2019 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 Road Fergus Falls, MN 56537

January 15, 2020



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APPENDICES

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1.0 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 2019 Groundwater Monitoring and Corrective Action Report (Report) on behalf of OTP to describe the monitoring activities and present results for the 2019 Landfill monitoring.

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

1.1 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 2.1
§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 2.2 and 2.3
§257.90(e)(4)	A discussion of any transition between monitoring programs.	Section 2.2
§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 2019.

2.0 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 2019. 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 2019. Statistical analysis includes determining whether parameter concentrations exhibit a statistically significant increase over background values, as required by §257.93 (h).

2.1 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. No modifications were made to the monitoring system in 2019. 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.

2.2 2019 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.
- One supplemental sampling event 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 2019. The Landfill remained in detection monitoring during each sampling event.

2.3 2019 Key Actions and Problems Summary

No problems were encountered during the 2019 detection monitoring activities. Key actions completed for the groundwater monitoring program in 2019 include the following:

- The first semi-annual detection monitoring event (i.e. the spring event) was conducted on April 22,2019. Statistical analysis on the spring event groundwater monitoring dataset was completed in accordance with the site-specific sampling and analysis plan, and no well/parameter pairs exhibited a statistically significant increase in parameter concentrations over background.
- The second semi-annual detection monitoring event (i.e. the fall event) took place on October 16, 2019. 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-3AR, fluoride in monitoring well S-13, and fluoride in monitoring well S-2A. Verification resampling was completed on December 16, 2019, and results exhibited no statistically significant increases.

2.4 Projected Actions for 2020

No modifications to the groundwater monitoring program are scheduled for 2020. 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 2020 semi-annual detection monitoring results to determine statistically significant increases, in accordance with the statistical monitoring plan (Carlson McCain, 2017).

3.0 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.

Figures



Appendix A

Laboratory Data





Page: 1 of 9

FINAL REPORT COMPLETION DATE: 10 may 9

Date Reported: 7 May 2019

PAUL VUKONICH OTTER TAIL POWER CO PO BOX 496 FERGUS FALLS MN 56538-0496 Work Order #: 31-0148 Account #: 006106 PO #: 48679

Project Name: HOOT LAKE PLANT

MAL Field ger/Date Reviewed 07 May 19 Chemistry Lab Manager/Date Reviewed fw 175 May 2019 ality Assurance Director/Date Reviewed

RL = Reporting Limits

- NQ = Not Present, Qualitative Only
- PQ = Present, Qualitative Only
- ND = Not Determined

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

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.



MEMBER

CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S2A

2 of 9 Page:

Report Date: 7 May 2019 Lab Number: 19-A17492 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 13:34 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium	7.02 * 6.9 108 @ < 3 513 120.0	units units mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3 10 0.500	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 C1 E SM 2540 C-97 SW6010C	25 Apr 19 22 Apr 19 13:34 24 Apr 19 12:08 25 Apr 19 8:40 25 Apr 19 10:07 24 Apr 19 16:00 29 Apr 19 11:53	DK KCD SS AL KAM
Boron Fluoride	0.131 0.130 @	mg/L mg/L	0.100 0.020	SW6010C EPA 300.0	29 Apr 19 11:53 26 Apr 19 17:45	

* Holding Time Exceeded

RL = Reporting Limit





CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S3AR

Page: 3 of 9

Report Date: 7 May 2019 Lab Number: 19-A17493 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 16:11 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					25 Apr 19	JMS
pH, Field	7.12	units	1.00	SM4500-H+-2011	22 Apr 19 16:11	MS
рН	* 7.0	units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	89.4 @	mg/L	5.0	ASTM D516-07	25 Apr 19 8:40	KCD
Chloride	11.8	mg/L	3.0	SM 4500 Cl E	25 Apr 19 10:07	SS
Solids, Total Dissolved	543	mg/L	10	SM 2540 C-97	24 Apr 19 16:00	AL
Calcium	112.0	mg/L	0.500	SW6010C	29 Apr 19 11:53	KAM
Boron	0.135	mg/L	0.100	SW6010C	29 Apr 19 11:53	KAM
Fluoride	0.180 @	mg/L	0.020	EPA 300.0	26 Apr 19 17:45	RMV

* Holding Time Exceeded





CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S51

Page: 4 of 9

Report Date: 7 May 2019 Lab Number: 19-A17494 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 14:01 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Receiv Result	ed		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions						25 Apr 19	JMS
pH, Field	7.09	units		1.00	SM4500-H+-2011	22 Apr 19 14:01	BMW
pH	* 7.0	units		1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	50.7	mg/L		5.0	ASTM D516-07	25 Apr 19 8:40	KCD
Chloride	12.3	mg/L		3.0	SM 4500 Cl E	25 Apr 19 10:07	SS
Solids, Total Dissolved	438	mg/L	s.	10	SM 2540 C-97	24 Apr 19 16:00	AL
Calcium	104.0	mg/L		0.500	SW6010C	29 Apr 19 11:53	KAM
Boron	< 0.1	mg/L		0.1	SW6010C	29 Apr 19 11:53	KAM
Fluoride	0.180 @	mg/L		0.020	EPA 300.0	26 Apr 19 17:45	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



MEMBER

CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S52

5 of 9 Page:

Report Date: 7 May 2019 Lab Number: 19-A17495 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 14:49 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions					25 Apr 19	JMS
pH, Field	7.01	units	1.00	SM4500-H+-2011	22 Apr 19 14:49	BMW
pH	* 6.9	units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	84.2 @	mg/L	5.0	ASTM D516-07	25 Apr 19 8:40	KCD
Chloride	15.5	mg/L	3.0	SM 4500 Cl E	25 Apr 19 10:07	SS
Solids, Total Dissolved	451	mg/L	10	SM 2540 C-97	24 Apr 19 16:00	AL
Calcium	105.0	mg/L	0.500	SW6010C	29 Apr 19 11:53	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	29 Apr 19 11:53	KAM
Fluoride	0.140 @	mg/L	0.020	EPA 300.0	26 Apr 19 17:45	RMV

* Holding Time Exceeded

RL = Reporting Limit # = Due to concentration of other analytes + = Due to internal standard response ND MICRO # 1013-M ND WW/DW # R-040





CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S10R

Page: 6 of 9

Report Date: 7 May 2019 Lab Number: 19-A17496 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 12:17 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Receiv Result `	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	7.33 * 7.2 105 10.3 540 120.0 < 0.1 0.140 @	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 C1 E SM 2540 C-97 SW6010C SW6010C EPA 300.0	25 Apr 19 22 Apr 19 12:17 24 Apr 19 12:08 25 Apr 19 8:40 25 Apr 19 10:07 24 Apr 19 16:00 29 Apr 19 11:53 26 Apr 19 17:45	SS AL KAM KAM

* 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:

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



MEMBER

CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S13

7 of 9 Page:

Report Date: 7 May 2019 Lab Number: 19-A17497 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 13:05 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium	7.09 * 6.9 68.7 @ 6.3 503 114.0	units units mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 C1 E SM 2540 C-97 SW6010C	25 Apr 19 22 Apr 19 13:05 24 Apr 19 12:08 25 Apr 19 8:59 25 Apr 19 10:26 24 Apr 19 16:00 29 Apr 19 11:53	KCD SS AL KAM
Boron Fluoride	< 0.1 0.200 @	mg/L mg/L	0.1 0.020	SW6010C EPA 300.0	29 Apr 19 11:53 26 Apr 19 17:45	KAM RMV

* Holding Time Exceeded

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



MEMBER

CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S14R

8 of 9 Page:

Report Date: 7 May 2019 Lab Number: 19-A17498 Work Order #: 31-0148 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 22 Apr 2019 11:36 Sampled By: MVTL FIELD PERSONNEL Date Received: 23 Apr 2019 12:16 PO #: 48679

Temp at Receipt: 0.6C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium	* 7.0 88.9 @ 1 5.0 1 606 1 123.0 1	units units mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 C1 E SM 2540 C-97 SW6010C	25 Apr 19 10:26 24 Apr 19 16:00 29 Apr 19 11:53	DK KCD SS AL KAM
Boron Fluoride		mg/L mg/L	0.1 0.020	SW6010C EPA 300.Ó	29 Apr 19 11:53 26 Apr 19 17:45	

* Holding Time Exceeded

RL = Reporting Limit



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

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

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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

Lab IDs: 19-A17492 to 19-A		Pre	oject: HC	OT LAK	E PLANT		Work (Order: 2	<u>01931-01</u>	48			- 7				
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Boron mg/L	1.000	101	85-115	1.00	19A17492q	0.131	1.150	102	75-125	1.150	1.170	104	1.7	10	99	90-110	< 0.1
Calcium mg/L	50.00	107	85-115	50.0	19A17492q	120.0	174.0	108	75-125	174.0	171.0	102	1.7	10	105	90-110	< 0.5
Chloride mg/L	-		-	60.0 60.0	19-A17496 19-A17510	10.3 10.1	71.7 72.1	102 103	86-117 86-117	71.7 72.1	74.7 72.5	107 104	4.1 0.6	5 5	101 102	90-110 90-110	1
Fluoride mg/L				1.00	19-A17492	0.130	1.10	97	75-125	1.10	1.14	101	3.6	10	94	90-110	< 0.02
pH units	-	-	-	-	-	-	-		-	7.2	7.2	-	0.0	2.5	101	90-110	-
Solids, Total Dissolved mg/L	-			-	-		-		-	498 587	486 580	-	2.4 1.2	10 7	102	85-115	< 10
Sulfate mg/L				50.0 500	19-A17496 19-A17510	105 72.6	148 534	86 92	68-132 68-132	148 534	146 531	82 92	1.4 0.6	5 5	95 94	80-120 80-120	1

Page: 1 of 1

Approved by:

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

Field Service Chain of Custody Record

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96	S10R			1217	GW			1		1	Ν										1
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Hoot Lake Site CCR Sampling - 2(

Site	Parameter List	Well Depth	Diameter (Inches)	Well Elevation	Sample Equipment	Dedicated?
S2A	CCR 3	79.63	2	1273.776	Bladder	Yes
S3AR	CCR 3	78.42	2	1271.562	Bladder	Yes
S51	CCR 3	55.6	2	1286.904	Bladder	Yes
S52	CCR 3	88.3	2	1286.623	Bladder	Yes
S10R	CCR 3	57.00	2	1281.47	Bladder	Yes
S13	CCR 3	90.19	2	1296.423	Bladder	Yes
S14R	CCR 3	70.86	2	1280.61	Bladder	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



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1000 Nones 500 Hros Total

)19

;**.**

Pump Rate (gal/minute)	Goes Dry?
< 0.25	No
< 0.25	Yes

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

2

* 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

New Ulm, MN 56073

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507 354 8517

Groundwater Assessment	Site:	Ottertail Power Co./Hoot Lake
Sampling Personnel:	Facility ID:	SW-211
Ber Wolf	Date: 22 月か	i 19
- · · ·	Unique Station ID	
	Sample ID:	S-2A
Well Condition Well Locked? Yes No Well Labeled? Ces No Casing Straight? Yes No Repairs Necessary: Kes No	Protective Posts? State ID Tag? Grout Seal Intact?	Ves No Yes No Ves No
Well Information		
Well Depth: 79.62	Well Casing Eleva	ation: 1273.776
Constructed Depth: 79.63	Static Water Eleva	ation: //97.96
Casing Diameter: 2"	Previous Static:	1197.66
Water Level Before Purge: 75.82	Water Level After	Sample: 75.62
Well Volume: .62 Ga	ns Measurement Me	thod: Elec. WL Steel Tape
Sampling Information		
Weather Conditions: Temp: (p)	Wind: NEG16	sky: Fair
	er SS/T Disp. Bailer Whale Grab	
Dedicated Equipment: Ves No	Pumping Rate:	<u>, 95 gpm</u>
Well Purged Dry? Yes (No)	Time Pump Bega	
Time Purged Dry?	Time of Sampling	
Duplicate Sample? Yes No ID:	<u>Sample EH: - (4</u>	20.4
Sample Appearance: General:	Color: Phase:	Odor:
Time pH Specific Ten Cond. ^o C	mg/L NTU Ren	noved # Comments:
1328 703 918 9	31 1.51 0.0 ,	75 1
1331 7.02 918 "		50 z
1334 7.02 919 9	27 1.16 0.0 2.	.25 3
· · · · · ·		4
		1. 1
		5

Comments:

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Exceptions to Protocol:

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New Ulm, MN 56073

507 354 8517

N N							
Groundwater Asse	essment			Site:	Ottert	ail Powe	r Co./Hoot Lak
Sampling Personnel:				Facility ID:	SW-2	11	
M	5			Date: 33	Aprig		
B	w	_		Unique Statio	on ID: 67467	71	
	Langer (1997)	_		Sample ID:	S-3A-	·R	
Well Condition							
Well Locked?	Yes No	_		Protective Po			No
Well Labeled?	Yes No			State ID Tag			No
Casing Straight?	Yes No	-		Grout Seal Ir	ntact? Yes	(Nà
Repairs Necessary: Well Information							
	78.40				Elovation:		1271.562
				Well Casing		12-	30
Constructed Depth:	78.42	_		Static Water		1.003.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Casing Diameter:	2"	$\overline{\mathbf{x}}$		Contraction of the second s	tic: 13,03.(1	8.31
	rge: 68.3	$\mathcal{L}(\mathcal{A})$,	vvater Level	After Sample:		20.21
Water Level Before Pur							· · · · · · · · · · · · · · · · · · ·
Well Volume:	1.65	Gallons		Measuremer	nt Method:	Elec. V	VLI Steel T
Well Volume: Sampling Information	1.65 on	Gallons	-			Elec. V	VLI Steel T
Well Volume: Sampling Information Weather Conditions:	1.65 on Temp:	63	 Wind: ∕∪ ¿		nt Method:	Elec. V	VLI Steel T
Well Volume: Sampling Information Weather Conditions: Sampling Method:	1.65 on Temp: Grundfos	Gallons G3 Bladder \$S/T		C-1S Whale	Sky: Grab Other:	Fay	VLI) Steel T
Well Volume: Sampling Information Weather Conditions:	1.65 Dn Temp: Grundfos Ves No	63	<hr/>	2-15	Sky: Grab Other:	Fay	VLI Steel T
Well Volume: Sampling Information Weather Conditions: Sampling Method:	1.65 on Temp: Grundfos	63	<hr/>	C-1S Whale	Sky: Grab Other: te: Øre	Fay	
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment:	1.65 Dn Temp: Grundfos Ves No	63	<hr/>	C – 1 S Whale Pumping Ra	Sky: Grab Other: te: Ø٠-2 Began: (Fary 15	gpm
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment: Well Purged Dry?	1.65 Dn Temp: Grundfos Ves No	63	<hr/>	C - 1 S Whale Pumping Ra Time Pump I	Sky: Grab Other: te: Ø٠-2 Began: (Fary 05 5:50	gpm am (
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment: Well Purged Dry? Time Purged Dry?	1.65 on Temp: Grundfos Ves No Yes No	Bladder SS/T	<hr/>	C - 1 S Whale Pumping Rat Time Pump I Time of Sam Sample EH:	Sky: Grab Other: te: Øィン Began: (ppling:	Fary 05 5:50	gpm am (
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment: Well Purged Dry? Time Purged Dry? Duplicate Sample?	1.65 Dn Temp: Grundfos Ves No Yes No Yes No General: C	Bladder SS/T	Disp. Bailer	C - 1 S Whale Pumping Ra Time Pump I Time of Sam Sample EH: -e Phase	Sky: Grab Other: te: Ora Began: (apling: e: Aure	Fary 05 5:50 1611	gpm am (r am (r
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment: Well Purged Dry? Time Purged Dry? Duplicate Sample? Sample Appearance:	1.65 on Temp: Grundfos Ves No Yes No Yes No	<u>Bladder SS/T</u> ID: <u></u>	Disp. Bailer	C - 1 S Whale Pumping Rat Time Pump I Time of Sam Sample EH:	Sky: Grab Other: te: Øィン Began: (ppling:	Fary 05 5:50	gpm am (r am (r
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment: Well Purged Dry? Time Purged Dry? Duplicate Sample? Sample Appearance:	I.65 on Temp: Grundfos Ves No Yes No Yes No General: C Specific	Bladder SS/T-	D. O.	C - 1 S Whale Pumping Ra Time Pump I Time of Sam Sample EH: Re Phase Turbidity	Sky: Grab Other: te: Orco Began: (ppling: e: Aure Gallons	Farry 5.50 1611 SEQ	gpm am (r am (r Odor: 1\ (\/\)
Well Volume: Sampling Information Weather Conditions: Sampling Method: Dedicated Equipment: Well Purged Dry? Time Purged Dry? Duplicate Sample? Sample Appearance: 7 Time pH	I.GS Dn Temp: Grundfos Ves No Yes No Yes No General: C Specific Cond.	Bladder SS/T Bladder SS/T ID: ID: ID: ID: ID: ID: ID: ID: ID: ID:	Color: Nor D. O. mg/L 6 Z 6	Whale Pumping Ra Time Pump I Time of Sam Sample EH: e Phase Turbidity NTU	Sky: Grab Other: te: Ore Began: (ppling: e: Aure Gallons Removed [. 75]	tary 5550 1611 SEQ #	gpm am (r am (r Odor: 1\ (\/\)
Well Volume:Sampling InformationWeather Conditions:Sampling Method:Dedicated Equipment:Well Purged Dry?Time Purged Dry?Duplicate Sample?Sample Appearance:TimepH15577.20	I.GS Dn Temp: Grundfos Ves No Yes No Yes No Yes No General: C Specific Cond. 946 946	G3 Bladder\$S/T ID: ID: ID: ID: ID: ID: ID: ID: ID: ID:	Color: Nat D. O. mg/L , 40	C - 1 S Whale Pumping Ra Time Pump I Time of Sam Sample EH: Phase Turbidity NTU O, O	Sky: Grab Other: te: Ore Began: (ppling: e: Aure Gallons Removed	Farry 5:50 1611 SEQ # 1	gpm am (r am (r Odor: 1\ (\/\)
Well Volume:Sampling InformationWeather Conditions:Sampling Method:Dedicated Equipment:Well Purged Dry?Time Purged Dry?Duplicate Sample?Sample Appearance:TimeISS7.20IGO47.14	1.65 Dn Temp: Grundfos Ves No Yes No Yes No General: C Specific Cond. 996	Bladder SS/T Bladder SS/T ID: ID: ID: ID: ID: ID: ID: ID: ID: ID:	Color: Nation D. O. mg/L 6 Z 6	C - 1 S Whale Pumping Ra Time Pump I Time of Sam Sample EH: Phase Turbidity NTU O, O Co, O	Sky: Grab Other: te: Ore Began: (ppling: a: Aure Gallons Removed I. 75 3. 5	tary 5550 1611 SEQ # 1 2 3	gpm am (r am (r Odor: 1\ (\/\)
Well Volume:Sampling InformationWeather Conditions:Sampling Method:Dedicated Equipment:Well Purged Dry?Time Purged Dry?Duplicate Sample?Sample Appearance:TimeISS7.20IGO47.14	I.GS Dn Temp: Grundfos Ves No Yes No Yes No Yes No General: C Specific Cond. 946 946	G3 Bladder\$S/T ID: ID: ID: ID: ID: ID: ID: ID: ID: ID:	Color: Nat D. O. mg/L , 40	C - 1 S Whale Pumping Ra Time Pump I Time of Sam Sample EH: Phase Turbidity NTU O, O Co, O	Sky: Grab Other: te: Ore Began: (ppling: a: Aure Gallons Removed I. 75 3. 5	Farry 5:50 1611 SEQ # 1 2	gpm am (r am (r Odor: 1\ (\/\)



Exceptions to Protocol:

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New Ulm, MN 56073

به معر نور 507 354 8517

Groundwater Assessment			Site:	Otter	tail Powe	er Co./Hoot Lake
Sampling Personnel:			Facility ID:	SW-2	211	
Ben wolf			Date: 2ユ,	Hpni 19		
	-		Unique Static		30	
	_		Sample ID:	S-51		
Well ConditionWell Locked?YesNoWell Labeled?YesNoCasing Straight?YesNo	-		Protective Po State ID Tag Grout Seal In	? Yes		N6) No No
Repairs Necessary:						Martin
Well Information Well Depth: 55.66	_		Well Casing	Elevation:		1286.904
Constructed Depth: 55.60	-		Static Water			37
Casing Diameter: 2"			Previous Stat	tic: 1236	.89	
Water Level Before Purge: 51.03	-		Water Level	After Sample	: 51.0	»3
Well Volume: \$75	Gallons		Measuremen	t Method:	Elec.	ML Steel Tape
Sampling Information						
Weather Conditions: Temp:	21	Wind: N	12016	Sky:	Fail	<u>^</u>
Sampling Method: Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		· · · · · · · · · · · · · · · · · · ·
Dedicated Equipment: (es) No	-		Pumping Rat			gpm
Well Purged Dry? Yes No	_		Time Pump I		<u>52</u>	am / 🏹
Time Purged Dry? -	-		Time of Sam	pling: 14a	21	am / (m)
Duplicate Sample? Yes No	ID:		Sample EH:	-114.8		
Sample Appearance: General: ∠	lear	Color: //o	7 Phase	Light -	sed.	Odor: Sulfuro
З Specific Time pH Cond.	Temp ^o C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1355 7.09 887	9-05	1.42	9.4 .	, 15	1	
1358 7.09 888	9-04	1.40	2.5	1.5	2	
1401 7.09 888	9.00	1.40	1.0	2.25	3	
					4	
					5	
Stabilized? Yes No		Amount Wa	ater Removed:	2.25		Gallons
Comments:						



