gpn         e:       0135       gpn         Began:       1150         pling:       1157         JOI.3       JOI.3         Core       Ode         Gallons       SEQ         Removed       #         Col.355       1         2       2	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	$\frac{No}{2}$ $\frac{1}{2}$ $1$	Pumping Rat Time Pump E Time of Sam Sample EH: Dr: Ten Phase	Grab       Other:       Image: Constraint of the second se	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	$\frac{No}{2}$ $\frac{1}{2}$ $1$	Pumping Rat Time Pump E Time of Sam Sample EH: Dr: Ten Phase	Grab       Other:       gpn         e:       0135       gpn         Began:       1150         pling:       1157         JOI.3       JOI.3         Core       Ode         Gallons       SEQ         Removed       #         Col.355       1         2       2	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	$\frac{No}{2}$ $\frac{1}{2}$ $1$	Pumping Rat Time Pump E Time of Sam Sample EH: Dr: Ten Phase	Grab Other: e: Or35 gpn Began: 1150 pling: 1157 JOI 3 Nere Odd Gallons SEQ Removed # Con Or35 1 2 3	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	No  No  2  1D:  Paral: 51. Claudy Collection	Pumping Rat Time Pump E Time of Sam Sample EH: Dr: Ten Phase	Grab Other: e: Or35 gpn Began: 1150 pling: 1157 JOI 3 Neve Odd Gallons SEQ Removed # Cor Or35 1 2 3 4 5	or: Navy
Dedicated Equipment:       Image: Constraint of the second s	No  No  2  1D:  Paral: 51. Claudy Collection	Pumping Rat         Time Pump E         Time of Sam         Sample EH:         pr:       Phase         D.       Turbidity         L       NTU         MA       NA         Image: Construction of the second	GrabOther:e: $\bigcirc i 25$ gpnBegan: $1150$ pling: $1157$ $\bigcirc 1.3$ $\bigcirc 0.4$ GallonsSEQRemoved# $\bigcirc 1.35$ 12345	ectory e

Exceptions to Protocol:

Groundwater Assessment	<u>.</u>	Site:	Otter Tail	Power Co./ Big Stone
Sampling Personnel:	F	acility ID:		
DF	—		00723	
	<u> </u>	Jnique Station I	D:	
	5	Sample ID:		Well H8
Well Condition	<u></u> `=·			
Well Locked? Mo	<u> </u>	Protective Posts	? 68	No
Well Labeled? Ces No		State ID Tag?	Yes	
Casing Straight? Yes No	<u>(</u>	Grout Seal Intac	t? Yes	
Repairs Necessary:				
Well Information				
Well Depth: 22.33	7	Nell Casing Ele	vation:	1081.23
Constructed Depth: 22.05	<u>-</u>	Static Water Ele	vation:	74,63
Casing Diameter: 2"	ļ	Previous Static:		
Water Level Before Purge: Coloo	<u>_</u>	Nater Level After	er Sample:	9.25
Well Volume: 2.57 Gallor	<u>is 1</u>	Measurement M	ethod: E	C. WIX Steel Tape
Sampling Information	:	<u> </u>	/	
Weather Conditions: Temp: 55	Wind: 5	<u>E 7</u>	Sky: 54	nny
Sampling Method: Grundfos Bladder	S87T Disp. Bailer \	Whale Gra		/
Dedicated Equipment: Yes No	ļ	Pumping Rate:	0,23	gpm
Well Purged Dry? Yes	_	Time Pump Beg	<u>ian: 120,</u> 0	
Time Purged Dry?	-	Time of Samplir		5 am / 💬
Duplicate Sample? Yes 10:		Sample EH:	06.2	
Sample Appearance: General: Clea	Color: New	2 Phase:	None.	Odor: Nore
Specific Temp	D. O.	Turbidity Ga	llons SI	EQ
Time pH Cond. <sup>o</sup> C		NTU Re	moved #	Comments:
1213 7.24 1474 11.	OI NA	NA	2.75 1	
	02 1	í	5.5 2	
1235 7.22 475 11	02		8.25 3	
			4	
<u> </u>		<del>{</del>	4	
Stabilized? res No	Amount Wate	Removed:	8.25_	Gallons
Comments:				

New Ulm, MN 56073

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Groundwater Assessment	Site:	Otter Tail Power Co./ Big Stone
Sampling Personnel:	Facility ID:	
DF	Date:	700+23
	Unlque Station	ID:
	Sample ID:	Well H9
Well Condition		
Well Locked? (769 No	Protective Post	
Well Labeled? Yes No	State ID Tag?	Yes 05
Casing Straight? Casing Straight? No	Grout Seal Inta	ct? Yes 🔭
Repairs Necessary:		
Well Information		
Well Depth: 30,7)	Well Casing Ele	
Constructed Depth: 30.20	Static Water El	evation: 074,64
Casing Diameter: 2"	Previous Static	
Water Level Before Purge: 11,57	Water Level Af	ter Sample: 5,60
Well Volume: 3.12 Gallor	s Measurement M	Method: Elec. WHI Steel Tape
Sampling Information		
Weather Conditions: Temp: 33	Wind: SE	Sky: Sunny
Sampling Method: Grundfos Bladder	Soft Disp. Bailer Whale Gr	
Dedicated Equipment: Yes No	Pumping Rate:	
Well Purged Dry? Yes Ko	Time Pump Be	
Time Purged Dry?	Time of Sampl	
Duplicate Sample? Yes Ko ID:	Sample EH:	121.7
Sample Appearance: General: Clea	Color: Nore Phase:	Nore Odor: Nore
3 Specific Temp	D. O. Turbidity G	allons SEQ
Time pH Cond <sup>o</sup> C		emoved # Comments:
1253 6.62 3340 9.	17 NA NA	3.25 1
1306 6.62 3340 9.		6.50 2
	96	9.75 3
		4
	- ┼- ┼- ┼┼	5
	Amount Water Removed:	9.75 Gallons
Stabilized?	Amount water Kentoved.	
Comments:		

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Exceptions to Protocol: بالعسر

Groundwater Assessment		·	Site:	Otter 1	ail Pow	er Co./ Big Stone
Sampling Personnel:			Facility ID:			
Bw			Date: 7 d	pc+23		
	-		Unique Statio	on ID:		
	-		Sample ID:		ł	110
Well Condition         Well Locked?       Yes       No         Well Labeled?       Yes       No         Casing Straight?       Yes       No	- - -		Protective Po State ID Tag Grout Seal In	? Yes		ND No No
Repairs Necessary: Well Information	<u> </u>	<u> </u>			<del></del> i-	
Well Depth: 38-53	<u> </u>		Well Casing			1090.83
Constructed Depth: 35.49	-		Static Water		0/3	. 73
Casing Diameter: 2"	-		Previous Sta		<i>n</i> .	
Water Level Before Purge: 17.1	0		Water Level	After Sample:		
Well Volume: <u>3-50</u>	Gallons		Measuremen	t Method:	Elec. V	VLP Steel Tape
Sampling Information	<u></u>		· · · · · · · · · · · · · · · · · · ·		Fail	<u>^</u>
Weather Conditions: Temp:		Wind: (	-01	Sky:	Par'	<u></u>
Sampling Method: Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		<u></u>
Dedicated Equipment: No	-		Pumping Rat			gpm
Well Purged Dry? Kes No	-		Time Pump I			am / 000
Time Purged Dry? 1229	-		Time of Sam		59	am / (m)
Duplicate Sample? Yes No			Sample EH:	211-7		
Sample Appearance: General:	Clear	Color:	ンフレ Phase	NOR		Odor: None
14     Specific Cond.       1229     10.47       1234     10-51       4986		D. O. mg/L MA		Gallons Removed 3-5	SEQ # 1 2 3 4 5	Comments: Recharge
Stabilized? Yes		Amount Wa	ter Removed:	J-5		Gallons
Comments:						

