

2020 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

CCR Annual Monitoring Report
Hoot Lake Plant Ash Landfill

Hoot Lake Plant
Otter Tail Power Company

Carlson McCain
Project No. 6345-01

Prepared for:



Otter Tail Power Company
1012 Water Plant Rd
Fergus Falls, MN 56537

January 18, 2021



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1.0 EXECUTIVE SUMMARY

Groundwater monitoring at the Hoot Lake Plant Ash Landfill occurred in accordance with the detection monitoring requirements as described in §257.94 of the CCR Rule for the year 2020. Detection monitoring activities and statistical analysis were initially conducted in 2018, and have subsequently continued through 2020. Statistical analysis was performed on the 2020 groundwater data and no statistically significant increases in concentration over background concentration were observed. Detection monitoring will continue at the Facility for 2021.

2.0 INTRODUCTION

Otter Tail Power Company (OTP) operates the Hoot Lake Generating Plant (Plant), a coal-fired electrical generating facility located in Fergus Falls, Minnesota. The burning of coal produces coal combustion residuals (CCR) which are placed in an on-site ash landfill (Landfill) for disposal. The Landfill is subject to regulation as a CCR unit under U.S. Code of Federal Regulations, Title 40, Parts 257 and 261 (CFR, 2015), regarding the disposal of CCR in landfills and surface impoundments.

Ongoing monitoring of groundwater is required to evaluate the Landfill's performance and compliance with 40 CFR §257.94 to §257.95. Carlson McCain, Inc. (Carlson McCain) has prepared this 2020 Groundwater Monitoring and Corrective Action Report (Report) on behalf of OTP to describe the monitoring activities and present results for the 2020 Landfill monitoring.

The Landfill is currently operating in detection monitoring as described in §257.94 of the CCR Rule.

2.1 Purpose and Scope

This Report (Report) is intended to meet the annual reporting requirements of §257.90(e). In particular, this report includes a discussion on:

- Current status of the groundwater monitoring and corrective action program for the Landfill;
- Key actions completed;
- Problems encountered and actions completed to resolve the problems, and;
- Key activities for the upcoming year.

The specific paragraph requirements as listed in §257.90(e), and their locations in the Report are summarized in the table below:

Paragraph	Requirement	Report Location
§257.90(e)(1)	A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the Landfill.	Figure 1
§257.90(e)(2)	Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken.	Section 3.1
§257.90(e)(3)	In addition to all the monitoring data obtained under §§257.90 through 257.98, A summary including the number of groundwater samples collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection or assessment monitoring programs.	Section 3.2 and 3.3
§257.90(e)(4)	A discussion of any transition between monitoring programs.	Section 3.2
§257.90(e)(5)	Other information to be included in the annual report as specified in §§257.90 through 257.98.	No other information is required in this report for 2020.
§257.90(e)(6)	A brief overview of the current status of groundwater monitoring and corrective action programs for the CCR Unit.	Section 1.0

3.0 GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM

This section documents and describes the status of the CCR groundwater monitoring and corrective action program for the Landfill for 2020. Baseline sampling for the Landfill has been previously documented in the *2017 Annual Groundwater Monitoring and Corrective Action Report* (Barr, 2018). The initial detection monitoring activities and statistical analysis were conducted in 2018, and have subsequently continued through 2020. Statistical analysis includes determining whether parameter concentrations exhibit a statistically significant increase over background values, as required by §257.93 (h).

3.1 Groundwater Monitoring System

An aerial map showing the Landfill and the monitoring wells that comprise the groundwater monitoring system is included in the attached Figure 1. Wells S-3A-R and S-10R were redeveloped after the spring 2020 sampling event as high turbidity readings were observed during sampling event and prior to sampling the wells. No other modifications were made to the monitoring system in 2020. Further details and background information on the monitoring wells and groundwater monitoring system can be found in the *Groundwater Monitoring System Report* (Barr, 2016), which is posted on the Plant's CCR website.

3.2 2020 Monitoring and Analytical Results

Groundwater sampling for the CCR groundwater monitoring system wells consisted of the following events:

- Two routine detection monitoring events, one in April and one in October, in accordance with the semi-annual detection monitoring frequency listed in §257.94 (b). Per the *CCR Groundwater Sampling and Analysis Plan* (Carlson McCain, 2017), all upgradient (i.e. background) and downgradient wells were sampled during each sampling event, and were analyzed for the detection monitoring parameters listed in Appendix III of §257.
- Two supplemental sampling events, one in June and one in December, for the purpose of resampling select wells, as described in Section 2.3 of this Report.

Field sampling data sheets, which include dates of sampling, and laboratory analytical reports for each sampling event are included in the attached Appendix A.

There were no transitions between monitoring programs in 2020. The Landfill remained in detection monitoring during each sampling event.

3.3 2020 Key Actions and Problems Summary

No problems were encountered during the 2020 detection monitoring activities. Key actions completed for the groundwater monitoring program in 2020 include the following:

- The first semi-annual detection monitoring event (i.e. the spring event) was conducted on April 14, 2020. Statistical analysis on the spring event groundwater monitoring dataset was completed in accordance with the site-specific sampling and analysis plan. Results of the statistical analysis indicated potential statistically significant increases for calcium in monitoring wells S-3A-R and S-10R. Verification resampling was conducted on June 11, 2020, and results exhibited no statistically significant increases. After confirming no statistically significant increases were present, the background data set was updated to include the observations from the spring 2018 sampling event through the spring 2020 sampling event.
- The second semi-annual detection monitoring event (i.e. the fall event) took place on October 6, 2020. Statistical analysis was performed on the fall event dataset in accordance with the site-specific sampling and analysis plan. Results of the statistical analyses indicated potential statistically significant increases for chloride in monitoring well S-2A. Verification resampling was completed on November 18, 2020, and results exhibited no statistically significant increases.

3.4 Projected Actions for 2021

No modifications to the groundwater monitoring program are scheduled for 2021. The following activities are planned for the upcoming year:

- Continue the groundwater monitoring program in accordance with CCR Rule requirements, and collect spring and fall detection monitoring event samples.
- Perform statistical analysis on the 2021 semi-annual detection monitoring results to determine statistically significant increases, in accordance with the statistical monitoring plan (Carlson McCain, 2017).

4.0 REFERENCES

Barr Engineering Co., 2018. 2017 Annual Groundwater Monitoring and Corrective Action Report; Prepared for Otter Tail Power Company, January 2018.

Barr Engineering Co., 2016. Groundwater Monitoring System Report, Ash Landfill, Hoot Lake Plant; Prepared for Otter Tail Power Company, November 2016.

Carlson McCain., 2017. CCR Groundwater Sampling and Analysis Plan, Ash Landfill – Hoot Lake Plant; Prepared for Otter Tail Power Company, October 2017.

Tables

Table 1
2020 Groundwater Analytical Data Summary
Hoot Lake - Ash Disposal Facility
Otter Tail Power Company

Spring Sampling Event										
Parameter	Units	S-2A	S-3AR	S-3AR*	S-51	S-52	S-10R	S-10R*	S-13	S-14R
		4/14/2020	4/14/2020	6/11/2020	4/14/2020	4/14/2020	4/14/2020	6/11/2020	4/14/2020	4/14/2020
Boron, total	mg/L	0.178	< 0.5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1
Calcium, total	mg/L	145	138	109	113	107	271	126	111	124
Chloride	mg/L	< 3	13	13.3	19.5	16.4	8.8	11.4	8	4.1
Field pH	SU	6.75	7.32	7.08	6.93	6.95	7.23	7.09	7.25	7.06
Fluoride	mg/L	0.24	0.2	0.21	0.28	0.24	0.21	0.2	0.28	0.25
pH, Lab	SU	7	7.4	7	7.1	7	7.5	7.1	7.2	7.1
Total Dissolved Solids	mg/L	644	430	502	482	464	504	544	468	546
Sulfate	mg/L	154	84.7	57	57.4	60.7	99.8	83.7	73.2	90.6

