

2024 Annual Groundwater Monitoring and Corrective Action Report

Ash Landfill

Hoot Lake Plant

Fergus Falls, Minnesota

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Prepared for Otter Tail Power Company

Prepared by Barr Engineering Co.

January 2025





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Abbreviations

CFR Code of Federal Regulations

EPA Environmental Protection Agency

GWPS Groundwater Protection Standards

- 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 40 CFR 257.90(e)(6). On November 3, 2022, the CCR unit transitioned to an assessment monitoring program, as required by §257.94(e). At the end of the 2024 annual reporting period, an assessment monitoring program as described in §257.95 was ongoing at the CCR unit.

Statistical analysis of Appendix III parameters for the May 2024 monitoring data identified SSIs for the following: pH at S-10R and total dissolved solids (TDS) at S-13. Analysis of the Appendix IV parameters resulted in no exceedances of groundwater protection standards.

Statistical analysis of Appendix III parameters for the October 2024 monitoring data identified SSIs for the following: Calcium at S-10R and TDS at S-13. Analysis of the Appendix IV parameters resulted in no exceedances of groundwater protection standards.

As a result, corrective and remedial measures were not required as described in §257.96, 257.97, and 257.98.

1 Introduction

Otter Tail Power Company (OTP) operated the Hoot Lake Generating Plant (Hoot Lake), located in Fergus Falls, Minnesota. Hoot Lake was a coal-fired electrical generating plant, the operation of which resulted in coal combustion residuals (CCR) as a by-product. Hoot Lake stopped burning coal on May 27, 2021. Management of CCR from plant operations included placing CCR in an on-site landfill, referred to as the Ash Landfill. The Ash Landfill 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 Ash Landfill is shown on

Figure 1. The last phase of final cover construction was completed in 2023. A Construction Certification Report (Carlson-McCain) documenting the construction was submitted to the Minnesota Pollution Control Agency (MPCA) on November 20, 2023. The Ash Landfill entered post-closure care on January 11, 2024.

This 2024 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) describes the monitoring program and results for the Ash Landfill at Hoot Lake. The Ash Landfill is currently in assessment monitoring, as described in §257.95 of the CCR Rule.

1.1 Purpose

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

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

1.2 Status of the Groundwater Monitoring and Corrective Action Program

Baseline monitoring was completed in 2017, as documented in the 2017 Annual Groundwater Monitoring and Corrective Action Report, Ash Disposal Area (Barr, 2018). Evaluation of groundwater monitoring data for SSIs over background levels for the constituents listed in Appendix III to the CCR Rule, began on October 17, 2017, and continued until November 2, 2022. Statistically significant increases (SSIs) over background were determined for the spring 2022 monitoring event for calcium, sulfate, and total dissolved solids at monitoring well S-3A-R. As a result, the CCR unit transitioned to assessment monitoring on November 2, 2022 (Section 2.3). At the end of 2024, the assessment monitoring program was ongoing.

The initial groundwater sampling event (§257.95(b)) under the assessment monitoring program was conducted on November 17, 2022. All constituents listed in Appendix III and Appendix IV to the CCR Rule were sampled in 2024 on May 2, October 1, and October 22. Groundwater protection standards (GWPS) were established for all Appendix IV constituents as described in the Statistical Analysis Plan, Appendix B of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2017). Corrective and remedial measures were not required as described in §257.96, 257.97, and 257.98.

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
§257.90(e)(1)	Map showing the CCR unit and all monitoring wells that are part of the groundwater monitoring system	Section 2.1.1 Documentation; see Figure 1
§257.90(e)(2)	Discuss any new or decommissioned monitoring wells	Not applicable – no wells were installed or decommissioned
§257.90(e)(3)	All monitoring data obtained under §257.90 through §257.98; provide the number and date groundwater samples were collected, and the monitoring (i.e., detection or assessment)	 Section 2.2 Monitoring and Analytical Results; Figure 1 Figure 2, Figure 3, Appendices
§257.90(e)(4)	Discuss any transition between monitoring programs	Section 2.3 Monitoring
§257.90(e)(5)	Other information specified in §257.90 through §257.98	Throughout report
§257.90(e)(6)	Overview at beginning of annual report	Executive Summary

Table 1 CCR Rule Requirements

2 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the Ash Landfill for 2024. The groundwater monitoring system is described in Section 2.1, the monitoring and analytical results are described in Section 2.2, key actions completed and problems encountered are described in Section 2.4, and key activities planned for 2025 are described in Section 2.5.

2.1 Groundwater Monitoring System

2.1.1 Documentation

Figure 1 shows an aerial image of the Ash Landfill 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 Ash Landfill monitoring wells can be found in the Groundwater Monitoring System Report (Barr, 2016).

2.1.2 Changes to Monitoring System

The groundwater monitoring system was unchanged in 2024.

2.2 Monitoring and Analytical Results

Groundwater samples were collected from monitoring wells S-51, S-52, S-10R, S-13, S-14R, and S-3A-R during two semiannual assessment monitoring sampling events in 2024 (Table 2). Monitoring well S-2A did not have sufficient volume to sample during any semiannual sampling events in 2024. A total of twelve groundwater samples were collected and analyzed for the constituents listed in Appendix III and Appendix IV (Part 257) in 2024 under the assessment monitoring program, consistent with the requirements of §257.95(b). Dates of sampling are reported on the field data sheets, and analytical laboratory reports are presented in Appendix A. Results are summarized in Table 3. Groundwater flow data, as required by §257.93(c), are presented in Figure 2 and Figure 3.

2.3 Monitoring Program Status

The Ash Landfill transitioned to assessment monitoring from detection monitoring on November 2, 2022. Two semiannual assessment monitoring events occurred during 2024. The landfill remains under assessment monitoring at the end of 2024.

Monitoring Location	May 2024 Semiannual Sampling	October 2024 Semiannual Sampling
Date	May 2, 2024	October 1 and 22, 2024
S-51 (background)	Appendix III & IV	Appendix III & IV
S-52 (background)	Appendix III & IV	Appendix III & IV
S-10R	Appendix III & IV	Appendix III & IV
S-13	Appendix III & IV	Appendix III & IV
S-14R	Appendix III & IV	Appendix III & IV
S-2A	Insufficient volume	Water level only (insufficient volume)
S-3A-R	Appendix III & IV	Appendix III & IV
Number of Samples	• 6	• 6

Table 2 2024 Groundwater Sampling Summary

2.4 Key Actions Completed/Problems Encountered

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

• Completed semiannual groundwater sampling under the assessment monitoring program during May and October 2024 in accordance with the CCR Rule.

The following problems were encountered, and the following actions were taken to resolve them:

 Monitoring well S-2A yielded insufficient water volume for sampling during all assessment monitoring events in 2024. Water levels at S-2A were below the screened interval for three of the last four sampling events; however, four other wells are present downgradient of the Ash Landfill, so no additional monitoring system modifications are recommended at this time.

2.5 Key Activities for the Upcoming Year

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

- Continue the assessment monitoring program in accordance with the CCR Rule.
- Evaluate sampling efforts and results at monitoring well S-2A. If sampling efforts are unsuccessful, evaluate the monitoring well network to determine whether monitoring well S-2A can be removed from the monitoring program while retaining continued compliance with §257.91.

3 References

- Barr, 2016. Groundwater Monitoring System Report, Ash Landfill, Hoot Lake Plant. Prepared for Otter Tail Power Company. November 2016.
- Barr, 2018. 2017 Annual Groundwater Monitoring and Corrective Action Report, Hoot Lake Plant. Prepared for Otter Tail Power Company. January 2018.
- Carlson McCain, 2017. CCR Groundwater Sampling and Analysis Plan (Including Statistical Method Selection and Certification), Ash Landfill-Hoot Lake Plant. Prepared for Otter Tail Power Company. October 2017.



Tables

Table 3 Groundwater Analytical Data Summary Hoot Lake Station Otter Tail Power Company

	Location	S-10R	S-10R	S-13	S-13	S-14R	S-14R	S-3A-R
	Date	5/02/2024	10/01/2024	5/02/2024	10/01/2024	5/02/2024	10/22/2024	5/02/2024
Sar	nple Type	N	Ν	N	N	N	Ν	N
Parameter	Units							
Appendix III								
Boron, Total	mg/l	< 0.1 U	< 0.1 U	< 0.1 U	0.110	< 0.1 U	< 0.1 U	0.137
Calcium, Total	mg/l	107.0	148.0	111.0	123.0	103.0	112.0	104.0
Chloride	mg/l	12.3	10.1	6.8	7.4	4.5	4.1	12.9
Fluoride	mg/l	0.190	0.160	0.220	0.210	0.230	0.210	0.190
pH, Field	pH units	7.46	7.30	7.22	7.26	7.44	6.85	7.42
Solids, total dissolved	mg/l	520	506	549	583	491	479	543
Sulfate, as SO4	mg/l	106	66.7	81.1	91.9	80.0	69.8	118
Appendix IV								
Antimony, Total	mg/l	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U
Arsenic, Total	mg/l	0.00708	0.0208	< 0.0005 U	< 0.0005 U	0.00268	0.00336	< 0.0005 U
Barium, Total	mg/l	0.097	0.191	0.053	0.083	0.045	0.048	0.037
Beryllium, Total	mg/l	< 0.00005 U	0.00015	< 0.00005 U	< 0.00005 U	< 0.00005 U	< 0.00005 U	< 0.00005 U
Cadmium, Total	mg/l	< 0.0001 U	0.00012	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U
Chromium, Total	mg/l	0.00088	0.0115	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.01 U	< 0.0005 U
Cobalt, Total	mg/l	< 0.005 U	0.007	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U
Lead, Total	mg/l	< 0.0005 U	0.00446	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U
Lithium, Total	mg/l	0.020	0.025	0.025	0.026	0.027	0.029	< 0.02 U
Mercury, Total	mg/l	< 0.000005 U	0.000011	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U	< 0.000005 U
Molybdenum, Total	mg/l	0.00199	0.00118	0.00132	0.00120	0.00244	0.00255	0.00184
Selenium, Total	mg/l	< 0.0005 U	0.00155	0.00098	0.00095	< 0.0005 U	< 0.0005 U	0.00278
Thallium, Total	mg/l	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U
Radium 226	pCi/l	0.553 +/- 0.309	0.760 +/- 0.370	0.413 +/- 0.256	0.197 +/- 0.256 ND	0.465 +/- 0.263	0.297 +/- 0.282 ND	0.967 +/- 0.366
Radium 228	pCi/l	0.978 +/- 0.289	2.90 +/- 0.450	0.203 +/- 0.346 ND	1.14 +/- 0.353 UB	1.24 +/- 0.249	1.13 +/- 0.531	0.190 +/- 0.308 ND
Radium, combined (226+228)	nCi/l	1 531 ±/ 0 433	3 66 1/ 0 593	0 616 ±/ 0 /30 ~	0 107 +/- 0 256 ND	1 705 ±/ 0 262	1 43 ±/ 0 601 ~	1 157 ±/ 0 479 ~
[Barr Calculation]	poin	1.001 +/- 0.420	3.00 +/- 0.003	0.010 +/- 0.430 q	0.137 T/- 0.230 ND	1.703 +/- 0.302	1.43 T/- 0.001 Q	1.15/ T/- 0.4/0 Q
Other								
Groundwater elevation, Field	ft amsl	1209.28	1210.36	1210.8	1211.67	1201.81	1201.57	1203.11

N Sample Type: Normal Detection Monitoring

FB Sample Type: Field Blank

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.

Table 3 Groundwater Analytical Data Summary Hoot Lake Station Otter Tail Power Company

	Location	S-3A-R	S-51	S-51	S-52	S-52	QC
	Date	10/01/2024	5/02/2024	10/01/2024	5/02/2024	10/01/2024	10/01/2024
Sa	mple Type	N	N	N	N	N	FB
Parameter	Units						
Appendix III							
Boron, Total	mg/l	0.115	0.187	0.212	< 0.1 U	< 0.1 U	< 0.1 U
Calcium, Total	mg/l	106.0	79.20	81.30	99.00	99.40	< 0.5 U
Chloride	mg/l	12.3	7.7	8.1	14.6	14.5	< 3 U
Fluoride	mg/l	0.180	0.240	0.240	0.200	0.190	< 0.02 U
pH, Field	pH units	7.21	7.38	6.42	7.31	6.08	
Solids, total dissolved	mg/l	531	444	456	457	459	< 10 U
Sulfate, as SO4	mg/l	92.2	51.9	52.1	66.1	59.5	< 5 U
Appendix IV							
Antimony, Total	mg/l	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U
Arsenic, Total	mg/l	< 0.0005 U	< 0.0005 U	0.00059	0.00180	0.00177	< 0.0005 U
Barium, Total	mg/l	0.038	0.055	0.060	0.104	0.107	< 0.005 U
Beryllium, Total	mg/l	< 0.00005 U	< 0.00005 U	< 0.00005 U	< 0.00005 U	< 0.00005 U	< 0.00005 U
Cadmium, Total	mg/l	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U
Chromium, Total	mg/l	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U
Cobalt, Total	mg/l	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U
Lead, Total	mg/l	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U
Lithium, Total	mg/l	< 0.02 U	< 0.02 U	< 0.02 U	0.020	< 0.02 U	< 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
Molybdenum, Total	mg/l	0.00174	0.00260	0.00191	0.00187	0.00176	< 0.0005 U
Selenium, Total	mg/l	0.00256	0.00074	< 0.0005 U	< 0.0005 U	< 0.0005 U	< 0.0005 U
Thallium, Total	mg/l	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U	< 0.0001 U
Radium 226	pCi/l	0.0234 +/- 0.178 ND	0.346 +/- 0.249	0.0627 +/- 0.257 ND	0.201 +/- 0.225 ND	0.0841 +/- 0.233 ND	0.0912 +/- 0.196 ND
Radium 228	pCi/l	0.374 +/- 0.238 ND	0.0923 +/- 0.357 ND	1.08 +/- 0.337 UB	0.746 +/- 0.275	1.06 +/- 0.380 UB	0.585 +/- 0.285
Radium, combined (226+228)	nCi/l		0 438 +/- 0 435 a	0.0627 +/- 0.257 ND	0 947 +/- 0 355 0	0 0841 +/- 0 233 ND	0 676 +/- 0 346 0
[Barr Calculation]	PO!/1	0.537 17-0.297 ND	0.430 +/- 0.435 q	0.0021 1/2 0.231 ND	0.341 +/- 0.355 q	0.0041 1/2 0.200 ND	0.070 +/- 0.340 q
Other							
Groundwater elevation, Field	ft amsl	1203.14	1236.6	1239.41	1215.78	1217.26	

- N Sample Type: Normal Detection Monitoring
- FB Sample Type: Field Blank
- 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.

Table 4 Appendix III Background Concentrations and Appendix IV Groundwater Protection Standards (GWPS) Hoot Lake Station Otter Tail Power Company

Parameter	Units	Background
Boron	mg/L	0.26
Calcium	mg/L	127
Chloride	mg/L	19.2
Fluoride	mg/L	0.48
рН	units	6.4 - 7.4
Sulfate	mg/L	84.3
Total Dissolved Solids	mg/L	520

Parameter	Units	GWPS
Antimony	µg/L	6
Arsenic	µg/L	10
Barium	µg/L	2000
Beryllium	µg/L	4
Cadmium	µg/L	5
Chromium	µg/L	100
Cobalt	µg/L	6
Fluoride	mg/L	4
Lead	µg/L	15
Lithium	µg/L	40
Mercury	µg/L	2
Molybdenum	µg/L	100
Radium	pCi/L	5.8
Selenium	µg/L	50
Thallium	µg/L	2



Figures





- Downgradient Monitoring Well
- Upgradient Monitoring
 Well
- Water Level Only Well
- May 2024 Groundwater Contour (ft MSL)
- → Groundwater Flow Direction
- Existing CCR Landfill (IL002)
 - Otter Tail Power Company Parcels

Note: Groundwater elevations measured on May 2, 2024.

* Water level not included in contouring. Indicates level of intermediate aquifer.



200

400

Feet

Imagery Source: USDA NAIP (2023)

May 2024 Groundwater Contours Hoot Lake Ash Landfill Otter Tail Power Company Fergus Falls, MN

FIGURE 2

BARR





- Downgradient Monitoring Well
- Upgradient Monitoring
 Well
- Water Level Only Well
- October 2024 Groundwater Contour (ft MSL)
- → Groundwater Flow Direction
- Existing CCR Landfill (IL002)
 - Otter Tail Power Company Parcels

Note: Groundwater elevations measured on October 22, 2024.

* Water level not included in contouring. Indicates level of intermediate aquifer.



400

200 Feet

Imagery Source: USDA NAIP (2023)

October 2024 Groundwater Contours Hoot Lake Ash Landfill Otter Tail Power Company Fergus Falls, MN

FIGURE 3





Appendices



Appendix A

Field and Laboratory Reports





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FINAL REPORT COMPLETION DATE: 20 Jun 24 0 K

Date Reported: 19 Jun 2024

Work Order #: 31-0066 Account #: 006106 PO #: 59640

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

Project Name: HOOT LAKE PLANT-CCR

Fie nager/ Reviewed Date 19 June 4 Reviewed Chemistry Lab Manager/Date 19 June 2024 Unna un Quality Assurance Director/Date Reviewed

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

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

Project Name: HOOT LAKE PLANT-CCR

Sample Description: S3AR

Report Date: 19 Jun 2024 Lab Number: 24-A1425 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 2 May 2024 14:56 Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Temp at Receipt: 2.3C

	As Receiv Result	red	Method RL	Method Reference	Date Analyzed		Analyst
MS Water Digestions					6 May 24		JN
Water Digestions					6 May 24		JN
pH, Field	7.42	units	1.00	SM4500-H+-2011	2 May 24	14:56	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	3 May 24	10:49	CC
Radium 226	0.97	pCi/L	0.60		4 Jun 24	18:03	OL
Radium 228	0.19	pCi/L	3.00	EPA M9320	7 Jun 24	21:45	OL
Sulfate	118	_ mg/L	5.0	ASTM D516-11	16 May 24	10:07	KRM
Chloride	12.9	mg/L	3.0	SM 4500 Cl E	14 May 24	9:13	LNK
Mercury	< 0.005	uq/L	0.005	EPA 245.7	7 May 24	13:55	RMB
-	See Narra	tive			-		
Solids, Total Dissolved	543	mg/L	10	SM 2540 C-97	7 May 24	9:40	CC
Calcium	104.0	mg/L	0.500	SW6010D	7 May 24	12:55	TMM
Lithium	< 0.02	mg/L	0.02	SW6010D	7 May 24	12:55	TMM
Barium	0.037	mg/L	0.005	SW6010D	7 May 24	12:55	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	7 May 24	12:55	TMM
Boron	0,137	mg/L	0.100	SW6010D	7 May 24	12:55	TMM
Antimony	< 0.5	ug/L	0.5	SW6020B	9 May 24	0:20	KAM
Arsenic	< 0.5	ug/L	0.5	SW6020B	9 May 24	0:20	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	9 May 24	0:20	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	9 May 24	12:46	KAM
Chromium	< 0.5	ug/L	0.5	SW6020B	9 May 24	0:20	KAM
Lead	< 0.5	ug/L	0.5	SW6020B	9 May 24	0:20	KAM
Molybdenum	1.84	ug/L	0.50	SW6020B	9 May 24	0:20	KAM
Selenium	2.78	ug/L	0.50	SW6020B	9 May 24	0:20	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	9 May 24	0:20	KAM
Fluoride	0.190	ma/L	0.020	EPA 300.0	8 Mav 24	0:18	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

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.





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

Project Name: HOOT LAKE PLANT-CCR

Sample Description: S51

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Report Date: 19 Jun 2024 Lab Number: 24-A1426 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER 2 May 2024 12:27 Date Sampled: Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Temp at Receipt: 2.3C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed		Analyst
					<u> </u>	1	
MS Water Digestions					6 May 2	1	JN
Water Digestions					6 May 2	1	JN
pH, Field	7.38	units	1.00	SM4500-H+-2011	2 May 2	12:27	BMW
рН	* 7.0	units	1.0	SM 4500 H+ B-2000	3 May 2	4 10:49	CC
Radium 226	0.35	pCi/L	0.60		4 Jun 2	4 18:03	OL
Radium 228	0.09	pCi/L	3.00	EPA M9320	7 Jun 2	4 21:45	OL
Sulfate	51.9	mg/L	5.0	ASTM D516-11	16 May 24	4 10:07	KRM
Chloride	7.7	mg/L	3.0	SM 4500 Cl E	14 May 2	4 9:13	LNK
Mercury	< 0.005	ug/L	0.005	EPA 245.7	7 May 2	4 13:55	RMB
-	See Narra	tive					
Solids, Total Dissolved	444	mg/L	10	SM 2540 C-97	7 May 2	4 9:40	CC
Calcium	79.20	mg/L	0.500	SW6010D	7 May 2	4 12:55	TMM
Lithium	< 0.02	mq/L	0.02	SW6010D	7 May 2	4 12:55	TMM
Barium	0.055	mg/L	0.005	SW6010D	7 May 2	4 12:55	TMM
Cobalt	< 0,005	mg/L	0.005	SW6010D	7 May 2	4 12:55	TMM
Boron	0.187	mg/L	0.100	SW6010D	7 May 2	4 12:55	TMM
Antimony	< 0.5	ug/L	0.5	SW6020B	9 May 2	4 0:20	KAM
Arsenic	< 0.5	ug/L	0.5	SW6020B	9 May 2	4 0:20	KAM
Bervllium	< 0.05	ug/L	0.05	SW6020B	9 May 2	4 0:20	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	9 May 2	4 12:46	KAM
Chromium	< 0.5	ug/L	0.5	SW6020B	9 May 2	4 0:20	KAM
Lead	< 0.5	$u\sigma/L$	0.5	SW6020B	9 May 2	4 0:20	KAM
Molybdenum	2.60	ug/L	0.50	SW6020B	9 May 2	4 0:20	KAM
Selenium	0.74	ug/L	0.50	SW6020B	9 May 2	4 0:20	KAM
Thallium	< 0 1	ug/L	0.1	SW6020B	9 May 2	4 0:20	KAM
Fluoride	0.240	mg/L	0.020	EPA 300.0	8 May 2	4 0:18	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

 RD - Reporting limit

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

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

 @ = Due to sample matrix
 # = Due to concentration of other analytes

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

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

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





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

Project Name: HOOT LAKE PLANT-CCR

Sample Description: S52

Report Date: 19 Jun 2024 Lab Number: 24-A1427 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 2 May 2024 12:05 Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Temp at Receipt: 2.3C