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Exceptions to Protocol:

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Well Information         Well Depth:       44.32         Constructed Depth:       42.15         Casing Diameter:       2"         Previous Static:       NA         Water Level Before Purge:       14.81         Water Level Before Purge:       14.81         Water Level Before Purge:       14.81         Well Volume:       4.81         Gallons       Measurement Method:         Bampling Information       Measurement Method:         Weather Conditions:       Temp:         Sampling Method:       Grab Other:         Dedicated Equipment(Yes) No       Pumping Rate:       0.25 gpm         Time Purged Dry?       Yes (No)       ID:       Sample EH:       5:0         Sample Appearance:       General:       Cleak       Color:       Not       Not         Time       PH       Specific       Temp       D.0.       Turbidity       Gallons       \$EQ         Time       PH       Specific       Temp       D.0.       Turbidity       Gallons       \$EQ         Sample Appearance:       General:       Cleak       Color:       NTU       Removed       #       Comments:         (374)       S.S.S       Y185       Y	Groundwater Ass	essment			Site:	Otter	Tail Pov	wer Co./ Big Stone	
Unique Station ID:         Sample ID:         H11         Well Condition         Well Condition         Protective Posts? Yes         No         State ID Tag?         Constructed Popth:         (4.32)         Well Casing Elevation:         Mell Casing Elevation:         Mell Casing Elevation:         (19.8]         Well Casing Elevation:         (19.8]         Well Casing Elevation:         (19.8]         Well Casing Elevation:         (19.8]         Well Casing Elevation:         (19.8]         Water Level After Sample:         Static Water Elevation:         (19.8]         Wind:         Sampling Information         Well Volume:         (19.8)         Time Purged Dry?         Sampling Method:         Grundos         Sample Appearance: <td colspan<="" td=""><td>Sampling Personnel:</td><td></td><td></td><td></td><td>Facility ID:</td><td></td><td></td><td></td></td>	<td>Sampling Personnel:</td> <td></td> <td></td> <td></td> <td>Facility ID:</td> <td></td> <td></td> <td></td>	Sampling Personnel:				Facility ID:			
Sample ID:       H11         Well Condition       Well Locked?       (4)         Well Labeled?       (4)       (4)         Casing Straight?       (4)       (4)         Well Information       Well Casing Elevation:       1093.24         Well Depth:       (4)       (5)       (6)         Well Depth:       (4)       (7)       (7)         Constructed Depth:       (4)       (7)       (7)         Casing Diameter:       (2)       (7)       (7)         Casing Diameter:       (2)       (7)       (7)         Casing Diameter:       (2)       (7)       (7)       (7)         Well Volume:       (4)       (7)       (7)       (7)       (7)         Well Volume:       (4)       (7)       (7)       (7)       (7)         Well Volume:       (4)       (7)       (7)       (7)       (7)         Sampling Information       Wind:       (2)       (7)       (7)       (7)         Weather Conditions:       Temp:       (7)       (7)       (7)       (7)       (7)         Sampling Method:       Grauder (5)       No       Time Purp Began:       (7)       (7)       (7)		5	_			ľ	70ct	23	
Well Condition         Well Locked?       Yes       No         State ID Tag?       Yes       No         Gasing Straight?       Yes       No         Repairs Necessary:       Well Casing Elevation:       1093.24         Well Information       Well Casing Elevation:       1093.24         Well Depth:       42.15       Static Water Elevation:       No         Casing Diameter:       2"       Previous Static:       Nd         Water Level Before Purge:       14.81       Water Level After Sample:       38.42         Water Level Before Purge:       42.81       Gailons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Weather Conditions:       Temp:       5"       9"       No         Weather Conditions:       Temp:       5"       9"       No       Time Purge Dire:       24.9       am       pm         Dedicated Equipment(Yes) No       Time Purge Dire:       10%       Seampling:       7.2.9       am       pm         Sampling Appearance:       General:       Olex       No       Second:			-		Unique Stat	ion ID:			
Well Locked?       Yes       No         Well Labeled?       Yes       No         Casing Straight?       Yes       No         Repairs Nocessary:       State ID Tag?       Yes         Well Labeled?       Yes       No         Grout Seal Intact?       Yes       No         Grout Seal Intact?       Yes       No         Well Labeled?       Yes       No         Grout Seal Intact?       Yes       No         Grout Seal Intact?       Yes       No         Well Depth:       42.15       Static Water Elevation:       NO 78.42         Constructed Depth:       42.15       Static Water Elevation:       NO 78.42         Casing Diameter:       2"       Previous Static:       Nd         Water Level Before Purge:       14.81       Water Level After Sample:       351.42         Well Volume:       4.81       Gailons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Water Search       Water Elevation:       109.24       am (pm)         Well Purged Dry?       Yes       No       Pumping Rate:       0.25       gpm         Time Purge Dry?       Yes       No       ID:       Sample EH:			_		Sample ID:			H11	
Well Labeled?       Yes       No         Casing Straight?       Yes       No         Repairs Necessary:       Grout Seal Intact?       Yes         Well Information       Well Casing Elevation:       1093.24         Constructed Depth:       42.15       Static Water Elevation:       1093.24         Constructed Depth:       42.15       Static Water Elevation:       1093.24         Casing Diameter:       2"       Previous Static:       MA         Water Level Before Purge:       14.81       Water Level After Sample:       37.42         Well Notume:       4.81       Gallons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Weather Conditions:       Temp:       2"       Wind:       S.C.7       Sky:       C(ccr         Sampling Method:       Grundos       Budder SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment       Yes       No       ID:       Sampling Rate:       O-ZS       gpm         Time Purged Dry?       Yes       No       ID:       Sample EH:       % ************************************	Well Condition								
Casing Straight?       Yes       No         Repairs Necessary:       Grout Seal Intact? (res)       No         Well Information       44.32       Well Casing Elevation:       1093.24         Constructed Depth:       42.15       Static Water Elevation:       No         Casing Diameter:       2"       Previous Static:       NA         Water Level Before Purge:       14.81       Water Level After Sample:       35.42         Well Volume:       4.81       Gallons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Weather Conditions:       Temp:       9       Wind:       S.C.7       Sky:       C/ecc         Sampling Method:       Grundros       Badger SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment (res)       No       Pumping Rate:       C.2.5       gpm         Time Purged Dry?       Yes       No       Time Orsampling:       3.2.4       am (pm)         Duplicate Sample?       Yes       No       It       Sample EH:       5.0       Second.       Yes         Sample Appearance:       General:       Clear       Color:       MA       AA       1       3         Time	Well Locked?	(jes) No	_		Protective F	Posts? Yes			
Repairs Necessary:         Well Information         Well Depth:       44.32         Constructed Depth:       42.15         Casing Diameter:       2"         Previous Static:       NA         Water Level Before Purge:       14.81         Water Level Before Purge:       14.81         Water Level After Sample:       35.42         Weill Volume:       4.81         Weil Volume:       4.81         Weil Cosing Information       Measurement Method:         Weather Conditions:       Temp:         Sampling Information       Wind:       S.C.7         Weather Conditions:       Temp:         Dedicated Equipment(Yes) No       Purping Rate:       O.Z.5         Dedicated Equipment(Yes) No       Time Pump Began:       //324/4         Duplicate Sample?       Yes (No) ID:       Sample EH:       5/-0         Sample Appearance:       General:       Color:       Marc       Odor:       Marc         Y       S.S.0       9/185       9/12       MA       AA       1       2         Time       pH       Cond.       Color:       Marc       3       2       3       3       3       3       3 <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td>(</td> <td></td>			_				(		
Well Information         Well Depth:       44.32         Constructed Depth:       42.15         Casing Diameter:       2"         Previous Static:       NA         Water Level Before Purge:       14.81         Water Level Before Purge:       14.81         Water Level Before Purge:       14.81         Well Volume:       4.81         Gallons       Measurement Method:         Sampling Information       Weil Casing Elevation:         Weather Conditions:       Temp:         Suggest SSP       Disp. Baller         Whate Casing Elevation:       NA         Weather Conditions:       Temp:         Suggest SSP       Disp. Baller         Whate       Grab       Other:         Dedicated Equipment(Yes) No       Pumping Rate:       0.25 gpm         Time Purged Dry?       Yes (No)       ID:       Sample EH:       5:0         Sample Appearance:       General:       Cleak       Color:       Net       Odor:       Marget         Time       pH       Specific       Temp       D.0.       Turbidity       Gallons       SEQ         Sample Appearance:       General:       Cleak       Color:       NTU       Remov	Casing Straight?	Yes No	_		Grout Seal	Intact? (Yes		No	
Well Depth:       44.32       Well Casing Elevation:       1093.24         Constructed Depth:       42.15       Static Water Elevation:       /\??.8.42         Casing Diameter:       2"       Previous Static:       M/A         Water Level Before Purge:       14.81       Water Level After Sample:       35.42         Water Level Before Purge:       14.81       Water Level After Sample:       35.42         Well Volume:       4.81       Gallons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Weether Conditions:       Temp:       >"       Wind:       S.C.7       Sky:       C/Ccc         Sampling Method:       Grundros       Badder SSP       Disp. Balter       Whale       Grab       Other:         Dedicated Equipment       Yes       No       Time Purga Bage:       0.25       gpm         Time Purged Dry?       Yes       No       ID:       Sample EH:       5.0       Sample Appearance:       General:       Color:       Mea       24         Time       pH       Cond.       Temp       D.0.       Turbidity       Gallons       SEQ       Comments:         137.4       G.55       YN85       9.12       MA       AvA       S <td>Repairs Necessary:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>.<u>.</u>. <u>.</u></td>	Repairs Necessary:							. <u>.</u> . <u>.</u>	
Constructed Depth:       42.15       Static Water Elevation:       /\2,8,4,2         Casing Diameter:       2"       Previous Static:       /\/4         Water Level Before Purge:       1/4       //8       Water Level After Sample:       38: 42         Water Level Before Purge:       1/4       //8       Water Level After Sample:       38: 42         Well Volume:       1/8       Gallons       Measurement Method:       Elec. WLI)       Steel Tape         Sampling Information       Wind:       S.C.7       Sky:       C/ccr         Sampling Method:       Grundfos       Bedder SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment       Yes       No       Pumping Rate:       C.Z.5       gpm         Time Purged Dry?       Yes       No       Time Pump Began:       //.3.4.9       am       pm         Duplicate Sample?       Yes       No       ID:       Sample EH:       %.0       Sec       Godor:       Max         Time       pH       Cond.       °C       mg/L       NTU       Removed       ##       Comments:         1/3/4       G.55       YN85       9/.12       MA       MA	Well Information								