Fall Samping Event									
Parameter	Units	S-2A	S-2A*	S-3AR	S-51	S-52	S-10R	S-13	S-14R
		10/5/2020	11/18/2020	10/5/2020	10/5/2020	10/5/2020	10/5/2020	10/5/2020	10/5/2020
Boron, total	mg/L	0.258	NS	<0.1	0.151	<0.1	<0.1	<0.1	<0.1
Calcium, total	mg/L	157	NS	113	243	110	120	112	132
Chloride	mg/L	3.3	3	12.8	12.7	13.4	10.9	8.6	3.5
Field pH	SU	6.94	NS	7.08	6.77	6.95	7.11	7.2	7.03
Fluoride	mg/L	0.22	NS	0.21	0.2	0.22	0.2	0.25	0.25
pH, Lab	SU	7	NS	7.2	6.9	7.1	7.1	7.2	7.1
Total Dissolved Solids	mg/L	741	NS	484	1190	496	526	516	534
Sulfate	mg/L	201	NS	90.5	459	74.3	113	93.2	102

* = Denotes a resample event

SU = Standard Units

NS Not sampled

Figures

Otter Tail River

S-2A

S-3AR

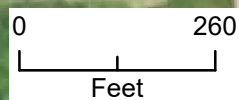
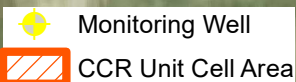
S-14R

S-13

S-10R

S-51

S-52



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2020 CCR Annual Monitoring Report

Hoot Lake Ash Disposal Facility
Otter Tail Power Company
Fergus Falls, Minnesota

FIGURE 1

**CCR Unit Cell Area
and Monitoring Wells**

Appendix A

Laboratory Data



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1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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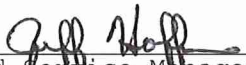
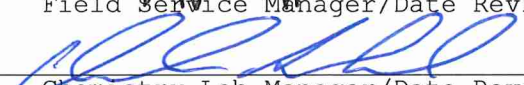
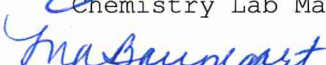
FINAL REPORT COMPLETION DATE: 28 April 2020

Date Reported: 24 Apr 2020

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

Work Order #: 31-0138
Account #: 006106
PO #: 48679

Project Name: HOOT LAKE PLANT

 27 Apr 2020
Field Service Manager/Date Reviewed
 24 Apr 20
Chemistry Lab Manager/Date Reviewed
 24 April 2020
Quality Assurance Director/Date Reviewed

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

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

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



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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 24 Apr 2020
Lab Number: 20-A16249
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 13:19
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S2A

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	6.75	units	1.00	SM4500-H+-2011	14 Apr 20 13:19	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:28	DK
Sulfate	154 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	< 3	mg/L	3	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	644	mg/L	10	SM 2540 C-97	16 Apr 20 13:48	RLY
Calcium	145.0	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	0.178	mg/L	0.100	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.240 @	mg/L	0.020	EPA 300.0	18 Apr 20 20:12	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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

Report Date: 24 Apr 2020
Lab Number: 20-A16250
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 13:55
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S3AR

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	7.32	units	1.00	SM4500-H+-2011	14 Apr 20 13:55	DS
pH	* 7.4	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:56	DK
Sulfate	84.7 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	13.0	mg/L	3.0	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	430	mg/L	10	SM 2540 C-97	16 Apr 20 13:48	RLY
Calcium	138.0 #	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	< 0.5 #	mg/L	0.1	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.200 @	mg/L	0.020	EPA 300.0	18 Apr 20 20:12	RMV

* Holding Time Exceeded

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! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

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

Report Date: 24 Apr 2020
Lab Number: 20-A16251
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 13:47
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S51

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	6.93	units	1.00	SM4500-H+-2011	14 Apr 20 13:47	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:56	DK
Sulfate	57.4 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	19.5	mg/L	3.0	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	482	mg/L	10	SM 2540 C-97	16 Apr 20 14:44	RLY
Calcium	113.0	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.280 @	mg/L	0.020	EPA 300.0	18 Apr 20 20:12	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

@ = Due to sample matrix

= Due to concentration of other analytes

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+ = Due to internal standard response

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 24 Apr 2020
Lab Number: 20-A16252
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 14:28
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S52

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	6.95	units	1.00	SM4500-H+-2011	14 Apr 20 14:28	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:56	DK
Sulfate	60.7 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	16.4	mg/L	3.0	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	464	mg/L	10	SM 2540 C-97	16 Apr 20 14:44	RLY
Calcium	107.0	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.240 @	mg/L	0.020	EPA 300.0	18 Apr 20 20:12	RMV

* Holding Time Exceeded

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

Report Date: 24 Apr 2020
Lab Number: 20-A16253
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 12:30
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S10R

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	7.23	units	1.00	SM4500-H+-2011	14 Apr 20 12:30	DS
pH	* 7.5	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:56	DK
Sulfate	99.8 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	8.8	mg/L	3.0	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	504	mg/L	10	SM 2540 C-97	16 Apr 20 14:44	RLY
Calcium	271.0 #	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	< 0.5 #	mg/L	0.1	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.210 @	mg/L	0.020	EPA 300.0	18 Apr 20 20:12	RMV

* Holding Time Exceeded

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@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

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

Report Date: 24 Apr 2020
Lab Number: 20-A16254
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 12:51
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S13

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	7.25	units	1.00	SM4500-H+-2011	14 Apr 20 12:51	DS
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:56	DK
Sulfate	73.2 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	8.0	mg/L	3.0	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	468	mg/L	10	SM 2540 C-97	16 Apr 20 14:44	RLY
Calcium	111.0	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.280 @	mg/L	0.020	EPA 300.0	19 Apr 20 1:26	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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



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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 24 Apr 2020
Lab Number: 20-A16255
Work Order #: 31-0138
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 14 Apr 2020 15:37
Sampled By: MVTL FIELD PERSONNEL
Date Received: 14 Apr 2020 19:50
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S14R

Temp at Receipt: 2.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					16 Apr 20	JMS
pH, Field	7.06	units	1.00	SM4500-H+-2011	14 Apr 20 15:37	DS
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	15 Apr 20 13:56	DK
Sulfate	90.6 @	mg/L	5.0	ASTM D516-07	16 Apr 20 10:50	AKF
Chloride	4.1	mg/L	3.0	SM 4500 Cl E	16 Apr 20 10:46	SS
Solids, Total Dissolved	546	mg/L	10	SM 2540 C-97	16 Apr 20 14:44	RLY
Calcium	124.0	mg/L	0.500	SW6010C	17 Apr 20 13:26	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	17 Apr 20 13:26	KAM
Fluoride	0.250 @	mg/L	0.020	EPA 300.0	19 Apr 20 1:26	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

@ = Due to sample matrix

! = Due to sample quantity

= Due to concentration of other analytes

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M 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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www.mvtl.com



Page: 9 of 9

INORGANIC & METALS ANALYSES:

No problems were encountered with these analyses.