Exceptions to Protocol:

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New Ulm, MN 56073

507 354 8517

Sampling Personnel: <u>Ban</u> <u>Wolf</u> Well Condition Well Locked? Well Labeled? Casing Straight? Well Information Well Depth: Well Depth: Well Depth: Well Depth: Well Depth: Well Depth: Well Depth: Sampling Diameter: 2" Water Level Before Purge: 2.84 Gallons	 Wind:	Facility ID: Date: 2.2.4 Unique Station Sample ID: Protective Pos State ID Tag? Grout Seal Int Well Casing E Static Water E Previous Stati Water Level A Measurement	n ID: S-52 sts? Yes tact? Yes Elevation: Elevation: / ic: / 2/5/ After Sample:	215.7	88
Ban Woll f Well Condition Well Locked? Yes Well Labeled? Yes Well Labeled? Yes Vest No Casing Straight? Yes Well Information Well Depth: \$8.30 Casing Diameter: 2" Water Level Before Purge: 70'88 Well Volume: 2.84 Gallons		Date: J 2 4 Unique Station Sample ID: Protective Pos State ID Tag? Grout Seal Int Well Casing E Static Water E Previous Stati Water Level A	After Sample:	215.7 92 70.	No No 1286.623 4 88
Well Condition Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No Repairs Necessary: Well Information Well Depth: \$8.30 Constructed Depth: 88.30 Casing Diameter: 2" Water Level Before Purge: 70'.88 Well Volume: 2.84 Gallons		Unique Station Sample ID: Protective Pos State ID Tag? Grout Seal Int Well Casing E Static Water E Previous Stati Water Level A	n ID: S-52 sts? Yes tact? Yes Elevation: Elevation: / ic: / 2/5/ After Sample:	92 70.	No No 1286.623 4 88
Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No Repairs Necessary: No Well Information Well Depth: \$8.30 Constructed Depth: 88.30 Casing Diameter: 2" Water Level Before Purge: 70' 88 Well Volume: 2.84 Gallons		Protective Pos State ID Tag? Grout Seal Int Well Casing E Static Water E Previous Stati Water Level A	sts? Yes act? Yes Elevation: Elevation: / ic: / 2/5/	92 70.	No No 1286.623 4 88
Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No Repairs Necessary: No Well Information Ks.30 Constructed Depth: 88.30 Casing Diameter: 2" Water Level Before Purge: 70'.88 Well Volume: 2.84 Gallons		Protective Pos State ID Tag? Grout Seal Int Well Casing E Static Water E Previous Stati Water Level A	Elevation: Elevation: / Elevation: / ic: / 2/5/	92 70.	No No 1286.623 4 88
Well InformationWell Depth:88.30Constructed Depth:88.30Casing Diameter:2"Water Level Before Purge:70'85Well Volume:2.84Galions		Static Water E Previous Stati Water Level A	Elevation: / ic: /2/5/ After Sample:	92 70.	4 <u>88</u>
Well Depth:\$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		Static Water E Previous Stati Water Level A	Elevation: / ic: /2/5/ After Sample:	92 70.	4 <u>88</u>
Constructed Depth:88.30Casing Diameter:2"Water Level Before Purge:70 88Well Volume:2 84Gallons		Static Water E Previous Stati Water Level A	Elevation: / ic: /2/5/ After Sample:	92 70.	4 <u>88</u>
Casing Diameter:2"Water Level Before Purge:70' 88Well Volume:2.84Gallons		Previous Stati Water Level A	ic: $12/5$. After Sample:	92 70.	88
Water Level Before Purge: 70,88 Well Volume: 2.84 Gallons		Water Level A	After Sample:	70.	$\overline{\frown}$
Well Volume: 2.84 Gallons					$\overline{\frown}$
		Measurement	t Method:	Elec. V	·
Sampling Information	Wind: */				WL/I Steel Tap
Weather Conditions: Temp: 6/		EQ16	Sky:	Fai	^
Sampling Method: Grundfos Bladder SS/T Dedicated Equipment: Kes No	Disp. Bailer		Grab Other: e: 25	, ;	
		Pumping Rate			gpm
Well Purged Dry? Yes		Time Pump B		13	am / pm
Time Purged Dry?	-	Time of Samp		-19	am / pr
		Sample EH: -			
Sample Appearance: General: Clear	Color: Are	רע Phase:	Nore		Odor: Sulfu
12 Specific Temp Time pH Cond. ^O C	D. O. mg/L		Gallons Removed	SEQ #	Comments:
1425 7.01 926 9.00	,24	0.0	3	1	
1437 7.01 426 9.01	,26	0.0	6	2	
1449 7.01 926 4.01	.29	0.0	9	3	
			• • • • • • • • • • • • • • • • • • • •	4	· ·
				5	
Stabilized? (es No	Amount Wa	iter Removed:	9		Gallons
Comments:		·····			
	State	- ××	not in r	votes	

New Ulm, MN 56073

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507 354 8517

Groundw	ater Asse	ssment			Site:	Otterta	il Powe	r Co./Ho	oot Lake
Sampling Po	ersonnel:				Facility ID:	SW-21	1		
		MS			Date: JJA	Nig			
<u> </u>					Unique Static	on ID: 80634	1		
					Sample ID:	S-10R			
Well Conc Well Locked Well Labele Casing Stra Repairs Ned	d? / d? / ight? (Yes No Yes No Yes No			Protective Po State ID Tag' Grout Seal In	? (Yes)		No No No	
Well Infor	mation								
Well Depth:		80.62			Well Casing	Elevation:		1281.4	
Constructed	I Depth:	57.00			Static Water	Elevation:	1	211.3	37
Casing Diar	neter:	2"			Previous Stat	tic:	1900	1.15	\
Water Leve	I Before Purg	ge: 7 6 ./	10		Water Level	After Sample:	also 2	rif bic	r Q
Well Volum	e: l	,72	Gallons	-	Measuremen	t Method:	Elec	VLI	Steel Tape
Sampling Weather Co	Informatio	n Temp: ²	54	Wind: A	1-10	Sky:	For	>	
Sampling M	lethod:	Grundfos	Bladder SSAT	Disp. Bailer	Whale	Grab Other:			
Dedicated E	Equipment: <	Yes No	. (A)	.(.)	Pumping Rat			gpm	•
Well Purgeo	d Dry? (Yes No-	(A) 2228	Ň	Time Pump E		158		am v pm
	d Dry? (31				Time of Sam		017		am /(ph)
Duplicate S	ample? 1	(Yest No)	ID: the	Mactle 1	Sample EH:	~	42		
Sample App	bearance:	General:	andy	Color: ten	Phase	: none	<u></u>	Odor:	rung
7 Time	pН	Specific Cond.	Temp ^o C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comm	ents:
1205	7.41	537	9.37	9.65	114.8	1.75	1		
1212	7.64	483	9.41	10.18	1028	3.5	2		
1-219						505	3		
1217	7.33	842	9.63	6.34	51,3		4	100	hars-e
							5		
Stabilized?	Yes /	No	1	Amount Wat	er Removed:	<u>َّ</u> کَ کَ		Gallon	S
Commente				-		<u> </u>			