	As Receiv Result	red	Method RL	Method Reference	Date Analy:	zed		Analvst	
MS Water Digestions					6 Ma	/ 24		JN	
Water Digestions					6 Ma	/ 24		JN	
pH, Field	7.31	units	1.00	SM4500-H+-2011	2 May	/ 24	12:05	BMW	
рН	* 6.8	units	1.0	SM 4500 H+ B-2000	3 May	/ 24	10:49	CC	
Radium 226	0.20	pCi/L	0.60		4 Jui	1 24	18:03	OL	
Radium 228	0.75	pCi/L	3.00	EPA M9320	7 Jui	1 24	21:45	OL	
Sulfate	66.1	mg/L	5.0	ASTM D516-11	16 Ma	/ 24	10:25	KRM	
Chloride	14.6	mg/L	3.0	SM 4500 Cl E	14 Ma	24	9:31	LNK	
Mercury	< 0.005	ug/L	0.005	EPA 245.7	7 Ma	24	13:55	RMB	
-	See Narra	tive			-				
Solids, Total Dissolved	457	mg/L	10	SM 2540 C-97	7 May	/ 24	9:40	CC	
Calcium	99.00	mg/L	0.500	SW6010D	7 Ma	/ 24	12:55	TMM	
Lithium	0.020	mg/L	0.020	SW6010D	7 Ma	24	12:55	TMM	
Barium	0.104	mg/L	0.005	SW6010D	7 Ma	/ 24	12:55	TMM	
Cobalt	< 0.005	mg/L	0.005	SW6010D	7 Ma	/ 24	12:55	TMM	
Boron	< 0.1	mg/L	0.1	SW6010D	7 Ma	24	12:55	TMM	
Antimony	< 0.5	ug/L	0.5	SW6020B	9 Ma	/ 24	0:20	KAM	
Arsenic	1.80	ug/L	0.50	SW6020B	9 Ma	/ 24	0:20	KAM	
Beryllium	< 0.05	ug/L	0.05	SW6020B	9 May	/ 24	0:20	KAM	
Cadmium	< 0.1	ug/L	0.1	SW6020B	9 May	/ 24	12:46	KAM	
Chromium	< 0.5	ug/L	0.5	SW6020B	9 Ma	24	0:20	KAM	
Lead	< 0.5	ug/L	0.5	SW6020B	9 Ma	/ 24	0:20	KAM	
Molybdenum	1.87	ug/L	0.50	SW6020B	9 Ma	/ 24	0:20	KAM	
Selenium	< 0.5	ug/L	0.5	SW6020B	9 Ma	24	0:20	KAM	
Thallium	< 0.1	ug/L	0.1	SW6020B	9 Ma	24	0:20	KAM	
Fluoride	0.200	mg/L	0.020	EPA 300.0	8 Ma	/ 24	0:18	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

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

Project Name: HOOT LAKE PLANT-CCR

Sample Description: S10R

Report Date: 19 Jun 2024 Lab Number: 24-A1428 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 2 May 2024 14:00 Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Temp at Receipt: 2.3C

	As Receiv Result	red	Method RL	Method Reference	Date Analyzed		Analyst
MS Water Digestions					6 May 24		.TN
Mater Digestions					6 May 24		TN
nH Field	7 46	unite	1 00	SM4500-H+-2011	2 May 24	14.00	BMW
pH, FIEId	* 6 8	units	1.00	SM 4500 H+ B-2000	3 May 24	10.49	CC
Padium 226	0.0	nci/L	0.60	SM 4500 III D 2000	4 Jun 24	18.04	OT.
Radium 228	0.95	pCi/L	3 00	FDA M9320	7 Jun 24	21.45	OL.
Sulfate	106		5.00	ASTM D516-11	16 May 24	10.25	KBW
Chloride	12 3	mg/L	3.0	SM 4500 C1 F	14 May 24	9.31	LNK
Morcury	12.5	nig/L	0.005	EDN 245 7	7 May 24	13.55	DMD
Mercury	See Narra	ug/D	0.005	EFA 245.7	7 May 24	10.00	NHD
Solids Total Dissolved	520 See Maila		10	SM 2540 C-97	7 May 24	9.40	CC
Calcium	107 0	mg/L	0 500	SW6010D	7 May 24	12.55	тмм
Lithium	0 020	mg/L	0.020	SW6010D	7 May 24	12.55	TMM
Barium	0.020	mg/L	0.020	SW6010D	7 May 24	12.55	TMM
Cobalt		mg/L	0.005	SW6010D	7 May 24	12.55	TMM
Boron	< 0.005	mg/L	0.005	SW6010D	7 May 24	12.55	TMM
Antimony		$\frac{1}{10}/L$	0.5	SW6020B	9 May 24	0.20	KDW
Arsenic	7 08	ug/L	0.50	SW6020B	9 May 24	0.20	KDW
Beryllium		ug/L	0.05	SW6020B	9 May 24	0.20	KAM
Cadmium	< 0.05	ug/L	0.05	SW6020B	9 May 24	12.46	KDW
Chromium	0.88	ug/L	0.50	SW6020B	9 May 24	0.20	K D M
Load		ug/I	0.50	SW6020B	9 May 24	0.20	KVW
Molyhdenum	1 99	ug/1	0.50	SW6020B	9 May 24	0.20	KAM
Solonium	1.55 < 0.5	ug/L	0.50	SW6020B	9 May 24	0.20	KUM
UCICUIUM Thallium		ug/1	0.5	SWOOZOB	9 May 24	0.20	KVW
Flueride		uy/L	0.1		9 May 24	0.20	MUR

* 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

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MVTL

JOSH HOLLEN

PO BOX 496

Sample Description: S13

OTTER TAIL POWER CO

Project Name: HOOT LAKE PLANT-CCR

56538-0496

FERGUS FALLS MN

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6 of 9 Page:

Report Date: 19 Jun 2024 Lab Number: 24-A1429 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 2 May 2024 11:23 Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Temp at Receipt: 2.3C

	As Receiv Result	red	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions		·			6 May 24	JN
Water Digestions					6 May 24	JN
pH, Field	7.22	units	1.00	SM4500-H+-2011	2 May 24 11:28	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	3 May 24 10:49	CC
Radium 226	0.41	pCi/L	0.60		4 Jun 24 18:04	OL
Radium 228	0,20	pCi/L	3.00	EPA M9320	7 Jun 24 21:45	OL
Sulfate	81.1 0	mg/L	5.0	ASTM D516-11	16 May 24 10:25	KRM
Chloride	6.8	mg/L	3.0	SM 4500 Cl E	14 May 24 9:31	LNK
Mercury	< 0.005	ug/L	0.005	EPA 245.7	7 May 24 13:55	RMB
-	See Narra	tive				
Solids, Total Dissolved	549	mg/L	10	SM 2540 C-97	7 May 24 9:40	CC
Calcium	111.0	mg/L	0.500	SW6010D	7 May 24 12:55	TMM
Lithium	0.025	mg/L	0.020	SW6010D	7 May 24 12:55	TMM
Barium	0.053	mg/L	0.005	SW6010D	7 May 24 12:55	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	7 May 24 12:55	TMM
Boron	< 0.1	mg/L	0.1	SW6010D	7 May 24 12:55	TMM
Antimony	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Arsenic	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	9 May 24 0:20	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	9 May 24 12:46	KAM
Chromium	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Lead	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Molybdenum	1.32	ug/L	0.50	SW6020B	9 May 24 0:20	KAM
Selenium	0.98	ug/L	0.50	SW6020B	9 May 24 0:20	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	9 May 24 0:20	KAM
Fluoride	0.220 @	mg/L	0.020	EPA 300.0	8 May 24 5:32	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards. The reporting limit was elevated for any analyte requiring a dilution as coded below: (e = 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: HOOT LAKE PLANT-CCR

Sample Description: S14R

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Report Date: 19 Jun 2024 Lab Number: 24-A1430 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 2 May 2024 13:13 Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Temp at Receipt: 2.3C

	As Receiv Result	red	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					6 May 24	JN
Water Digestions					6 May 24	JN
pH, Field	7.44	units	1.00	SM4500-H+-2011	2 May 24 13:13	BMW
рН	* 7.0	units	1.0	SM 4500 H+ B-2000	3 May 24 10:49	CC
Radium 226	0.46	pCi/L	0.60		4 Jun 24 18:04	OL
Radium 228	1.24	pCi/L	3.00	EPA M9320	7 Jun 24 21:45	OL
Sulfate	80.0	mg/L	5.0	ASTM D516-11	16 May 24 10:25	KRM
Chloride	4.5	mg/L	3.0	SM 4500 Cl E	14 May 24 9:31	LNK
Mercury	< 0.005	ug/L	0.005	EPA 245.7	7 May 24 13:55	RMB
-	See Narra	tive			-	
Solids, Total Dissolved	491	mg/L	10	SM 2540 C-97	7 May 24 9:40	CC
Calcium	103.0	mg/L	0.500	SW6010D	7 May 24 12:55	TMM
Lithium	0.027	mg/L	0.020	SW6010D	7 May 24 12:55	TMM
Barium	0.045	mg/L	0.005	SW6010D	7 May 24 12:55	TMM
Cobalt	< 0.005	mg/L	0.005	SW6010D	7 May 24 12:55	TMM
Boron	< 0.1	mg/L	0.1	SW6010D	7 May 24 12:55	TMM
Antimony	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Arsenic	2.68	ug/L	0.50	SW6020B	9 May 24 0:20	KAM
Beryllium	< 0.05	ug/L	0.05	SW6020B	9 May 24 0:20	KAM
Cadmium	< 0.1	ug/L	0.1	SW6020B	9 May 24 12:46	KAM
Chromium	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Lead	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Molybdenum	2.44	ug/L	0.50	SW6020B	9 May 24 0:20	KAM
Selenium	< 0.5	ug/L	0.5	SW6020B	9 May 24 0:20	KAM
Thallium	< 0.1	ug/L	0.1	SW6020B	9 May 24 0:20	KAM
Fluoride	0.230	ma/L	0.020	EPA 300.0	8 May 24 5:32	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

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Date Reported: 19 Jun 2024

Work Order #: 202431-0066 Account Number: 006106 PO #: 59640

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

Project Name: HOOT LAKE PLANT-CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

The mercury matrix spike duplicate recovery was outside of acceptable limits for samples 24-A1425 through 24-A1430. Mercury was reported based on acceptable matrix spike recovery and acceptable duplication of the matrix spikes.

No other problems were encountered with these analyses.



Method

RL

Method

Reference



Analyst

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Report Date: 19 Jun 2024 Lab Number: 24-A1431 Work Order #: 31-0066 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 2 May 2024 Sampled By: MVTL FIELD PERSONNEL Date Received: 2 May 2024 19:00 PO #: 59640

Date

Analyzed

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

Project Name: HOOT LAKE PLANT-CCR

Sample Description: S2A

Misc Comment

NO SAMPLE/DRY

As Received

Result

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

Ouality Control Report

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MEMBER ACIL

Lab IDs: 24-A1425 to 24-A1	Project: HOOT LAKE PLANT-CCR Work Order: 202431-0066										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	105	85-115	25.0	24A1399q	< 0.5	26.8	107	75-125	26.8	26.9	108	0.4	10	104	90-110	< 0.5
Arsenic ug/L	25.0	101	85-115	25.0	24A1399q	1.46	27.7	105	75-125	27.7	27.8	105	0.4	10	99	90-110	< 0.5
Barium mg/L	1.000	93	85-115	1.00	24A1399qc	0.075	1.020	94	75-125	1.020	1.080	100	5.7	10	99	90-110	< 0.005
Beryllium ug/L	2.50	98	85-115	2.50	24A1399q	< 0.05	2.59	104	75-125	2.59	2.66	106	2.7	10	104	90-110	< 0.05
Boron mg/L	1.000	93	85-115	1.00	24A1399qc	< 0.1	0.978	98	75-125	0.978	1.060	106	8.0	10	97	90-110	< 0.1
Cadmium ug/L	5.00	101	85-115	5.00	24-A1399	< 0.1	5.14	103	75-125	5.14	5.38	108	4.6	10	103	90-110	< 0.1
Calcium mg/L	50.00	91	85-115	50.0	24A1399qc	34.00	78.60	89	75-125	78.60	84.00	100	6.6	10	100	90-110	< 0.5
Chloride mg/L		-	-	60.0 60.0	24-A1398 24-A1462	< 3 30.2	62.6 95.5	104 109	80-120 80-120	62.6 95.5	64.3 94.7	107 108	2.7 0.8	10 10	93 98	90-110 90-110	< 3 < 3
Chromium ug/L	25.0	100	85-115	25.0	24A1399q	< 0.5	24.8	99	75-125	24.8	25.2	101	1.6	10	100	90-110	< 0.5
Cobalt mg/L	1.000	93	85-115	1.00	24A1399qc	< 0.005	0.905	90	75-125	0.905	0.969	97	6.8	10	99	90-110	< 0.005
Fluoride mg/L	-	-	-	0.20 1.00	24-A1398 24-A1429	< 0.02 0.220	0.200	100 100	75-125 75-125	0.200 1.22	0.210 1.23	105 101	4.9 0.8	10 10	102 101	90-110 90-110	< 0.02 -
Lead ug/L	25.0	100	85-115	25.0	24A1399q	< 0.5	25.5	102	75-125	25.5	25.6	102	0.4	10	100	90-110	< 0.5
Lithium mg/L	1.000	94	85-115	1.00	24-A1399qc	< 0.02	0.936	94	75-125	0.936	1.000	100	6.6	10	101	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	24-A1400	< 0.005	0.107	107	63-111	0.107	0.113	113	5.5	18	101	76-113	< 0.005
Molybdenum ug/L	25.0	100	85-115	25.0	24A1399q	0.90	27.0	104	75-125	27.0	26.8	104	0.7	10	100	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.7	7.7	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	101	85-115	25.0	24A1399q	< 0.5	27.1	108	75-125	27.1	26.8	107	1.1	10	102	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	414	410	-	1.0	10	101	85-115	< 10
Sulfate mg/L	-	-	-	50.0 500	24-A1405 24-A1429	< 5 81.1	49.5 602	99 104	80-120 80-120	49.5 602	49.6 598	99 103	0.2 0.7	10 10	86 85	80-120 80-120	< 5 < 5
Thallium ug/L	5.00	99	85-115	5.00	24A1399q	< 0.1	5.09	102	75-125	5.09	5.20	104	2.1	10	100	90-110	< 0.1

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

Approved by:



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

June 12, 2024

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

RE: Project: 31-0066 Otter Tail Power Pace Project No.: 10691860

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on May 06, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

Sincerely,

Puper & Sikes

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

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project:31-0066 Otter Tail PowerPace Project No.:10691860

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10691860001	 24-A1425	Water	05/02/24 14:56	05/06/24 09:40
10691860002	24-A1426	Water	05/02/24 12:27	05/06/24 09:40
10691860003	24-A1427	Water	05/02/24 12:05	05/06/24 09:40
10691860004	24-A1428	Water	05/02/24 14:00	05/06/24 09:40
10691860005	24-A1429	Water	05/02/24 11:23	05/06/24 09:40
10691860006	24-A1430	Water	05/02/24 13:13	05/06/24 09:40

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

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



Neglete Month <	
Address 1126 NORTH FRONT BLDG #2 Org/ To: trigger@mvd.com Company Name: MVTL REGULATORY AGENCY NEW ULM, MN 56073 Purches Order No:: CL13239 Pase Adves 1126 NORTH FRONT BLDG #2 Image: North State order No:: Cl13239 Pase Adves Image: North State order No:: Image: North State order No:: Cl13239 Pase Adves Image: North State order No:: Image: North State order North State or	DRINKING WATER
NEW ULM, NN 56073 Parchase Order No.: C113299 Parchase Order No.: State Location State Location MN Requested Due beta/TAT: sender State Location State Location MN State Location MN Section D Market Codes Market Codes State Location MARKet Codes State Location MN State Location <	
Email To: alleder@mvVLcom Purchase Order No: CL13299 Para Band F. UST P.RCRA F. Phone: 507-233-7134 Fax: Project Name: Ottor Tail Power Project Name: Ottor Tail Power Stat Location Stat Location MN Requested Due Date/TAT: standard Project Name: Work Order: 31-0066 Rec Profile & Requested Analysis Filtered (V/N) Requested Analysis Filtered (V/N) Section D Valid Mathe Codes G COLLECTED Requested Client Information MN Requested Client Information N Requested Client Information Requested Client Information<	
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2 24-A1426 wt 05/02/24 12:27 1	100
3 24-A1427 wT 05/02/24 12:05 1	002
4 24-A1428 wt 05/02/24 14:00 1	
5 24-A1429 wt 05/02/24 11:23 1 .	094
6 24-A1430 wr 05/02/24 13:13 1 .	
7 8 EQuIS LabMN EDD is needed 9<	006
8 EQuIS LabMN EDD is needed	
9	
ADDITIONAL COMMENTS RELINQUISHED BY AFFILIATION DATE TIME ACCEPTED BY AFFILIATION DATE TIME SAME	
Barb Zins / MVTL 5/6/24 7:00 Price 3/6/27 990 1.1 Y	<u>N</u> 1
SAMPLER NAME AND SIGNATURE	y boler 1lact
PRINT Name of SAMPLER:	ad CC (Y/N) (Y/N) (Y/N)
ω DATE Signed μ δ O SIGNATURE of SAMPLER: (MM/DD/YY): μ δ	Ū Į

*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.

ENV-FRM-MIN4-0150 v16_Sample Condition Upon Receipt

CLIENT NAME: MVTL	PROJEC	.T #:		D.D. HAY SONDER SHA
COURIER: Client Commercial FedEx Pa	ace			
TRACKING NUMBER:	ns form IN4-014	2	(di))	je(NN* TAVUC
Custody Seal on Coole/Box Present: D VES DVNO Seals Intact: D)	ES D	NO	Biologi	cal Tissue Frozen: 🗆 YES 🗆 NO 🖄 N/A
Racking Material: Bubble Bags Bubble Wiran Whone Dother	Tom	n Bian		$\mathbf{FS} \square \mathbf{NO} \mathbf{Type of Ice:} \square \mathbf{Blue} \square \mathbf{Drv} \mathbf{NWet}$
		p =:un n170\		
$\Box T7 (0042) \Box T8 (0775) \Box T9 (0727) \Box 01339252 ($	1710)	01/0]		200)
Did Complex Originate in Wart Virginia.		- T	Woro All	Container Temps taken: VES NO N/A
Correction Factor: 4013 Cooler Temp Read w/Temp Blank:	114	°c	Average	Corrected Temp (no Temp Blank Only): °C
Cooler Temp Corrected w/Temp Blank:	6	<u>-</u> c		
NOTE: Temp should be above freezing to 6°C.			See Ex	ceptions Form ENV-FRM-MIN4-0142 1 Container
USDA Regulated Soil: MN/A - Water Sample/Other (describe):			Initials 8	A Date of Person Examining Contents: $EC5-6-24$
Did Samples originate from one of the following states (check maps) - AL, AR,	AZ, CA,	FL,	Did sam	ples originate from a foreign source (International, including
GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: VES NO			Hawaii a	nd Puerto Rico): UYES NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-	MIN4-0	154) a	na includ	e with SLUK/LUC paperWork.
	YES	NO	<u> </u> N/A [*]	COMMENT(S)
Chain of Custody Present and Filled Out?		무무		1.
Sampler Name and/or Signature on COC?		┢	' 	3.
Samples Arrived within Hold Time?				4. if Fecal: □ <8 hrs □ >8 hr. <24 hr □No
Short Hold Time Analysis (<72 hr)?		M	~ <u> -'</u> -	5. 🗆 BOD / cBOD 🖾 Fecal coliform 🖾 Hex Chrom
		1	L	🛛 HPC 🖾 Nitrate 🖾 Nitrite 🖾 Ortho Phos
·				Total coliform/E. coli Other:
Rush Turn Around Time Requested?				6.
Sufficient Sample Volume?	- M	⊢片	+-	1. 2 PPING YELLE VOL FOR EDCH
- Pace Containers Used?				s. sampe
Containers Intact?		ᅣ븝	-	9.
Field Filtered Volume Received for Dissolved Tests?	Ō		Ľ	10. Is sediment visible in the dissolved container:
Is sufficient information available to reconcile the samples to the COC?				11. If NO, write ID/Date/Time of container below:
NOTE: It ID/Date/Time don't march fill out section 11.				See Exceptions form ENV-EBM-MIN4-0142
All containers needing acid/base preservation have been checked?	E/			12. Sample #: 001-006
All containers needing preservation are found to be in compliance with EPA	E .			, 21)
recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10				IZ HNO₃ □ H₂SO₄ □ NaOH □ Zinc Acetate
Cyanide)		\square		Positive for Residual Chlorine: 🛛 YES 🔍 NO
Dioxins/PFAS				pH Paper Lot #
				Residual 0-6 Roll 0-6 Strip 0-14 Strip
NOTE: If adding preservation to the container, verify with the PM first.				2/397.2
blanks when this occurs.				
	<u> </u>		+	See Exceptions form ENV-FRM-MIN4-0142
Fetra labels present on soil VOA or WIDRO containers?		무片		14
Headspace in VOA Vials (greater than 6mm)?				See Exceptions form ENV-FRM-MIN4-0142
Trip Blanks Present?				15,
Trip Blank Custody Seals Present?				Pace Trip Blank Lot # (If purchased):
CUENT NOTIFICATION / RESOLUTION				FIELD DATA REQUIRED: 🗍 YES 🗌 NO
Person Contacted:		_ Dat	e & Time:	
Comments / Resolution:				
Barlant Manager Pulser 1 Dik	las		Datas	5/6/24
		,		
NUIE: When there is a aiscrepancy affecting North Carolina compilance sam (i.e., out of hold, incorrect preservative, out of temp, incorrect contained to the same incorrect contained to the	pies, a c vers).	.opy oj	r this form	a will be sent to the worth Carolina DEQ Certification Office
		La	beled By	: Ес Цпе: 7 🍾
1			•	`````````````````````````````````
				•
Qualtrax ID: 52742 Effective C)ate: 04	4/74/		Pare 1 of

Pace Analytical ANALYTICAL REPORT

Pace Analytical - Minnesota

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

L1733872 05/08/2024 10691860 31-0066 Otter Tail Power 001 **Piper Gibbs** 1700 Elm Street Suite 200 Minneapolis, MN 55414

Entire Report Reviewed By: Maly Torrence

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Haley Torrence Project Manager

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

Pace Analytical National

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

ACCOUNT: Pace Analytical - Minnesota

SDG: L1733872

DATE/TIME: 06/12/24 15:45

PAGE:

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ACCOUNT: Pace Analytical - Minnesota PROJECT: 10691860

SDG: L1733872

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SAMPLE SUMMARY

24-A1425 L1733872-01 Non-Potable Water			Collected by	Collected date/time 05/02/24 14:56	Received dat 05/08/24 09	e/time 00
Method	Batch	Dilution	Preparation date/lime	Anałysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2294469	1	05/29/24 08:13	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2294380	1	05/31/24 11:42	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2294380	1	05/31/24 11:42	06/04/24 18:03	ZRG	Mt. Juliet, TN
24-A1426 L1733872-02 Non-Potable Water			Collected by	Collected date/time 05/02/24 12:27	Received da 05/08/24 09	te/time :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radlochemistry by Method 904/9320	WG2294469	1	05/29/24 08:13	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2294380	1	05/31/24 11:42	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2294380	1	05/31/24 11:42	06/04/24 18:03	ZRG	Mt. Juliet, TN
24-A1427 L1733872-03 Non-Potable Water			Collected by	Collected date/time 05/02/24 12:05	Received da 05/08/24 09	te/üme :00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2294469	1	05/29/24 08:13	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2294380	1	05/31/24 11:42	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2294380	1	05/31/24 11:42	06/04/24 18:03	ZRG	Mt. Juliet, TN
24-A1428 L1733872-04 Non-Potable Water			Collected by	Collected date/time 05/02/24 14:00	Received da 05/08/24 09	te/time 1:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2294469	1	05/29/24 08:13	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2294380	1	05/31/24 11:42	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2294380	1	05/31/24 11:42	06/04/24 18:04	ZRG	Mt. Juliet, TN
24-A1429 L1733872-05 Non-Potable Water			Collected by	Collected date/time 05/02/24 11:23	Received da 05/08/24 09	te/time):00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320	WG2294469	1	05/29/24 08:13	06/07/24 21:45	DDD	Mt. Jullet, TN
Radiochemistry by Method Calculation	WG2294380	1	05/31/24 11:42	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG2294380	1	05/31/24 11:42	06/04/24 18:04	ZRG	Mt. Juliet, TN
24-A1430 L1733872-06 Non-Potable Water			Collected by	Collected date/time 05/02/24 13:13	Received da 05/08/24 09	ite/time):00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
	WCOOMACO	1	05/29/24 08:13	06/07/24 21:45	DDD	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WGZZ94409					·····
Radiochemistry by Method 904/9320 Radiochemistry by Method Calculation	WG2294489 WG2294380	1	05/31/24 11:42	06/07/24 21:45	DDD	Mt. Juliet, TN

ACCOUNT: Pace Analytical - Minnesola PROJECT: 10691860 SDG: L1733872 DATE/TIME: 06/12/24 15:45 Page 8 of 21

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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.