Casing Diameter:       2"       Previous Static:       M.4         Water Level Before Purge:       [4].8]       Water Level After Sample:       35: 42         Well Volume:       4.8]       Gallons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Wind:       S.C.7       Sky:       C/ecr         Sampling Method:       Grundfos       Badder SSP       Disp. Baller       Wale       Grab       Other:         Dedicated Equipment(Yes)       No       Pumping Rate:       0.25       gpm         Time Purged Dry?       Yes       No       Time of Sampling:       7.84.9       am (pm)         Duplicate Sample?       Yes (No)       ID:       Sample EH:       9.0       Sample EH:       9.0         Sample Appearance:       General:       Clear       Color:       Mater       Phase:       Odor:       Marce         13FY       S.S.S       YN85       9.1Z       MA       A/A       S1       1         13GY       G.5G       YN85       9.1Z       MA       A/A       S1       1         13GY       G.5G       YN77       9.89       MA       AA       5       Nethorse         Stabilized? Yes	Well Depth:	44.32			Well Casing	Elevation:		1093.24	
Water Level Before Purge:       14.81       Water Level After Sample:       38.42         Well Volume:       4.81       Gallons       Measurement Method:       Elec. WL)       Steel Tape         Sampling Information       Weather Conditions:       Temp:       9       Wind:       52.7       Sky:       C/ecr         Sampling Method:       Grundtos       Bedder SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment (Yes)       No       Pumping Rate:       0.25       gpm         Time Purged Dry?       Yes       No       Time of Sampling:       1.324       am       pm)         Duplicate Sample?       Yes       No       ID:       Sample EH:       7.0       Seq         Sample Appearance:       General:       Clear       Color:       Mea       Odor:       Mea         Time       pH       Specific       Temp       D.O.       Turbidity       Gallons       SEQ       comments:         134.97       G.55       Y185       9.12       MA       AA       1       2       3       1         134.97       G.597       Y477       9.89       Mea       AA       5       Net Asocol         Stabilized? Yes <td>Constructed Depth:</td> <td>42.15</td> <td>_</td> <td></td> <td>Static Wate</td> <td>r Elevation:</td> <td>/</td> <td>1078,43</td>	Constructed Depth:	42.15	_		Static Wate	r Elevation:	/	1078,43	
Weil Volume:       4.8       Gallons       Measurement Method:       Elec. WL       Steel Tape         Sampling Information       Wind:       S.C.7       Sky:       C/.6cr         Sampling Method:       Grundics       Bladder SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment       Yes       No       Pumping Rate:       O.2.5       gpm         Well Purged Dry?       Yes       No       Time Purge Began:       / 3.24       am (pm)         Duplicate Sample?       Yes       No       IIII       Sample EH:       D.9.0         Sample Appearance:       General:       Clear       Color:       Mere       Phase:       Odor:       Mare         Time       pH       Specific       Temp       D. O.       Turbidity       Gallons       SEQ       Comments:         Time       pH       Specific       Temp       D. O.       Turbidity       Gallons       SEQ       comments:         Time       pH       Specific       Temp       D. O.       Turbidity       Gallons       SEQ       comments:         Time       pH       Cond.       °C       mg/L       NTU       Removed       #       comments:	Casing Diameter:	2"	_		Previous St	atic:		NĿ	
Sampling Information         Weather Conditions:       Temp:       S       %       Wind:       S       C       7       Sky:       C ( ecc         Sampling Method:       Grundfos       Blagder SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment(       Yes       No       Pumping Rate:       O-ZS       gpm         Well Purged Dry?       Yes       No       Time Pump Began:       /3 2/4       am       pm         Duplicate Sample?       Yes       No       ID:       Sample Appearance:       General:       Clear       Color:       Mare       Phase:       More       Odor:       Mare         Time       pH       Specific       Temp       D. O.       Turbidity       Gallons       SEQ       comments:         1/34 9       G:59       YH85       9, 12       MA       AA       -       5       McLacsC.         Stabilized? Yes       No       Amount Water Removed:       S Gallons       S Gallons	Water Level Before Pu	ırge: [4	18.		Water Leve	I After Sample	: 38	142	
Weather Conditions:       Temp:       Solution       Wind:       Set 7       Sky:       C/fear         Sampling Method:       Grundfos       Bladder SSP       Disp. Baller       Whale       Grab       Other:         Dedicated Equipment       Yes       No       Pumping Rate:       O-ZS       gpm         Well Purged Dry?       Yes       No       Time Purged Dry?       Yes       No         Time Purged Dry?       Yes       No       ID:       Sample of Sampling:       / 2 4 9       am (pm)         Duplicate Sample?       Yes       No       ID:       Sample EH:       75 °       Odor:       Marce         Sample Appearance:       General:       Clear       Color:       Marce       Phase:       More       Odor:       Marce         Time       pH       Cond.       °c       mg/L       NTU       Removed       #       comments:         13F4       6.50       YN85       9.12       MA       AA       1       2       1         13/19       Gr.59       Y477       9.89       MA       MA       -       5       NethorsC.         Stab	Well Volume:	4.81	Gallons		Measureme	nt Method:	Elec. 1	NLI) Steel Tape	
Sampling Method:       Grundfos       Bladder SSP       Disp. Bailer       Whale       Grab       Other:         Dedicated Equipment       Yes       No       Pumping Rate:       O.Z.S       gpm         Well Purged Dry?       Yes       No       Time Pump Began:       // 3 24/       am       pm         Time Purged Dry?       Yes       No       Time of Sampling:       / 3 24/       am       pm         Duplicate Sample?       Yes       No       ID:       Sample EH:       95.0       Odor:       More         Sample Appearance:       General:       Cleak       Color:       More       Phase:       More       Odor:       More         Time       pH       Specific Cond.       Temp °C       D. O. mg/L       Turbidity Removed       Gallons       SEQ #       Comments:         137.9       6.59       Y185       9.12       MA       AvA       S       1         134.9       6.59       Y47.7       9.89       Mos       Ma       -       5       Mc4/sccl.         Stabilized? Yes       No       Amount Water Removed:       S       Gallons       Sallons	Sampling Information	on			· · · ·				
Dedicated Equipment (Yes) No       Pumping Rate:       O-ZS       gpm         Well Purged Dry?       Yes No       Time Pump Began:       /324       am (pm)         Time Purged Dry?       [344]       Time of Sampling:       /349       am (pm)         Duplicate Sample?       Yes (No)       ID:       Sample EH:       [57:0]         Sample Appearance:       General:       Clear       Color:       Nor       Phase:       Nor       Odor:       May         Time       pH       Specific       Temp       D. O.       Turbidity       Gallons       SEQ         Time       pH       Cond.       °c       mg/L       NTU       Removed       #       Comments:         1349       G.50       4185       9.12       MA       A/A       5       May         1349       G.659       4477       9.89       May       May       -       5       May         Stabilized? Yes       No       Amount Water Removed:       S       Gallons       S       Gallons	Weather Conditions:	Temp:	57°	Wind:	<u>se7</u>	Sky:	C(	<u>er</u>	
Well Purged Dry?       Yes No         Time Purged Dry?       (344)         Time Purged Dry?       (344)         Duplicate Sample?       Yes (No) ID:         Sample Appearance:       General:         General:       Clear         Color:       Marce         Marce       Color:         Marce       Specific         Cond.       °c         °c       mg/L         NTU       Removed         #       Comments:         1349       G.550         YH85       9.12         MA       AA         J349       G.59         YH77       9.89         Amount Water Removed:       S         Gallons       Sellons	Sampling Method:	Grundfos	Bladder SSCP	Disp. Bailer	Whale	Grab Other:		<u> </u>	
Time Purged Dry?       344       Time of Sampling:       1349       am 16m         Duplicate Sample?       Yes (No)       ID:	Dedicated Equipment(	Yes No	_		Pumping Ra	ate: <u> </u>	<u>ZS _</u>	gpm	
Duplicate Sample?       Yes (No)       ID:       Sample EH:       95:0         Sample Appearance:       General:       Clear       Color:       Mare       Phase:       Mare       Odor:       Mare         Time       pH       Specific       Temp       D. O.       Turbidity       Gallons       SEQ         Time       pH       Cond.       °C       mg/L       NTU       Removed       #       Comments:         1349       G.59       4185       9.12       MA       MA	Well Purged Dry? (		_		Time Pump	Began: /	374	/am (_pm)	
Sample Appearance:       General:       Clear       Color:       Nore       Phase:       Nare       Odor:       Mare         Time       pH       Specific Cond.       Temp °C       D. O. mg/L       Turbidity NTU       Gallons Removed       SEQ #       Comments:         1349       6.50       4485       9.12       MA       AMA       5       1         1349       6.59       4477       9.89       MA       MA       -       5       Netherse         1349       6.59       4477       9.89       MA       MA       -       5       Netherse         Stabilized? Yes       No       Amount Water Removed:       S       Gallons       S       Gallons	Time Purged Dry?	1344		_	Time of Sa		349	am / 6m	
Specific Cond.     Temp OC     D. O. mg/L     Turbidity NTU     Gallons Removed     SEQ #       1349     6.59     4485     9.12     MA     MA     5     1       1349     6.59     4477     9.89     MA     MA     -     5       Stabilized? Yes     No     Amount Water Removed:     5     Gallons	Duplicate Sample?	Yes (No)	_ID:		Sample EH	: 95.0			
Time       pH       Cond.       °C       mg/L       NTU       Removed       #       Comments:         1349       6.56       9185       9.12       MA       A.A       S       1	Sample Appearance:	General:	lea	Color: No	re Phas	e: Nore		Odor: None .	
Time       pH       Cond.       °C       mg/L       NTU       Removed       #       Comments:         1349       6.50       9185       9.12       MA       AA       S       1	6	Specific	Temp	D. O.	Turbidity	Gallons	SEQ		
1379       6:50       9185       7.12       MA       MA       5       1         2       2       3       3       3       3       3         1349       6:59       4477       9.89       MA       MA       -       5       Netherse.         Stabilized? Yes       No       Amount Water Removed:       5       Gallons	Time pH			mg/L			#	Comments:	
2       2         2       3         3       3         3       4         1349       49         49       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       40         1349       5         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60         1349       60	1344 6.50	4482	9.12	MA	MA	S	1		
3       1349     6.59     4477       Stabilized? Yes     No     Amount Water Removed:     5							2		
1349     6.59     4477       1349     6.59     4477       9.89     MA     MA       -     5       No     Amount Water Removed:     5       Gallons			<u>                                      </u>			<b>†</b>	1		
1349G:5944779.89MAMA-5NetherseStabilized? YesNoAmount Water Removed:SGallons						1			
Stabilized? Yes No Amount Water Removed: 5 Gallons	1349 6,59	4477	9.89	114	MA	-		Necharen	
		7				<u>ار ج</u>			
	Comments:	- U			<u></u>	······································			