Quality Control Report
Lab IDs: 20-A16249 to 20-A16255

Project: HOOT LAKE PLANT

Work Order: 202031-0138

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
Boron mg/L	1.000	101	85-115	1.00	20A16243q	< 0.1	1.010	101	75-125	1.010	1.030	103	2.0	10	104	90-110	< 0.1
Calcium mg/L	50.00	104	85-115	50.0	20A16243q	37.20	87.30	100	75-125	87.30	87.70	101	0.5	10	104	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	20-A16255	4.1	68.2	107	86-117	68.2	67.2	105	1.5	5	102	90-110	< 3
Fluoride mg/L				1.00	20-A16240	0.270	1.37	110	75-125	1.37	1.34	107	2.2	10	104	90-110	< 0.02
				1.00	20-A16254	0.280	1.34	106	75-125	1.34	1.33	105	0.7	10	104	90-110	
pH units	-	-	-	-	-	-	-	-	-	7.0	7.0	-	0.0	2.5	101	90-110	-
	-	-	-	-	-	-	-	-	-	8.0	8.0	-	0.0	2.5	101	90-110	-
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	528	516	-	2.3	7	101	85-115	< 10
	-	-	-	-	-	-	-	-	-	430	412	-	4.3	10	101	85-115	< 10
	-	-	-	-	-	-	-	-	-	862	862	-	0.0	7			
	-	-	-	-	-	-	-	-	-	778	812	-	4.3	7			
Sulfate mg/L	-	-	-	500	20-A16249	154	659	101	68-132	659	658	101	0.2	5	99	80-120	< 5

Approved by:



Minnesota Valley Testing Laboratories

1126 North Front Street

Phone: 800 782 3557

New Ulm, MN 56003

Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of
the original document

By AR Date 15 Apr 2020
pages 1-11

Project Name: Otter Tail Power Co. Hoot Lake Plant		Project Type: CCR	Name of Samplers: OS BW
Report To: Otter Tail Power Company		Carbon Copy: Carlson McCain	Quote Number:
Attn: Paul Vukonich		Attn: Megan Lindstrom	Work Order Number: 31-0138
Address: P.O. Box 496 Fergus Falls, MN 56038-0496		Address:	Lab Numbers:
Phone: 218-739-8349			

Sample Information							Bottle Type										Analysis		
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	VOC Set	1000 none	1000 HNO3	500 HNO3	Filter? Y or N	500 HNO3	Filter? Y or N	500H2SO4	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
A16249	S2A		14 Apr 20	1319	GW			1		1	N								See Attached
50	S3AR			1355	GW			1		1	N								
51	S51			1347	GW			1		1	N								
52	S52			1428	GW			1		1	N								
53	S10R			1230	GW			1		1	N								
54	S13			1251	GW			1		1	N								
55	S14R			1537	GW			1		1	N								

Comments: CCR wells

Samples Relinquished By: <u>Dylan</u>				Samples Received By: <u>A. Reed</u>			
Date: <u>14 Apr 20</u>	Time: <u>1950</u>	Temp: <u>2.0 T-1784</u>	Date: <u>15 Apr 2020</u>	Time: <u>830</u>	Temp: <u>3.0C</u>		
Samples Relinquished into: <u>Fridge</u> Log in Cart Other:							
Samples Relinquished By:				Samples Received By:			
Date:	Time:	Temp:	Date:	Time:	Temp:		
Delivery:	Samplers	Other:	Seal Number(s) - If Used				
Transport:	Ambient	Ice	Other:	Seals Intact? Yes No			

Hoot Lake Site CCR Sampling - 2020

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

Note: CCR samples must be on their own COC.

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

Spring sampling March 27 - April 28

Fall sampling October 14 - November 14

CCR3

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

Boron

Calcium

Chloride

Fluoride

pH

Sulfate

Dissolved Solids, Total

metals are total "No Filtering"

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	

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolt

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 Apr 20

Unique Station ID: 444350

Sample ID: S-2A

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: 79.62

Well Casing Elevation: 1273.776

Constructed Depth: 79.63

Static Water Elevation: 1197.66

Casing Diameter: 2"

Previous Static: 1197.77

Water Level Before Purge: 76.12

Water Level After Sample: 76.12

Well Volume: .57 Gallons

Measurement Method: Elec. WL Steel Tape

Sampling Information

Weather Conditions: Temp: 28 Wind: W 10 Sky: cloudy

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

Dedicated Equipment: Yes No

Pumping Rate: .25 gpm

Well Purged Dry? Yes No

Time Pump Began: 1310 am / pm

Time Purged Dry? Yes

Time of Sampling: 1319 am / pm

Duplicate Sample? Yes No ID: -

Sample EH: 10-2

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

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1313	6.75	1109	7.70	1.90	0.0	.75	1	
1316	6.74	1107	7.89	1.78	0.0	1.50	2	
1319	6.75	1107	7.95	1.58	0.0	2.25	3	
							4	
							5	

Stabilized? Yes No

Amount Water Removed: 2.25 Gallons

Comments:

State & CCR

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 April 20

Unique Station ID: 674671

Sample ID: S-3A-R

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: 78.40
Constructed Depth: 78.42
Casing Diameter: 2"
Water Level Before Purge: 68.07
Well Volume: 169 Gallons

Well Casing Elevation: 1271.562
Static Water Elevation: 1203.49
Previous Static: 1203.22
Water Level After Sample: 68.17
Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 25 Wind: NW @ 12 Sky: overcast

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1315 am ☒ pm

Time Purged Dry? —

Time of Sampling: 1355 am ☒ pm

Duplicate Sample? ☒ Yes ☐ No ID: —

Sample EH: -11.7

Sample Appearance: General: cloudy Color: Gray Phase: Lt Sed Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1323	7.30	815	9.03	5.99	395.3	2	1	
1331	7.30	816	9.04	5.99	390.1	4	2	
1339	7.32	818	9.06	6.01	381.3	6	3	
1347	7.31	818	9.06	6.04	350.2	8	4	
1355	7.32	818	9.07	6.07	307.3	10	5	

Stabilized? Yes ☒ No

Amount Water Removed: 10 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 Apr 20

Unique Station ID: 814830

Sample ID: S-51

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? ☒ Yes ☐ No

State ID Tag? ☒ Yes ☐ No

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 55.60

Constructed Depth: 55.60

Casing Diameter: 2"

Water Level Before Purge: 50.71

Well Volume: .80 Gallons

Well Casing Elevation: 1286.904

Static Water Elevation: 1236.19

Previous Static: 1226.31

Water Level After Sample: 50.73

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 30 Wind: W@10 Sky: cloudy

Sampling Method: Grundfos Bladder SS7 Disp. Bailer Whale Grab Other:

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1327 am / pm

Time Purged Dry? —

Time of Sampling: 1347 am / pm

Duplicate Sample? ☒ Yes ☐ No

ID: —

Sample EH: -105.5

Sample Appearance: General: clear Color: none Phase: light sed. Odor: sulfurous

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
<u>1321</u>	<u>6.91</u>	<u>914</u>	<u>7.58</u>	<u>.52</u>	<u>25.5</u>	<u>1</u>	<u>1</u>	
<u>1335</u>	<u>6.91</u>	<u>916</u>	<u>7.61</u>	<u>.50</u>	<u>12.8</u>	<u>2</u>	<u>2</u>	
<u>1339</u>	<u>6.92</u>	<u>923</u>	<u>7.78</u>	<u>.32</u>	<u>0.0</u>	<u>3</u>	<u>3</u>	
<u>1343</u>	<u>6.92</u>	<u>924</u>	<u>7.84</u>	<u>.30</u>	<u>0.0</u>	<u>4</u>	<u>4</u>	
<u>1347</u>	<u>6.93</u>	<u>924</u>	<u>7.88</u>	<u>.30</u>	<u>0.0</u>	<u>5</u>	<u>5</u>	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 Apr 20

Unique Station ID:

Sample ID: S-52

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? ☒ Yes ☐ No

State ID Tag? ☒ Yes ☐ No

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 88.30

Constructed Depth: 88.30

Casing Diameter: 2"

Water Level Before Purge: 71.22

Well Volume: 2.79 Gallons

Well Casing Elevation: 1286.623

Static Water Elevation: 1215.40

Previous Static: 1215.67

Water Level After Sample: 71.22

Measurement Method: Elec. WL Steel Tape

Sampling Information

Weather Conditions: Temp: 29 Wind: W@10 Sky: cloudy

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 25 gpm

Well Purged Dry? Yes ☒ No

Time Pump Began: 1352 am / ☒ pm

Time Purged Dry? ☒ Yes ☐ No

Time of Sampling: 1428 am / ☒ pm

Duplicate Sample? Yes ☒ No

ID: —

Sample EH: -139.9

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

Time ¹²	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
<u>1404</u>	<u>6.98</u>	<u>903</u>	<u>7.42</u>	<u>1.31</u>	<u>4.0</u>	<u>3</u>	1	
<u>1416</u>	<u>6.98</u>	<u>901</u>	<u>7.53</u>	<u>1.44</u>	<u>0.0</u>	<u>6</u>	2	
<u>1428</u>	<u>6.95</u>	<u>901</u>	<u>7.45</u>	<u>1.25</u>	<u>0.0</u>	<u>9</u>	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 9 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 Apr 20