Exceptions to Protocol:

New Ulm, MN 56073

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507 354 8517

Groundwater Assess	sment		Site:	Otterta	il Power (Co./Hoot Lake
Sampling Personnel:			Facility ID:	SW-21	1	
ws	<u>></u>		Date: 3	PIJAAG		
			Unique Statio	n ID: 63281	0	
			Sample ID:	S-13		
Well Labeled? Ye	es No es No es No		Protective Po State ID Tag? Grout Seal In	? Yes	N N N	0
Well Information		int we can a second	, "in in the state of the state			
Well Depth:	90.27		Well Casing I	Elevation:	1:	296.423
Constructed Depth: 90	0.19		Static Water	Elevation:	1210.	18
Casing Diameter: 2"	IT		Previous Stat	ic: 1210,4	-11 .	`
Water Level Before Purge:	: 85.61		Water Level /	After Sample:	56	40
Well Volume: 6	.76 Gallons		Measuremen	t Method:	Elec. M	I Steel Tape
			-10 +0/5	Sky:	Fer	<u> </u>
· · · ·		Disp. Bailer		Grab Other:		
	<u>es No</u>		Pumping Rat	• -	<u>'Sg</u> ∿≥∽	pm
Well Purged Dry? Ye Time Purged Dry?	$\frac{1}{2}$ (A)	$\left(\right)$	Time Pump E		305	
Duplicate Sample?	ENOD ID: D	Apr/9	Sample EH:	- 4つ	<u>305</u> 8	am (pm)
e	Seneral:	Color: Ner	Phase	: Deal		dor: Sufferen
Time pH Co	pecific Temp cond. ^o C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ # C	comments:
3 1242 7,29	779 10.37	5:11	57.1		1	
7 1246 7.17	812 9.50	1.06	5.4	δ	2	
1 1250 7.10	815 9.37	1.00	2.5	S	3	
1305 7.09	814 9.38	1.05	1.9	A	4	
					5	
Stabilized? Yes N	lo	Amount Wat	er Removed:		G	Ballons
Comments Duplic	rate 1	N				



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Exceptions to Protocol:

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New Ulm, MN 56073

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507 354 8517

Groundwater Asse	essment			Site:	Ottert	ail Powe	er Co./Hoot Lake
Sampling Personnel:				Facility ID:	SW-2	11	
	MS			Date: ӘД	ADGIG		
		-		Unique Stati	ion ID: 80634	42	
	*******	-		Sample ID:	S-14F	२	
Well Condition	 /、	-			\sim		
Well Locked? /	Yeş No	_		Protective P	osts? /Yes		No
Well Labeled?	Yes No	-		State ID Tag			No
Casing Straight?	Yes No	-		Grout Seal I	ntact? Yes		No
Repairs Necessary:					· · · · · · · · · · · · · · · · · · ·		
Well Information							
Well Depth:	87.11	-		Well Casing	Elevation:		1280.61
Constructed Depth:	70.86	-		Static Water	Elevation:	201,4	18
Casing Diameter:	2"	-		Previous Sta	atic: (200	-61	
Water Level Before Pur	ge: <u>79</u>	<u>1</u> 3		Water Level	After Sample:	791	18
Well Volume:	i.3d	Gallons	_	Measureme	nt Method:	elec.	ATP Steel Tape
Sampling Information							
Weather Conditions:	Temp: 5	٩	Wind: N	-10	Sky:	Farr	. <u>.</u>
Sampling Method:	Grundfos	Bladder SSA	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	Tes No	_		Pumping Ra	ate: <i>(</i>), 2	5	gpm
Well Purged Dry?	Yes No	-		Time Pump	Began:	1112	alm / pm
Time Purged Dry?	هيني)	_		Time of San	npling:	1136	anî / pm
Duplicate Sample?	Yes No	ĪD:		Sample EH:	- 15	१३. ०	
Sample Appearance:	General: C	bor	Color: Nor	e Phas	e: Nore		Odor: Suthin
6	Specific	Temp	D. O.	Turbidity	Gallons	SEQ	
Time pH	Cond.	°C	mg/L	NTU	Removed	#	Comments:
1118 7.06	925	9.31	5.43	11.2	158	1	
1124 7.03	921	9.28	5.67	85	3.0	2	
1130 7.03	916	9.16	4,86	5.5	4.5	3	
1136 7.01	915	9.17	5.17	4.9	6.0	4	
						5	
Stabilized 2 Mag	L				6.0	<u> </u>	
Stabilized? Yes	No		Amount wa	ter Removed:	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		Gallons
Comments:		r I A	O				
)		5-tai	K				
Exceptions to Protocol:			2h				

Exceptions to Protocol:

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Page:



FINAL REPORT COMPLETION DATE: SNOV19 ah

Date Reported: 4 Nov 2019

Work Order #: 31-0500 Account #: 006106 PO #: 48679

1 of 9

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

Project Name: HOOT LAKE CCR

ager/Date Revi Field 85Nov19 Chemistry Lab Manager/Date Reviewed 05Nov 19 prosfl far 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.





CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S2A

2 of 9 Page:

Report Date: 4 Nov 2019 Lab Number: 19-A53390 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 12:46 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.79 * 6.9 148 @ < 3 656 135.0 0.139 0.480 @	units units mg/L mg/L mg/L mg/L mg/L mg/L	$ \begin{array}{c} 1.00\\ 1.0\\ 5.0\\ 3\\ 10\\ 0.500\\ 0.100\\ 0.020\\ \end{array} $	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 Cl E SM 2540 C-97 SW6010C SW6010C EPA 300.0	22 Oct 19 16 Oct 19 12:49 18 Oct 19 12:50 24 Oct 19 9:27 23 Oct 19 10:32 22 Oct 19 16:10 23 Oct 19 15:01 23 Oct 19 15:01 31 Oct 19 11:30	NB KAM KAM

* 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

 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.