Haber Tomence

Haley Torrence Project Manager



SDG: L1733872

3: 872 DATE/TIME: 06/12/24 15:45 Page 9 of 21 PAGE:

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SAMPLE RESULTS - 01 24-A1425 Collected date/time: 05/02/24 14:56

Radiochemistry by Method 904/9320

Radiochemistry by Me	ethod 904/9	9320							1
	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch	Cp
Analyte	pCi/i		+/-	+/-	pCi/l	pCi/l	date / time		~
RADIUM-228	0.190	Ū	0.308	0.417	0.576	0.301	06/07/2024 21:45	<u>WG2294469</u>	Тс
(T) Barium	83.7					30.0-143	06/07/2024 21:45	WG2294469	L
(T) Yttrium	102					30.0-136	06/07/2024 21:45	WG2294469	³Ss

Radiochemistry by Method Calculation

Radiochemistry by N	lethod Calcu	lation					4
	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	Cn
Analyte	pCi/l		+/-	pCi/l	date / time		C,
Combined Radium	1.16		0.478	0.605	06/07/2024 21:45	WG2294380	 ۳Sr

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier 2 sig	ma CE TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l	+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.967	0.36	6 0.173	3 0.185	0.145	06/04/2024 18:03	WG2294380
(T) Barium-133	89.8				30.0-14	06/04/2024 18:03	WG2294380

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ACCOUNT:

Pace Analytical - Minnesota



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SAMPLE RESULTS - 02 24-A1426 Collected date/time: 05/02/24 12:27

Radiochemistry by Method 904/9320

Radiochemistr	y by Method 904/93	20							1
	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch	Cp
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time		2
RADIUM-228	0.0923	Ū	0.357	0.477	0.672	0.351	06/07/2024 21:45	WG2294469	Tc
(T) Barium	81.8					30.0-143	06/07/2024 21:45	WG2294469	L
(T) Yttrium	84.1					30.0-136	06/07/2024 21:45	WG2294469	³ Sc

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch	- [
Analyte	pCi/l		+/-	pCi/l	date / time		
Combined Radium	0.438	7	0.435	0.703	06/07/2024 21:45	<u>WG2294380</u>	

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier 2 sigma	CE TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l	+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.346	0.249	0.0977	0.205	0.169	06/04/2024 18:03	WG2294380
(T) Barium-133	76.7				30.0-143	06/04/2024 18:03	WG2294380

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PROJECT:

DATE/TIME: 06/12/24 15:45 Page 11 of 21 PAGE: 6 of 16

ACCOUNT: Pace Analytical - Minnesola

10691860

SDG: L1733872

SAMPLE RESULTS - 03 24-A1427 Collected date/time: 05/02/24 12:05 L1733872

Radiochemistry by Method 904/9320

Radioche	emistry by Method 904/9	320						1
	Result	Qualifier 2 sign	na CE TPU	MDA	Lc	Analysis Date	Batch	· Cb
Analyte	pCi/l	+/-	+/-	pCi/I	pCi/l	date / time		
RADIUM-228	0.746	0.275	0.382	0.496	0.260	06/07/2024 21:45	WG2294469	Tc
(T) Barium	87.4				30.0-143	06/07/2024 21:45	WG2294469	:
(T) Yttrium	97.2	a 633 Guarante a stan dara			30.0-136	06/07/2024 21:45	<u>WG2294469</u>	³ Ss

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+/-	pCi/l	date / time	
Combined Radium	0.946		0.355	0.578	06/07/2024 21:45	WG2294380

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.201	Ē	0.225	0.0762	0.297	0.221	06/04/2024 18:03	WG2294380
(T) Barium-133	69.9			24 전 21 전 상품은 전 24 전		30.0-143	06/04/2024 18:03	WG2294380

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ACCOUNT: Pace Analytical - Minnesota

24-A1428 SAMPLE RESULTS - 04 collected date/lime: 05/02/24 14:00

Radiochemistry by Method 904/9320

1
2
<u>169</u>
169
1 <u>69</u> 3,
44 44

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+/-	pCi/i	date / time	
Combined Radium	1.53		0.423	0.566	06/07/2024 21:45	WG2294380

Radiochemistry by Method SM7500Ra B M

	Result Q	ualifier 2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l	+/-	+/-	pCi/I	pCi/l	dale / time	
RADIUM-226	0.553	0.309	0.130	0.239	0.182	06/04/2024 18:04	WG2294380
(T) Barium-133	82.5				30.0-143	06/04/2024 18:04	WG2294380



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24-A1429 Collected date/lime: 05/02/24 11:23

SAMPLE RESULTS - 05

Radiochemistry by Method 904/9320

Radiochemistry by Me	ethod 904/93	320							
	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch	Cp
Analyte	pCi/l		+/-	+/-	pCi/I	pCi/l	date / time		2
RADIUM-228	0.203	Ū	0.346	0.484	0.653	0.344	06/07/2024 21:45	WG2294469	Tc
(T) Barium	59.3					30.0-143	06/07/2024 21:45	WG2294469	
(T) Yttrium	108					30.0-136	06/07/2024 21:45	WG2294469	3 2 2

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+/-	pCi/l	date / time	
Combined Radium	0.616	7	0.430	0.665	06/07/2024 21:45	WG2294380

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier 2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l	+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.413	0.256	0.110	0.124	0.124	06/04/2024 18:04	WG2294380
(T) Barium-133	82.8				30.0-143	06/04/2024 18:04	WG2294380

Ss ⁴Cn Sr . Qc GL

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24-A1430 Collected date/lime: 05/02/24 13:13 SAMPLE RESULTS - 06

Radiochemistry by Method 904/9320

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	dale / time	
RADIUM-228	1.24		0.249	0.363	0.424	0.226	06/07/2024 21:45	WG2294469
(T) Barium	78.4					30.0-143	06/07/2024 21:45	WG2294469
(T) Yttrium	119					30.0-136	06/07/2024 21:45	WG2294469

Radiochemistry by Method Calculation

	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
Analyte	pCi/l		+/-	pCi/l	date / time	
Combined Radium	1.71		0.362	0.440	06/07/2024 21:45	WG2294380

Radiochemistry by Method SM7500Ra B M

<u> </u>	Result	Qualifier 2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l	+/-	+/-	pCi/I	pCi/l	date / time	
RADIUM-226	0.465	0.263	0.117	0.116	0.116	06/04/2024 18:04	WG2294380
(T) Barium-133	85.6				30.0-143	06/04/2024 18:04	WG2294380

³Ss ⁴Cn ⁵Sr ⁶Qc ⁷GI ⁸Al ⁹Sc

Ср

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DATE/TIME: 06/12/24 15:45 WG2294469

Radlochemistry by Method 904/9320

QUALITY CONTROL SUMMARY <u>17733872-01,02,03,04,05,06</u>

Method Blank (MB)

methou b	Idlik (MD)					– ÉCn
(MB) R40803	95-1 06/07/24 21:45					
	MB Result	MB Qualifier	MB 2 sigma C	E MB MDA	MB Lc	2
Analyte	pCi/l		+/-	pCi/I	pCi/l	
Radium-228	0.113	<u>U</u>	0.177	0.334	0.175	L
(T) Barium	90.7		90.7			Ss
(T) Yttrium	91.9		91.9			

L1734486-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1734486-03 06	/07/24 21:45 • ((DUP) R40803	395-5 06/07/24	21:45									
	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	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	+/-	pCi/l	pCi/l	pCi/l	+/-	pCi/l	pCi/l	%			%	
Radium-228	1.68	0.391	0.686	0.360	1.23	0.370	0.662	0.346	31.2	0.843		20	3
(T) Barium	88.7				97.7	97.7							
(T) Yttrium	105				98.5	98.5							

Laboratory Control Sample (LCS)

	Compio (C	UU				à
(LCS) R4080395-2 06/07/	/24 21:45					´Sc
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	pCi/I	pCi/l	%	%		
Radium-228	5.00	4.02	80.5	80.0-120		
(T) Barium			103	grae National States National States		
(T) Yttrium			99.4			



11 of 16

⁴Cn

٦Sr

Qc

΄GΙ

ΆΙ

WG2294380 Radiochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY L1733872-01,02,03,04,05,06

Method Blank (MB)

	(יטוי							 CD
(MB) R4077947-1 06/	04/24 18:03							I
	MB Result	MB Qualifier	MB 2 sigma CE	E MB MDA	MB Lc			2_
Analyte	pCi/l		+/-	pCi/l	pCi/l			
Radium-226	-0.0206	Ū	0.0668	0.142	0.0929			L
(T) Barium-133	66.2		66.2					³Ss

L1735676-01 Original Sample (OS) • Duplicate (DUP)

Original Result Original 2 Original MDA Original Lc DUP Result DUP 2 sigma DUP MD.					חפס פו וח		10-
1.J. 1 -		DOP RPD	DUP RER	DUP Qualifier	Limits	DUP RER Limit	
Analyte pCi/l + / - pCi/l pCi/l pCi/l + / - pCi/l	pCi/l	%			%		6
Radium-226 0.285 0.221 0.193 0.160 0.346 0.363 0.481	0.318	19.4	0.144	7	20	3	Qc

Laboratory Control Sample (LCS)

Laboratory Co	ntrol Sample (L	CS)				8
(LCS) R4077947-2	06/04/24 18:03					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	9
Analyte	pĆi/l	pCi/l	%	%		Sc
Radium-226	5.00	6.16	123	75.0-125		L
(T) Barium-133	ada an		59.2		에는 방법에 관계되었다. 이렇게 가장	

L1732817-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1732817-09 06/04/2	4 18:03 • (MS) F	R4077947-3 0	6/04/24 18:03	• (MSD) R4077	947-4 06	/04/24 18:03							
	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/ł	pCi/l	%	%		%			%		%
Radium-226	20.0	-0.0391	23.8	22.8	119	114	1	75.0-125			4.59		20
(T) Barium-133		79.8			64.5	80.5		상태가 2016년 1월 1916년 - 1917년 - 1917년 1월 1 - 1917년 - 1917년 1월 19					

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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.	Cn
RER	Replicate Error Ratio.	
RPD	Relative Percent Difference.	~
SDG	Sample Delivery Group.	Sr
M	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.	GI
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.	Sc
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier Is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.	
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.	
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.	
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.	
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.	
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.	
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.	
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.	
Qualifier	Description	

Below Detectable Limits: Indicates that the analyte was not detected.

The identification of the analyte is acceptable; the reported value is an estimate.

ACCOUNT: Pace Analytical - Minnesota

J

SDG: L1733872

DATE/TIME: 06/12/24 15:45 Page 18 of 21



Ср

Тc

Ss

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohlo–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
lowa	364	Pennsylvanla	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ¹⁶	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	Al30792	Tennessee ¹⁴	2006
Louislana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virglnia	110033
Minnesota	047-999-395	Washington	CB47
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461,01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

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

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

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ACCOUNT: Pace Analytical - Minnesota SDG: L1733872

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item	Samp	le jD	Sample Type	Collect Date/Time	Lab ID	Matrix	HN03				~~~ ~						l	LAB USE ONLY	Υ <i>L</i>
1	24-A14	25	PS	5/2/2024 14:56	10691860001	Water	1		<u> </u>		X							-01	
2	24-A142	8	PS	5/2/2024 12:27	10691860002	Water	1				X							102	
3	24-A142	7	PS	5/2/2024 12:05	10691860003	Water	1				X							\vec{n}	
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5	24-A142	9	PS	5/2/2024 11:23	10691860005	Water	1				X						-	05	
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***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.

(.) 40. = 1.1 EAG sample Receipt Checklist CVC Seal Present/Intot: Y_N VOA Zero Headspace: Y_N Bottles erzive intatt: F Pres. Correct/Check. Y_N Correct bottles used: F Pres. Correct/Check. Y_N Sufficient volume sent: F N 6976 5643 6863 RK .: ceen <0.5 mR/hr: Y_N

Monday, May 06, 2024 3:52:18 PM

Pace

3877

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

INTER_LABORATORY WORK ORDER # 10691860

(To be completed by sending lab)

Sending Project No:	10691860	·
Receiving Project No:		
Check Box for Consolidated Involce:		
Date Prepared:	05/06/24	
REQUESTED COMPLETION DATE:	6/5/2024	

Sending Region	Minnesota	Sendi	ng Project	Mgr.	Piper Gibbs							
Receiving Region	IR850-F	Pace National	Exterr	nal Client		MVTL Laboratories						
State of Sample Origin		MN	QC D	eliverable		STD REPORT						
AI	l questions sh	ould be address	sed to sen	iding proje	ct manager.							
Requested Reportable Units	stndMN	_ Report Wet or	Dry Welgt	nt? Dry We	oight [] IRV	VO Lab Ne	ed to run?	Cert. Needed				
编号系统建筑发展设计加强设备等于 输行效率等等等 经正分编的路路分子		[Co	mtainer Type	Quantity of	EU Preservative	Quantity of	Acoda	Acodo Dopo				
Method De	escription			containers		Samples	AVUe					
Radium	226/228	BI	P1N	1999 - 1999 - 1999 1999 -	HNO3	6	SI-38RAD	SUB PASI RAD				
Special Requirements: <u>Re</u>	eport C, QC	Limits (C),FR	Only no	EDD (0)							
	FC	R ANALYTICAL	WORK C	OMPLETE	D THIS SECTIO	N ALSO						

Return Samples to Sending Region: Yes X 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,

This is an exact copy of

Minnesota Valley Testing Laboratories

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

the original document By <u>Anay 24</u> pages 1-11

Project Nar	Project Name: Otter Tail Power Co.				Project Type: CCR					Name of Samplers: BW, N/M										
		Hoot Lake Plan	<u>it</u>			Barroldaba	rr com									1	,	4		
Report To:	Otter Tail Po	wer Company		Carbon	Sopy:	Barrunieba		<u>!</u>	Ŀ	<u></u>	to N	lumk								1
<u>Attn:</u>	Paul Vukonic	:h		<u>Attn:</u>					E			<u>iumi</u> ndon	<u>Jer.</u> Num	-						
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21-	S51			127	GW			1		1	N	_					2			
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Comments: CCR wells

*Amber None (Pace) is for Radium 226 + 228

* NO Field Blank

												$a \sim$		_
	Delinewished Dr	Pon In	1	<u> </u>			Samples	s Re	ceive	d By:	U. K	15-dus)		
Samples	Relinquisned By.	10111 111		DOG	T	TART	Date:	2 1	20.04	14	Time	1900	Temp: 2.7C	
Date:	2 May 34		Time:			7707777	Dale.	<u> </u>	ring	1				
Samples	Relinquished into):(Hidge	Log in C		<u> </u>								
Samples	Relinquished By:						Samples	s Re	ceive	a BA:				
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Deliven/		Samplers	Other:				Seal Nur	mbe	r(s) -	If Use	ed		·	. .
Tran		Ambient	lce		Other:		Seals In	tact	?		Yes	No		

CCR - Appendix III Detection Monitoring *Field Parameters* pH*

* Field and Laboratory Measurements

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Total Concentration Parameters

Boron Calcium Chloride Fluoride pH Sulfate Dissolved Solids, Total Method

6010 6010 SM4500 CL E EPA 300 SM 4500 H+B-96 ASTM D516 SM 2540 C-97

2024 - Hoot Lake Site CCR Sampling

Site	Parameter List	Well Depth	Diameter (Inches)	Well Elevation	Sample Equipment	Dedicated?	Pump Rate (gal/minute)	Goes Dry?
S2A	CCR 3 and CCR 4	79.63	2	1273.776	Bladder	Yes	< 0.25	Yes
S3AR	CCR 3 and CCR 4	78.42	2	1271.562	Bladder	Yes	< 0.25	No
S51	CCR 3 and CCR 4	55.6	2	1286.904	Bladder	Yes	< 0.25	No
S52	CCR 3 and CCR 4	88.3	2	1286.623	Bladder	Yes	< 0.25	No
S10R	CCR 3 and CCR 4	57.00	2	1281.47	Bladder	Yes	< 0.25	No
S13	CCR 3 and CCR 4	90.19	2	1296.423	Bladder	Yes	< 0.25	No
S14R	CCR 3 and CCR 4	70.86	2	1280.61	Bladder	Yes	< 0.25	Yes

Trip Blank CCR 3 and CCR 4

Note: CCR samples must be on their own COC. Make sure CCR 3 and CCR 4 parmaters are printed and a part of the COC.

Total Recoverable Metals! Groundwater samples shall not be field filtered prior to analysis.

We usually schedule in early May and early October.

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	

New Ulm, MN 56073

Groundwater Assessment	5	Site:	Ottertail	Ottertail Power Co./Hoot Lake				
Sampling Personnel:	F	acility ID:	SW-211					
NW	 [Date: Zyna	w 24					
	l	Jnique Station II	D: 674671					
	<u>.</u>	Sample ID:	S-3A-R					
Well Condition	<u> </u>		- (57)					
Well Locked? Yes/ No	-	Protective Posts	? (Les	<u> </u>	<u> </u>			
Casing Straight? Yes No		Grout Seal Intac	t? Yes	N N	<u>}</u>			
Bepairs Necessary:	-							
Well Information		<u> </u>		<u></u>				
Well Depth: 78,42	,	Well Casing Ele	vation:	1:	271.562			
Constructed Depth: 78.42	-	Static Water Ele	evation:	1205	3.112			
Casing Diameter: 2"		Previous Static:						
Water Level Before Purge: 68,49		Water Level Aft	er Sample:	70,	32			
Well Volume: 1. V D Gallons	S	Measurement N	lethod:	Elec. W	Steel Tape			
Sampling Information	<u> </u>	~/						
Weather Conditions: Temp: 20	Wind:) (5E	Sky:	110	2dy			
Sampling Method: Grundfos Bladder	SSA Disp. Bailer	Whale Gra	ab Other:					
Dedicated Equipment: Yes No		Pumping Rate:	,25	g	pm			
Well Purged Dry? Yes No		Time Pump Beg	gan: 143	35	am / pp			
Time Purged Dry?		Time of Sampli	ng: 145	260	am / 🏟			
Duplicate Sample? Yes No ID:	<u></u>	Sample EH:	61.2					
Sample Appearance: General: Chac	Color: 100	n e Phase:	nanc	(Ddor: Mone			
Co Specific Temp	D. O.	Turbidity G	ailons	SEQ]			
Three pH Cond. ^o C	mg/L		emoved	# (Comments:			
1447-2,43 95 8,8	6 4.49	1.8	1.75	1				
1449 7.43 9/6 8.8	36 4.54	1.9 0	3,50	2				
1456 7242 915 8.8	6 4.57	1.9	5.25	3				
				4				
				5				
Stabilized? Yes No	Amount Wa	ter Removed:	5,2	5	Gallons			
Comments:					<u> </u>			

150251

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Exceptions to Protocol:

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Groundwater Asse	ssment			Site:	Otterta	l Power C	Co./Hoot Lake
Sampling Personnel:				Facility ID:	SW-21	1	
Λ	$1M_{-}$			Date: 7	mar	24	
				Unique Station	n ID: 814830)	
				Sample ID:	S-51		
Well Condition							
Well Locked?	Ves No			Protective Po	sts? Yes	X	<u>P</u>
Well Labeled?	YES NO			State ID Tag?	yes	<u> </u>	0
Casing Straight?	(es) No			Grout Sear In			<u> </u>
Repairs Necessary:							
Well Information	1615	~					
Well Depth:	2.2.60	لر		Well Casing I	Elevation:	177	286.904
Constructed Depth:	55.60			Static Water	Elevation:	123	6.404
Casing Diameter:	2"			Previous Stat	tic:		·
Water Level Before Pu	rge: 50	30		Water Level	After Sample	: 50	.90
Well Volume:	.43	Gallons		Measuremen	t Method:	Elec. W	I Steel Tape
Sampling Information	on 🖌	\sim		110 F			
Weather Conditions:	Temp: 🕖		Wind:	11)2	Sky:	_[]	ovay
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		/
Dedicated Equipment:	(es) No			Pumping Ra	te: 175	>	jpm
Well Purged Dry?	Yes (No)	-		Time Pump	Began: 12	15_	am / pm
Time Purged Dry?	-	-		Time of Sam	pling:	227	am / on
Duplicate Sample?	Yes No)	- ID:		Sample EH:	66.	8	
Sample Appearance:	General: (clear	Color: Mi	NC Phase	: noA	(Odor: none
	Specific	Temp		Turbidity	Gallons	SEQ	
Time bH	Cond.	°C	mg/L	NTU ,	Removed	#	Comments:
1719 237	795	814	179	0.4	1	1	
112777	505		182	1.5			
10071131	145	8.04	1.02			-12	·
1227 7.58	13	8.04	1.81	0.9	5	3	
	•.					4	
						5	
Stabilized? Yes	No		Amount V	Vater Removed	: 5		Gallons
Comments:				<u>, </u>			
210	SN						
J V C							

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Groundwater Assessment	Site: Ottertail Power Co./Hoot Lake
Sampling Personnel:	Facility ID: SW-211
NM	Date: ZMay 24
	Unique Station ID:
	Sample ID: S-52
Well Condition	
Well Locked? Yes the N M H 24	Protective Posts?
Well Labeled? Yes by	State ID 1ag? Yes No
Casing Straight?	
Wall Information	
Well Denth: \$4,30	Well Casing Elevation: 1286.623
Constructed Depth: 88.30	Static Water Elevation: 1215.783
Casing Diameter: 2"	Previous Static:
Water Level Before Purge: 70, 84	Water Level After Sample: 70.89
Well Volume: 2, 84 Gallons	Measurement Method: Elec. WLI Steel Tape
Sampling Information	
Weather Conditions: Temp: 5/ Wind:	IZE sky: Eloudy
Sampling Method: Grundfos Bladder SS/K Disp. B	ailer Whale Grab Other:
Dedicated Equipment: Res No	Pumping Rate: , 25 gpm
Well Purged Dry? Yes No	Time Pump Began: 1729 (and / pm
Time Purged Dry?	Time of Sampling: 1205 am / pm
Duplicate Sample? Yes No ID:	Sample EH: -S(o.2
Sample Appearance: General: Clear Color	hone Phase: Noile Odor: None
Specific Temp D.O.	Turbidity Gallons SEQ
The pH Cond. ^o C mg/L	NTU Removed # Comments:
1141 7:30 813 7.95 1.2	0 13 3 1
1132 7.30 817 7.910 1.1	3 1,0 6 2
125731 37 7.98 1.	110.893
Stabilized? (Yes) No Amo	
Comments	
500	