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

Constructed Depth: 57.00

Casing Diameter: 2"

Water Level Before Purge: 71.72

Well Volume: 1.45 Gallons

Well Casing Elevation: 1281.47

Static Water Elevation: 1209.75

Previous Static: 1208.77

Water Level After Sample: Below Pump

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

Sampling Information

Weather Conditions: Temp: 25 Wind: NW @ 12 Sky: Overcast

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1219 am / pm

Time Purged Dry? 1225

Time of Sampling: 1230 am / pm

Duplicate Sample? Yes ☒ No ☐ ID: -

Sample EH: 183.4

Sample Appearance: General: Cloudy Color: Tan Phase: Lt Seal Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1225	7.26	810	9.11	6.84	168.7	1.5	1	
							2	
							3	
							4	
1230	7.23	823	8.84	7.21	147.8	-	5	recharge

Stabilized? Yes ☒ No ☐

Amount Water Removed: 1.5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

AS

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 April 20

Unique Station ID: 632810

Sample ID: S-13

Well Condition

Well Locked? ☒ Yes ☐ No

Well Labeled? ☒ Yes ☐ No

Casing Straight? ☒ Yes ☐ No

Repairs Necessary:

Protective Posts? ☒ Yes ☐ No

State ID Tag? ☒ Yes ☐ No

Grout Seal Intact? ☒ Yes ☐ No

Well Information

Well Depth: 90.27

Constructed Depth: 90.19

Casing Diameter: 2"

Water Level Before Purge: 86.08

Well Volume: 0.36 Gallons

Well Casing Elevation: 1296.423

Static Water Elevation: 1208.34

Previous Static: 1210.82

Water Level After Sample: 88.12

Measurement Method: ☒ Elec. WLI ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 25 Wind: NW @ 12 Sky: overcast

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

Dedicated Equipment: ☒ Yes ☐ No

Well Purged Dry? Yes ☒ No

Time Purged Dry:

Duplicate Sample? ☒ Yes ☐ No

ID: Duplicate

Pumping Rate: 0.25 gpm

Time Pump Began: 1245 (am) / pm

Time of Sampling: 1251 am / pm

Sample EH: 1.1

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

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1247	7.33	776	7.66	4.40	0.0	0.5	1	
1249	7.31	785	7.60	4.24	0.0	1	2	
1251	7.25	796	7.58	4.08	0.0	1.5	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 1.5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 14 Apr 20

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 Information

Well Depth: 87.11

Well Casing Elevation: 1280.61

Constructed Depth: 70.86

Static Water Elevation: 1201.97

Casing Diameter: 2"

Previous Static: 1201.71

Water Level Before Purge: 78.64

Water Level After Sample: 78.74

Well Volume: 1.38 Gallons

Measurement Method: Elec. WLI Steel Tape

Sampling Information

Weather Conditions: Temp: 25 Wind: NW @ 12 Sky: overcast

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1525 am / ☒ pm

Time Purged Dry?

Time of Sampling: 1537 am / ☒ pm

Duplicate Sample? ☒ Yes ☐ No ID: —

Sample EH: -123.1

Sample Appearance: General:

Color:

Phase:

Odor:

Time ⁽³⁾	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1528	7.10	931	7.60	1.58	54.1	1.5	1	
1531	7.07	919	8.20	0.57	16.8	3	2	
1534	7.06	912	8.23	0.47	15.9	4.5	3	
1537	7.06	911	8.24	0.43	14.2	6	4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 6 Gallons

Comments:

Exceptions to Protocol:



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Page: 1 of 4

FINAL REPORT COMPLETION DATE: 7 Jul 2020

Date Reported: 29 Jun 2020

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

Work Order #: 31-0271
Account #: 006106
PO #: 28649

Project Name: HOOT LAKE PLANT

[Signature] 07 July 2020
Field Service Manager/Date Reviewed

[Signature] 07 July 20
Chemistry Lab Manager/Date Reviewed

[Signature] 07 Jul 2020
Quality Assurance Director/Date Reviewed

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

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

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



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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 29 Jun 2020
 Lab Number: 20-A26862
 Work Order #: 31-0271
 Account #: 006106
 Sample Matrix: GROUNDWATER
 Date Sampled: 11 Jun 2020 13:14
 Sampled By: MVTL FIELD PERSONNEL
 Date Received: 11 Jun 2020 18:00
 PO #: 28649

Project Name: HOOT LAKE PLANT

Sample Description: S3AR

Temp at Receipt: 1.7C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					15 Jun 20	JMS
pH, Field	7.08	units	1.00	SM4500-H+-2011	12 Jun 20 13:14	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	12 Jun 20 12:19	BA
Sulfate	57.0 @	mg/L	5.0	ASTM D516-07	18 Jun 20 8:17	AKF
Chloride	13.3	mg/L	3.0	SM 4500 Cl E	18 Jun 20 7:58	SS
Solids, Total Dissolved	502	mg/L	10	SM 2540 C-97	16 Jun 20 13:57	BA
Calcium	109.0	mg/L	0.500	SW6010C	18 Jun 20 13:32	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	18 Jun 20 13:32	KAM
Fluoride	0.210 @	mg/L	0.020	EPA 300.0	16 Jun 20 12:22	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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Page: 3 of 4

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 29 Jun 2020
Lab Number: 20-A26863
Work Order #: 31-0271
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 11 Jun 2020 13:50
Sampled By: MVTL FIELD PERSONNEL
Date Received: 11 Jun 2020 18:00
PO #: 28649

Project Name: HOOT LAKE PLANT

Sample Description: S-10R

Temp at Receipt: 1.7C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					15 Jun 20	JMS
pH, Field	7.09	units	1.00	SM4500-H+-2011	11 Jun 20 13:50	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	12 Jun 20 12:19	BA
Sulfate	83.7 @	mg/L	5.0	ASTM D516-07	18 Jun 20 8:17	AKF
Chloride	11.4	mg/L	3.0	SM 4500 Cl E	18 Jun 20 7:58	SS
Solids, Total Dissolved	544	mg/L	10	SM 2540 C-97	16 Jun 20 13:57	BA
Calcium	126.0	mg/L	0.500	SW6010C	18 Jun 20 13:32	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	18 Jun 20 13:32	KAM
Fluoride	0.200 @	mg/L	0.020	EPA 300.0	16 Jun 20 12:22	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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INORGANIC AND METALS ANALYSES:

No problems were encountered with these analyses.

The report was amended on 7 July 2020 to have the Certificate of Analysis changed from State to CCR.