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Exceptions to Protocol:

Groundwater Assessment	Site	e: Otter T	ail Power Co./ Big Stone
Sampling Personnel:	Fac	ility ID:	
<u> </u>	Dat	e: /7<	xd73
······	Uni	que Station ID:	
	Sar	n <b>ple</b> ID:	H12
Well Condition         Well Locked?       Yes (No)         Well Labeled?       Yes) No         Casing Straight?       Yes) No         Repairs Necessary:       No	Sta	tective Posts? Yes te ID Tag? Yes out Seal Intact? Yes	
Well Information			
Well Depth: 2263	We	II Casing Elevation:	NA
Constructed Depth: 24.00	Sta	tic Water Elevation:	
Casing Diameter: 2"	Pre	vious Static:	
Water Level Before Purge: 18.14	<u>Wa</u>	ter Level After Sample:	18.97
Well Volume: 0,73 Ga	lons <u>Me</u>	asurement Method:	Elec. WL) Steel Tape
Sampling Information	<u> </u>		
Weather Conditions: Temp: 57	Wind: SE	<u>27 Sky:</u>	Clar
Sampling Method: Grundfos Blad	der SS/T Disp. Bailer What	ale Grab Other:	
Dedicated Equipment: (es) No	Pu	mping Rate:	gpm
Well Purged Dry? Yes No	<u>_Tin</u>	ne Pump Began: / (	<u>3/8 am/(pm</u> )
Time Purged Dry?	Tin	ne of Sampling: /	<u>3/9 am (pm)</u>
Duplicate Sample? Yes No ID:	<u></u> <u>Sa</u>	mple EH:	3,3
Sample Appearance: General: S/	Cloudy Color: SI Tan	Phase: Nom	Odor: Norc
13/6 8.00 315 1	mg/L NT	NA 0.75 1.5 2.25	SEQ #         Comments:           1
Stabilized?(Yes) No	Amount Water F	Removed: Z.Z	S Gallons
Comments:			