Exceptions to Protocol:

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Groundwater Assessment	Site: Ottertail Power Co./Hoot Lake					
Sampling Personnel:	Facility ID: SW-211					
BW NM	Date: 2 May 24					
	Unique Station ID: 806341					
	Sample ID: S-10R					
Well Condition Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No	Protective Posts? (Yes) No State ID Tag? Yes No Grout Seal Intact? Yes No					
Repairs Necessary:						
Well Information Well Depth: 80-62	Well Casing Elevation: 1281.47					
Constructed Depth: 57.00	Static Water Elevation: 1209, 28					
Casing Diameter: 2"	Previous Static:					
Water Level Before Purge: 72.19	Water Level After Sample: 15 1 1000 FV 14TP					
Well Volume: 37 Gallons	Measurement Method: Elec. WLI Steel Tape					
Sampling Information / 50° Wind:	· IISE sky: cloudy					
Sampling Method: Grundfos Fladder SST Disp. Bailer	Whale Grab Other:					
Dedicated Equipment: Ves No	Pumping Rate: , 25 gpm					
Well Purged Dry? Key No	Time Pump Began: 1355 am / oph					
Time Purged Dry? 1400	Time of Sampling: 1400 am / 6m					
Duplicate Sample? Yes (No) ID:	Sample EH: 37,9					
Sample Appearance: General: Loudy Color:	fan Phase: 17. Sec Odor: SUITU195					
Time pH Specific Cond. Temp Cond. D. O. mg/L 1400 7.46 856 9.14 5.3	Turbidity NTU Gallons Removed SEQ # Comments:					
	4					
HUK	5 recharge					
Stabilized? Yes No. Amount	Water Removed: 1.5 Gallons					
Comments: insufficient reading	volume for recharge					

Groundwater Ass	sessment		5	Site:	Ottertai	Power	Co./Hoot Lake	
Sampling Personnel:	D		F	acility ID:	SW-211	1		
	BU		Ĩ	Date: 2 M	4424			
			ļ	Unique Statio	n ID: 632810	·		
	i		<u>.</u>	Sample ID:	S-13			
Well Condition Well Locked? Well Labeled? Casing Straight? Repairs Necessary:	Ker No Ker No Xer No			Protective Po State ID Tag? Grout Seal In	sts? Aes Yes tact? (es	1 1 1	No No No	
Well Information Well Depth:	90-27	<u></u>		Well Casing I	Elevation:		1296.423	
Constructed Depth:	90.19		-	Static Water	Elevation: /	210 8	2	
Casing Diameter:	2"	• <i>2</i>		Previous Stat	tic: 1//	1-84	-/_	
Water Level Before	Purge: Xb	.62		Water Level	After Sample:	89	1.62	
Well Volume:	.75	Gallons		Measuremen	t Method:	Elec. V	KI Steel Tape	
Sampling Informa	tion	<u> </u>		111		1 als		
Weather Conditions:	Temp:	24	Wind:		Sky:	Light	p 14, h	
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:	,		
Dedicated Equipmer	nt: Yes) No	-		Pumping Ra	te:) 	gpm	
Well Purged Dry?	Yes (No)	-		Time Pump	Began: 11/	<u>4</u>	(am// pm	
Time Purged Dry?		-		Time of Sarr	$\frac{\text{npling:}}{\sqrt{2}} \frac{\sqrt{2}}{2}$	8 <u>(an)</u> /pm		
Duplicate Sample?	Yes Mo	_ID:	<u> </u>	Sample EH:	81.7			
Sample Appearance	e: General:	Clear	Color: 1/0	クァン Phase	· NON		Odor: 1022	
Time pH	Specific Cond.	Temp ^o C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:	
1117 7.15	5 754	10.79	2.09	8-2	.75	1		
1120 7.19	754	10.84	7.07	0.0	1-50	2		
1123 7.2	2 764	10.87	2.05	0.0	2.25	3		
						4		
						5		
Stabilized?	 No	<u></u>	Amount Wa	iter Removed	: 7.2	5	Gallons	
Comments:		D	D = U	<u> </u>				

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Groundwater Assessment	Site: Ottertail Power Co./Hoot Lake
Sampling Personnel:	Facility ID: SW-211
NAN	Date: 7 may 24
······	Unique Station ID: 806342
	Sample ID: S-14R
Well Condition Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No	Protective Posts? Yes No State ID Tag? Yes No Grout Seal Intact? Yes No
Repairs Necessary:	
Well Depth: Q 7 . \ (Constructed Depth: 70.86	Well Casing Elevation: 1280.61 Static Water Elevation: 1201, 91 Provious Static: 1201, 91
Casing Diameter. 2	Mater Lavel After Sample: 70 / 177
Watter Level Berole Pulge. 10:00	Managurament Mathad:
Sempling Information	
Weather Conditions: Temp: 50	Wind: $15E$ Sky: $C(GUD)$
Sampling Method: Grundfos Badder SSA Dedicated Equipment: Res No	Disp. Bailer Whale Grab Other: Pumping Rate: & 25 gpm
Well Purged Dry? Yes No	Time Pump Began: 1255 am Tam
Time Purged Dry?	Time of Sampling: 1313 am / pm
Duplicate Sample? Yes No ID:	Sample EH: 750.8
Sample Appearance: General: Cleck	Color: Many Phase: Mone Odor: Nern
Time pH Specific Temp Cond. °C	D. O. Turbidity Gallons SEQ mg/L NTU Removed # Comments:
212051307.44 856 8.69	5.01 .2 1.5 1
13077.42 835 8.69	5.19 0,8 3.0 2
13137.44 854 8.70	5,69 33 4.53
	4
	5
Stabilized? Yes No	Amount Water Removed: 4 5 Gallons
Comments: $53p^{5}$	·

Groundwater Assessme	nt		Site:	Ottertai	I Powe	r Co./Hoot Lake		
Sampling Personnel:	^		Facility ID: SW-211					
N	\mathcal{N}		Date: 2	-may 2U	r			
			Unique Statio	on ID: 444350)			
			Sample ID:	S-2A				
Well Condition								
Well Locked?	No		Protective P	osts?		No		
Well Labeled? (es Casing Straight? Yes	No		Grout Seal I	ntact? Yes		No		
Repairs Necessary:			<u></u>	0		<u> </u>		
Well Information								
Well Depth:	.lel		Well Casing	Elevation:	•	1273.776		
Constructed Depth: 79.63			Static Water	Elevation:				
Casing Diameter: 2"			Previous Sta	atic:				
Water Level Before Purge:			Water Level	After Sample				
Well Volume:	Gallons	_	Measureme	nt Method:	Elec.	WLV Steel Tape		
Sampling Information	00		1100			<u> </u>		
Weather Conditions: Temp	50	Wind:	11)E	Sky:	(0)	ua Y		
Sampling Method: Grundfo	s Badder SST	Disp. Bailer	Whale	Grab Other:				
Dedicated Equipment: Ves	No		Pumping Ra	ate: 25	0	gpm		
Well Purged Dry?	<u>Non</u> _		Time Pump	Began:	134			
Time Purged Dry?			Time of Sampling: am / pm					
Duplicate Sample? Yes			Sample EH	· · · · · · · · · · · · · · · · · · ·				
Sample Appearance: Gene	ral:	Color: <	Phas	e:	<u> </u>	Odor:		
Speci	fic Temp	D. O.	Turbidity	Gallons	SEQ			
Time pH Cond	°C	mg/L		Removed	#	Comments:		
					1			
					2			
					3			
				\downarrow	4			
					5			
Stabilized? Yes No	-	Amount	Nater Remove	d:		Gallons		
Comments:	-	<u>, ninouni</u>		. P				
50p5i	_	-No	Jamp	le/D	N			
Exceptions to Protocol:		Insuf	Ficient	VOLUN	ne			
		-10	purge	-	-			





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FINAL REPORT COMPLETION DATE: 17 DULZ4AM

Date Reported: 17 Dec 2024

JOSH HOLLEN OTTER TAIL POWER CO PO BOX 496 FERGUS FALLS MN 56538-0496 Work Order #: 31-0136 Account #: 006106 PO #: 59640

Project Name: HOOT LAKE PLANT CCR

Fi Reviewed ger/Dat Chemistry Lab Manager/Date Reviewed ull um Quality Assurance Director/Date Revi

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





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

Project Name: HOOT LAKE PLANT CCR

Sample Description: S3AR

2 of 10 Page:

Report Date: 17 Dec 2024 Lab Number: 24-A2535 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 14:36 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Temp at Receipt: 0.5C

	As Receiv Result	red	Method RL	Method Reference	Date Anal	yzed		Analyst
MS Water Digestions					3 0	ct 24		NS
Water Digestions					90	ct 24		NS
pH, Field	7.21	units	1.00	SM4500-H+-2011	10	ct 24	14:36	NM
рн	* 7.4	units	1.0	SM 4500 H+ B-2000	20	ct 24	12:30	CC
Radium 226	0.02	pCi/L	0.60		4 D	ec 24	10:23	OL
Radium 228	0.37	pCi/L	3.00	EPA M9320	4 D	ec 24	17:25	OL
Sulfate	92.2	mg/L	5.0	ASTM D516-11	70	ct 24	8:09	AKF
Chloride	12.3	mg/L	3.0	SM 4500 Cl E	8 0	ct 24	13:58	KRM
Mercury	< 0.005	ug/L	0,005	EPA 245.7	40	ct 24	14:40	RMB
Solids, Total Dissolved	531	mg/L	10	SM 2540 C-97	3 0	ct 24	9:40	CC
	See Narra	tive						
Calcium	106.0	mg/L	0.500	SW6010D	10 0	ct 24	16:57	RMV
Lithium	< 0.02	mg/L	0.02	SW6010D	10 0	ct 24	16:57	RMV
Barium	0.038	mg/L	0.005	SW6010D	10 O	ct 24	16:57	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	10 O	ct 24	16:57	RMV
Boron	0.115	mg/L	0.100	SW6010D	10 0	ct 24	16:57	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	4 O	ct 24	16:01	SS
Arsenic	< 0.5	ug/L	0.5	SW6020B	7 0	ct 24	10:06	SS
Beryllium	< 0.05	ug/L	0.05	SW6020B	7 0	ct 24	12:58	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	4 O	ct 24	16:01	SS
Chromium	< 0.5	ug/L	0.5	SW6020B	7 0	ct 24	10:06	SS
Lead	< 0.5	ug/L	0.5	SW6020B	7 0	ct 24	10:06	SS
Molybdenum	1.74	ug/L	0.50	SW6020B	4 O	ct 24	16:01	SS
Selenium	2.56	ug/L	0.50	SW6020B	7 0	ct 24	14:30	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	7 0	ct 24	10:06	SS
Fluoride	0.180	mg/L	0.020	EPA 300.0	5 0	ct 24	15:09	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

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





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

Project Name: HOOT LAKE PLANT CCR

Sample Description: S51

Report Date: 17 Dec 2024 Lab Number: 24-A2536 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 11:55 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Temp at Receipt: 0.5C

	As Receiv Result	red	Method RL	Method Reference	Date Analyzec	1	Analyst
MS Water Digestions					3 Oct 2	24	NS
Water Digestions					9 Oct 2	24	NS
pH, Field	6.42	units	1.00	SM4500-H+-2011	1 Oct 2	24 11:55	BMW
рН	* 7.4	units	1.0	SM 4500 H+ B-2000	2 Oct 2	24 12:30	CC
Radium 226	0.06	pCi/L	0.60		4 Dec 2	24 10:23	OL
Radium 228	1.08	pCi/L	3.00	EPA M9320	4 Dec 2	4 17:25	OL
Sulfate	52.1	mg/L	5.0	ASTM D516-11 '	7 Oct 2	4 8:09	AKF
Chloride	8.1	mg/L	3.0	SM 4500 Cl E	8 Oct 2	4 13:58	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	4 Oct 2	4 14:40	RMB
Solids, Total Dissolved	456	mg/L	10	SM 2540 C-97	3 Oct 2	4 9:40	CC
	See Narra	tive					
Calcium	81.30	mg/L	0.500	SW6010D	10 Oct 2	4 16:57	RMV
Lithium	< 0.02	mg/L	0.02	SW6010D	10 Oct 2	4 16:57	RMV
Barium	0.060	mg/L	0.005	SW6010D	10 Oct 2	4 16:57	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	10 Oct 2	4 16:57	RMV
Boron	0.212	mg/L	0.100	SW6010D	10 Oct 2	4 16:57	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	4 Oct 2	4 16:01	SS
Arsenic	0.59	ug/L	0.50	SW6020B	7 Oct 2	4 10:06	SS
Beryllium	< 0.05	ug/L	0.05	SW6020B	7 Oct 2	4 12:58	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	4 Oct 2	4 16:01	SS
Chromium	< 0.5	ug/L	0.5	SW6020B	7 Oct 2	4 10:06	SS
Lead	< 0.5	ug/L	0.5	SW6020B	7 Oct 2	4 10:06	SS
Molybdenum	1.91	ug/L	0.50	SW6020B	4 Oct 2	4 16:01	SS
Selenium	< 0.5	ug/L	0.5	SW6020B	7 Oct 2	4 14:30	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	7 Oct 2	4 10:06	ss
Fluoride	0.240	mg/L	0.020	EPA 300.0	5 Oct 2	4 15:09	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

 RL = Reporting Limit

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

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

 @ = Due to sample matrix
 # = Due to concentration of other analytes

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

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





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

Project Name: HOOT LAKE PLANT CCR

Sample Description: S52

Page: 4 of 10

Report Date: 17 Dec 2024 Lab Number: 24-A2537 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 12:38 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Temp at Receipt: 0.5C

	As Receiv Result	ved	Method RL	Method Reference	Date Analyzed		Analyst	
MS Water Digestions		·		·	3 Oct 24	1	NS	•
Water Digestions					9 Oct 24	1	NS	
pH, Field	6.08	units	1.00	SM4500-H+-2011	1 Oct 24	12:38	BMW	
рН	* 7.3	units	1.0	SM 4500 H+ B-2000	2 Oct 24	12:30	CC	
Radium 226	0.08	pCi/L	0.60		4 Dec 24	10:23	OL	
Radium 228	1.06	pCi/L	3.00	EPA M9320	4 Dec 24	17:25	OL	
Sulfate	59.5	mg/L	5.0	ASTM D516-11	7 Oct 24	8:09	AKF	
Chloride	14.5	mg/L	3.0	SM 4500 Cl E	8 Oct 24	13:58	KRM	
Mercury	< 0.005	ug/L	0.005	EPA 245.7	4 Oct 24	14:40	RMB	
Solids, Total Dissolved	459	mg/L	10	SM 2540 C-97	3 Oct 24	9:40	CC	
	See Narra	tive						
Calcium	99.40	mg/L	0.500	SW6010D	10 Oct 24	16:57	RMV	
Lithium	< 0.02	mg/L	0.02	SW6010D	10 Oct 24	16:57	RMV	
Barium	0.107	mg/L	0.005	SW6010D	10 Oct 24	16:57	RMV	
Cobalt	< 0.005	mg/L	0.005	SW6010D	10 Oct 24	16:57	RMV	
Boron	< 0.1	mg/L	0.1	SW6010D	10 Oct 24	16:57	RMV	
Antimony	< 0.5	ug/L	0.5	SW6020B	4 Oct 24	16:01	SS	
Arsenic	1.77	ug/L	0.50	SW6020B	7 Oct 24	10:06	SS	
Beryllium	< 0.05	ug/L	0.05	SW6020B	7 Oct 24	12:58	SS	
Cadmium	< 0.1	uq/L	0.1	SW6020B	4 Oct 24	16:01	SS	
Chromium	< 0.5	ug/L	0.5	SW6020B	7 Oct 24	10:06	SS	
Lead	< 0,5	ug/L	0.5	SW6020B	7 Oct 24	10:06	SS	
Molybdenum	1.76	ug/L	0.50	SW6020B	4 Oct 24	16:01	SS	
Selenium	< 0.5	ug/L	0.5	SW6020B	7 Oct 24	14:30	SS	
Thallium	< 0.1	ug/L	0.1	SW6020B	7 Oct 24	10:06	SS	
Fluoride	0.190 @	mg/L	0.020	EPA 300.0	5 Oct 24	15:09	MDH	

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.





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

Project Name: HOOT LAKE PLANT CCR

Sample Description: S10R

Report Date: 17 Dec 2024 Lab Number: 24-A2538 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 13:27 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Temp at Receipt: 0.5C

	As Receiv Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					14 Oct 24	NS
Water Digestions					9 Oct 24	NS
pH, Field	7.30	units	1.00	SM4500-H+-2011	1 Oct 24 13:22	NM
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	2 Oct 24 12:30	CC
Radium 226	0.76	pCi/L	0.60		4 Dec 24 10:23	OL
Radium 228	2.90	pCi/L	3.00	EPA M9320	4 Dec 24 17:25	OL
Sulfate	66.7 @	ng/L	5.0	ASTM D516-11	7 Oct 24 8:09	AKF
Chloride	10.1	mg/L	3.0	SM 4500 Cl E	8 Oct 24 13:58	KRM
Mercury	0.011	ug/L	0.005	EPA 245.7	4 Oct 24 14:40	RMB
Solids, Total Dissolved	506	mg/L	10	SM 2540 C-97	3 Oct 24 9:40	CC
	See Narra	ativé				
Calcium	148.0	mg/L	0.500	SW6010D	10 Oct 24 18:01	RMV
Lithium	0.025	mg/L	0.020	SW6010D	10 Oct 24 18:01	RMV
Barium	0.191	mg/L	0.005	SW6010D	10 Oct 24 18:01	RMV
Cobalt	0.007	mg/L	0.005	SW6010D	10 Oct 24 18:01	RMV
Boron	< 0.1	mg/L	0.1	SW6010D	10 Oct 24 18:01	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	15 Oct 24 13:38	SS
Arsenic	20.8	ug/L	0.50	SW6020B	15 Oct 24 15:31	SS
Beryllium	0.15	ug/L	0.05	SW6020B	16 Oct 24 9:03	SS
Cadmium	0.12	ug/L	0.10	SW6020B	15 Oct 24 13:38	SS
Chromium	11.5	ug/L	0.50	SW6020B	15 Oct 24 15:31	SS
Lead	4.46	ug/L	0.50	SW6020B	15 Oct 24 15:31	SS
Molybdenum	1.18	ug/L	0.50	SW6020B	15 Oct 24 13:38	SS
Selenium	1.55	ug/L	0.50	SW6020B	15 Oct 24 15:31	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	15 Oct 24 15:31	SS
Fluoride	0.160 0	mg/L	0.020	EPA 300.0	5 Oct 24 15:09	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

 RL = Reporting Limit

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

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

 @ = Due to sample matrix
 # = Due to concentration of other analytes

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

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





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

Project Name: HOOT LAKE PLANT CCR

Sample Description: S13

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Report Date: 17 Dec 2024 Lab Number: 24-A2539 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 11:47 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Temp at Receipt: 0.5C

	As Receiv Result	red	Method RL	Method Reference	Date Analyzed	Analyst
MS Water Digestions					3 Oct 24	NS
Water Digestions					9 Oct 24	NS
pH, Field	7.26	units	1.00	SM4500-H+-2011	1 Oct 24 11:47	NM
рН	* 7.4	units	1.0	SM 4500 H+ B-2000	2 Oct 24 12:50	CC
Radium 226	0,20	pCi/L	0.60		4 Dec 24 10:23	OL
Radium 228	1.14	pCi/L	3.00	EPA M9320	4 Dec 24 17:25	OL
Sulfate	91.9 @	mg/L	5.0	ASTM D516-11	7 Oct 24 8:09	AKF
Chloride	7.4	mg/L	3.0	SM 4500 Cl E	8 Oct 24 13:58	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	4 Oct 24 14:40	RMB
Solids, Total Dissolved	583	mg/L	10	SM 2540 C-97	3 Oct 24 10:15	CC
	See Narra	tive				
Calcium	123.0	mg/L	0.500	SW6010D	10 Oct 24 16:57	RMV
Lithium	0.026	mg/L	0.020	SW6010D	10 Oct 24 16:57	RMV
Barium	0.083	mg/L	0.005	SW6010D	10 Oct 24 16:57	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	10 Oct 24 16:57	RMV
Boron	0.110	mg/L	0.100	SW6010D	10 Oct 24 16:57	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	4 Oct 24 16:01	SS
Arsenic	< 0.5	ug/L	0.5	SW6020B	7 Oct 24 10:06	SS
Beryllium	< 0.05	ug/L	0.05	SW6020B	7 Oct 24 12:58	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	4 Oct 24 16:01	SS
Chromium	< 0.5	ug/L	0.5	SW6020B	7 Oct 24 10:06	SS
Lead	< 0.5	ug/L	0.5	SW6020B	7 Oct 24 10:06	SS
Molybdenum	1.20	ug/L	0.50	SW6020B	4 Oct 24 16:01	SS
Selenium	0.95	ug/L	0.50	SW6020B	7 Oct 24 14:30	SS
Fhallium	< 0.1	ug/L	0.1	SW6020B	7 Oct 24 10:06	SS
Fluoride	0.210	mg/L	0.020	EPA 300.0	5 Oct 24 15:09	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

 RL = Reporting Limit

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

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

 @ = Due to sample matrix
 # = Due to concentration of other analytes

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

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





Page: 7 of 10

Date Reported: 17 Dec 2024

Work Order #: 202431-0136 Account Number: 006106 PO #: 59640

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

Project Name: HOOT LAKE PLANT CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES:

The Total Dissolved Solids analysis batch associated with samples 24-A2535 through 24-A2540 did not contain a sufficient ammount of blanks to meet QC requirements. Data was reported based on acceptable results for the blank that was analyzed as part of the batch and acceptability of all other batch QC.

No other problems were encountered with these analyses.