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

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**MEMBER
ACIL**

Page: 1 of 1

Quality Control Report

Lab IDs: 20-A26862 to 20-A26863

Project: HOOT LAKE PLANT

Work Order: 202031-0271

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
Boron mg/L	1.000	93	85-115	1.00	20A26556q	0.351	1.390	104	75-125	1.390	1.370	102	1.4	10	100	90-110	< 0.1
Calcium mg/L	50.00	105	85-115	50.0	20A26556q	128.0	178.0	100	75-125	178.0	173.0	90	2.8	10	105	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	20-A27457	81.0	144	105	86-117	144	146	108	1.4	5	100	90-110	< 3
Fluoride mg/L				0.20	20-A26720	0.300	0.510	105	75-125	0.510	0.500	100	2.0	10	103	90-110	< 0.02
pH units	-	-	-	-	-	-	-	-	-	7.4	7.4	-	0.0	2.5	101	90-110	-
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	967	967	-	0.0	7	100	85-115	< 10
	-	-	-	-	-	-	-	-	-	764	765	-	0.1	7			
Sulfate mg/L	-	-	-	50.0	20-A26717	85.7	138	105	68-132	138	132	93	4.4	5	100	80-120	< 5

Approved by: _____



Minnesota Valley Testing Laboratories

1126 North Front Street
Phone: 800 782 3557

New Ulm, MN 56003
Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of
the original document

By AB Date 11 June 20
pages 1-6

Project Name: Otter Tail Power Co. Hoot Lake Plant	Project Type: CCR	Name of Samplers: Ben Wolf
Report To: Otter Tail Power Company Attn: Paul Vukonich Address: P.O. Box 496 Fergus Falls, MN 56038-0496 Phone: 218-739-8349	Carbon Copy: Carlson McCain Attn: Megan Lindstrom Address:	Quote Number: Work Order Number: 31-0271 Lab Numbers:

Sample Information							Bottle Type										Analysis		
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	VOC Set	1000 none	1000 HNO3	500 HNO3	Filter? Y or N	500 HNO3	Filter? Y or N	500H2SO4	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
																			See Attached
A26862	S3AR		11 June 20	1314	GW			1		1	N								
63	S10R		11 June 20	1350	GW			1		1	N								

Comments: CCR wells

Samples Relinquished By: <u>Ben Wolf</u>				Samples Received By: <u>A. Auer</u>			
Date: <u>11 June 20</u>		Time: <u>1800</u>		Date: <u>11 June 20</u>		Time: <u>1800</u>	
Temp: <u>1.7 M 789</u>		Temp: <u>1.7 C</u>					
Samples Relinquished into: <u>Fridge</u> Log in Cart Other:							
Samples Relinquished By:				Samples Received By:			
Date:		Time:		Date:		Time:	
Temp:		Temp:		Temp:		Temp:	
Delivery: Samplers		Other:		Seal Number(s) - If Used			
Transport: Ambient		Ice		Seals Intact? Yes No			

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

Boron

Method

6010

Calcium

6010

Chloride

SM4500 CL E

Fluoride

EPA 300

pH

SM 4500 H+B-96

Sulfate

ASTM D516

Dissolved Solids, Total

SM 2540 C-97

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 11 June 20

Unique Station ID: 674671

Sample ID: S-3A-R

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: 78.70

Well Casing Elevation: 1271.562

Constructed Depth: 78.42

Static Water Elevation: 1203.542

Casing Diameter: 2"

Previous Static: 1203.49

Water Level Before Purge: 68.02

Water Level After Sample: 68.09

Well Volume: 1.74 Gallons

Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 73 Wind: NE 10 Sky: Fair

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

Dedicated Equipment: ☒ Yes ☐ No Pumping Rate: .25 gpm

Well Purged Dry? Yes ☒ No Time Pump Began: 1239 am ☒ pm

Time Purged Dry: — Time of Sampling: 1314 am ☒ pm

Duplicate Sample? Yes ☒ No ID: — Sample EH: -550

Sample Appearance: General: Clear Color: SL Tan Phase: No ☒ Odor: No ☒

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1246	7.17	942	11.93	1.99	157.9	1.75	1	
1253	7.15	953	11.52	1.07	97.4	3.50	2	
1300	7.11	955	11.26	1.19	55.0	5.25	3	
1307	7.10	959	11.12	1.14	39.2	7.00	4	
1314	7.08	962	11.07	1.20	25.7	8.75	5	

Stabilized? Yes ☒ No

Amount Water Removed: 8.75 Gallons

Comments:

Exceptions to Protocol:

June 11

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Well Development Sheet

Sampling Personnel:

Ben Wolf

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 11 June 20

Unique Station ID: 674671

Sample ID: S-3AR

Well Condition

Well Locked? ☒ Yes NoWell Labeled? ☒ Yes NoCasing Straight? ☒ Yes NoProtective Posts? ☒ Yes NoState ID Tag? ☒ Yes NoGrout Seal Intact? Yes ☒ No

Repairs Necessary:

Well Information

Well Depth Before: 78.65

Well Depth After: 78.70

Constructed Depth: 78.42

Well Casing Elevation: 1271.562

Casing Diameter: 2

Static Water Elevation: —

Water Level Before: —

Water Level After: —

Well Volume: — Gallons

Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 69

Wind: N@10

Sky: Fair

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

Dedicated Equipment: ☒ Yes No

Pumping Rate: 5 gpm

Well Purged Dry? ☒ Yes ☒ No

Time Pump Began: 1123 am/pm

Time Purged Dry: —

Time of Sampling: 1143 am/pm

Sample Appearance: General: —

Color: —

Phase: —

Odor: —

Time	Turbidity NTU	Gallons Removed	SEQ #	Comments:	Water Level	
1128	438.7	2	1			
1133	264.4	4	2			
1138	224.4	6	3			
1143	198.7	8	4			
			5			

Amount Water Removed:

Gallons

Comments:

* Developed with bailer

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Well Development Sheet

Sampling Personnel:

Ben Wolf

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 11 Jun 20

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 Before: 80.90

Well Depth After: 80.92

Constructed Depth: 80.62

Well Casing Elevation: 1281.47

Casing Diameter: 2

Static Water Elevation: —

Water Level Before: —

Water Level After: —

Well Volume: — Gallons

Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 73 Wind: NE 10 Sky: Fair

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: — gpm

Well Purged Dry? ☐ Yes ☐ No

Time Pump Began: 1157 am / pm

Time Purged Dry?

Time of Sampling: 1222 am / ☒ pm

Sample Appearance: General: — Color: — Phase: — Odor: —

Time	Turbidity NTU	Gallons Removed	SEQ #	Comments:	Water Level	
1202	1792.0	1	1			
1207	1511.1	2	2			
1212	1673.9	3	3			
1217	1700.0	4	4			
1222	822.4	5	5			

Amount Water Removed: — Gallons

Comments:

* Developed with bailer

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Ottertail Power Co./Hoot Lake

Facility ID: SW-211

Date: 11 June 20

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: 80.92

Well Casing Elevation: 1281.47

Constructed Depth: 57.00

Static Water Elevation: 1209.94

Casing Diameter: 2"

Previous Static: 1209.75

Water Level Before Purge: 71.53

Water Level After Sample: Below pump

Well Volume: 1.53 Gallons

Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 74 Wind: N@10 Sky: Fair

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: .25 gpm

Well Purged Dry? ☒ Yes ☐ No

Time Pump Began: 1338 am ☒ pm

Time Purged Dry: 1345

Time of Sampling: 1350 am ☒ pm

Duplicate Sample? Yes ☒ No ☐ ID: —

Sample EH: -46-2

Sample Appearance: General: sl. cloudy Color: tan Phase: Light Sed. Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
<u>1345</u>	<u>7.07</u>	<u>1008</u>	<u>11.06</u>	<u>1.47</u>	<u>43.3</u>	<u>1.75</u>	<u>1</u>	
							<u>2</u>	
							<u>3</u>	
<u>1350</u>	<u>7.09</u>	<u>1009</u>	<u>11.52</u>	<u>1.67</u>	<u>32.5</u>	<u>—</u>	<u>4</u>	<u>Recharge</u>
							<u>5</u>	

Stabilized? Yes ☒ No ☐

Amount Water Removed: 1.75 Gallons

Comments:

Exceptions to Protocol:



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FINAL REPORT COMPLETION DATE: 26 Oct 2018

Date Reported: 22 Oct 2020

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

Work Order #: 31-0437
Account #: 006106
PO #: 48679

Project Name: HOOT LAKE PLANT

JH Hollen 23 Oct 20
Field Service Manager/Date Reviewed
RL 22 Oct 20
Chemistry Lab Manager/Date Reviewed
Michael A 22 Oct 2020
Quality Assurance Director/Date Reviewed

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

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

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



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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 22 Oct 2020
Lab Number: 20-A49000
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 13:02
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S2A

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	6.94	units	1.00	SM4500-H+-2011	5 Oct 20 13:02	BMW
pH	* 7.0	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	201	mg/L	5.0	ASTM D516-07	8 Oct 20 8:41	SS
Chloride	3.3	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:11	AKF
Solids, Total Dissolved	741	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	157.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	0.258	mg/L	0.100	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.220 @	mg/L	0.020	EPA 300.0	9 Oct 20 14:14	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M 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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CERTIFICATE of ANALYSIS - CCK