,----,

Pace Analytical"

#### CHAIN-OF-CUSTODY / Analytical Request Document

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

Section Required	I A d Client Information:	Section B Required Proj	ect Infor	mation:					Invoid		ormatio	_													Page:	1	of	1	د
Company	n MVTL	Report To: To	dd Rie	eger					Atten	ntion:	A	P																	
Address:	1126 NORTH FRONT BLDG #2	Copy To: tri	eger@	)mvtl.com	1		_		Com	pany N	lame:	ΜV	TL						i	REGI	JLAT	DRY	AGE	NCY					
·	NEW ULM, MN 56073	·							Addre	955:	1	126 N	IORT	TH F	RON	IT BL	DG	2	-†		IPDES	ন্	GF		WAT	ER 厂	DRINKIN	IG WAT	ER
Email To	alieder@mvtl.com	Purchase Orde	r No.:	CL1329	9					Quote											IST	Ľ	RC	RA		Г	OTHER		
Phone:	507-233-7134 Fax:	Project Name:	Otte	ertail Pow	er					Project	ı								t	Site	Locati	on			-			/////	
Request	ed Due Date/TAT: standard	Project Numbe	Wo	rk order: :	31-0271				Mana Pace	iger. Profile	#.										STAT	E:		MN					
			-													3	Re	quest	ed A	naly	sis Fil	tered	L(Y/N	1)					
	Section D Valid Matrix C Required Client information <u>MATRIX</u>	codes	C=COMP)		COLL	ECTED					Pr	reserv	rative	<u>es</u>		Λ.N													
	WATER WASTE WATER PRODUCT SOIL/SOLID OIL	CODE CODE DW WT WW P SL OL WP	(G=GRAB C=C(	COMP	ositë Art	COMPO: END/GF	SITE IAB	COLLECTION	ss							t. <b>I</b>	nethod 161	cing							Ie (V/V)				
ITEM #	SAMPLE ID AR (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	WP AR LUCC XIAL W	SAMPLE TYPE (G	DATE	ТІМЕ	DATE	τīme	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO4 HNO5	HCI	NaOH Na.S.O.	Methanol		<b>J</b> Analysis Test	2,3,7,8 TCDD method 161 Dodium 226/228	PFAs State Pricing							Residual Chlorine (Y/N)	Pace	Project	No./ <u>L</u>	ab I.O.
1	23A9316 - H10	w	w			10/17/23	12:34		1								,	(							N				
2	23A9317 - H11	w			<u>_</u>	10/17/23	13:49		1	$\square$							,	Ŷ							N				
3	23A9318 - H12	w	w			10/17/23	13:19		1								)	(							N				
4																											·		
5																													
6															$\square$					_ -	$\downarrow$		_						
7			_															_			$\downarrow$		_						
8	EQuIS LabMN EDD is needed																				+	_		┟╌┥┥					<u> </u>
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12						<u> </u>																				<u> </u>			
	ADDITIONAL COMMENTS	RI	LINQU	ISHED BY	AFFILIAT	ION	DAT	5		TIME			A	CCE	PTED	BY/	AFFIL		<u>ا</u>		DATE		TIM			SAM			
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					SAMPL	ER NAME A	ND SIGN	ATUR	 RE::::;																<u>ي</u>	5	, je standard i se	+	lact
					<u> </u>	PRINT Nam			:																Temp in *C	ived (X/N)	d Cody		les In Y(N)
						SIGNATUR	E of SAMP	LER	:									E Sign							Tem	Received on Ice (Y/N)	Custody Seated Cool (Y/N)		Samples Intact (Y/N)

F-ALL-Q-020rev.08, 12-Oct-2007

## Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

#### **Groundwater Level Measurements**

Sampling Personnel:

Site: Offer Tail Parker - Big Some Plant

494 Alexandro I and an and a state of the second state of the second state of the second state of the second state Alexandro I and a state of the second state of the second state of the second state of the second state of the	DS		-		Facility ID:		
	MS		-		Date: 123	Tune 23	
	٥	U					
Well Number	Well 10	Well 11	Well 12	Well 1	H1OX	H1INT	H2OX
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	12June 23				~		
Time	1042	1040	1038	1035	1041	1040	1107
Well Casing Elevation	1098.7	1104	1071.89	1090.71	1115.89	1115.81	1103.86
Depth to Water	17.01	94.55	66.84	65.30	22.96	23.70	7.40.
Static Elevation	1061.49	1009.45	1005.05	1025,41	1092.93	1092.1)	1096.46
Casing Diameter	4"	4"	4"	4"	2"	2"	2"

Well Depth	47.01	127.22	112.40	78.00	32.37	60.15	32.83
Well Volume	19.60	21.35	29.77	8:30	1.52	5.94	4.14
Well Locked	yes/no)	yes no	yes / no	yes ( no )	(yes) no	(yes)/no	ves/ no
Well Labeled	ves/ no	yes no	(yes I)no	yes no	yes/no	yes no	(yes) no
Well Straight	(ves/ no	(ves) no	(yes) no	(yes)no	(yes) no	ves/no	yes/ no
Protective Posts	(yes) no	ves 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)	(ves) no
Dedicated Equipment	yes(no)	Ges) no	(ves Pno	(yes) no	yes (no)	yes (no)	(yes)no

Q.	50		-7 <u>-</u> 1-	THE			
Well Number	H2INT	H30X	H3INT	H4OX	H4INT	H5	H6
Unique Station ID	NA	NA	NA	NA	NA	·NA	NA
Date	12 JUAN 23						
Time	1108	1124	1125	1111	1112	1050	1045
Well Casing Elevation	1103.91	1095.26	1095.17	1108.25	1108.61	1122.8	1097.76
Depth to Water	61.50	7.76	27.92	1713	17.10	11.38	10.69
Static Elevation	1042,41	1087.5	1067.75	1091.12	1091.51	11142	1087.07
Casing Diameter	2"	2"	2"	2"	2"	2"	2"
Well Depth	67.45	ZZ.68	54.42	27.48	60.10	44.99	17.92
Well Volume	0.15	7.762,4	3 4.32	1.19	7.01	5.48	1.17
Well Locked	ves) no (	yes) no	ves)no	ves no	(ves) no	(yes) no	(yes) no
Well Labeled	yes no	ves no	yes (no	(ves) no	(ves) no	ves/ no	(ves)/ no
Well Straight	(yes)no	(ves) no	(yes I no	yes no	ves) no	ves) no	(es) 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) po	(yes) no	yes /no)	(yes) no	yes (no)
Dedicated Equipment	yes no	yes ino	yes/no)	ves)no	yes no	yes no	(yes)no

#### **Groundwater Level Measurements**

NS MS

Sampling Personnel:

	otter Tail Power - Big stone Pla
Facilit	ID:
Date:	12 June 23

Well Number	H7	H8	H9				
Unique Station ID	NA	NA	NA				
Date	12 June23						
Time	1055	1056	1100				
Well Casing Elevation	1106.06	1081.23	1086.21				and the second
Depth to Water	19.26	8.71	10.29				
Static Elevation	1086.8	107252	1075.92				
Casing Diameter	Z"	2"	Z"				
Well Depth	35.60	22.33	30.71	1			
Well Volume	2.66	2.22	222 3	33	2		
Well Locked	(yes) no	ves) 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	ves/no	yes / no	yes / no	yes / no	yes/no
Protective Posts	yes) no	(yes) no	ves) no	yes / no	yes / no	yes / no	yes/no
Grout Seal Intact	yes (no)	yeskno	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							
Unique Station ID							
Date							
Time							
Well Casing Elevation							
Depth to Water							
Static Elevation							
Casing Diameter							
Well Depth							
Well Volume							1
Well Locked	yes / no						
Well Labeled	yes / no	yes/no					
Well Straight	yes / no						
Protective Posts	yes / no	yes/no					
Grout Seal Intact	yes / no						
Dedicated Equipment	yes / no						