Page: 8 of 10

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

Project Name: HOOT LAKE PLANT CCR

Sample Description: FIELD BLANK

Report Date: 17 Dec 2024 Lab Number: 24-A2540 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 11:00 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Temp at Receipt: 0.5C

	As Receiv Result	ved	Method RL	Method Reference	Date Analyzed		Analyst
MS Water Digestions					3 Oct 24	l	NS
Water Digestions					9 Oct 24	1	NS
рН	* 8.1	units	1.0	SM 4500 H+ B-2000	2 Oct 24	12:50	CC
Radium 226	0.09	pCi/L	0.60		4 Dec 24	10:23	OL
Radium 228	0.58	pCi/L	3.00	EPA M9320	4 Dec 24	17:25	OL
Sulfate	< 5	mg/L	5	ASTM D516-11	7 Oct 24	8:09	AKF
Chloride	< 3	mg/L	3	SM 4500 Cl E	8 Oct 24	13:58	KRM
Mercury	< 0.005	ug/L	0.005	EPA 245.7	4 Oct 24	14:40	RMB
Solids, Total Dissolved	< 10	mg/L	10	SM 2540 C-97	3 Oct 24	10:15	CC
	See Narra	tive					
Calcium	< 0.5	mg/L	0.5	SW6010D	10 Oct 24	16:57	RMV
Lithium	< 0.02	mg/L	0.02	SW6010D	10 Oct 24	16:57	RMV
Barium	< 0.005	mg/L	0.005	SW6010D	10 Oct 24	16:57	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	10 Oct 24	16:57	RMV
Boron	< 0.1	mg/L	0.1	SW6010D	10 Oct 24	16:57	RMV
Antimony	< 0,5	ug/L	0.5	SW6020B	4 Oct 24	16:01	SS
Arsenic	< 0.5	ug/L	0.5	SW6020B	7 Oct 24	10:06	SS
Beryllium	< 0.05	ug/L	0.05	SW6020B	7 Oct 24	12:58	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	4 Oct 24	16:01	SS
Chromium	< 0.5	ug/L	0.5	SW6020B	7 Oct 24	10:06	SS
Lead	< 0.5	ug/L	0.5	SW6020B	7 Oct 24	10:06	SS
Molybdenum	< 0.5	ug/L	0.5	SW6020B	4 Oct 24	16:01	SS
Selenium	< 0.5	ug/L	0.5	SW6020B	7 Oct 24	14:30	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	7 Oct 24	10:06	SS
Fluoride	< 0.02	mg/L	0.02	EPA 300.0	5 Oct 24	15:09	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

 RL = Reporting Limit

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

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

 @ = Due to sample matrix
 # = Due to concentration of other analytes

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

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





Page: 9 of 10

Report Date: 17 Dec 2024 Lab Number: 24-A2541 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

PO BOX 496 FERGUS FALLS MN 56538-0496

Project Name: HOOT LAKE PLANT CCR

OTTER TAIL POWER CO

Sample Description: S2A

JOSH HOLLEN

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst		
Misc Comment	INSUFFICI	ENT VOLUME-	NO SAMPLE			ii -		
Well Depth, Field	79.62	feet	NA	Field	1 Oct 24	BMW		
Water Level Before Purge	78.00	feet	NA	NA	1 Oct 24	BMW		
Static Elevation, Field	1195.78	ft	NA	Field -	1 Oct 24	BMW		

No collection time supplied by the client.





Page: 10 of 10

Report Date: 17 Dec 2024 Lab Number: 24-A2542 Work Order #: 31-0136 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 1 Oct 2024 Sampled By: MVTL FIELD PERSONNEL Date Received: 1 Oct 2024 18:30 PO #: 59640

Project Name: HOOT LAKE PLANT CCR

56538-0496

OTTER TAIL POWER CO

FERGUS FALLS MN

JOSH HOLLEN

PO BOX 496

Sample Description: S14R

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Misc Comment	UNABLE TO	PURGE-NO SAM	4PLE			
Well Depth, Field	87,11	feet	NA	Field	1 Oct 24	NM
Water Level Before Purge	79.07	feet	NA	NA	1 Oct 24	NМ
Static Elevation, Field	1201.54	ft	NA	Field	1 Oct 24	NM

No collection time supplied by the client.

MVTL

Mercury ug/L

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MEMBER ACIL

76-113

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< 0.005

Quality Control Report Lab IDs: 24-A2535 to 24-A2540 Project: HOOT LAKE PLANT CCR					'n	- Work Order: 202431-0136											
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	104	85-115	25.0	24A2535q	< 0.5	26.6	106	75-125	26.6	27.4	110	3.0	10	100	90-110	< 0.5
	25.0	108	85-115	25.0	24A2538q	< 0.5	27.5	110	75-125	27.5	29.0	116	5.3	10	104	90-110	< 0.5
Arsenic ug/L	25.0	105	85-115	25.0	24A2535qc	< 0.5	27.2	109	75-125	27.2	27.7	111	1.8	10	100	90-110	< 0.5
	25.0	104	85-115	25.0	24A2538q	20.8	48.1	109	75-125	48.1	47.6	107	1.0	10	100	90-110	< 0.5
Barium mg/L	1.000	103 107	85-115 85-115	1.00 1.00	a2536qc a2543qc	0.060 < 0.005	1.050 1.060	99 106	75-125 75-125	1.050 1.060	1.110 1.060	105 106	5.6 0.0	10 10	102 103	90-110 90-110	< 0.005 < 0.005
Beryllium ug/L	2.50	98	85-115	2.50	24A2535q	< 0.05	2.34	94	75-125	2.34	2.37	95	1.3	10	105	90-110	< 0.05
	2.50	100	85-115	2.50	24A2538q	0.15	2.38	89	75-125	2.38	2.34	88	1.7	10	98	90-110	< 0.05
Boron mg/L	1.000	95	85-115	1.00	a2536qc	0.212	1.260	105	75-125	1.260	1.230	102	2.4	10	92	90-110	< 0.1
	1.000	96	85-115	1.00	a2543qc	< 0.1	0.956	96	75-125	0.956	0.952	95	0.4	10	92	90-110	< 0.1
Cadmium ug/L	5.00	104	85-115	5.00	24A2535q	<0.1	5.16	103	75-125	5.16	5.30	106	2.7	10	100	90-110	< 0.1
	5.00	109	85-115	5.00	24A2538q	0.12	5.62	110	75-125	5.62	5.93	116	5.4	10	95	90-110	< 0.1
Calcium mg/L	50.00	98	85-115	50.0	a2536qc	81.30	126.0	89	75-125	126.0	133.0	103	5.4	10	101	90-110	< 0.5
	50.00	101	85-115	50.0	a2543qc	< 0.5	50.00	100	75-125	50.00	49.60	99	0.8	10	101	90-110	< 0.5
Chloride mg/L		-	-	60.0	24-A2543	< 3	60.6	101	80-120	60.6	59.6	99	1.7	20	93	90-110	< 3
Chromium ug/L	25.0	102	85-115	25.0	24A2535q	< 0.5	24.0	96	75-125	24.0	24.9	100	3.7	10	100	90-110	< 0.5
	25.0	103	85-115	25.0	24A2538q	11.5	37.7	105	75-125	37.7	36.9	102	2.1	10	101	90-110	< 0.5
Cobalt mg/L	1.000	97	85-115	1.00	a2536qc	< 0.005	0.994	99	75-125	0.994	0.974	97	2.0	10	98	90-110	< 0.005
	1.000	98	85-115	1.00	a2543qc	< 0.005	0.964	96	75-125	0.964	0.962	96	0.2	10	98	90-110	< 0.005
Fluoride mg/L	-	-	-	0.20	24-A2540	< 0.02	0.190	95	80-120	0.190	0.200	100	5.1	10	98	90-110	< 0.02
Lead ug/L	25.0	102	85-115	25.0	24A2535q	< 0.5	26.1	104	75-125	26.1	26.2	105	0.4	10	101	90-110	< 0.5
	25.0	100	85-115	25.0	24A2538q	4.46	29.4	100	75-125	29.4	30.0	102	2.0	10	101	90-110	< 0.5
Lithium mg/L	1.000	99 101	85-115 85-115	1.00 1.00	24-A2536 24-A2543	< 0.02 < 0.02	0.978	98 100	75-125 75-125	0.978	1.010 1.010	101 101	3.2 1.0	10 10	96 96	90-110 90-110	< 0.02 < 0.02

0.10

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24-A2539

< 0.005

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Page: 1 of 2
MVTL

Ouality Control Report

MINNESOTA VALLEY TESTING LABORATORIES, INC.

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MEMBER ACIL

Lab IDs: 24-A2535 to 24-A2540 Project: HOOT LAKE PLANT CCR							Work Order: 202431-0136											
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	
Molybdenum ug/L	25.0 25.0	98 91	85-115 85-115	25.0 25.0	24A2535q 24A2538q	1.74 1.18	27.0 25.3	101 96	75-125 75-125	27.0 25.3	27.5 26.4	103 101	1.8 4.3	10 10	98 96	90-110 90-110	< 0.5 < 0.5	
pH units		-	-		-	-	-		-	7.2 7.4	7.2 7.4	-	0.0 0.0	2.5 2.5	101 101	90-110 90-110		
Selenium ug/L	25.0 25.0	112 109	85-115 85-115	25.0 25.0	24-A2535 24A2538q	2.56 1.55	31.8 29.9	117 113	75-125 75-125	31.8 29.9	31.3 28.6	115 108	1.6 4.4	10 10	103 104	90-110 90-110	< 0.5 < 0.5	
Solids, Total Dissolved mg/L		-								420 470 583	414 430 613		1.4 8.9 5.0	10 10 10	98 100 -	85-115 85-115 -	< 10 - -	
Sulfate mg/L	-	-	-	50.0	24-A2543	< 5	45.4	91	80-120	45.4	47.5	95	4.5	20	95	85-115	< 5	
Thallium ug/L	5.00	102 98	85-115 85-115	5.00 5.00	24A2535q 24A2538g	< 0.1 < 0.1	5.24 5.10	105 102	75-125	5.24 5.10	5.34 5.24	107 105	1.9 2.7	10 10	101 100	90-110 90-110	< 0.1 < 0.1	

Page: 2 of 2

Approved by:



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

December 13, 2024

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

RE: Project: Ottertail Power 31-0136 Pace Project No.: 10710364

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on October 03, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

Sincerely,

Puper & Dileos

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

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project:Ottertail Power 31-0136Pace Project No.:10710364

Lab ID	Sample ID	 Matrix	Date Collected	Date Received
10710364001	24A2535 - S3AR	Water	10/01/24 14:36	10/03/24 10:31
10710364002	24A2536 - S51	Water	10/01/24 11:55	10/03/24 10:31
10710364003	24A2537 - S52	Water	10/01/24 12:38	10/03/24 10:31
10710364004	24A2538 - S10R	Water	10/01/24 13:27	10/03/24 10:31
10710364005	24A2539 - S13	Water	10/01/24 11:47	10/03/24 10:31
10710364006	24A2540 - Field Blank	Water	10/01/24 11:00	10/03/24 10:31

REPORT OF LABORATORY ANALYSIS

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e Analytical www.pacelabs.com

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



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	DRINKING WATER WATER WASTE WATER PRODUCT SCILSOLD OIL SAMPLE ID WIPE	DW WT WW P SL OL WP	(see valid codes t	(G=GRAB C=CO	COMPO		COMPOS END/GF	SITE AB	T COLLECTION	ERS							ėst i in t	method161	228	ricing	IS	00						rine (Y/N)			
#	(A-Z, 0-9 / ,-) OTHER Sample IDs MUST BE UNIQUE TISSUE	OT TS	TRIX CODE	IPLE TYPE					IPLE TEMP A	F CONTAIN	preserved	<u>,</u>	5_		S203	thanol	nalvsis T	7.8 TCDC	lium 226/;	As State P	xins/Furat	C's by 82(sidual Chlo			
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0	24A2536 - S51		wτ				10/01/24	11:55		1									x									N		<u> </u>	<u> </u>
3	24A2537 - S52		wτ				10/01/24	12:38		1									x									N		<u> </u>	
4	24A2538 - S10R		wτ				10/01/24	13:27		1									x								_	N		<u> 00 9</u>	
5	24A2539 - S13		wτ				10/01/24	11:47		1									x									N		<u> </u>	
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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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F-ALL-Q-020rev.08, 12-Oct-2007

CLIENT NAME: MVTL	PROJEC	T#:	M)#:10710364				
COURIER: Client Commercial FedEx P	ace							
			PM:					
	_		CLI	ENT: MVTL				
	INS FORM	,						
Custody Seal on Cooler/Box Present: UYES UPNO Seals Intact: U	YES L	NO	Biologi					
Packing Material: Bubble Bags B-Bubble Wrap None Other	Tem	p Blank	21	ES LINO Type of Ice: LI Blue LI Dry Portet				
Thermometer:	🗆 T5 ((0178)	🗆 Тб ((0235)				
	(1710)							
Did Samples Originate in West Virginia: YES TNO	0.7	V	Vere All	Container Temps taken: L YES L NO V N/A				
Confection Factor: Cooler Temp Read w/Temp Blank: Cooler Temp Corrected w/Temp Blank:	54	-c ″	verage	corrected remp (no remp blank omy).				
NOTE: Temp should be above freezing to 6°C.	61	c	See Ex	xceptions Form ENV-FRM-MIN4-0142 🛛 1 Contained				
LISDA Regulated Soll: IN/A – Water Sample/Other (describe):			nitials 8	A Date of Person Examining Contents:				
Did Samples originate from one of the following states (check maps) – AL, AR,	AZ, CA,	FL, [Did samples originate from a foreign source (international, inc					
GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: VES NO			lawali a	nd Puerto Rico): 🖾 YES 🖾 NO				
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-	MIN4-0	154) an	dinclud	e with SCUR/COC paperwork.				
	YES	NO	N/A	COMMENT(S)				
Chain of Custody Present and Filled Out?				1.				
Chain of Custody Relinquished?				2.				
Sampler Name and/or Signature on COC?				3. A liferingle □ <8 bro □ >8 br <24 br □ No				
Samples Arrived within Hold Timer				5 D BOD / cBOD BEcal coliform Hex Chrom				
Short Hold Time Analysis (2 m)r</td <td></td> <td></td> <td>S. 1</td> <td>HPC INitrate Nitrite IOrtho Phos</td>			S. 1	HPC INitrate Nitrite IOrtho Phos				
				Total coliform/E. coli Other:				
Rush Turn Around Time Requested?				6. kol N				
Sufficient Sample Volume?				7. receiver 2 prin pe				
Correct Containers Used?				8. gouples				
Pace Containers Used?				9				
Field Filtered Volume Received for Dissolved Tests?				10. Is sediment visible in the dissolved container:				
		1						
is sufficient information available to reconcile the samples to the COC?	đ			11. If NO, write ID/Date/Time of container below:				
NOTE: If ID/Date/Time don't match fill out section 11.				See Exceptions form ENV-FRM-MIN4-0142				
All containers needing acid/base preservation have been checked?				12. Sample #: 001 - 009				
All containers needing preservation are found to be in compliance with EPA				14				
recommendation $7HNO_3$, H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10				\Box^2 HNO ₃ \Box^2 H ₂ SO ₄ \Box NaOH \Box^2 Zinc Acetate				
Cyanide)				Positive for Residual Chlorine: 🛛 YES 🗍 NO				
Dioxins/PFAS				pH Paper Lot #				
				Residual Chloring 0-6 Roll 0-6 Strip 0-14 St				
NOTE: If adding preservation to the container, verify with the PM first.				D 25224				
clients may require accing preservative to the tield and equipment blanks when this occurs.	ŀ							
	- <u>-</u>	<u> </u>		LI See Exceptions form ENV-FRM-MIN4-0142				
Headspace in Methyl Mercury Container?				14				
Headsoace in VOA Vials (greater than 6mm)?				See Exceptions form ENV-FRM-MIN4-0140				
Trip Blanks Present?			1	15.				
Trip Blank Custody Seals Present?				Pace Trip Blank Lot # (if purchased):				
CLIENT NOTIFICATION / RESOLUTION				FIELD DATA REQUIRED: 🖾 YES 🛛				
Person Contacted:		Date 8	& Time:					
Comments / Resolution:				······································				
	,							
Viner 1 Qt. P.	los		Data	10/4/24				
Project Manager Review:			Date:					
NOTE: When there is a discrepancy affecting North Carolina compliance sam	oles, a co	opy of th	us form	will be sent to the worth Carolina DEC Cervincation Office				
lie out of hold incoment successful out of terms incoment contain	prei							

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Minnesota Valley Testing Laboratories, Inc. 1126 North Front Street New Ulm, MN 56073 507-233-7131 Fax 507-359-1231

P.O. Number:

CL13299

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10:	Ship To (if different address):
Pace Analytical 1700 Elm Street SE Suite# 200 Minneapolis, MN 55414	

P.O. Date	Placed By	Date Expected	Ship Via	F.O.B.	Terms
2-Oct-24	Todd Rieger	N/A	N/A	N/A	Net 30

QTY,	Description	Unit Price	Total
			\$ -
	Lab ID# 24A2535-40		\$
	WO# 31-0136		\$ -
			\$ -
6	Radium 226/228	\$	\$
			\$ - 1
6	Disposal Fee	\$	\$
1	Environmental Impact	\$	\$
			\$ -
			\$
			\$ -
			\$ -
·			\$
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	email results to trieger@mvtl.com		\$
·			\$
· _ · · · · · · · · · · · · · · · · · ·			\$
\sim		Shipping & handling	
(_alla_	Walson	Subtotal	\$
	<u> </u>	Sales Tax	
Authorized Siar	lature	Total Dual	¢

	tkorder: 10710364 Wo	orkorder N	Rush Mu Samples ame: Ottertail	ultiplier> Pre-Logged Power 31-01 t To	K into eCO 36	С		State Cert. Own	Of O Neec er Re	rigin led: ceive	: Mi X ed Da	V Yes ate:	; [10/: R	N 3/202	lo 24 sted A	Resu natys	ılts F	<u> Sedi</u>	ueste	/- d By	-1 acc : 11/1/2024
Pipe Paci 700 Aini Pho	r Gibbs e Analytical Minnesota) Elm Street ieapolis, MN 55414 ne (612)607-6456		Pace 1 12065 Mt. Jul Phone	National Lebanon Rd let, TN 37122 (615) 758-585	8			ed Con			Kadutt Zzo/zzo										1150395 V 001
em	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HN03															LAB USE ONLY
	24A2535 - S3AR	PS	10/1/2024 14:36	10710364001	Water	2					x	512									-01
<u>.</u>	24A2536 - 551	PS	10/1/2024 11:55	10710364002	Water	2					<u>x </u>					_		1_			-02
	24A2537 - S52	PS	10/1/2024 12:38	10710364003	Waler	2					<u>x </u>								-		<u>-02</u>
	24A2538 - S10R	PS	10/1/2024 13:27	10710364004	Water	2					X								4		-09
	24A2539 - S13	PS DC	10/1/2024 11:47	10710364005	Water	2			$\left - \right $		$\frac{\lambda}{\sqrt{1-2}}$			_				+	╉		-0-2
f punitaquita (1993)	124A2540 - Field Blank	122	10/1/2024 11:00	10/10304000	Ivvaler	171					$\frac{1}{1}$						Comi	ment	L_l s		<u>-w</u>
Frar	sfers Released By		Date/Time	Received E	Зу	<u>0043444444</u> "			Date	Time				n de la com Servez S		en en se	filesti Nati				
2	Locy/Pic	1/2	25,24 15:	20 Hone	in P	ta	th		11/2	6/24	ton	00		ni . L'ann Ac A				1 			
<u></u>	ler Temperature on Rece	lint		tody Seal	Norn	.		Rec	L	on l	$-\frac{1}{1}$	2	r N	Silan ya ana ana ana ana ana ana ana ana an			Sam	inler	s Inta	ctTy	or N
*lr 7	order to maintain client co his chain of custody is con	nfidentiality sidered cor	r, location/name mplete as is sind	of the samplice this information	ing site, s ation is a	ampi vailat	ler's r ble in	the ov 42	and si wner l 43	gnatu abora 5	ire n itory 7		iot be 148	provi 1	ded (on th	is Co 3+C	>⊂ a }=1.	10cum 2.3	ient. CG /	19 1

eal Present/Intact: lynef/Accurate: es drive intact: of bottles used: lient volume sent: reen <0.5 mR/hr:	In the second se	ti <u>pt Ch</u> VOA Pres.	<u>ecklist</u> If Applicable Zero Resdapace: Correct/Check	<u>K</u>
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Friday, October 04, 2024 8:49:02 AM

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Ship To: Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858 INTER_LABORATORY WORK ORDER # 10710364

(To be completed by sending lab)

1A0-

Page

			and the second
	Sending Project No:	10710364	
	Receiving Project No:		:
Check Box for	Consolidated Invoice:		
	Date Prepared	10/04/24	
REQUESTED	COMPLETION DATE:	11/1/2024	р. Уч.
		10 July 1	

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

All questions should be addressed to sending project manager.

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

Radium 226/228		BP1N	12	HNO3	6	SI-38RAD	SUB PASI RAD
Method Description	on.	Container Type	Quantity of containers	Preservative	Samples	Acode	Acode Desc
		WORK	REQUEST	D		42.54(0), 2003 	

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

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: Yes X 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.

Friday, October 04, 2024 8:49:06 AM

Page 1 of 1

Pace Analytical ANALYTICAL REPORT

Pace Analytical - Minnesota

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

L1803954 11/26/2024 10710364 Ottertail Power 31-0136 001 Piper Gibbs

Entire Report Reviewed By: Maly Torrence

100 T

Haley Torrence Project Manager

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

Pace Analytical National

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

SDG:

L1803954

DATE/TIME:

12/09/24 16:32

PROJECT:

10710364

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DATE/TIME:

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PROJECT:

10710364

		Collected by	Collected date/time 10/01/24 14:36	Received dat 11/26/24 09:0	e/time 10
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
WG2408794	1	11/27/24 12:50	12/04/24 17:25	DDD	Mt. Juliet, TN
WG2409673	1	12/02/24 11:58	12/04/24 10:23	ZRG	Mt. Juliet, TN
		Collected by	Collected date/time 10/01/24 11:55	Received dat 11/26/24 09:0	te/time 00
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
WG2408794	1	11/27/24 12:50	12/04/24 17:25	DDD	Mt. Juliet, TN
WG2409673	1	12/02/24 11:58	12/04/24 10:23	ZRG	Mt. Juliet, TN
		Collected by	Collected date/time 10/01/24 12:38	Received da 11/26/24 09:0	te/time 00
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
WG2408794	1	11/27/24 12:50	12/04/24 17:25	DDD	Mt. Juliet, TN
WG2409673	1	12/02/24 11:58	12/04/24 10:23	ZRG	Mt. Juliet, TN
ŕ		Collected by	Collected date/time 10/01/24 13:27	Received da 11/26/24 09:	ite/time 00
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
WG2408794	1	11/27/24 12:50	12/04/24 17:25	DDD	Mt. Juliet, TN
WG2409673	1	12/02/24 11:58	12/04/24 10:23	ZRG	Mt. Juliet, TN
		Collected by	Collected date/time 10/01/24 11:47	Received da 11/26/24 09:	ate/time 00
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
WG2408794	1	11/27/24 12:50	12/04/24 17:25	DDD	Mt. Juliet, TN
WG2409673	1	12/02/24 11:58	12/04/24 10:23	ZRG	Mt. Juliet, Th
ble Water		Collected by	Collected date/time 10/01/24 11:00	Received da 11/26/24 09	ate/time :00
Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
WC2408794	1	11/27/24 12:50	12/04/24 17:25	DDD	Mt. Juliet, Ti
102400/34	•	102112112.00			
	Batch WG2408794 WG2409673 Batch WG2408794 WG2409673 Batch WG2409673 Batch WG2409673 Batch WG2409673 Batch WG2409673 Batch WG2409673 Batch WG2409673 Patch WG2409673 Dele Water Batch	BatchDilutionWG24087941WG24096731BatchDilutionWG24087941WG24096731BatchDilutionWG24096731BatchDilutionWG24096731BatchDilutionWG24096731WG24096731BatchDilutionWG24096731BatchDilutionWG24096731BatchDilutionWG24096731DilutionUilutionWG24096731BatchDilutionUG24096731DilutionUilutionUG24096731Dile Water1BatchDilution	BatchDilutionPreparation date/timeWG2408794111/27/24 12:50WG2409673112/02/24 11:58Collected byCollected byBatchDilutionPreparation date/timeWG2408794111/27/24 12:50WG2409673112/02/24 11:58Collected byCollected byBatchDilutionPreparation date/timeWG2408794111/27/24 12:50WG2408794111/27/24 12:50WG2409673112/02/24 11:58Collected byCollected byBatchDilutionPreparation date/timeWG2408794111/27/24 12:50WG2409673112/02/24 11:58Collected byCollected byrEatchDilutionPreparation date/time1WG2408794111/27/24 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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.