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

Report Date: 22 Oct 2020
Lab Number: 20-A49001
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 13:46
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S3AR

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	7.08	units	1.00	SM4500-H+-2011	5 Oct 20 13:46	DS
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	90.5	mg/L	5.0	ASTM D516-07	8 Oct 20 8:41	SS
Chloride	12.8	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:11	AKF
Solids, Total Dissolved	484	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	113.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	< 0.1	mg/L	0.1	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.210 @	mg/L	0.020	EPA 300.0	9 Oct 20 14:14	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M 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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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 22 Oct 2020
Lab Number: 20-A49002
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 11:54
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S51

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	6.77	units	1.00	SM4500-H+-2011	5 Oct 20 11:54	BMW
pH	* 6.9	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	459 ~	mg/L	5.0	ASTM D516-07	8 Oct 20 8:41	SS
Chloride	12.7	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:11	AKF
Solids, Total Dissolved	1190	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	243.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	0.151	mg/L	0.100	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.200 @	mg/L	0.020	EPA 300.0	9 Oct 20 14:14	RMV

* Holding Time Exceeded

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

RL = Reporting Limit

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

@ = Due to sample matrix

= Due to concentration of other analytes

! = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 22 Oct 2020
Lab Number: 20-A49003
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 12:36
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S52

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	6.95	units	1.00	SM4500-H+-2011	5 Oct 20 12:36	BMW
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	74.3	mg/L	5.0	ASTM D516-07	8 Oct 20 8:59	SS
Chloride	13.4	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:11	AKF
Solids, Total Dissolved	496	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	110.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	< 0.1	mg/L	0.1	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.220 @	mg/L	0.020	EPA 300.0	9 Oct 20 19:43	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 22 Oct 2020
Lab Number: 20-A49004
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 11:32
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S10R

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	7.11	units	1.00	SM4500-H+-2011	5 Oct 20 11:32	DS
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	113	mg/L	5.0	ASTM D516-07	8 Oct 20 8:59	SS
Chloride	10.9	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:11	AKF
Solids, Total Dissolved	526	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	120.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	< 0.1	mg/L	0.1	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.200 @	mg/L	0.020	EPA 300.0	9 Oct 20 19:43	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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CERTIFICATE of ANALYSIS - CCK

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

Report Date: 22 Oct 2020
Lab Number: 20-A49005
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 13:07
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S13

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	7.20	units	1.00	SM4500-H+-2011	5 Oct 20 13:07	DS
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	93.2	mg/L	5.0	ASTM D516-07	8 Oct 20 8:59	SS
Chloride	8.6	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:31	AKF
Solids, Total Dissolved	516	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	112.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	< 0.1	mg/L	0.1	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.250 @	mg/L	0.020	EPA 300.0	9 Oct 20 19:43	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 22 Oct 2020
Lab Number: 20-A49006
Work Order #: 31-0437
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 5 Oct 2020 12:26
Sampled By: MVTL FIELD PERSONNEL
Date Received: 6 Oct 2020 13:05
PO #: 48679

Project Name: HOOT LAKE PLANT

Sample Description: S14R

Temp at Receipt: 1.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					8 Oct 20	JMS
pH, Field	7.03	units	1.00	SM4500-H+-2011	5 Oct 20 12:26	DS
pH	* 7.1	units	1.0	SM 4500 H+ B-2000	7 Oct 20 15:19	HO
Sulfate	102	mg/L	5.0	ASTM D516-07	8 Oct 20 8:59	SS
Chloride	3.5	mg/L	3.0	SM 4500 Cl E	8 Oct 20 10:31	AKF
Solids, Total Dissolved	534	mg/L	10	SM 2540 C-97	8 Oct 20 16:06	RLY
Calcium	132.0	mg/L	0.500	SW6010C	12 Oct 20 9:08	RMV
Boron	< 0.1	mg/L	0.1	SW6010C	12 Oct 20 9:08	RMV
Fluoride	0.250 @	mg/L	0.020	EPA 300.0	9 Oct 20 19:43	RMV

* Holding Time Exceeded

RL = Reporting Limit

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

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

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

CERTIFICATION: MN LAB # 027-015-125 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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INORGANIC & METALS ANALYSES:

No problems were encountered with these analyses.

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

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Page: 1 of 1

Quality Control Report

Lab IDs: 20-A49000 to 20-A49006

Project: HOOT LAKE PLANT

Work Order: 202031-0437

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
Boron mg/L	1.000	87	85-115	1.00	20A48995q	< 0.1	1.010	101	75-125	1.010	0.997	100	1.3	10	98	90-110	< 0.1
Calcium mg/L	50.00	105	85-115	50.0	20A48995q	37.20	90.80	107	75-125	90.80	88.90	103	2.1	10	105	90-110	< 0.5
Chloride mg/L	-	-	-	60.0	20-A49004	10.9	71.2	100	86-117	71.2	72.3	102	1.5	5	98	90-110	< 3
	-	-	-	60.0	20-A49047	212	271	98	86-117	271	268	93	1.1	5	98	90-110	< 3
Fluoride mg/L				1.00	20-A49002	0.200	1.19	99	75-125	1.19	1.21	101	1.7	10	104	90-110	< 0.02
				1.00	20-A49006	0.250	1.27	102	75-125	1.27	1.29	104	1.6	10	104	90-110	
pH units	-	-	-	-	-	-	-	-	-	7.1	7.1	-	0.0	2.5	101	90-110	-
Solids, Total Dissolved mg/L	-	-	-	-	-	-	-	-	-	534	563	-	5.3	7	104	85-115	< 10
	-	-	-	-	-	-	-	-	-	1310	1330	-	1.5	7			
Sulfate mg/L	-	-	-	50.0	20-A48993	< 5	51.8	104	68-132	51.8	53.2	106	2.7	5	99	80-120	< 5
	-	-	-	50.0	20-A48278	8.7	53.0	89	68-132	53.0	53.6	90	1.1	5	101	80-120	< 5

Approved by: _____



Minnesota Valley Testing Laboratories

1126 North Front Street
Phone: 800 782 3557

New Ulm, MN 56003
Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of
the original document

By Ben Wolf Date 6 Oct 20

pages 1-11

Project Name: Otter Tail Power Co. Hoot Lake Plant	Project Type: CCR	Name of Samplers: Ben Wolf Dylan Schreckenberg
Report To: Otter Tail Power Company Attn: Paul Vukonich Address: P.O. Box 496 Fergus Falls, MN 56038-0496 Phone: 218-739-8349	Carbon Copy: Carlson McCain Attn: Megan Lindstrom Address:	Quote Number: Work Order Number: 31-0437 Lab Numbers:

Sample Information							Bottle Type												Analysis
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	VOC Set	1000 none	1000 HNO3	500 HNO3	Filter? Y or N	500 HNO3	Filter? Y or N	500H2SO4	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
A49000	S2A		5 Oct 20	1302	GW			1		1	N								See Attached
01	S3AR			1316	GW			1		1	N								
02	S51			1154	GW			1		1	N								
03	S52			1236	GW			1		1	N								
04	S10R			1132	GW			1		1	N								
05	S13			1307	GW			1		1	N								
06	S14R			1226	GW			1		1	N								

Comments: CCR wells

Samples Relinquished By: <u>Ben Wolf</u>				Samples Received By: <u>A. Rueden</u>			
Date: <u>6 Oct 20</u>	Time: <u>1305</u>	Temp: <u>1.6 TMBU</u>	Date: <u>6 Oct 20</u>	Time: <u>1305</u>	Temp: <u>1.6C</u>		
Samples Relinquished into: <u>Fridge</u> Log in Cart Other:							
Samples Relinquished By:				Samples Received By:			
Date:	Time:	Temp:	Date:	Time:	Temp:		
Delivery	Samplers	Other:	Seal Number(s) - If Used				
Transp	Ambient	Ice	Seals Intact? Yes No				

Hoot Lake Site CCR Sampling - 2020

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

Note: CCR samples must be on their own COC.