507 354 8517

### **Groundwater Level Measurements**

Bur

Sampling Personnel:

site: Ottotail POLICA Big Stone Facility ID:

Date: 21 July 23

Well Number	Well 10	Well 11	Well 12	Well 1	H1OX	H1INT	H2OX
Unique Station ID	NA /	NA	NA	NA	NA	NA	NA
Date	2 July2	23-					
Time		1030	1017	1054	954	955	1012
<b>Well Casing Elevation</b>	1098.7	1104	1071.89	1090.71	1115.89	1115.81	1103.86
Depth to Water	V	94.79	106.30		25.46	26.11	9-62
Static Elevation	Λ	1009.71	1005.51		1090.43	1084.70	109424
Casing Diameter	4	4"	4"	4"	2"	2"	2"
/ell Depth	47.41	127.22	112.40	78.00(sct)	32.33	60.15	32.83
Vell Volume	11	21.20	30.13	8.25	1.12	5.55	3.80
Vell Locked	yes/no	yes Ino	yes/no)	yes/no	(yes) no	yes no	vest no
Vell Labeled	yes / no	yes/no	yes) no	Ves7 no	yes/no	(yes) no	yes I no
/ell Straight	yes / no	yes7 no	yes/no	yes no	yes/no	Nes/ no	yes/ no
rotective Posts	yes / no	yes Ino	yes / 10/	yes /no	(yes/no	yes / no)	yes / no
Frout Seal Intact	yes / no	yes ino	yes / 10	yes / no	yes (no)	yes Into	yes/no
edicated Equipment	yes / no	ves Dno	yesino	yes/ no	(estho)	yes / ng	yes Pno
Vell Number	H2INT	H30X	H3INT	HAOX	HAINT		110

Well Number	H2INT	H30X	H3INT	H4OX	H4INT	H5	H6
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	21 JULY	23					
Time	1013	958	459	1004	1005	1041	947
Well Casing Elevation	1103.91	1095.26	1095.17	1108.25	1108.61	1122.8	1097.76
Depth to Water	61.57	8.05	28.12	18:410	18.98	12.31	13.27
Static Elevation	1042.34	1287.21	1007.05	1389.74	10 81.63	110.48	1084.44
Casing Diameter	2"	2"	2"	2"	2"	2"	2"
Well Depth	62.45	22.68	54.42	27.48	60.10	44,99	17.92
Well Volume	.14	2.39	4.29	1.47	6.71	5.33	.76
Well Locked	yes/no	(yes) no	(yes/no	yes / no	ves) no	yes)/ no	ves/no
Well Labeled	ye∉/ no	yes / no	yes / no	vestno	yes/ no	ves/ no	ves/ no
Well Straight	yes / no	ves / no	ves/no	Ves / no	ves/ no	(yes/I no	ves7 no
Protective Posts	yes 1 10	yes (no)	yes (no)	yes / no	yes Ino	yes no	yes)/ no
Grout Seal Intact	yes / no	yes/ng	yes / no2	yes / 100	yes / no	yes/no	yes no
Dedicated Equipment	yes (no)	(yes) no	yes /(no)	yes/no	yes / no/	yes / ho	yes/ no

507 354 8517

### **Groundwater Level Measurements**

Bw

Sampling Personnel:

Site: OHa-tuil Paver/Byshore

Date: & July 23

Well Number	H7	H8 /	H9				1
Unique Station ID	NA	NA /	NA				
Date	21 July2.	1-1-1			1.		
Time	1049		943				
Well Casing Elevation	1106.06	1081/23	1086.21			1.1	-
Depth to Water	21.94	X	11.97			10.00	
Static Elevation	1084.12	Λ	1074.24				
Casing Diameter	211		211				
Well Depth	35.60	21,33	30.71				1
Vell Volume	2.23	1	3.06				-
Vell Locked	yes/ no	yes/no	yeş/no	yes / no	yes / no	yes / no	yes / no
Vell Labeled	Nes / no	yes / no	yes/ no	yes / no	yes / no	yes/no	yes/no
Vell Straight	ves / no	yes / no	yes) no	yes / no	yes / no	yes / no	yes/no
Protective Posts	ves/ no	yes / no	ves/ no	yes / no	yes / no	yes / no	yes/no
Grout Seal Intact	yes Ino	yes / no	yes/ no	yes / no	yes / no	yes / no	yes/no
Dedicated Equipment	yes kno	yes / no	ves) no	yes / no	yes / no	yes / no	yes / no

Well Number							T
Unique Station ID							a director
Date							
Time					1.00		-
Well Casing Elevation							
Depth to Water							-
Static Elevation			-				
Casing Diameter							
Well Depth							
Well Volume						Part of the	
Well Locked	yes / no	voolno					
Well Labeled	yes / no	yes/no yes/no	yes / no				
Well Straight	yes / no	yes/no	yes/no				
Protective Posts	yes / no	yes / no					
Grout Seal Intact	yes / no	yes/no					
Dedicated Equipment	yes / no	yes / no yes / no					

5

MS

#### **Groundwater Level Measurements**

Sampling Personnel:

Offer Tail Power Ea/Big Store Site: Facility ID:

Date: 21Aug23

Well Number	Well 10	Well 11	Well 12	Well 1	H1OX	H1INT	H2OX
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	21 Aug23						-1
Time	1106	1109	1130	1145	1112	1114	10.49
Well Casing Elevation	1098.7	1104	1071.89	1090.71	1115.89	1115.81	1103.86
Depth to Water	18:18	98.17	66.IZ	66.03	26,37	26.91	10.60
Static Elevation	1080.52		1005.77	1024.68	1089,52	The second second	103.26
Casing Diameter	4"	4"	4"	4"	2"	1088:10	2"
Well Depth	47.01	127.22	112.40	7800	32.33	60.15	32.83
Well Volume	18.84	18,98	30.24	7.82	8.97	5.42	3.62
Well Locked	yes / no	yes / no	yes (no	yes Ino	(yes) no	(yes) no	Nes) no
Well Labeled	yes / no	yes/no	yes no	yes no	(ves)no	(yes) no	yes / no
Well Straight	Ges I no	Ves/ no	ves) no	(yes/ no	(ves) no	ves) no	vestho
Protective Posts	yes / no	ves / no	ves) no	yestho	yes (no)	yes (no)	yes no
Grout Seal Intact	yes (no)	yeş no	(yes no)	yes / to	yes (no)	yes (no)	yes / ho
Dedicated Equipment	yes (no)	ves I no	yes no	yes I no	yes / no)	yes (no)	yes/ no

Well Number	H2INT	H30X \	H3INT \	H4OX	H4INT	H5	H6
Unique Station ID	NA	NA	NA	NA	NA	NA	NA
Date	21Aug 27	~					- 1
Time	1048	1054	1055	1100	1058	1136	1116
Well Casing Elevation	1103.91	1095.26	1095.17	1108.25	1108.61	1122.8	1097.76
Depth to Water	61.56	7,28	28.11	18.57.	72:34	12.46	13.67
Static Elevation	1041.46	1087.98	1067.06	1089.68	1090.78	1110:34	1084.09
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	0.14	4	4.29	1,45	6.89	5.20	0.69
Well Locked	Nes / no	(yes)/no	yes / no	(yes) no	(yes) no	(yes) no	(yes/ no
Well Labeled	yes/no	Ves / 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 Ino	yes (no)	yes (no)	yes ( no)	yes) no	yes I no
Grout Seal Intact	yes / no	yes /no	yes / no	yes Kno	yes no	(yes) no	yes (no)
Dedicated Equipment	yes/no/	yes / no	yes (no)	(yes) no	yes (no)	yes/no)	yes / no