Maluy Tomence

Haley Torrence Project Manager



ACCOUNT: Pace Analytical - Minnesota



DATE/TIME: 12/09/24 16:32 Page 11 of 23

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24A2535-S3AR SAMPLE RESULTS - 01 Collected date/time: 10/01/24 14:36

Radiochemistry by Method 904/9320

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-228	0.374	J	0.238	0.436	0.441	0.231	12/04/2024 17:25	WG2408794
(T) Barium	101		요란 이번 관람			30.0-143	12/04/2024 17:25	WG2408794
(T) Yttrium	113					30.0-136	12/04/2024 17:25	WG2408794

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/I		+/-	+/-	pCi/l	pCI/I	date / time	
RADIUM-226	0.0234	U	0.178	0.224	0.335	0.227	12/04/2024 10:23	WG2409673
(T) Barium-133	101	신문가가공			슬 전에 걸었던데. 영수 전 것이다. ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	30.0-143	12/04/2024 10:23	WG2409673



DATE/TIME:

12/09/24 16:32

24A2536-S51 SAMPLE RESULTS - 02 Collected date/time: 10/01/24 11:55 L1803954

Radiochemistry by Method 904/9320

· · · · · · · · · · · · · · · · · · ·	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	<u>Batch</u>
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-228	1.08	0000 00 400 0000 4 000 4 00 400 400 400 400 400	0.337	0.568	0.609	0.318	12/04/2024 17:25	WG2408794
(T) Barium	109					30.0-143	12/04/2024 17:25	<u>WG2408794</u>
(T) Yttrium	76.5					30.0-136	12/04/2024 17:25	WG2408794

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.0627	Ū	0.257	0.400	0.441	0.288	12/04/2024 10:23	WG2409673
(T) Barlum-133	94.4					30.0-143	12/04/2024 10:23	WG2409673

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SDG:

L1803954

24A2537-S52 Collected date/time: 10/01/24 12:38 SAMPLE RESULTS - 03

Radiochemistry by Method 904/9320

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-228	1.06	47.64.649.667.3.68.997.17.3	0.380	0.627	0.692	0.361	12/04/2024 17:25	WG2408794
(T) Barium	80.1					30.0-143	12/04/2024 17:25	<u>WG2408794</u>
(T) Yttrium	80.7					30.0-136	12/04/2024 17:25	WG2408794

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.0841	Ū	0.233	0.331	0.388	0.258	12/04/2024 10:23	WG2409673
(T) Barlum-133	106					30.0-143	12/04/2024 10:23	WG2409673

Tc Ss Cn Sr Qc Gl ΆI

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SDG:

L1803954

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24A2538-S10R Collected date/lime: 10/01/24 13:27

SAMPLE RESULTS - 04

Radiochemistry by Method 904/9320

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-228	2.90	() (B) (B) (B) (B) (B) (B) (B) (B) (B) (0.450	0.754	0.772	0.403	12/04/2024 17:25	WG2408794
(T) Barium	97.5				약의 그릇의 고객에서 고객에서 고객에서 고객	30.0-143	12/04/2024 17:25	WG2408794
(T) Yttrium	<i>85.7</i>					30.0-136	12/04/2024 17:25	WG2408794

Radiochemistry by Method SM7500Ra B M

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/I	date / time	
RADIUM-226	0.760	**************************************	0.370	0.706	0.310	0.215	12/04/2024 10:23	WG2409673
(T) Barium-133	110					30.0-143	12/04/2024 10:23	WG2409673



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PR(10

PROJECT: 10710364 DATE/TIME: 12/09/24 16:32

SDG:

L1803954

24A2539-S13 Collected date/lime: 10/01/24 11:47

SAMPLE RESULTS - 05 L1803954

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Radiochemistry by Method 904/9320

Radiochemistry by Method 904/9320									
	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch	Ch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time		2
RADIUM-228	1.14		0.353	0.577	0.637	0.332	12/04/2024 17:25	WG2408794	Tc
(T) Barlum	<i>89.2</i>					30.0-143	12/04/2024 17:25	WG2408794	j
(T) Yttrium	87.3	norderinderind				30.0-136	12/04/2024 17:25	WG2408794	³Ss

Radiochemistry by Method SM7500Ra B M

Radiochemistry by Method SM7500Ra B M										
	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch		
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/I	date / time		5	
RADIUM-226	0.197	7	0.256	0.400	0.364	0.242	12/04/2024 10:23	WG2409673	Sr	
(T) Barium-133	98.5	고 있었다.				30.0-143	12/04/2024 10:23	WG2409673		

ACCOUNT: Pace Analytical - Minnesota



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DATE/TIME:

12/09/24 16:32

SAMPLE RESULTS - 06 24A2540-FIELD BLANK Collected date/lime: 10/01/24 11:00

Radiochemistry by Method 904/9320

Radiochemistry by	{adiochemistry by Method 904/9320												
	Result	Qualifier	2 sigma CE	TPU	· MDA	Lc	Analysis Date	<u>Batch</u>					
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time		2				
RADIUM-228	0.585		0.285	0.489	0.525	0.274	12/04/2024 17:25	WG2408794	Tc				
(T) Barium	103					30.0-143	12/04/2024 17:25	WG2408794	·				
(T) Yttrium	94.6					30.0-136	12/04/2024 17:25	WG2408794	³Ss				

Radiochemistry by Method SM7500Ra B M

· · · · · · · · · · · · · · · · · · ·	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / lime	
RADIUM-226	0.0912	Ū	0.196	0.305	0.325	0.225	12/04/2024 10:23	WG2409673
(T) Barlum-133	104					30.0-143	12/04/2024 10:23	WG2409673

³Ss Cn Sr Qc GI ΆI Sc

PAGE:

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Method Blank (MB)

Method Blank	(MB)					 l'Cn
(MB) R4154375-1 12/	/04/24 14:19					
	MB Result	MB Qualifier	MB 2 sigma CE	MB MDA	MB Lc	2
Analyte	pCi/l		+/-	pCi/l	pCi/I	IC
Radium-228	0.444		0.186	0.357	0.188	ł
(T) Barium	112		112			Ss
(T) Yttrium	71.4		71.4			
						^⁴ Cn

L1801640-07 Original Sample (OS) - Duplicate (DUP)

(OS) L1801640-07	12/04/24 17:25 •	(DUP) R415437	75-5 12/04/24 14	4:19										Sr
	Original Resul	It Original 2 sigma CE	Original MDA	Original Lc	DUP Result	DUP 2 sigma CE	DUP MDA	DUP Lc	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit	
Analyte	pCi/I	+/-	pCi/I	pCi/l	pCi/I	+/-	pCi/l	pCi/I	%			%		QC
Radium-228	1.52	0.309	0.538	0.284	1.06	0.373	0.709	0.370	35.4	0.941		20	3	
(T) Barium	91.2				122	122				9-12 1				⁷ GI
(T) Yttrium	85.4				90.4	90.4								
														اA [®]

Laboratory Control Sample (LCS)

Laboratory Contro	i Sample (L	CD)				
(LCS) R4154375-2 12/04/	24 14:19					Sc
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	pCi/I	pCi/l	%	%		
Radium-228	5.00	5.69	114	80.0-120		
(T) Barium			112			
(T) Yttrium			94.0			

L1801640-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1801640-05 12/05/24	S) L1801640-05 12/05/24 17:45 • (MS) R4154375-3 12/04/24 14:19 • (MSD) R4154375-4 12/04/24 14:19												
	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/I	pCi/I	pCi/l	%	%		%		****	%		%
Radium-228	10.0	6.67	16.6	14.5	99.3	78.3	1	70.0-130			13.5		20
(T) Barium		116			103	93.8							
(T) Yttrium		90.6			54.5	64.0							

SDG:

L1803954

PROJECT:

10710364

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WG2409673

Radlochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY L1803954-01,02,03,04,05,06

Method Blank (MB)

(MB) R4153543-1 12/04/2	4 10:23					
	MB Result	MB Qualifier	MB 2 sigma CE	MB MDA	MB Lc	
Analyte	pCi/i		+/-	pCi/l	pCi/l	
Radium-226	0.0449	1	0.0578	0.0817	0.0534	
(T) Barium-133	103		103			

L1803954-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1803954-06 12/	S) L1803954-06 12/04/24 10:23 • (DUP) R4153543-5 12/04/24 10:23													
	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	DUP RPD Limits	DUP RER Limit	Sr
Analyte	pCi/I	+/-	pCi/I	pCi/ł	pCi/l	+/-	pCi/l	pCi/I	%			%		6
Radium-226	0.0912	0.196	0.325	0.225	0.0668	0.181	0.310	0.211	31.0	0.0917	<u>U</u>	20	3	UC.
(T) Barium-133	104				95.7	95.7							같은 가슴을 알려 수십 같다. 이 아이는 것 그 같은 것	

Laboratory Control Sample (LCS)

Laboratory Contro	ol Sample (L	CS)				8
(LCS) R4153543-2 12/04	/24 10:23					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	9
Analyte	pCi/l	pCi/l	%	%		Sc
Radium-226	5.00	4.82	96.3	80.0-120		L
(T) Barium-133			98.2			

L1798042-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1798042-01 12/04	DS) L1798042-01 12/04/24 10:23 • (MS) R4153543-3 12/04/24 10:23 • (MSD) R4153543-4 12/04/24 10:23										
	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/ł	pCi/I	%	%		%		%	%
Radium-226	20.0	0.0967	20.3	17.0	101	84.5	1	75.0-125		17.9	20
(T) Barium-133		109			109	59.9					

PROJECT:

10710364

SDG:

L1803954

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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 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.	L
Rec.	Recovery.	^⁴ Cn
RER	Replicate Error Ratio.	
RPD	Relative Percent Difference.	5
SDG	Sample Delivery Group.	1 51
(II)	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.	⁶ Oc
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.	GI
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.	AI
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.	Sc
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.	
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.	
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.	
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.	
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.	
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.	
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.	
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.	
Qualifier	Description	

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

SDG:

L1803954

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ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
lowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky 16	KY90010	South Carolina	84004002
Kentucky ^z	16	South Dakota	n/a
Louisiana	A 30792	Tennessee 14	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA - ISO 17025 5	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

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

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

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ACCOUNT: Pace Analytical - Minnesola PROJECT: 10710364 SDG: L1803954 DATE/TIME: 12/09/24 16:32

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per Gibbs ace Analytical Minnesota '00 Elm Street inneapolis, MN 55414 none (612)607-6456		Pace I 12065 Mt. Ju Phone	Vational Lebanon Rd liet, TN 37122 (615) 758-585	8						/228											
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m Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNOS																LAB USE ONLY
24A2535 - S3AR	PS	10/1/2024 14:36	10710364001	Water	2				1	X											-01
24A2536 - 551	PS	10/1/2024 11:55	10710364002	Waler	2			1. AN		X											-02
24A2537 - S52	PS	10/1/2024 12:38	10710364003	Water	2			_		X		-									-03
24A2538 - S10R	PS	10/1/2024 13:27	10710364004	Water	2		- 			X					1						-04
24A2539 - S13	PS	10/1/2024 11:47	10710364005	Water	2	<u> </u>				X				_	1						-05
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Ship To: Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858

INTER_LABORATORY WORK ORDER # 10710364 (To be completed by sending lab)

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	S	ending Pro	ject No	1071036	4		÷
	Re	ceiving Pro	ject No:				
Check I	Box for Co	nsolidated	Invoice			[2434] [8034]	D.S
		Date Pr	epared	10/04/24			
REQUE	STED COI	MPLETION	DATE:	11/1/202	()		

Sending Region	IR10-Minnesota	Sending Project Mgr.	4	Piper Gibbs		
Receiving Region	IR850-Pace National	External Client	18.4 A. 2.4 A.	MVTL Laboratories		
State of Sample Origin	MN	QC Deliverable	94. 11. 11.	STD REPORT	AND N.	1 . L
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All questions should be addressed to sending project manager.

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

Metho	od Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Rac	lium 226/228	BP1N	12	HNO3	6	SI-38RAD	SUB PASI RAD

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 raceiving laboratory. Copies are made to corporate as needed.



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section Require	A d Client Information:	Section B Required Proj	ect info	rmation:				_	Sect Invoid	ion C ce Infor	matic	n;													Pa	age:	1	of	1
Compan	v: MVTL	Report To: T	odd Ri	ieger					Atten	tion:	Â	P																	
Address	1126 NORTH FRONT BLDG #2	Copy To: tr	eger@	@mvtl.com	and bzin	s@mvtl.co	om		Comp	any Na	ame:	ΜV	TĹ							RE	GULA	TOR	Y AG	ENC	Y				
	NEW ULM, MN 56073	a	ieder@	@mvtl.com	 ו				Addre	ess:	1	126 N	IORT	ΉF	RON	VT B	LDG	2		Г	NPD	ES	Π.	GROU	ND V	VATE	RГ	DRINKING	WATER
Émail To	alieder@mvtl.com	Purchase Ord	er No.:	CR1329	9	Pace Quole							RCRA																
Phone:	507-354-8517 Fax:	Project Name:	Ott	ertail Pow	er				Refere Pace I	ence: Project										Si	e Loc	ation			_	Ē			
Request	ed Due Date/TAT: standard	Project Numbe	er. Wo	ork Order:	31-0136				Manag Pace i	ger. Profile #	# :									-	ST	∆TF·	_	MN	1	_ [
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1	24A2535 - S3AR	v	vт			10/01/24	14:36		1									x								N			
2	24A2536 - S51	v	νт			10/01/24	11:55		1									x								N			
3	24A2537 - S52	v	νт			10/01/24	12:38	1	1									x								Ν	_		
4	24A2538 - S10R	v	ντ	•		10/01/24	13:27		1									x								N			
5	24A2539 - S13	v	νт			10/01/24	11:47		1									x				1				N			
6	24A2540 - Field Blank	v	ντ			10/01/24	11:00		1	_↓								x		\square			┝╌┝			N			
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12								<u> </u>																			CAME		
	ADDITIONAL COMMENTS	R	ELINQI	JISHED BY	/ AFFILIAT		DAT			FIME			A	CCE	PTED) BY /	AFFI	LIATI			DA			ME	1		SAMP		
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L	······	I			SAMPL	ER NAME A	AND SIGN	ATU	 RE																	,	5	oter	fact
						PRINT Nam	e of SAMF	LER						-				_							ļ		V/N	(N)	Y/N)
						SIGNATUR	E of SAMP	LER	:								DA (M	TE SI M/DD	gnec /YY):	1							Rece Ice	Seale	Samp

Minnesota Valley Testing Laboratories

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

Project Nan	ne:	Otter Tail Powe	er Co.	Project	Type:	CCR			Na	ne o	f Sam	plers	: [ω_{i}	N,	Ŋ		
Report To: Attn: Address:	Hoot Lake Plant eport To: Otter Tail Power Company C. ttn: Paul Vukonich Ai ddress: P.O. Box 496 A Fergus Falls, MN 56038-0496 Ai hope: 218-730-8349			Carbon (Attn: Address	<u>Copy:</u>	BarrDM@ba	arr.com	ي Quote Number: Work Order Number: عام 13 ل Lab Numbers:							_			
	S	ample Informa	ation							В	ottle	Туре					Analysis	
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	Voc Set	1000 none	1000 HNO3 500 HNO3	Filters Y or N	500 HNO3 Filters	500H2SOA	1000 HINO3	Other: 150	*2-1000 Lt.	Required		
	S2A		100yrl	1 1/5.	GW			1		N	<u> </u>	+ +		<u> </u>	2	See Attat	ched	
A2535	S3AR			1436	GW			1	1	Ν					2	CCR 3 an	d CCR 4	
36	S51			H55	GW			1	1	Ν					2			
27	S52		+	1238	GW			1	1	N					2			
38	S10R			1327	GW			1	1	N					2			
39	S13			1147	GW			1	1	N					2			
	S14R			NS.	ew			-	-11	N	1		\leq	\square	2			
40	Field Blank			1100				1	1	N				<u> </u>	2			
														+	L			_
														+				

Comments: CCR wells

*Amber None (Pace) is for Radium 226 + 228

		1				0.5
Samples	Relinguished By: 2M	TX VDA		Samples Receive	ed By: SP	
Date:	100+24	Time: 183	70 Temp: 0. う	N 759 Date: OLT	24 Time: 1830	Temp: 0,5 785
Samples	Relinquished into:	Fridge I	og in Cart Other:			
Samples	Relinguished By:			Samples Receive	ed By:	
Date:		Time:	Temp:	Date:	Time:	Temp:
Deliver :	Samplers	Other:	I	Seal Number(s)	- If Used	
Trans	Ambient	lce	Other:	Seals Intact?	Yes No	

с т

2024 - Hoot Lake Site CCR Sampling

Site	Parameter List	Well Depth	Diameter (Inches)	Well Elevation	Sample Equipment	Dedicated?	Pump Rate (gal/minute)	Goes Dry?
S2A	CCR 3 and CCR 4	79.63	2	1273.776	Bladder	Yes	< 0.25	Yes
S3AB	CCR 3 and CCR 4	78.42	2	1271.562	Bladder	Yes	< 0.25	No
S51	CCR 3 and CCR 4	55.6	2	1286.904	Bladder	Yes	< 0.25	No
S52	CCR 3 and CCR 4	88.3	2	1286.623	Bladder	Yes	< 0.25	No
S10R	CCR 3 and CCR 4	57.00	2	1281.47	Bladder	Yes	< 0.25	No
S13	CCR 3 and CCR 4	90.19	2	1296.423	Bladder	Yes	< 0.25	No
S14R	CCR 3 and CCR 4	70.86	2	1280.61	Bladder	Yes	< 0.25	Yes

Trip Blank CCR 3 and CCR 4

Note: CCR samples must be on their own COC. Make sure CCR 3 and CCR 4 parmaters are printed and a part of the COC.

Total Recoverable Metals! Groundwater samples shall not be field filtered prior to analysis.

We usually schedule in early May and early October.

CCR - Appendix III Detection Monitoring *Field Parameters* pH*

* Field and Laboratory Measurements

Total Concentration Parameters

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

New Ulm, MN 56073

Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
	Date: $107+74$
	Sample ID: S-3A-R
Well Locked?	
Well Labeled? Yes No	<u>Protective Posts? Yes</u> <u>No</u>
Casing Straight? Yes No	Grout Seal Intact? Yes
Repairs Necessary:	
Well Information	
Well Depth: 78.48	Well Casing Elevation: 1271.562
Constructed Depth: 78.42	Static Water Elevation: 1203,147
Casing Diameter: 2"	Previous Static:
Water Level Before Purge: 08.42	Water Level After Sample: 68.54
Well Volume: 1. 64 Gallons	Measurement Method: Elec. WLI) Steel Tape
Sampling Information	
Weather Conditions: Temp: 60 Wind: 1	ZW sky: Fair
Sampling Method: Grundfos Bladder SS/ Disp. Bailer	Whale Grab Other:
Dedicated Equipment: (res) No	Pumping Rate: 0, 25 gpm
Well Purged Dry? Yes No	Time Pump Began: 1415 am / 6m
Time Purged Dry?	Time of Sampling: 1436 am (Grad
Duplicate Sample? Yes No ID:	Sample EH: 77
Sample Appearance: General: Clast Color: No	$\frac{1}{100} \text{ Phase: } (\Lambda_0) (\Omega_0) = 0 \text{ Odor: } (\Lambda_0) (\Omega_0) = 0$
Time Like Specific Temp D. O.	Turbidity Gallons SEQ
$\frac{11\text{me}}{1.172} \text{pr} \text{Cond.} \text{c} \text{mg/L}$	NTU Removed # Comments:
1422 2.00 861 12.5 5.91	3.41 1.75 1
1429 7.21 867 12.01 4.18	3,42 3.50 2
1436 7.21 866 12.04 4.07	3.82 5.25 3
Stabilized? Yes No Amount M/a	tor Pomovodi 525 cultur

.

Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
Pw	Date: / OCf 24
	Unique Station ID: 814830
	Sample ID: S-51
Well Condition	
Well Locked? Yes No	Protective Posts? Yes No
Well Labeled? Yes No	State ID Tag? (Yes No
Casing Straight? Yes No	Grout Seal Intact? Pes No
Repairs Necessary:	
Well Information	
Well Depth: <u>55.60</u>	Well Casing Elevation: 1286.904
Constructed Depth: 55.60	Static Water Elevation: 12394
Casing Diameter: 2"	Previous Static: 1238-81
Water Level Before Purge: 47.49	Water Level After Sample: 47.49
Well Volume: 1.32 Gallons	Measurement Method: Flec. Wyl Steel Tape
Sampling Information	() in the
Weather Conditions: Temp: 74 Wind:	CC Sky: PC.
Sampling Method: Grundfos Bladder SSA Disp. Bail	er Whale Grab Other:
Dedicated Equipment: Yes No	Pumping Rate: , 2G gpm
Well Purged Dry? Yes No	Time Pump Began: 1137 (am) / pm
Time Purged Dry?	Time of Sampling: 1155 (am) pm
Duplicate Sample? Yes No ID:	Sample EH: -/ 7-5
Sample Appearance: General: C/CEC Color.	NO 10 Phase: NOIN Odor: 10 je
Specific Temp D. O.	Turbidity Gallons SEQ
Time pH Cond. C mg/L	
143 6.40 403 10.40 1.2	<u>445 / 1</u>
1/49 6.42 403 10.92 1.7	9 0.0 3.0 2
1155 6.42 402 10.95 1.7	7 0.0 4.5 3
	4
	5
Stabilized? Keg No Amour	nt Water Removed: 4.5 Gallons
Comments:	

j

Groundwater Asse	ssment		S	te:	Otter Tai	Power	Co./ Hoot Lake
Sampling Personnel	-		F	acility ID:	SW-211		
	Bir		D	ate: / C	1001 24		
· · · · · · · · · · · · · · · · · · ·			<u>u</u>	nique Station	ID:		
			S	ample ID:	<u>S-52</u>		
Well Condition						N	0
Well Locked?	Yes No		H T	rotective Posi	is res	N	0
Well Labeled?	Yes No			State ID Tayr	act? Nes	N	0
Casing Straight?	Yes NO						
Repairs Necessary:							
Well Information	28.71)				lavation:	1	286 623
Well Depth:	0430		<u>_</u>	Vell Casing E		717	200.020
Constructed Depth:	88.30		<u>.</u>	Static Water E	levation: 1	217.	20
Casing Diameter:	2"			Previous Stati	c: 1210	<u> 44</u>	7.
Water Level Before Pu	rge: //9	.36		Water Level A	fter Sample:	67	. >0
Well Volume:	3.09	Gallons		Measurement	Method:	Elec. W	L Steel Tape
Sampling Informat	ion	<u> </u>	i			59	`
Weather Conditions:	Temp:	74 1	Nind: L	10	Sky: į	<u> </u>	
Sampling Method:	Grundfos	Bradder SS/T I	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	Nes) No	\bigcirc		Pumping Rate	<u>e: -25</u>		gpm
Well Purged Dry?	Yes No)	-		Time Pump E	Began: //8	59	(em)/ pm
Time Purged Dry?		-		Time of Sam	pling: <u>12</u>	38	am / m)
Duplicate Sample?	Nes No	- ιρ· Λ(-	1. cale	Sample EH:	-56.0		
Dupilcale Sample:				A VC Phase	NOIN		Odor: NCラン
Sample Appearance:	General:	Crear					
12	Specific	Temp	D. O.	Turbidity	Gallons	SEQ	
Time ¹³ pH	Cond.	°C	mg/L	NTU	Removed	#	Comments:
1212 6.05	402	10-67	4.11	4.3	3.25	1	
1225 6.06	, 402	10.59	4.04	0.0	6-50	2	
1238 6.08	402	10.67	3.96	0-0	9.75	3	
1.40	_					4	
						5	
	<u></u>		Amount Wa	ter Removed	9.75	,	Gallons
Stabilized / res/	110						

Comments:

New Ulm, MN 56073

Groundwater Assessment		Site:	Otter Ta	ail Powe	er Co./ Hoot Lake	
Sampling Personnel:	-	Facility ID:	SW-21	1		
MM	-	Date:	Oct	24		
	-	Unique Statio	n ID: 806341			
	-	Sample ID:	S-10R			
Well Condition						
Well Locked? Ves No		Protective Po	sts? Ves		No	
Well Labeled? Yes No		State ID Tag	Yes		<u>No</u>	
Casing Straight? New No		Grout Gearm				
Nell Information						
Well Depth: 80.62		Well Casing I	Elevation:		1281.47	
Constructed Depth: 57.00		Static Water	Elevation:	20	0.36	
Casing Diameter: 2"		Previous Stat	ic:	, 		
Water Level Before Purge:		Water Level	After Sample:	Bi	dw tomp	>
Well Volume: 1, 55 Gallons		Measuremen	t Method:	Elec. V	VDI Steel Tape	
Sampling Information		MIL		C	· _	
Weather Conditions: Temp: 00 W	Vind:/	160	Sky:	19		
Sampling Method: Grundfos Bladder S8/T D	lisp. Bailer	Whale	Grab Other:	~		
Dedicated Equipment: Ces No		Pumping Rat	te: 0.0	5	gpm	
Well Purged Dry? Ves No		Time Pump	Began:	212	am / pm	
Time Purged Dry? 322		Time of Sam	pling: 15	<u>45</u>	am / pm	
Duplicate Sample? Yes No ID:	<u> </u>	Sample EH:		$\supset r$		1
Sample Appearance: General: (10vdy c	Color: 7	9h Phase	<u>: L.F. 5</u>	ea	Odor: SVItu	ras
Specific Temp	D. O.	Turbidity	Gallons	SEQ		
Time pH Cond. ^O C n	ng/L	NTU	Removed	#	Comments:	
137.2 7.30 850 14.1	7.24	252	1.75	1		
1377				2	recharge	
				3		
				4		
		+		5		
				<u> </u>]		1
Stabilized? Yes No/	Amount Wa	ater Removed	<u>l· / [</u>)	Gallons	-
Comments:			f	^		Contri
1/ iv	190ff	icient	Volume	for	- recharg	1 englac
R.	- / - 4 - 4 - 4	-				

Groundwater Assessment		Site:	Otter Ta	il Power Co	o./ Hoot Lake
Sampling Personnel:		Facility ID:	SW-211		
NM		Date:	Def	24	
		Unique Station	ID: 632810	- ι	
		Sample ID:			
		Protective Pos	ts? Yes	No	
Well Labeled? Yes No		State ID Tag?	Yes	No	
Casing Straight? Yes No		Grout Seal Inta	act? Yes	No	
Repairs Necessary:					
Well Information					
Well Depth: <u>90-77</u>		Well Casing E	levation:	129	6.423
Constructed Depth: 90.19		Static Water E	Elevation:	1211	673
Casing Diameter: 2"		Previous Stati	<u>c:</u>	- 7417	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Water Level Before Purge: <u>\$4.75</u>		Water Level A	After Sample:	<u> </u>	
Well Volume: 0.90 Gallons		Measurement	Method:	Etes. WL	Steel Tape
Sampling Information	<u> </u>	<u> </u>			
Weather Conditions: Temp: 60	Wind:	LN	Sky:	rair	
Sampling Method: Grundfos Bladder S	T Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment: Tes No		Pumping Rat	e: 0.2	<u>5 gpr</u>	<u>n</u>
Well Purged Dry? Yes 🔊		Time Pump E	Began: 1)	<u>35</u>	am_/ pm
Time Purged Dry?		Time of Sam	pling: 1/4	47	and pm
Duplicate Sample? Yes 🔊 ID:		Sample EH:	68.1		
Sample Appearance: General: Luca	Color: M	ØW Phase	: hone	Oc	lor: Noral
		Turbidity	Gallons	SEQ	
Tinge pH Cond. C	mg/L	NTU	Removed	# Co	omments:
1139 7210 914 12.3	4 0.57	U U	l	1	
11/2 776 $11/1$ 174	() 57	a	7	2	
1143 7.60 119 1.6.1			Z		
1191 7.26 414 12.2	70.77	<u> </u>		3	
		<u> </u>	·	4	
		· ·		5	· · · · · ·
Stabilized? Ves No	Amount V	Vater Removed:	3	G	allons
Comments:					

.

	Facility ID: SW-211 Date: / GC+ 2 ⁽)
Kial	Date: GC+ 24
	Unique Station ID: 444350
	Sample ID: S-2A
Vell Condition	
Vell Locked? Yes No	Protective Posts? (Yes' No
Vell Labeled? Yes No	Grout Seal Intact? Yes? No
Repairs Necessary:	
Vell Information	
Vell Depth: 79.62	Well Casing Elevation: 1273.776
Constructed Depth: 79.63	Static Water Elevation: 1/95.78
Casing Diameter: 2"	Previous Static: // 97. \$3
	Water Level After Sample:
	Measurement Method: Elec. WLP Steel Tape
Meather Conditions' Temp' 74 Win	nd: LUV sky: Fair
Sampling Method: Grundfos Aladder S&/T Disp	Bailer Whale Grab Other:
Dedicated Equipment: (Tes.) No	Pumping Rate: gpm
Well Purged Dry? Yes No	Time Pump Began: am / pm
Time Purged Dry?	Time of Sampling: am / pm
Duplicate Sample? Yes No ID:	Sample EH:
Sample Appearance: General: Col	lor Phase: Odor:
Sample Appearances Scholar.	
Spécific Temp D. (O. Turbidity Gallons SEQ
Time pH Cond. C mg.	Hemoved # Comments:
	2
	3
	4
	5
	acount Water Removed:
	Tount water itemoved. Oanons
やチョシレ	Eficient Valuante to and I-
Europhiana ta Daotacali	pulye Samp
Exceptions to Protocol: \checkmark $1/0$ Sa	Mp/c 1,

Froundwater As	ssessment			Site:	Otter T	ail Pow	er Co./ Hoot Lake
Sampling Personnel				Facility ID:	SW-21	1	
	NN			Date:	P. Ocf	-2	4
		-		Unique Statio	on ID: 806342	2	
		-		Sample ID:	S-14R		
Well Condition							
Well Locked?	Yes No	-		Protective Po	osts? Yes		No
Casing Straight?	Yes No	-		Grout Seal Ir	1? Yes		No
Repairs Necessary:		-		0.000.00011	0		
Well Information		· · ·		<u></u>			
Well Depth:	87.11	_		Well Casing	Elevation:		1280.61
Constructed Depth:	70.86	_		Static Water	Elevation:	12	01.54
Casing Diameter:	2"			Previous Sta	itic:		
Water Level Before	Purge: 79	1.07		Water Level	After Sample:	79,	07
Well Volume:	.31	Gallons		Measureme	nt Method:	Elec. V	NLD Steel Tape
Sampling Inform	ation	· · · · · · · · · · · · · · · · · · ·				$\overline{}$	
Weather Conditions	: Temp: [20°	Wind:	12W	Sky:	\pm	air
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:	_	
Dedicated Equipme	nt: Xes No			Pumping Ra	ite: 0.24	5	gpm
Wéll Purged Dry?	Yes NO	_		Time Pump	Began: 12	-30	am / pm
Time Purged Dry?			_	Time of San	npling: 🧹		am / pm
Duplicate Sample?	Yes No	_ID:		Sample EH:		<u>ے</u>	
Sample Appearanc	e: General:	<u> </u>	Color: 🛸	Phase	e:		Odor:
	Specific	Temp		Turbidity	Gallons	ISEO	
Time pH	Cond.	°C	mg/L	NTU	Removed	#	Comments:
						1	
			1			2	
		$+ \sim$	+			2	
}			+	\leftarrow		3	
				\rightarrow		4	
				<u> </u>		5	
Stabilized? ¥es	No		Amount W	ater Removed	: 0		Gallons
Comments:		,					
	¥.	1 shite	, tub	inc Pl	lugged	UP	with
_	TN	· · · · · ·		· · · · · ·	00	1	
Exceptions to Proto	col:	dictli	nsects	UNABI	e to	PL	orge We
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	$\mathbf{\Lambda}$	100)		1- V			

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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 3

FINAL REPORT COMPLETION DATE: 17 Duc 24 an

Date Reported: 17 Dec 2024

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

Work Order #: 31-0156 Account #: 006106 PO #: 59640

Project Name: HOOT LAKE PLANT CCR

anager/Da Fi e Revi 29 Chemi Manager/Da Reviewed Tab un Quality Assurance Director/Date

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



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

Project Name: HOOT LAKE PLANT CCR

Sample Description: S14R

Report Date: 17 Dec 2024 Lab Number: 24-A3106 Work Order #: 31-0156 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Oct 2024 12:03 Sampled By: MVTL FIELD PERSONNEL Date Received: 22 Oct 2024 16:05 PO #: 59640

Temp at Receipt: 0.2C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Misc Comment						
MS Water Digestions					24 Oct 24	NS
Water Digestions					24 Oct 24	NS
pH, Field	6.85	units	1.00	SM4500-H+-2011	22 Oct 24 12:03	BMW
рН	* 7.2	units	1.0	SM 4500 H+ B-2000	23 Oct 24 16:15	CC
Radium 226	0.30	pCi/L	0.60		3 Dec 24 0:45	OL
Radium 228	1.13	pCi/L	3.00	EPA M9320	5 Dec 24 22:10	OL
Sulfate	69.8 @	mg/L	5.0	ASTM D516-11	24 Oct 24 13:46	KRM
Chloride	4.1	mg/L	3.0	SM 4500 Cl E	29 Oct 24 13:40	SB
Mercury	< 0.005	ug/L	0.005	EPA 245.7	25 Oct 24 15:46	RMB
Solids, Total Dissolved	479	mg/L	10	SM 2540 C-97	24 Oct 24 9:11	CC
Calcium	112.0	mg/L	0.500	SW6010D	28 Oct 24 14:23	RMV
Lithium	0.029	mg/L	0.020	SW6010D	28 Oct 24 14:23	RMV
Barium	0.048	mg/L	0.005	SW6010D	28 Oct 24 14:23	RMV
Chromium	< 0.01	mg/L	0.01	SW6010D	28 Oct 24 14:23	RMV
Cobalt	< 0.005	mg/L	0.005	SW6010D	28 Oct 24 14:23	RMV
Boron	< 0.1	mg/L	0.1	SW6010D	28 Oct 24 14:23	RMV
Antimony	< 0.5	ug/L	0.5	SW6020B	28 Oct 24 10:16	SS
Arsenic	3.36	ug/L	0.50	SW6020B	28 Oct 24 10:16	SS
Beryllium	< 0.05	ug/L	0.05	SW6020B	28 Oct 24 10:16	SS
Cadmium	< 0.1	ug/L	0.1	SW6020B	28 Oct 24 10:16	SS
Lead	< 0.5	ug/L	0.5	SW6020B	28 Oct 24 10:16	SS
Molybdenum	2.55	ug/L	0.50	SW6020B	28 Oct 24 10:16	SS
Selenium	< 0.5	uq/L	0.5	SW6020B	28 Oct 24 10:16	SS
Thallium	< 0.1	ug/L	0.1	SW6020B	28 Oct 24 10:16	SS
Fluoride	0.210 0	mg/L	0.020	EPA 300.0	31 Oct 24 2:07	MDH

* Holding Time Exceeded

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

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

OL = Analysis performed by an Outside Laboratory.

RL = Reporting Limit

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

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

 @ = Due to sample matrix
 # = Due to concentration of other analytes

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

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

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 sample, 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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Date Reported: 17 Dec 2024

Work Order #: 202431-0156 Account Number: 006106 PO #: 59640

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

Project Name: HOOT LAKE PLANT CCR

LABORATORY NARRATIVE

INORGANIC AND METALS ANALYSES: No problems were encountered with these analyses. 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

Quality Control Report								Ordore 2	02421 01	56							
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony ug/L	25.0	104	85-115	25.0	24A3106q	< 0.5	27.6	110	75-125	27.6	30.1	120	8.7	10	103	90-110	< 0.5
Arsenic ug/L	25.0	102	85-115	25.0	24A3106q	3.36	30.6	109	75-125	30.6	32.7	117	6.6	10	99	90-110	< 0.5
Barium mg/L	1.000	100	85-115	1.00	24A3106q	0.048	1.050	100	75-125	1.050	1.050	100	0.0	10	97	90-110	< 0.005
Beryllium ug/L	2.50	86	85-115	2.50	24A3106q	< 0.05	2.34	94	75-125	2.34	2.50	100	6.6	10	94	90-110	< 0.05
Boron mg/L	1.000	96	85-115	1.00	24A3106q	< 0.1	1.050	105	75-125	1.050	1.050	105	0.0	10	93	90-110	< 0.1
Cadmium ug/L	5.00	102	85-115	5.00	24A3106q	< 0.1	5.17	103	75-125	5.17	5.67	113	9.2	10	98	90-110	< 0.1
Calcium mg/L	50.00	94	85-115	50.0	24A3106q	112.0	157.0	90	75-125	157.0	159.0	94	1.3	20	100	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	24-A3122	32.3	93.1	101	80-120	93.1	93.8	102	0.7	10	93	90-110	< 3
Chromium mg/L	1.000	92	85-115	1.00	24A3106q	< 0.01	0.925	92	75-125	0.925	0.926	93	0.1	10	94	90-110	< 0.01
Cobalt mg/L	1.000	96	85-115	1.00	24A3106q	< 0.005	0.921	92	75-125	0.921	0.922	92	0.1	10	96	90-110	< 0.005
Fluoride mg/L	-	-	-	1.00	24-A3090	0.210	1.27	106	80-120	1.27	1.29	108	1.6	10	102	90-110	< 0.02
Lead ug/L	25.0	99	85-115	25.0	24A3106q	< 0.5	26.5	106	75-125	26.5	28.3	113	6.6	10	101	90-110	< 0.5
Lithium mg/L	1.000	101	85-115	1.00	24-A3106	0.029	1.020	99	75-125	1.020	1.030	100	1.0	10	97	90-110	< 0.02
Mercury ug/L	-	-	-	0.10	24-A3039	< 0.005	0.064	64	63-111	0.064	0.067	67	4.6	18	92	76-113	< 0.005
Molybdenum ug/L	25.0	96 .	85-115	25.0	24A3106q	2.55	28.2	103	75-125	28.2	30.6	112	8.2	10	100	90-110	< 0.5
pH units	-	-	-	-	-	-	-	-	-	7.2	7.2	-	0.0	2.5	101	90-110	-
Selenium ug/L	25.0	107	85-115	25.0	24A3106q	< 0.5	29.0	116	75-125	29.0	30.6	122	5.4	10	104	90-110	< 0.5
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	473	473	-	0.0	10	101	85-115	< 10
Sulfate mg/L	-	-	-	500	24-A3106	69.8	472	80	80-120	472	572	100	19.2	20	93	85-115	< 5
Thallium ug/L	5.00	98	85-115	5.00	24A3106q	< 0.1	5.29	106	75-125	5.29	5.71	114	7.6	10	99	90-110	< 0.1

Page: 1 of 1

210 Approved by:

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

December 13, 2024

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

RE: Project: 31-0156 Ottertail Power Pace Project No.: 10713297

Dear Todd Rieger:

Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

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

Sincerely,

Piperf Sikes

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

Enclosures

cc: Barb Zins, MVTL



REPORT OF LABORATORY ANALYSIS



SAMPLE SUMMARY

 Project:
 31-0156 Ottertail Power

 Pace Project No.:
 10713297

 Lab ID
 Sample ID
 Matrix
 Date Collected
 Date Received

 10713297001
 24A3106 S14R
 Water
 10/22/24 12:03
 10/24/24 11:40

REPORT OF LABORATORY ANALYSIS

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



CHAIN-OF-CUSTODY / Analytical Request Document

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

Section Required	A I Client Information:	Section B Required P	roject	Informa	ation:					Sec	ction oice Ir) C nforma	ation:														Pa	ge:	1	of	1	
Company	MVTL	Report To:	Todd	Rieg	ger					Atte	ention	1.	AP																			
Address:	1126 NORTH FRONT BLDG #2	Copy To:	triege	er@n	nvti.com	and bzin	s@mvtl.co	om		Cor	mpany	y Nam	e: M	VTL							R	EGL	JLAT	OR	(AG	ENC	Y ^a		÷., *			
1	NEW ULM, MN 56073		alied	er@n	nvti.com					Add	oress:		1126	NO	RTH	FRC	NT E	BLD	G 2		I	T NPDES T GROUN				ND W	ATER	х Г	DRINKING	WATER	۲	
Email To:	alieder@mvtl.com	Purchase O	rder N	io.: (CR13299)				Pac	e Quo	ite										Γ L	JST		۲ F	RCRA			5	OTHER	ww	
Phone:	507-354-8517 Fax:	Project Nan	ne:	Otter	tail Powe	er	· ·			Pac	e Proj	ect										Site	Loca	tion				V		//////		
Request	ed Due Date/TAT: standard	Project Nur	nber:	Work	COrder:	31-0156				Pac	e Prof	lile #:									-		STA	TE:	_	MN	4	- 1				
L		1								<u></u>								F	Requ	este	d Ai	naly	sis F	ilter	ed (Y	7N)	ľ	11//				
	Section D Valid Matrix C Required Client information MATRIX	odes <u>CODE</u>	to ief)	(dMC)		COLL	ECTED						Prese	ervati	ves		N N															
	CRINKING WATER WASTE WASTE WASTE WASTE WASTE WASTE WASTE WASTE PRODUCT SOUSOLID OIL SAMPLE ID (A-Z, 0-9 /, -) CATER CATE WASTE WASTE AIR (A-Z, 0-9 /, -) CATER	DW WT P S L OV P S L O V P S L O V P	DE (see valid codes l	E (GEGRAB C=CC	COMPO	DSITE RT	COMPO: ENDIGF		AP AT COLLECTION	AINERS		2					s Test	DD method161	6/228	3 - State Pricing	rans	2200						hlorine (Y/N)				
item #		75	MATRIX CO	SAMPLE TYP	DATE	TIME	DATE	TIME	SAMPLE TEN	# OF CONT	Innreame	H ₂ SO ₄	HNO3	NaOH	Na ₂ S ₂ O ₃	Methanol	4 Analysis	2,3,7,8 TC	Radium 22	PFAs 1633	Dioxins/Fu							Residual C	Pace	Project N	o./ Lab	1.D.
1	24A3106 S14R		wī				10/22/24	12:03	1		!	_					- ·		X							_		N	<u>C</u>	<u>×</u>		
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10	Also from last week need the EDD) for																			in ⁱⁿ i	1253	Q1			120		$h^{(1)}$	<u> </u>		90	
11	Pace sample 10712045 #													-									_			_		_				
12							<u> </u>			-									1													
	ADDITIONAL COMMENTS		RELI	NQUIS	SHED BY /	AFFILIATI		DAT	Ë :		TIM	E	(····································	1.1	AC(CEPT	D BY	AF	FILIA	TION			DAT	Έ	T			-	SAMP	LE CONDIT		
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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.