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

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

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

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	

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Otter Tail Power Co./ Hoot Lake

Facility ID: SW-211

Date: 5 OCT 20

Unique Station ID: 444350

Sample ID: S-2A

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: 79.62

Constructed Depth: 79.63

Casing Diameter: 2"

Water Level Before Purge: 76.19

Well Volume: .56 Gallons

Well Casing Elevation: 1273.776

Static Water Elevation: 1197.59

Previous Static: 1197.66

Water Level After Sample: 76.19

Measurement Method: ☒ Elec. WLL ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 58 Wind: SE 20 Sky: Part

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

Dedicated Equipment: ☒ Yes ☐ No

Well Purged Dry? ☒ Yes ☐ No

Time Purged Dry? —

Duplicate Sample? ☒ Yes ☐ No ID: —

Pumping Rate: .25 gpm

Time Pump Began: 1253 am / ☒ pm

Time of Sampling: 1302 am / ☒ pm

Sample EH: -71.3

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

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1256	6.95	1294	9.82	6.34	0.0	.75	1	
1259	6.94	1296	9.72	6.07	0.0	1.50	2	
1302	6.94	1297	9.68	5.97	0.0	2.25	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 2.25 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel: DS

5 Oct 20

Site: Otter Tail Power Co. / Hoot Lake

Facility ID: SW-211

Date: 5 Oct 20

Unique Station ID: 674671

Sample ID: S-3A-R

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: 78.40

Constructed Depth: 78.42

Casing Diameter: 2"

Water Level Before Purge: 67.73

Well Volume: 1.74 Gallons

Well Casing Elevation: 1271.562

Static Water Elevation: 1203.83

Previous Static: 1203.49

Water Level After Sample: 67.81

Measurement Method: Elec. WLD Steel Tape

Sampling Information

Weather Conditions: Temp: 59 Wind: SW 15 Sky: Clear

Sampling Method: Grundfos (Bladder SS) Disp. Bailer Whale Grab Other: _____

Dedicated Equipment: Yes No

Well Purged Dry? Yes No

Time Purged Dry? —

Duplicate Sample? Yes No ID: —

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

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
<u>1332</u>	<u>7.19</u>	<u>1021</u>	<u>10.20</u>	<u>9.77</u>	<u>0.0</u>	<u>1.75</u>	<u>1</u>	
<u>1339</u>	<u>7.11</u>	<u>1023</u>	<u>10.01</u>	<u>9.76</u>	<u>0.0</u>	<u>3.5</u>	<u>2</u>	
<u>1346</u>	<u>7.08</u>	<u>1019</u>	<u>9.89</u>	<u>9.80</u>	<u>0.0</u>	<u>5.25</u>	<u>3</u>	
							<u>4</u>	
							<u>5</u>	

Stabilized? Yes No

Amount Water Removed: 5.25 Gallons

Comments: _____

Exceptions to Protocol: _____

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Otter Tail Power Co./ Hoot Lake

Facility ID: SW-211

Date: 5 Oct 20

Unique Station ID: 814830

Sample ID: S-51

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: 55.60
Constructed Depth: 55.60
Casing Diameter: 2"
Water Level Before Purge: 50.99
Well Volume: .75 Gallons

Well Casing Elevation: 1286.904
Static Water Elevation: 1235.91
Previous Static: 1236.19
Water Level After Sample: 50.99
Measurement Method: Elec. WLL Steel Tape

Sampling Information

Weather Conditions: Temp: 58 Wind: SE @ 20 Sky: Fair

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

Dedicated Equipment: ☒ Yes ☐ No Pumping Rate: 25 gpm

Well Purged Dry? Yes ☒ No ☐ Time Pump Began: 1145 am/pm

Time Purged Dry? Time of Sampling: 1154 am/pm

Duplicate Sample? Yes ☒ No ☐ ID: Sample EH: -99.5

Sample Appearance: General: Clear Color: none Phase: Light Sed Odor: Sulfur

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1148	6.79	1762	8.82	.91	1.0	.75	1	
1151	6.78	1771	8.70	1.06	0.0	1.50	2	
1154	6.77	1773	8.68	1.21	0.0	2.25	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 2.25 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

Ben Wolf

Site: Otter Tail Power Co./ Hoot Lake

Facility ID: SW-211

Date: 5 Oct 20

Unique Station ID:

Sample ID: S-52

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: 88.30
Constructed Depth: 88.30
Casing Diameter: 2"
Water Level Before Purge: 71.48
Well Volume: 2.74 Gallons

Well Casing Elevation: 1286.623
Static Water Elevation: 1215.14
Previous Static: 1215.40
Water Level After Sample: 71.48
Measurement Method: Elec. WLL Steel Tape

Sampling Information

Weather Conditions: Temp: 58 Wind: SE @ 20 Sky: Fair
Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:
Dedicated Equipment: ☒ Yes ☐ No
Well Purged Dry? Yes ☒ No
Time Purged Dry:
Duplicate Sample? Yes ☒ No ID:
Sample Appearance: General: Clear Color: None Phase: None Odor: None
Pumping Rate: 2.6 gpm
Time Pump Began: 1203 am / pm
Time of Sampling: 1236 am / pm
Sample EH: -137.3

Time "	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1214	6.93	968	8.95	.25	0.0	2.75	1	
1225	6.98	968	8.94	.26	0.0	5.50	2	
1236	6.95	968	8.95	.26	0.0	8.25	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 8.25 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Otter Tail Power Co./ Hoot Lake

Facility ID: SW-211

Date: 5 Oct 20

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: 80.52
Constructed Depth: 57.00
Casing Diameter: 2"
Water Level Before Purge: 70.84
Well Volume: 1.58 Gallons

Well Casing Elevation: 1281.47
Static Water Elevation: 1210.63
Previous Static: 1209.75
Water Level After Sample: Below Pump
Measurement Method: Elec. WD Steel Tape

Sampling Information

Weather Conditions: Temp: 59 Wind: S@13 Sky: Clear
Sampling Method: Grundfos ☒ Bladder SS/T ☐ Disp. Bailor ☐ Whale ☐ Grab ☐ Other:
Dedicated Equipment: ☒ Yes ☐ No
Well Purged Dry? ☒ Yes ☐ No
Time Purged Dry: 1128
Duplicate Sample? Yes ☒ No ☐ ID: -
Sample Appearance: General: Cloudy Color: Lt Orange Phase: Lt Sed Odor: None

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1128	6.95	1018	10.73	9.97	356.2	1.75	1	
							2	
							3	
							4	
1132	7.11	1043	10.66	11.04	196.7	-	5	Recheck

Stabilized? Yes ☒ No ☐

Amount Water Removed: 1.75 Gallons

Comments:

Exceptions to Protocol:

FB@1105
Temp: 17.94
Cond. 5
pH 5.20
EH 6155.9
D.O. 9.39
Turb. 0.8

* Sample cleared up during sampling

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Otter Tail Power Co./ Hoot Lake

Facility ID: SW-211

Date: 5 Oct 20

Unique Station ID: 632810

Sample ID: S-13

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: 90.27

Well Casing Elevation: 1296.423

Constructed Depth: 90.19

Static Water Elevation: 1208.59

Casing Diameter: 2"

Previous Static: 1208.34

Water Level Before Purge: 87.83

Water Level After Sample: 87.91

Well Volume: 0.40 Gallons

Measurement Method: E(ec. WLI) Steel Tape

Sampling Information

Weather Conditions: Temp: 59 Wind: S@13 Sky: Clear

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No ☐

Time Pump Began: 1301 am / ☒ pm

Time Purged Dry?