0

#### **Groundwater Level Measurements**

Sampling Personnel:

Site: OTP - Big Stone Facility ID:

m

Facility ID: Date: 21 Augo 3

Well Number	H7	H8 `	H9 🥆				
Unique Station ID	NA	NA	NA				1
Date	21 Aug 23						and the second
Time	112.3	1118	1100				
Well Casing Elevation	1106.06	1081.23	1086.21				
Depth to Water	23.67	6.30	10.63				
Static Elevation	1082.39	1574.93	1075,58				
Casing Diameter	2"	2"	2"				
Well Depth	35.60	27,33	30.71				
Well Volume	1.94	2,61	3.27				CHERGER IN
Well Locked	(yes/ no	(yes) no	/ves/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				
Protective Posts	yes/no	ves/ no	ves/ 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							
Unique Station ID					or real parts		
Date							
Time							
Well Casing Elevation							
Depth to Water							and the
Static Elevation							
Casing Diameter					11 <sup>11</sup> 11 <sup>12</sup>		
Well Depth							
Well Volume							
Well Locked	yes / no	yes / no	yes / no				
Well Labeled	yes / no	yes / no	yes / no				
Well Straight	yes / no	yes / no	yes / no				
Protective Posts	yes / no	yes / no	yes / no				
Grout Seal Intact	yes / no	yes / no	yes / no				
Dedicated Equipment	yes / no	yes / no	yes / no				

## Appendix C

**Groundwater Flow Calculations** 

Date	5/15/2023

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
ι τη	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	6.90	1088.36
H9	1086.21	6.75	1079.46

(1) Groundwater Monitoring System Report (Barr, 2016)

#### horizontal distance, ft

	H3OX
H9	2272.3

#### difference in WL elevation, ft

	H3OX	
H9		8.90

#### horizontal gradient, ft/ft

	H3OX
H9	0.00392

#### V, ft/d

	H3OX	
H9	0.00933	;

#### V, ft/yr

	H3OX
H9	3.4

#### V avg, ft/y

Date 6/12/2023

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
ι τη	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	7.76	1087.50
H9	1086.21	10.29	1075.92

(1) Groundwater Monitoring System Report (Barr, 2016)

#### horizontal distance, ft

	H3OX
H9	2272.3

#### difference in WL elevation, ft

	H3OX
H9	11.58

#### horizontal gradient, ft/ft

	H3OX
H9	0.00510

#### V, ft/d

	H3OX	
H9		0.01213

#### V, ft/yr

	H3OX
H9	4.4

#### V avg, ft/y

Date 7/21/2023

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
ι τη π	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	8.05	1087.21
H9	1086.21	11.97	1074.24

(1) Groundwater Monitoring System Report (Barr, 2016)

#### horizontal distance, ft

	H3OX
H9	2272.3

#### difference in WL elevation, ft

	H3OX
H9	12.97

#### horizontal gradient, ft/ft

	H3OX
H9	0.00571

#### V, ft/d

	H3OX	
H9		0.01359

#### V, ft/yr

	H3OX
H9	5.0

#### V avg, ft/y

Date 10/17/2023

Kh	2.10E-04	cm/s	Groundwater Monitoring System Report (Barr, 2016)
ι τη	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	8.00	1087.26
H9	1086.21	11.57	1074.64

(1) Groundwater Monitoring System Report (Barr, 2016)

#### horizontal distance, ft

	H3OX
H9	2272.3

#### difference in WL elevation, ft

	H3OX	
H9		12.62

#### horizontal gradient, ft/ft

	H3OX
H9	0.00555

#### V, ft/d

	H3OX
H9	0.01322

#### V, ft/yr

	H3OX
H9	4.8

#### V avg, ft/y

## Appendix D

**Additional Groundwater Elevations** 

#### Appendix D Additional 2023 Water Elevations Big Stone Plant Otter Tail Power Company

Location	Well Casing Elevation	6/12/2023	7/21/2023	8/21/2023
	ft AMSL	ft AMSL	ft AMSL	ft AMSL
H10	1090.83	1078.28	1076.58	1075.36
H11	1093.24	1082.19	1080.23	1079.29
H1INT	1115.81	1092.11	1089.7	1088.9
H1OX	1115.89	1092.93	1090.43	1089.52
H2I	1103.91	1042.41	1042.34	1042.35
H2OX	1103.86	1096.46	1094.34	1093.26
H3I	1095.17	1067.25	1067.05	1067.06
H3OX	1095.26	1087.5	1087.21	1087.98
H4I	1108.61	1091.51	1089.63	1090.78
H4OX	1108.25	1091.12	1089.79	1089.68
H5	1122.8	1111.42	1110.49	1110.34
H6	1097.76	1087.07	1084.49	1084.09
H7	1106.06	1086.8	1084.12	1082.39
H8	1081.23	1072.52	1071.48	1074.93
H9	1086.21	1075.92	1074.24	1075.58
WELL 1	1090.71	1025.41	1025.33	1024.68
WELL 10	1098.7	1081.69		1080.52
WELL 11	1104	1009.45	1009.21	1005.83
WELL 12	1071.89	1005.05	1005.59	1005.77

#### Notes:

-- Not Measured

## Appendix E

Alternative Source Demonstration: Calcium, Fall of 2022



## Alternative Source Demonstration: Calcium, Fall 2022

### **Big Stone Plant**

Prepared for Otter Tail Power Co.

April 2023

4300 MarketPointe Drive, Suite 200 Minneapolis, MN 55435 952.832.2600 www.barr.com

#### Certification

I hereby certify that the written demonstration provided herein, supported by the data in the referenced documents, is accurate and consistent with our review of the groundwater and other data collected to date, as required under the CCR Rule (§257.94(e)(2)). Based on this review I have determined that a source other than the CCR unit regulated under the CCR Rule at the Site caused the statistically significant increase over the background for calcium in monitoring well H6 that is downgradient from that unit.

. Aure

Paul Swenson PE #: add PE number

April 25, 2023

Date

### Alternative Source Demonstration: Calcium, Fall 2022

April 2023

## Contents

1	Introduction	.1
2	ASD Hypotheses	.2
2.1	Sampling Error	.2
2.2	Chemistry Inconsistent with CCR	2
3	Conclusion	.4
4	References	. 5

### List of Figures

Figure 1 Concentrations of appendix III parameters at H6

### Abbreviations

ADA	Ash Disposal Area
ASD	Alternative Source Demonstration
CCR	Coal Combustion Residuals
EPA	U.S. Environmental Protection Agency
OTP	Otter Tail Power Company
SAP	Sampling and Analysis Plan
SSI	Statistically Significant Increase
TDS	Total Dissolved Solids

## 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.

A statistically significant increase (SSI) over background was identified for calcium at downgradient monitoring well H6 during the fall 2022 detection monitoring event.

Well	Parameter	Fall 2022 Concentration	Interwell Prediction Limit	Intrawell Prediction Limit
H6	Calcium	748 mg/L	543 mg/L	62.1 mg/L

The CCR Rule §257.94(e)(2) allows for an alternative source demonstration (ASD) in the event of an identified SSI in an appendix III water quality parameter in a downgradient monitoring well:

The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report.

The purpose of this work is to evaluate the data collected as part of the fall 2022 monitoring event, along with historical data, to demonstrate that the SSI is the result of a source other than the CCR unit or due to natural variation in groundwater quality or an error in sampling, analysis, or statistical evaluation. This report provides written documentation of an ASD supporting continuation of detection monitoring in accordance with §257.94(e)(2) of the CCR Rule.