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

Ø

ENV-FRM-MIN4-0150 v17_Sample Condition Upon Receipt

CLIENT NAME: MUTL	PROJE	CT #:		0#:10713297
COURIER: Client Commercial FedEx F SpeeDee UPS USPS	Pace		PM	PG Due Date: 11/22/24 TENT: MVTL
TRACKING NUMBER: See Exception	ons form /IN4-014	1 42		
Custody Seal on Cooler/Box Present: 🗇 YES 💭 NO Seals Intact: 🎵	YES D] NO	Biologi	ical Tissue Frozen: 🗆 YES 🖉 NO 🗆 N/A
Packing Material: 🗆 Bubble Bags 💭 Bubble Wrap 🗔 None 🗔 Other	Tem	np Blan	ik: 🗹 Y	ES INO Type of Ice: Blue Dry Wet
Thermometer:	□ T5 ((1710)	(0178)	🗆 те (0235) 🗍 Melted 🗌 None
Did Samples Originate in West Virginla: 🗌 YES 📈 NO			Were Al	I Container Temps taken: YES NO N/A
Correction Factor: <u>-0.5</u> Cooler Temp Read w/Temp Blank:	<u>Ļģ</u>	- <u>°</u> C	Average	Corrected Temp (no Temp Blank Only):*C
Cooler Temp Corrected W/Temp Blank: NOTE: Temp should be above freezing to 6°C.	<u> </u>	- ⁻ C	🗆 See E	xceptions Form ENV-FRM-MIN4-0142 🔲 1 Container
USDA Regulated Soil: 🛛 N/A – Water Sample/Other (describe):			Initials 8	& Date of Person Examining Contents: VILL 017514
Did Samples originate from one of the following states (check maps) - AL, AR,	AZ, CA,	FL,	Did sam	ples originate from a foreign source (international, including
GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: LJ YES LJ NO	NAINIA O	1541-	Hawaii a	
NUTE: If YES to either question, fill out a Regulated Soll Checklist (ENV-FRM-	1911194-0	т <u>т</u>	nu incluo	
LOCATION (check one): DULUTH Z MINNEAPOLIS VIRGINIA	YES	NO	<u>N/A</u>	COMMENT(S)
Chain of Custody Present and Filled Out?	R			1.
Chain of Custody Relinquished?	<u> <u> </u></u>	<u>ل</u> طر		2
Sampler Name and/or Signature on COC?			<u>-</u>	3.
Samples Arrived within Hold Time?				4. If Fecal: U <8 hrs U >8 hr, <24 hr UNO
Short Hold Time Analysis (<72 hr)?		.≱r]		5. LI BOD / cBOD Litecal collform Li Flex Chrom
				Total coliform/ <i>E. coli</i> Other:
Rush Turn Around Time Requested?		l d		6.
Sufficient Sample Volume?	Z	6		7.7 BPIN
Correct Containers Used?	Ø			8.
- Pace Containers Used?	ίΩ.	1 des	'	
Containers Intact?	Ø			9.
Field Filtered Volume Received for Dissolved Tests?		X		10. Is sediment visible in the dissolved container:
Is sufficient information available to reconcile the samples to the COC?	Ø			11. If NO, write ID/Date/Time of container below:
NOTE: If ID/Date/Time don't match fill out section 11.				T Soo Evenhing form ENV EDM MINI-0147
Matrix: L Oil L Soil K Water L Other	64			
All containers needing acid/base preservation have been checked r	1 N			7/7_
recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10				HNO3 HzSO4 NaOH Zinc Acetate
Cyanide)				Positive for Residual Chlorine: VES ONO
Exceptions: VOA, Coliform, TOC/DOC, Oll & Grease, DRO/8015 (water) and			1×	nH Danari at #
Dioxins/PFAS			ľ	Residual Residual
NOTE: If adding preservation to the container verify with the PM first				Chlorine 0-6 Roll 0-6 Strip 0-14 Strip
Clients may require adding preservative to the field and equipment				205224
blanks when this occurs.				See Excentions form ENV-FRM-MINA-0142
Headspace in Methyl Mercury Container?		- n	- RI	13.
Extra labels present on soil VOA or WIDRO containers?				14.
Headspace in VOA Vials (greater than 6mm)?			L DA	See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?			TØ	15.
Trip Blank Custody Seals Present?			ÍØ	Pace Trip Blank Lot # (if purchased):
CLIENT NOTIFICATION / RESOLUTION			/	FIELD DATA REQUIRED: 🗌 YES 🛄 NO
Person Contacted:		Date	& Time:	
Comments / Recelution				
				10/25/24
Project Manager Review: Puper A. Like	las		Date:	10/23/24
NOTE: When there is a discremency affecting North Caroling compliance com-	les a ce	nny of t	this form	will be sent to the North Corolina DEO Certification Office
NOTE: when there is a discrepancy affecting North Carolina compliance samp li.e., out of hold, incorrect preservative, out of temp, incorrect contain	ers).	ון טייקי	ina joint	
		Lab	eled By:	VLV Line:



Minnesota Valley Testing Laboratories, Inc. 1126 North Front Street New Ulm, MN 56073 507-233-7131 Fax 507-359-1231 P.O. Number: CL13299

То:	Ship To (if different address):
Pace Analytical 1700 Elm Street SE Suite# 200 Minneapolis, MN 55414	

P.O. Date	Placed By	Date Expected	Ship Via	F.O.B.	Terms
23-Oct-24	Todd Rieger	N/A	N/A	N/A	Net 30

QTY.	Description	Unit Price	Total
			\$ -
	Lab ID# 24A3106		\$
	WO# 31-0156		\$ -
			\$ -
1	Radium 226/228	\$	\$
			\$-
1	Disposal Fee	\$	\$
1	Environmental Impact	\$	\$
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
			\$ -
	email results to trieger@mvtl.com		\$
			\$ -
			\$ -
\sim		Shipping & handling	
()	ID.C.	Subtotal	\$
		Sales Tax	
Authorized Sigr	nature	Total Due	\$

Internal Trans Workorder: 10713297	fer Chain	of Custod Rush Mu Samples Name: 31-0156	y	X into eCC ver)C	Stat Cert Owr	e Of O . Need er Rec	igin: ed: eived	MN X Ye Date:	s 10/	No 24/202	4 Re	(sults,	D18 Reque	32 ested [Pace * By: 12/9/2024
Report To Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456 Item Sample ID 1 24A3106 S14R	Sample Type PS	Subcontrac Pace N 12065 Mt. Jul Phone Collect Date/Time 10/22/2024 12:03	t To Vational Lebanon Rd iet, TN 37122 (615) 758-585 (615) 758-585 LabiD	8 Matrix Water	Pres 804 1	erved Co	itainers	X Radium 226/228								LAB USE ONLY
2 3 4 5 Transfers Released By 1 2 3 Cooler Temperature on	[face_1] Receipt 3:31	Date/Time 1/27/24_165	Received F	ay and a second						20 T			Com	iments	Intact	

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

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

Sample Receipt Checklist t: UN If Applicable N VOA Zero Headspace: YN Pres. Correct/Check: YN R1 COC Seal Present/Intact: COC Signed/Accurate: Botries arrive intact: Correct bottles used: 12435570 4307 Sufficient volume sent: RA Screen <0.5 mR/hr:

ICe'

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

(To be completed by sending lab)

Sending Project No:	10713297
Receiving Project No:	
Check Box for Consolidated Invoice:	
Date Prepared:	11/22/24
REQUESTED COMPLETION DATE	12/9/2024

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

All questions should be addressed to sending project manager.

Requested Reportable Units

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

	WORK	REQUESTE	D		1990) 1990)	a the subscript of the second s
Method Description	Container Type	Quantity of containers	Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N		HNO3	1	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C), MN Standard With QC (513)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: Yes X No

DISPOSITION of FORM 40

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.

Pace Analytical® ANALYTICAL REPORT

December 10, 2024

Pace Analytical - Minnesota

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

L1803492 11/23/2024 10713297 31-0156 Ottertail Power 001 **Piper Gibbs** 1700 Elm Street Suite 200 Minneapolis, MN 55414

Entire Report Reviewed By:

Tc

Ss

Сп

Sr

Qc

GI

AI

Sc

Naomi M Sackett Project Manager

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

Pace Analytical National

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

SDG:

L1803492

PROJECT:

10713297

PAGE: 1 of 11

DATE/TIME:

12/10/24 13:14

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Radiochemistry by Method SM7500Ra B M	7
GI: Glossary of Terms	8
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Sc: Sample Chain of Custody	10

¹Cp ³Ss ⁴Cn ⁵Sr ⁶Qc ⁷Gl ⁸Al ⁹Sc

Page 9 of 18

PAGE:

2 of 11



SDG:

L1803492

S	SAMPLE	SUMN	IARY			
24A3106 S14R L1803492-01 Non-Potable Wate	r aldalar M		Collected by	Collected date/time 10/22/24 12:03	Received da 11/23/24 09:0	te/time 00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904/9320 Radiochemistry by Method SM7500Ra B M	WG2408366 WG2408871	1 1	11/26/24 00:03 11/27/24 11:12	12/05/24 22:10 12/03/24 00:45	DDD ZRG	Mt. Juliet, TN Mt. Juliet, TN

Ср

ACCOUNT: Pace Analytical - Minnesola PROJECT: SDG: 10713297 L1803492 Page 10 of 18

DATE/TIME:

12/10/24 13:14

CASE NARRATIVE

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

Naomi M Sackett Project Manager



ACCOUNT: Pace Analytical - Minnesota SDG: L1803492 DATE/TIME: 12/10/24 13:14 Page 11 of 18 PAGE:

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SAMPLE RESULTS - 01 24A3106 S14R Collected date/lime: 10/22/24 12:03

Radiochemistry by Method 904/9320

Radiochemistry by M	ethod 904/9	9320							1 Co
	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch	
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time		2
RADIUM-228	1.13	and a constraint of the	0.531	0.993	1.01	0.530	12/05/2024 22:10	WG2408366	Tc
(T) Barium	104		이가 가장 바람 관람 같은 이 것 같은 같은			30.0-143	12/05/2024 22:10	WG2408366	
(T) Yttrium	130					30.0-136	12/05/2024 22:10	WG2408366	³ Ss

Radiochemistry by Method SM7500Ra B M

······································	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+/-	+/-	pCi/l	pCi/l	date / time	
RADIUM-226	0.297	Ī	0.282	0.452	0.363	0.236	12/03/2024 00:45	WG2408871
(T) Barlum-133	98.5		285 July 12		2019년 1월 20 1월 2019년 1월 2	30.0-143	12/03/2024 00:45	WG2408871

⁴Cn Sr 'Qc GI ΆI Śc

ACCOUNT: Pace Analytical - Minnesota PROJECT: 10713297

SDG: L1803492 Page 12 of 18 PAGE:

5 of 11

DATE/TIME:

12/10/24 13:14

QUALITY CONTROL SUMMARY

Radiochemistry by Method 904/9320

Method Blank (MB)

B) R4155617-1 12/0	5/24 17:45					
	MB Result	MB Qualifier	MB 2 sigma CE	MB MDA	MB Lc	
alyte	pCi/I		+/-	pCi/l	pCi/l	
adium-228	0.169	Ţ	0.136	0.252	0.133	
T) Barium	105		105			
(T) Yttrium	103		103			

L1801250-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1801250-03 12	/05/24 22:10 • (DUP) R41556	17-5 12/05/24 1	7:45										Sr
	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	DUP RPD Limits	DUP RER Limit	6
Analyte	pCi/l	+/-	pCi/l	pCi/I	pCi/I	+/-	pĆi/I	pCi/l	%			%		- WC
Radium-228	0.424	0.255	0.491	0.260	0.465	0.508	0.940	0.490	9.22	0.0721	Ţ	20	3	-
(T) Barium	112				91.0	91.0								ÍGI
(T) Yttrium	118		······		75.0	75.0								L

Laboratory Control Sample (LCS)

-		,				9_
(LCS) R4155617-2 12/05/24	4 17:45					Sc
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	L
Analyte	pCi/I	pCi/l	%	%		
Radium-228	5.00	4.39	87.8	80.0-120		
(T) Barium			103			
(T) Yttrium			112			

L1799989-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1799989-01 12/05/24	4 17:45 • (MS) R	4155617-3 12/0	05/24 17:45 •	(MSD) R415561	7-4 12/05/2	24 17:45							
	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	16.7	0.636	14.8	15.5	84.9	88.8	1	70.0-130			4.29		20
(T) Barium		103			121	102							
(T) Yttrium		85.3			111	89.5							

PROJECT:

10713297





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WG2408871

O71

QUALITY CONTROL SUMMARY

Radlochemistry by Method SM7500Ra B M

Method Blank (MB)						Cp
(MB) R4152999-1 12/02/24	10:23		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
	MB Result	MB Qualifier	MB 2 sigma C	E MB MDA	MB Lc	2_{To}
Analyte	pCi/ł		+/-	pCi/l	pCi/l	
Radium-226	0.0180	U	0.0327	0.0542	0.0349	3
(T) Barium-133	75.9		75.9			Šs

L1800789-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1800789-01 12/	02/24 10:32 • ([DUP) R4152	999-5 12/02/241	0:32										5
	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	DUP RPD Limits	DUP RER Limit	Sr
Analyte	pCi/l	+/-	pCi/l	pCi/l	pCi/l	+/-	pCi/l	pCi/l	%			%		8 Oc.
Radium-226	0.232	0.234	0.306	0.203	0.158	0.206	0.294	0.199	38.3	0.239	<u>1</u>	20	3	Sec.
(T) Barium-133	104				99.7	99.7								⁷ GI

Laboratory Control Sample (LCS)

Laboratory Cont	ior Sample (E	(-)				A
(LCS) R4152999-2 12/	02/24 10:32					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	9
Analyte	pCi/I	pCi/I	%	%		Sc
Radium-226	5.00	4.64	92.7	80.0-120	na series a series a series a series a series and a series and a series and a series and a series of the series	L
(T) Barium-133			84.3			

L1802809-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1802809-01 12/0	02/24 10:32 • (MS) I	R4152999-3 12	2/02/24 10:32	• (MSD) R41529	999-4 12/02/2	4 10:32								
	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/I	pCi/l	pCi/l	pCi/l	%	%		%			%		%	caracterized
Radium-226	20.0	0.310	16.9	17.3	83.0	84.7	1	75.0-125		and the second second	1.99	en internet internet	20	
(T) Barium-133		89.8			90.3	<i>95.7</i>								N.

PROJECT:

10713297

[†]Cn

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

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

ACCOUNT: Pace Analytical - Minnesota PROJECT: 10713297



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Cp

Τc

Ss

Cn

Sr

Qc

GI

ΑI

Sc

ACCREDITATIONS & LOCATIONS

Ср

Тс

Ss

Cn

Sr

Qc

GI

Sc

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina 1	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
lowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky 16	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee 14	2006
Louislana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	AZLA
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

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

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

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

ACCOUNT: Pace Analytical - Minnesota

SDG: L1803492

PROJECT:

10713297

DATE/TIME: 12/10/24 13:14

PAGE:

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Internal Transfer Cha Workorder: 10713297 Workord	in of Custody Rush MultiplierX Samples Pre-Logged into eCOC der Name: 31-0156 Ottertail Power	State Of Origin: MN Cert. Needed: X Yes No Owner Received Date: 10/24/2024 Re	D182 Requested By: 12/9/2024
Report To Piper Gibbs Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone (612)607-6456 Item Sample ID 1 24A3106 S14R 2 3 4 5	Subcontract To Pace National 12065 Lebanon Rd Mt. Juliet, TN 37122 Phone (615) 758-5858 Prove (615) 758-5	eserved Containers	alysis
1 Nick V have 2 3 Cooler Temperature on Receipt 3	11/29/24 1655 000 3106 3 B Custody Seal (V) or N	Received on Ice Vor N	Samples Intact O 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.

Semple Receipt Checklist HOLQER1 TI Applicable N VOA Zeto Headspace: Y N Press. Correct/Check: Y N N 924365710 (101-7) COC Seal Present (Intact: COC Signed/Accurate: Botyles arrive intact: Correct bottles used: 12435570 4307 Sufficient volume sent: RA Screen <0.5 mR/hr:

Friday, November 22, 2024 8:32:42 AM

Page 1 of 1 Page 17 of 18

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

INTER_LABORATORY WORK ORDER # 10713297

(To be completed by sending lab)

Sending Project No:	10713297
Receiving Project No:	
Check Box for Consolidated Invoice:	
Date Prepared	11/22/24
REQUESTED COMPLETION DATE:	12/9/2024

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

All questions should be addressed to sending project manager.

Requested Reportable Units

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

	WORK	REQUESTED		ALC: IN	
Method Description	Container Type	Quantity of Preservative	Quantity of Samples	Acode	Acode Desc
Radium 226/228	BP1N	HNO3	1	SI-38RAD	SUB PASI RAD

Special Requirements: Report C, QC Limits (C), MN Standard With QC (513)

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

Return Samples to Sending Region: Yes X 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.

This is an exact copy of the original document

By <u>AB</u> Date <u>23 oct</u> 24 pages 1-5

- 6 T

Minnesota Valley Testing Laboratories

1126 North Front Street	New Ulm, MN 56003
Phone: 800 782 3557	Fax: 507 359 2890
Field Service Chain of Cust	ody Record

Project Na	me:	Otter Tail Pov	wer Co.	Project	Type:	CCR				Nan	ne o	of Sa	mp	lers	÷£	Siv	•					
		Hoot Lake Pla	ant																			
Report To:	: Otter Tail	Power Company		<u>Carbon</u>	<u>Copy:</u>	BarrDM@b	barr.com	<u> </u>	ŀ		1											-
Attn:	Paul Vuko	nich		<u>Attn:</u>								<u>um</u>	ber:			2.			,			
Address:	P.O. Box	496		Address	<u>s:</u>							rder	Nui	mpe	<u>: r:</u>	51-	0	150	Ĵ.			
	Fergus Fa	alis, MN 56038-049	96].	Lab	Nur	nbe	<u>rs:</u>									
Phone:	218-739-8	349														_						_
		Sample Inform	nation								B	ott	le T	ype	<u>}</u>					Ana	lysis	
er					Vpe	ocation	/	/ /	' /	/				≥ /		/		^{H2SQ4}	ຍ 2011 -			/
ab Numb	Sample IC	Jnique Station D	Date	lime	Sample T	Sample L	VOC Sat	1000 none	1000 HNO3	500 HNO3	Filer? Y	500 HNO3	Filers Y	500H2SO4	1000 HNO3	500 NaOH	Other: 150	*2-1000 I.	Required			
	<u> </u>			(<u> </u>	GW			-1					_						See Atta	atched		
					GW														CCR 3 a	and CCR	4	
					GW																	
					GW																	
					GW					_												
	4				GW																	
A3106	S14R		2200+24	1203	GW			1		1	Ν							2				
																						1
																						_
	1																					
 	1																					

Comments: CCR wells

*Amber None (Pace) is for Radium 226 + 228

,

	0	m				2
Sample	s Relinguished By:	NVA		Samples Receiv	red By:	
Date:	2200424	Time: 100	互 Temp:ひっみ ?	M721 Date: 2301	24 TimeO 7! 5	5 Temp: $O, O \in M$
Sample	s Relinquished into:	Fridge Lo	og in Cart Other	:		
Sample	s Relinguished By:			Samples Receiv	red By:	
Date:		Time:	Temp:	Date:	Time:	Temp:
Deliver	samplers	Other:		Seal Number(s)	- If Used	
Tran	t: Ambient	lce	Other:	Seals Intact?	Yes No	·

2024 - Hoot Lake Site CCR Sampling

Site	Parameter List	Well Depth	Diameter (Inches)	Well Elevation	Sample Equipment	Dedicated?	Pump Rate (gal/minute)	Goes Dry?
S2A	CCR 3 and CCR 4	79.63	2	1273.776	Bladder	Yes	< 0.25	Yes
S3AR	CCR 3 and CCR 4	78.42	2	1271.562	Bladder	Yes	< 0.25	No
S51	CCR 3 and CCR 4	55.6	2	1286.904	Bladder	Yes	< 0.25	No
S52	CCR 3 and CCR 4	88.3	2	1286.623	Bladder	Yes	< 0.25	No
S10R	CCR 3 and CCR 4	57.00	2	1281.47	Bladder	Yes	< 0.25	No
S13	CCR 3 and CCR 4	90.19	2	1296.423	Bladder	Yes	< 0.25	No
S14R	CCR 3 and CCR 4	70.86	2	1280.61	Bladder	Yes	< 0.25	Yes

Trip Blank CCR 3 and CCR 4

Note: CCR samples must be on their own COC. Make sure CCR 3 and CCR 4 parmaters are printed and a part of the COC.

Total Recoverable Metals! Groundwater samples shall not be field filtered prior to analysis.

We usually schedule in early May and early October.

CCR - Appendix III Detection Monitoring *Field Parameters* pH*

* Field and Laboratory Measurements

Total Concentration Parameters Boron Calcium

Chloride Fluoride pH Sulfate Dissolved Solids, Total

Method

6010 6010 SM4500 CL E EPA 300 SM 4500 H+B-96 ASTM D516 SM 2540 C-97 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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Minnesota Valley Testing Laboratories, Inc. New Ulm, MN 56073 507 354 8517

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Groundwater Ass			Site:	Otter	Tail Pow	er Co./ Hoot Lake	
Sampling Personnel:				Facility ID:	SW-2	11	
	Br			Date: 22	oct24		
		-		Unique Statio	on ID: 80634	2	
<u></u>	<u></u>	-		Sample ID:	S-14F	2	
Well Condition	2						
Well Locked?	Ves No	-		Protective Po	osts? Yes!		No
Well Labeled?		-		State ID Tag	tact2 Vac 7		No
	Tes NO	-		Glouc Seal III			
Well Information							
Well Denth	87.11			Well Casing	Elevation:		1280.61
Constructed Depth:	70.86	-		Static Water	Elevation:	1201.	57
Casing Diameter:	2"	-		Previous Sta	tic: 12	01.61	; ;
Water Level Before Pu	irae: 79.0	<i>.</i> 94		Water Level	After Sample	: 79	7.04
Well Volume:	1.32	Gallons		Measuremer	t Method:	Etec. V	Steel Tape
Sampling Informati	ion						
Weather Conditions:	Temp: /	20 C	Wind: U	W	Sky:	Fu	·r
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	Yes No			Pumping Ra	te: -24	5	gpm
Well Purged Dry?	Yes NO	_		Time Pump	Began: 🎵	<u>45</u>	am) pm
Time Purged Dry?				Time of Sam	pling: 12	03	am / 🔊
Duplicate Sample?	Yes to	ID:	-	Sample EH:	8.0		
Sample Appearance:	General:	Olar	Color: N	On Phase	: Non	e	Odor: 1000
	10	Temp		Turbidity	Gallons	ISEO	
	Specific Cond.	^o C	mg/L	NTU	Removed	#	Comments:
1151 6.78	863	11.34	2-54	7.7	1.5	1	
1157 6.81	8/02	11.37	2.40	0.0	3.0	2	
1203 6.85	8/07	11.42	233	0.0	4.5	3	
1200 0.00					- <i>'</i> -	4	
•					1	11.4	
						5	
				ter Removed	4,5	5	Gallons

Comments:

Exceptions to Protocol:



Appendix B

Groundwater Flow Rate Calculation



Hoot Lake Ash Disposal Facility Groundwater Velocity Calculation

Sampling Date 10/1/2024

Upgradient (S-52)

opgradione (0 02)			_
Top of Casing Elevation	1286.62 f	ft amsl	Groundwater Monitoring System Report (Barr, 2016)
Depth to Water	69.36 f	ft below TOC	
Water Level Elevation	1217.26 f	ft amsl	

Downgradient (S-2A)

Top of Casing Elevation	1272.90	ft amsl	Groundwater Monitoring System Report (Barr, 2016)
Depth to Water	78.00	ft below TOC	
Water Level Elevation	1194.90	ft amsl	

horizontal hydraulic	2.30E-03	cm/s	Groundwater Monitoring System Report (Barr, 2016)
conductivity (Kh)	6.52E+00	ft/day	
porosity (n)	0.25		Groundwater Monitoring System Report (Barr, 2016)
horizontal distance	1131	ft	
WL elevation difference	22.36	ft	
gradient (i)	0.020	ft/ft	
linear velocity (V)	0.5156	ft/day	
V	188.3	ft/yr	

Hoot Lake Ash Disposal Facility Groundwater Velocity Calculation

Sampling Date 5/2/2024

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Upgradient (S-52)			_
Top of Casing Elevation	1286.62	ft amsl	(
Depth to Water	70.84	ft below TOC	
Water Level Elevation	1215.78	ft amsl	

Groundwater Monitoring System Report (Barr, 2016)

Downgradient (S-14R)

Top of Casing Elevation	1280.61	ft amsl	Groundwater Monitoring System Report (Barr, 2016)
Depth to Water	78.80	ft below TOC	
Water Level Elevation	1201.81	ft amsl	

horizontal hydraulic	2.30E-03	cm/s	Groundwater Monitoring System Report (Barr, 2016)
conductivity (Kh)	6.52E+00	ft/day	
porosity (n)	0.25		Groundwater Monitoring System Report (Barr, 2016)
horizontal distance	1240	ft	
WL elevation difference	13.97	ft	
gradient (i)	0.011	ft/ft	
linear velocity (V)	0.2938	ft/day	
V	107.3	ft/yr	