Time of Sampling: 1307 am / ☒ pm

Duplicate Sample? ☒ Yes ☐ No ID: Duplicate

Sample EH: -36.6

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

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1303	7.27	992	11.56	9.99	13.9	0.5	1	
1305	7.24	1001	11.29	9.93	8.9	1.0	2	
1307	7.20	1002	11.09	9.98	6.3	1.5	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 1.5 Gallons

Comments:

Exceptions to Protocol:

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment

Sampling Personnel:

DS

Site: Otter Tail Power Co. / Hoot Lake

Facility ID: SW-211

Date: 5 Oct 20

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 Information

Well Depth: 87.11
Constructed Depth: 70.86
Casing Diameter: 2"
Water Level Before Purge: 78.39
Well Volume: 1.42 Gallons

Well Casing Elevation: 1280.61
Static Water Elevation: 1202.22
Previous Static: 1201.97
Water Level After Sample: 78.47
Measurement Method: ☒ Elec. WD ☐ Steel Tape

Sampling Information

Weather Conditions: Temp: 59 Wind: SE 13 Sky: clear
Sampling Method: Grundfos ☒ Bladder SST ☐ Disp. Bailer ☐ Whale ☐ Grab ☐ Other:
Dedicated Equipment: ☒ Yes ☐ No
Well Purged Dry? Yes ☒ No
Time Purged Dry? -
Duplicate Sample? Yes ☒ No ID: -
Sample Appearance: General: clear Color: None Phase: None Odor: None
Pumping Rate: 0.25 gpm
Time Pump Began: 1208 am ☒ pm
Time of Sampling: 1226 am ☒ pm
Sample EH: -162.1

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1214	7.02	1118	10.54	9.87	21.7	1.5	1	
1220	7.03	1105	10.52	9.83	9.8	3	2	
1226	7.03	1085	10.49	9.73	5.3	4.5	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 4.5 Gallons

Comments:

Exceptions to Protocol:



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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FINAL REPORT COMPLETION DATE: 23 Nov 20 AL

Date Reported: 20 Nov 2020

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

Work Order #: 31-0539
Account #: 006106
PO #: 38307

Project Name: HOOT LAKE PLANT

Jeff Hoffmann 23 Nov 2020
Field Service Manager/Date Reviewed

[Signature] 20 Nov 2020
Chemistry Lab Manager/Date Reviewed

[Signature] 20 Nov 2020
Quality Assurance Director/Date Reviewed

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

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

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



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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 20 Nov 2020
Lab Number: 20-A57278
Work Order #: 31-0539
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 18 Nov 2020 10:36
Sampled By: MVTL FIELD PERSONNEL
Date Received: 18 Nov 2020 14:18
PO #: 38307

Project Name: HOOT LAKE PLANT

Sample Description: S2A

Temp at Receipt: 0.3C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
pH, Field	6.01	units	1.00	SM4500-H+-2011	18 Nov 20 10:36	MS
Chloride	3.0	mg/L	3.0	SM 4500 Cl E	19 Nov 20 8:24	AKF

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 WI LAB # 999447680 ND MICRO # 1013-M 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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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 20 Nov 2020
Lab Number: 20-A57279
Work Order #: 31-0539
Account #: 006106
Sample Matrix: GROUNDWATER
Date Sampled: 18 Nov 2020 10:36
Sampled By: MVTL FIELD PERSONNEL
Date Received: 18 Nov 2020 14:18
PO #: 38307

Project Name: HOOT LAKE PLANT

Sample Description: DUPLICATE

Temp at Receipt: 0.3C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Chloride	3.5	mg/L	3.0	SM 4500 Cl E	19 Nov 20 8:24	AKF

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 WI LAB # 999447680 ND MICRO # 1013-M ND WW/DW # R-040

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MEMBER
ACIL

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Quality Control Report

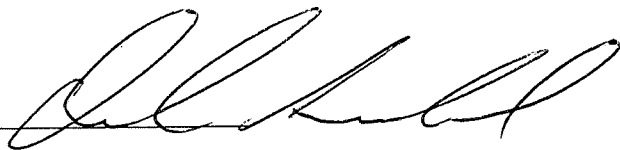
Lab IDs: 20-A57278 to 20-A57279

Project: HOOT LAKE PLANT

Work Order: 202031-0539

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
Chloride mg/L	-	-	-	60.0	20-A57279	3.5	69.3	110	86-117	69.3	67.1	106	3.2	5	102	90-110	< 3
	-	-	-	60.0	20-A56519	< 3	67.4	112	85-115	67.4	64.7	108	4.1	5			
	-	-	-	60.0	20-A56966	24.5	90.8	110	86-117	90.8	88.4	106	2.7	5			
	-	-	-	600	20-A56191	483	1110	104	86-117	1110	1100	103	0.9	5			

Approved by: _____



Minnesota Valley Testing Laboratories

1126 North Front Street

New Ulm, MN 56003

Phone: 800 782 3557

Fax: 507 359 2890

Field Service Chain of Custody Record

This is an exact copy of
the original document

By AS Date 18 Nov 20
pages 1-2

Project Name: Otter Tail Power Co. Hoot Lake Plant	Project Type: CCR	Name of Samplers: Matt Stein
Report To: Otter Tail Power Company	Carbon Copy: Carlson McCain	Quote Number:
Attn: Paul Vukonich	Attn: Megan Lindstrom	Work Order Number: 31-539
Address: P.O. Box 496 Fergus Falls, MN 56038-0496	Address:	Lab Numbers:
Phone: 218-739-8349		

Sample Information							Bottle Type											Analysis	
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	VOC Set	500 none	1000 HNO3	500 HNO3	Filter? Y or N	500 HNO3	Filter? Y or N	500H2SO4	1000 Amber H2SO4	500 NaOH	Other: 150 H2SO4	Other 150 None	Analysis Required
A51278	S2A		18 Nov 20	1036	GW			1											Chloride (Rush)
79	Duplicate		+	1036	GW			1											

Comments: CCR wells

Samples Relinquished By: <u>[Signature]</u>			Samples Received By: <u>A. Reeder</u>		
Date: <u>18 Nov 20</u>	Time: <u>1418</u>	Temp: <u>0.3</u>	Date: <u>18 Nov 20</u>	Time: <u>1418</u>	Temp: <u>0.3C</u>
Samples Relinquished into: Fridge <u>Log in Cart</u> Other:					
Samples Relinquished By:			Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delive	Samplers	Other:	Seal Number(s) - If Used		
Transport:	Ambient	<u>ice</u> Other:	Seals Intact? Yes No		

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517



Groundwater Assessment

Sampling Personnel:

MS

Site: Otter Tail Power Co./ Hoot Lake

Facility ID: SW-211

Date: 18 Nov 20

Unique Station ID: 444350

Sample ID: S-2A

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: 79.62

Constructed Depth: 79.63

Casing Diameter: 2"

Water Level Before Purge: Below Pump

Well Volume: NA Gallons

Well Casing Elevation: 1273.776

Static Water Elevation: NA

Previous Static: 1197.66

Water Level After Sample: Below Pump

Measurement Method: Elec. W/L Steel Tape

Sampling Information

Weather Conditions: Temp: 35 Wind: S-12 Sky: cldy

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

Dedicated Equipment: ☒ Yes ☐ No

Pumping Rate: 0.25 gpm

Well Purged Dry? Yes ☒ No

Time Pump Began: 1028 (am) / pm

Time Purged Dry?

Time of Sampling: 1036 (am) / pm

Duplicate Sample? ☒ Yes ☐ No ID: Duplicate

Sample EH: 14.9

Sample Appearance: General: clear Color: none Phase: lt sed Odor: none

Time	pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1030	5.64	1064	8.89	6.62	1.0	0.75	1	
1033	5.80	1062	8.56	6.77	0.3	1.5	2	
1036	6.01	1062	8.57	6.43	0.6	2.25	3	
							4	
							5	

Stabilized? ☒ Yes ☐ No

Amount Water Removed: 2.25 Gallons

Comments:

- Did not get W.L. due to W.L. below Pump (before & after)
- purged 0.75 gal. per water volume. - Per Josh H.

Exceptions to Protocol: -