## 2 ASD Hypotheses

### 2.1 Sampling Error

Based on field notes and discussion with field staff, proper low-flow sampling methods consistent with the Sampling and Analysis Plan (SAP, Carlson McCain, 2017) were not used during sample collection at H6 during the fall 2022 detection monitoring event. Specifically, the well was not purged and allowed to stabilize prior to sample collection. In addition, due to seasonal constraints of low water level and winter conditions, the well could not be resampled once the error was discovered.

A dedicated bladder pump is installed in monitoring well H6 for sampling. During the fall 2022 sampling event, the water level was below the level of the pump intake. The pump was removed for sampling, and a sample was collected using a disposable bailer.

The preamble to the CCR Rule (VI(K)(3)) notes that "Groundwater sampling should be conducted utilizing EPA protocol low stress (low-flow) purging and sampling methodology, including measurement and stabilization of key indicator parameters prior to sampling." Well stabilization is conducted prior to groundwater sampling in order to obtain a sample representative of aquifer conditions. Properly constructed and developed groundwater monitoring wells allow for the collection of representative samples with low turbidity (U.S. EPA, 1986, 1992). However, even correctly installed wells can produce turbid samples in certain geologic materials. Thus, purging and stabilization are necessary to yield reproducible sampling results. Due to limited recharge, monitoring well H6 was not sufficiently purged and did not stabilize during the fall 2022 sampling.

Monitoring well H6 has been documented as being slow to recharge (Barr, 2016), and recent dry climatic conditions have resulted in a lowered water table. Obtaining sufficient groundwater volume for analysis at H6 has proven challenging, particularly during the drier fall season. As a result, the sample sent for laboratory chemical analysis in fall 2022 consisted of the initial draw of water from the well without stabilization. Although field parameters were not measured due to the limited volume, the sample was noted to be cloudy with heavy sediment, suggesting a high turbidity. Attempts were made to resample well H6 to obtain a more representative sample. However, water levels in the well remained low, with insufficient volume for sampling and analysis.

In summary, because of limited water availability at monitoring well H6, the sampling protocol was changed from the SAP, yielding a sample with a high concentration of suspended solids, which is not representative of typical aquifer conditions. Therefore, the SSI is attributed to error in sampling.

### 2.2 Chemistry Inconsistent with CCR

The previous section concluded that the SSI was the result of a non-representative sample with high turbidity, indicating the presence of suspended solids. The CCR Rule requires measurement of "total recoverable metals" because suspended and colloidal particles can also be a means of transport for contaminants. However, the suspended solids responsible for the calcium SSI at monitoring well H6 are

believed to be natural aquifer material and not mobilized CCR contaminants, as indicated by the behavior of additional groundwater parameters. Further details supporting this hypothesis are provided below.

If the ADA is the source of a release to groundwater that caused the SSI for calcium at H6, elevated concentrations of other parameters indicative of a CCR release should appear at about the same time because an ADA release would contain a mixture of multiple CCR parameters. Conversely, if concentrations in H6 are not elevated for the remaining CCR parameters, it is unlikely that the elevated calcium is the result of a release from the ADA.

The other six appendix III detection monitoring parameters (boron, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS)) in the fall 2022 sample from H6 were measured at concentrations consistent with previous values (Figure 1). The lack of an increase in other appendix III indicator parameters is evidence that the calcium SSI at H6 did not result from an ADA release.

More specifically, if the elevated suspended solids at H6 are associated with CCR, other total recoverable metals associated with CCR would increase along with calcium. Among the CCR detection monitoring parameters, only calcium and boron are measured in the total recoverable metals fraction. Despite the tenfold increase in calcium concentration, boron decreased slightly between spring and fall 2022 (Figure 1). Therefore, elevated calcium and apparent elevated suspended solids are unlikely to be associated with a release from the ADA.

The shallow geology at Big Stone is composed of glacial till from the Late Wisconsin Des Moines Lobe, consisting largely of lean clay with seams and lenses or zones of sand and silt (Barr, 2016). Till in this area is generally calcareous (Gilbertson, 1990). Therefore, the aquifer contains fine-grained, calcium-bearing material, and this material is more likely to be transported by groundwater into monitoring wells if low-flow sampling methods are not used.

In summary, the H6 sample that exhibited a calcium SSI did not have elevated concentrations of other parameters that would be expected with a release from the ADA. In addition, high calcium is consistent with solids from the aquifer matrix. Therefore, the sample chemistry supports the hypothesis that a release from the ADA did not cause the SSI.

## Conclusion

The concentration of calcium in the sample from monitoring well H6 in fall 2022 was not representative of long-term groundwater quality. Instead, the SSI is attributed to an error in sampling. Due to low water volume at monitoring well H6 during the fall 2022 detection monitoring event, the well was not sufficiently purged and was sampled using a bailer. As a result, the sample contained a high amount of suspended solids, and the concentration of calcium in the total available metals fraction was anomalously high. Moreover, the other six appendix III detection monitoring parameters (boron, chloride, fluoride, pH, sulfate, and TDS) in the fall 2022 sample from H6 were measured at concentrations consistent with previous values, which contradicts a release from the ADA as the cause of the SSI. Therefore, the calcium SSI is attributed to a source other than the Ash Disposal Area.

## **4** References

- Barr Engineering, 2016. Groundwater Monitoring System Report, Ash Disposal Area, Big Stone Plant. Prepared for Otter Tail Power Company. December 2016.
- 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.
- Gilbertson, J.P., 1990. Quaternary geology along the eastern flank of the Coteau des Prairies, Grant County, South Dakota. Masters Thesis, University of Minnesota.
- U.S. EPA, 1992. RCRA Ground-Water Monitoring: Draft Technical Guidance. https://www.epa.gov/sites/default/files/2015-06/documents/rcra\_gwm92.pdf
- U.S. EPA, 1986. RCRA Ground-Water Monitoring Technical Enforcement Guidance Document. OSWER-9950.

## Figure

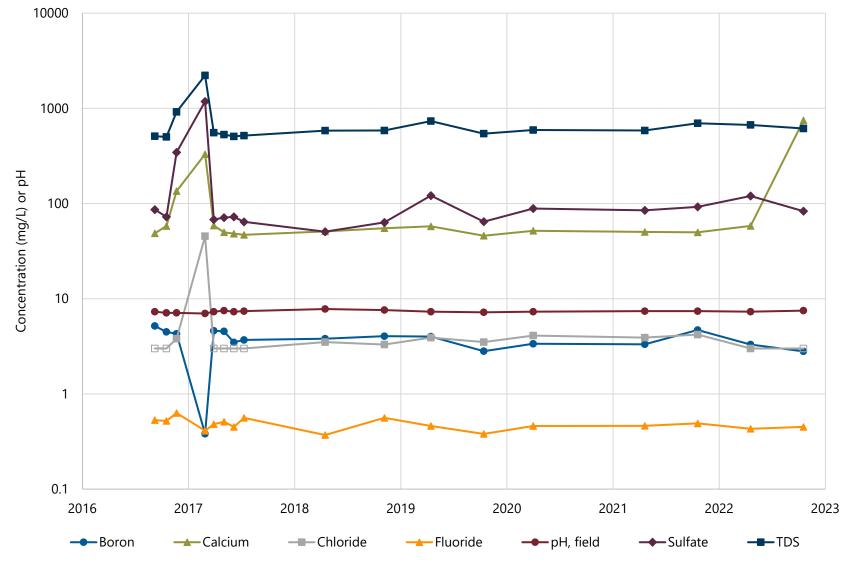


Figure 1 Concentrations of appendix III parameters at H6