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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S3AR

Page: 3 of 9

Report Date: 4 Nov 2019 Lab Number: 19-A53391 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 13:35 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.80 * 7.1 83.6 @ 13.0 516 105.0 0.119 0.320 @	units units mg/L mg/L mg/L mg/L mg/L	$ \begin{array}{c} 1.00\\ 1.0\\ 5.0\\ 3.0\\ 10\\ 0.500\\ 0.100\\ 0.020\\ \end{array} $	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 Cl E SM 2540 C-97 SW6010C SW6010C EPA 300.0	22 Oct 19 16 Oct 19 13:35 18 Oct 19 12:50 24 Oct 19 9:27 23 Oct 19 10:32 22 Oct 19 16:10 23 Oct 19 15:01 23 Oct 19 15:01 31 Oct 19 11:30	AL AKF SS NB KAM KAM

* Holding Time Exceeded

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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S51

4 of 9 Page:

Report Date: 4 Nov 2019 Lab Number: 19-A53392 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 14:07 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron	7.01 * 7.1 50.3 11.4 435 99.50 < 0.1 0.480 @	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 Cl E SM 2540 C-97 SW6010C SW6010C EPA 300.0	22 Oct 19 16 Oct 19 14:07 18 Oct 19 12:50 31 Oct 19 9:34 23 Oct 19 10:32 22 Oct 19 17:34 23 Oct 19 15:28 23 Oct 19 15:28 31 Oct 19 11:30	

* Holding Time Exceeded

 KL = Reporting Limit

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

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

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

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

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

 RL = Reporting Limit

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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S52

5 of 9 Page:

Report Date: 4 Nov 2019 Lab Number: 19-A53393 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 14:51 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.94 * 7.0 58.3 @ 16.8 481 108.0 < 0.1 0.410 @	units units mg/L mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 C1 E SM 2540 C-97 SW6010C SW6010C EPA 300.0	22 Oct 19 16 Oct 19 14:51 18 Oct 19 12:50 24 Oct 19 9:45 23 Oct 19 10:32 22 Oct 19 17:34 23 Oct 19 15:28 23 Oct 19 15:28 31 Oct 19 11:30	JMS BMW AL AKF SS NB KAM KAM KAM

* Holding Time Exceeded

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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S10R

6 of 9 Page:

Report Date: 4 Nov 2019 Lab Number: 19-A53394 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 12:24 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.91 * 7.2 100 @ 11.5 536 114.0 < 0.1 0.320 @	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 Cl E SM 2540 C-97 SW6010C SW6010C EPA 300.0	22 Oct 19 16 Oct 19 12:24 18 Oct 19 12:50 24 Oct 19 9:45 23 Oct 19 10:32 22 Oct 19 17:34 23 Oct 19 15:28 23 Oct 19 15:28 31 Oct 19 11:30	AL AKF SS NB KAM KAM

* Holding Time Exceeded

RL = Reporting Limit

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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S13

Page: 7 of 9

Report Date: 4 Nov 2019 Lab Number: 19-A53395 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 12:48 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions	······································				22 Oct 19	JMS
pH, Field	7.12	units	1.00	SM4500-H+-2011	16 Oct 19 12:48	MS
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	18 Oct 19 12:50	AL
Sulfate	76.0 @	mq/L	5.0	ASTM D516-07	24 Oct 19 9:45	AKF
Chloride	7.7	mg/L	3.0	SM 4500 Cl E	23 Oct 19 10:32	SS
Solids, Total Dissolved	492	mg/L	10	SM 2540 C-97	22 Oct 19 17:34	NB
Calcium	108.0	mg/L	0.500	SW6010C	23 Oct 19 15:28	KAM
Boron	< 0.1	mg/L	0.1	SW6010C	23 Oct 19 15:28	KAM
Fluoride	0.570 @	mg/L	0,020	EPA 300.0	31 Oct 19 18:21	RMV

* Holding Time Exceeded



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE CCR

Sample Description: S14R

Page: 8 of 9

Report Date: 4 Nov 2019 Lab Number: 19-A53396 Work Order #: 31-0500 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Oct 2019 12:04 Sampled By: MVTL FIELD PERSONNEL Date Received: 17 Oct 2019 13:30 PO #: 48679

Temp at Receipt: 3.0C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Water Digestions pH, Field pH Sulfate Chloride Solids, Total Dissolved Calcium Boron Fluoride	6.73 * 7.1 78.7 @ 4.1 567 122.0 < 0.1 0.430 @	units units mg/L mg/L mg/L mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1 0.020	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 Cl E SM 2540 C-97 SW6010C SW6010C EPA 300.0	22 Oct 19 16 Oct 19 12:04 18 Oct 19 12:50 24 Oct 19 9:45 23 Oct 19 10:32 20 Oct 19 17:34 23 Oct 19 15:28 23 Oct 19 15:28 31 Oct 19 18:21	JMS MS AL AKF SS NB KAM KAM 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:

 (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
 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. MVTL

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Page: 1 of 1

1

Quality Control Re Lab IDs: 19-A53390 to 19-A		Pr	oject: HO	OT LAK	E CCR		Work Order: 201931-0500											
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 1.000	97 98	85-115 85-115	1.00 1.00	19A53391q 19A53468q	0.119 < 0.1	1.080 1.040	96 104	75-125 75-125	1.080 1.040	1.120 1.080	100 108	3.6 3.8	10 10	96 97	90-110 90-110	< 0.1 < 0.1	
Calcium mg/L	50.00 50.00	106 106	85-115 85-115	50.0 50.0	19A53391q 19A53468q	105.0 82.30	155.0 136.0	100 107	75-125 75-125	155.0 136.0	158.0 138.0	106 111	1.9 1.5	10 10	101 102	90-110 90-110	< 0.5 < 0.5	
Chloride mg/L	-	-	-	60.0	19-A53396	4.1	66.6	104	86-117	66.6	67.7	106	1.6	5	101	90-110	< 3	
Fluoride mg/L		-		1.00 1.00	19-A53379 19-A53395	0.430 0.570	1.38 1.40	95 83	80-120 80-120	1.38 1.40	1.35 1.46	92 89	2.2 4.2	10 10	102 93	90-110 90-110	< 0.02	
pH units	-	-	-	-	-	-	-	-	-	6.8	6.8	-	0.0	2.5	101	90-110	-	
Solids, Total Dissolved mg/L				-	- - -					500 516 1940 2550	499 516 1950 2540	-	0.2 0.0 0.5 0.4	10 7 7 7	102 101	85-115 85-115	< 10 < 10	
Sulfate mg/L		- - - - -		500 500 50.0 50.0 50.0	19-A53392* 19-A53396 19-A53988 19-A53256 19-A54704	< 50 78.7 < 5 28.9 40.2	555 593 55.5 91.8 97.5	111 103 111 126 115	68-132 68-132 68-132 68-132 68-132 68-132	593 55.5 91.8	548 596 57.0 92.0 92.3	110 103 114 126 104	1.3 0.5 2.7 0.2 5.5	5 5 5 5 5 5	104 108 102	80-120 80-120 80-120	< 5	

Approved by:

Fall 2019

This is an exact copy of

By Date 170 cf 19 Pages 1-10

Minnesota Valley Testing Laboratories

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

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Project Nan		Otter Tail Powe		Project	Type:	CCR				Nar	neo	of Sa	amp	lers	<u>:</u> M	at	*.5	5%	ern		
	<u>}</u>	loot Lake Plant	t												Ĭ	\geq	C		2.0		
	Otter Tail Pow			Carbon (Copy:	Carlson McCa			ļ							Dæ		Cru	2014		_
	Paul Vukonich	1		<u>Attn:</u>		Megan Lindstr	om			Que	ote I	Num	ber:			21	- 1	50	0		
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Phone:	218-739-8349						_											_			
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de	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	Voc Set	1000 none	1000 HNO3	500 HNO3	iter	500 HNO3	Filter? Y or M	500H2SO4	1000 Ambar 1.	500 NaOH	Other: 150 115	Other 150	Analysis Required		1
Lab Number 065554		202	16CENI9			100	1-		-			5		5	-	5	0			- ll	-
A53340	S2A		ICCC M7		GW			1		1	Ν				_				See Attat	cnea	_
9)	S3AR			1335	GW			1		1	Ν										
92	S51			1407	GW			1		1	Ν										
93	S52				GW			1		1	Ν										
	S10R				GW			1		1	Ν										
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Samples Relinquished By:			Samples Received By:	1. Auder	
Date: 170CH9	Time: 1250	Temp: 3.0111784	Date: 1700-19	Time: (33)	Temp: 3.0C
Samples Relinquished into:	Fridge Log in C	art Other:			
Samples Relinquished By:	\cup		Samples Received By:		
Date:	Time:	Temp:	Date:	Time:	Temp:
Delivery: Sampl	ers Other:		Seal Number(s) - If Used		
Transp Ambie	nt (ce	Other:	Seals Intact? Ye	s No)

Hoot Lake Site CCR Sampling - 2019

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 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

New Ulm, MN 56073

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Groundwater Assessment		Site:	Otter	Fail Pow	er Co./ Hoot Lake
Sampling Personnel:		Facility ID:	SW-2	11	
Ber Wolf		Date: //ø	oct!	9	
		Unique Statio	on ID: 44435	0	
		Sample ID:	S-2A		
Well ConditionWell Locked?YesNoWell Labeled?YesNoCasing Straight?YesNoRepairs Necessary:KesKes		Protective Po State ID Tag Grout Seal Ir	? Yes	(No No No
Well Information					
Well Depth: 79.62		Well Casing	Elevation:		1273.776
Constructed Depth: 79.63		Static Water	A	197	- 77
Casing Diameter: 2"		Previous Sta	tic: 1197.	96	
Water Level Before Purge: 7(0-0)		Water Level	After Sample:	76	el
Well Volume: , 59 Gallons		Measuremen	t Method:	Elec. V	VLI Steel Tape
Sampling Information	<u></u>				1
Weather Conditions: Temp: 4	Wind:	LU	Sky: ر	Jou	dY
Sampling Method: Grundfos Bradder St	T Disp. Bailer	Whale	Grab Other:		·····
Dedicated Equipment: Yes No		Pumping Rat		<u>,</u>	gpm
Well Purged Dry? Yes No		Time Pump E	1.01	\$7	am / pm
Time Purged Dry?		Time of Sam	~	6	am / pm
Duplicate Sample? Yes No ID:	-	Sample EH:			
Sample Appearance: General: Clear	Color: 🔨	ノび ピー Phase			Odor: Non~
Time ^O pH Cond. ^O C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1240 6.80 1048 8.8	2 1.20	0.0	.75	1	
1243 (0.79 1063 8.80		0.5	1.50	2	
1246 6.79 10 (08 8.7	7 ,83	0.0	2.25	3	
				4	
				5	- <u>.</u>
Stabilized? Yes No	Amount Wa	ater Removed:	2.25	· · · · · · · · · · · · · · · · · · ·	Gallons

Comments:

Storte

Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
MS	Date: 160019
	Unique Station ID: 674671
	Sample ID: S-3A-R
Well Condition Well Locked? Yes Well Labeled? Yes Well Labeled? Yes Casing Straight? Yes Repairs Necessary: No	Protective Posts? (Yes) No State ID Tag? (Yes) No Grout Seal Intact? Yes No
Well Information	
Well Depth: 78.40	Well Casing Elevation: 1271.562
Constructed Depth: 78.42	Static Water Elevation:
Casing Diameter: 2"	Previous Static: 12-03, 30
Water Level Before Purge: 68.34	Water Level After Sample:
Well Volume:). (Get Gallons	Measurement Method: Elec. Will Steel Tape
Sampling Information	
Weather Conditions: Temp: 40 Wind:	: Low sky: cloudy
Sampling Method: Grundfos Bladder SS/T Disp. B	
Dedicated Equipment: Ves No	Pumping Rate: Original gpm
Well Purged Dry? Yes No	Time Pump Began: 『경1바 am / pm
Time Purged Dry?	Time of Sampling: 1335 am / (pm)
Duplicate Sample? Yes No ID:	Sample EH:
Duplicate Sample? Yes No ID: Sample Appearance: General: Color: Time pH Specific Temp D. O. OC mg/L	r: Vere Phase: Vere Odor: S1, Sulfarda, S Turbidity Gallons SEQ NTU Removed # Comments:
Duplicate Sample?YesNoID:Sample Appearance:General:ClearColor:TimepHSpecific Cond.Temp OC C Mg/LD. O. mg/L132/G 50TableSt. 85	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Duplicate Sample? Yes ID: Sample Appearance: General: Clear Color: Time pH Cond. °C mg/L 1321 G.80 786 8.85 1.2 1325 G.84 726 8.95 1.4	r: None Phase: None Odor: 51 , 54 , 40 , 5 Turbidity Gallons SEQ NTU Removed # Comments: 22 3.9 1075 1 66 3.9 3.5 2
Duplicate Sample?YesNoID:Sample Appearance:General:ClearColor:TimepHCond.°Cmg/L132.)G 5078.68.851.2132.6G 5.472.65.401.4	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Duplicate Sample? Yes ID: Sample Appearance: General: Clear Color: Time pH Cond. °C mg/L 1321 G.80 786 8.85 1.2 1325 G.84 726 8.95 1.4	r: New Phase: No. Odor: 51 , 54 (404) Turbidity Gallons SEQ NTU Removed # Comments: 2.2 3.9 1.0751 66 3.9 3.5252 3.0 5.25 34
Duplicate Sample? Yes ID: Sample Appearance: General: Clear Color: Time pH Cond. °C mg/L 1321 G.80 786 8.85 1.2 1325 G.84 726 8.95 1.4	r: None Phase: None Odor: 51 , 54 March 5 Turbidity Gallons SEQ NTU Removed # Comments: 22 59 100751 66 3.9 3.5252 3.0 5.25 3

Comments:

Stor

Groundwater Assessment		Site:	Otter	Tail Power (Co./ Hoot Lake
Sampling Personnel:		Facility ID:	SW-2	11	
Ben Wolf		Date: 10	oct 19		
		Unique Statio	n ID: 81483	80	
	•.	Sample ID:	S-51		
Well Condition					
Well Locked? Ves No		Protective Po	and the second se	10	
Well Labeled? Yes No		State ID Tag? Grout Seal In		No No	
Casing Straight? Yes No					
Repairs Necessary: Well Information					
Well Depth: <u>65.60</u>		Well Casing I	Elevation:	12	86.9
Constructed Depth: 55.60		Static Water		1236.3	?/
Casing Diameter: 2"		Previous Stat	1 - 7 -	1.87	
Water Level Before Purge: 50.59		Water Level /		31	7
Well Volume:		Measurement		Efec. WLI	Steel Tape
Sampling Information		1,		y	
Weather Conditions: Temp: 41	Wind: L	_tU	Sky:	Cloud	4
Sampling Method: Grundfos Bladder SS/	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment: (Yes) No		Pumping Rate	e: ,25	gp	<u>m</u>
Well Purged Dry? Yes No?		Time Pump E	<u>Began: 134</u>	1/	am / m
Time Purged Dry?		Time of Sam	oling: 14	<u>07</u>	am / pm
Duplicate Sample? Yes No ID:		Sample EH:	-97.2		
Sample Appearance: General: Clear	Color: N	マフン Phase	: Light	Sed. Oc	tor: Scilfanch
Specific Temp	D. O.	Turbidity	Gallons	SEQ	
Time pH Cond. ^o C	mg/L	-	Removed	# Co	omments:
1351 7.41 802 8.50	2.05	72.5		1	
1355 7.13 827 8.44	,98	69.2	2	2	;
1359 7.03 843 8.43	,80	56.4	3	3	
1403 7.61 845 8.43	,64	20.7	Ч	4	
1407 7.01 844 8.43	1,59	13.4	5	5	
Stabilized? Yes		ter Rèmoved:	5	Ga	allons

Glatk UR

Comments:

Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
Ben Wolf	Date: / 6 OCY 19
F	Unique Station ID:
	Sample ID: S-52
Well Condition Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No Repairs Necessary: Velocessary: Velocessary:	Protective Posts? (Yes) No State ID Tag? (Yes) No Grout Seal Intact? (Yes) No
Well Information	
Well Depth: SS-30	Well Casing Elevation: 1286.62
Constructed Depth: 88.30	Static Water Elevation: 12/5-67
Casing Diameter: 2"	Previous Static: 1215.74
Water Level Before Purge: 70. 95	Water Level After Sample: <u>70-95</u>
Well Volume: 2.83 Gallons	Measurement Method: Elec. WII Steel Tape
Sampling Information	W sky: Goudy
Weather Conditions: Temp: 42 Wind:	W Sky: Cloudy
Sampling Method: Grundfos Bladder SS/T Disp. Bailer	Whale Grab Other:
Dedicated Equipment: (Yes) No	Pumping Rate: 125 gpm
	Pumping Rate: 135 gpm Time Pump Began: 1415 am / pm
Dedicated Equipment: (Yes) No Well Purged Dry? Yes (10) Time Purged Dry?	Pumping Rate: 135 gpm Time Pump Began: 1415 am / pm Time of Sampling: 1451 am / pm
Dedicated Equipment: Yes No Well Purged Dry? Yes Yes Time Purged Dry? Duplicate Sample? Yes	Pumping Rate: 1 3 5 gpm Time Pump Began: 1415 am / pm Time of Sampling: 1451 am / pm Sample EH: -//7.3
Dedicated Equipment: Yes No Well Purged Dry? Yes Yes Time Purged Dry? Duplicate Sample? Yes	Pumping Rate: 135 gpm Time Pump Began: 1415 am / pm Time of Sampling: 1451 am / pm
Dedicated Equipment: Yes No Well Purged Dry? Yes Yes Time Purged Dry? Time Purged Dry? Duplicate Sample? Yes Yes Sample Appearance: General: /caf Color: Time pH Specific Temp D. O. OC mg/L	Pumping Rate: 135 gpm Time Pump Began: 1415 am / pm Time of Sampling: 145/ am / pm Sample EH: -//7.3 Odor: Subscription Turbidity Gallons SEQ NTU Removed # Comments:
Dedicated Equipment: Yes No Well Purged Dry? Yes Yes Time Purged Dry? Duplicate Sample? Yes Duplicate Sample? Yes No ID:	Pumping Rate: $1 \ge 5$ gpmTime Pump Began: 141.5 am / pmTime of Sampling: $145/$ am / pmSample EH: $-//7.3$ $Oregan Phase:NOICOdor:Odor:54.424rcusTurbidityGallonsSEQTurbidityGallonsSEQNTURemoved#2.931$
Dedicated Equipment:(Yes) NoWell Purged Dry?Yes NoTime Purged Dry?Duplicate Sample?Yes NoID:Sample Appearance:General:General: $(2aC)$ Color: Λ TimepHSpecificTempCond.°CNoNo1427 p 1439 p <	Pumping Rate: $1 \ge 5$ gpmTime Pump Began: 1415 am / pmTime of Sampling: 1451 am / pmSample EH: $-//7.3$ Correst Phase: $\Lambda/000$ Odor:Standard LargeSEQTurbidityGallonsSEQNTURemoved#Q.931I.9Q2
Dedicated Equipment:(Yes) NoWell Purged Dry?Yes NoTime Purged Dry?Duplicate Sample?Yes NoID:Sample Appearance:General:General: $(2aC)$ Color: Λ TimepHSpecificTempCond.°CNoNo1427 p 1439 p <	Pumping Rate: $1 \ge 5$ gpmTime Pump Began: 1415 am / pmTime of Sampling: 1451 am / pmSample EH: $-//7.3$ Correst Phase: $\Lambda/000$ Odor:Standard LargeSEQTurbidityGallonsSEQNTURemoved#Q.931I.9Q2
Dedicated Equipment:(Yes) NoWell Purged Dry?Yes NoTime Purged Dry?ToDuplicate Sample?Yes NoID: $(2af)$ Sample Appearance:General:General: $(2af)$ Cond.Color:TimepHCond.°C1427 $(2af)$ 1439 $(2af)$ <	Pumping Rate: $1 \ge 5$ gpmTime Pump Began: 141.5 am / pmTime of Sampling: $145/$ am / pmSample EH: $-//7.3$ Correst Phase: Λ/OOO Odor:SupportState of SupportTurbidityGallonsSEQTurbidityGallonsSEQNTURemoved#Q. 931I. 9Q
Dedicated Equipment:(Yes) NoWell Purged Dry?Yes NoTime Purged Dry?Duplicate Sample?Yes NoID:Sample Appearance:General:General: $(2aC)$ Color: Λ TimepHSpecificTempCond.°CNoNo1427 p 1439 p <	Pumping Rate: $1 \ge 5$ gpmTime Pump Began: 141.5 am / pmTime of Sampling: $145/$ am / pmSample EH: $-//7.3$ Correst Phase: NOV Odor:SupportStatutorTurbidityGallonsSEQTurbidityGallonsSEQNTURemoved#2.930.493

Comments:

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 $\left\{ \begin{array}{c} \cdot \\ \cdot \end{array} \right\}$

Groundwater Assessme	nt		Site:	Otter T	ail Pow	er Co./ Hoot Lake
Sampling Personnel:		-	Facility ID:	SW-21	1	
m	<u>\$</u>		Date: 16(x719		
			Unique Statio	n ID: 80634	1	
			Sample ID:	S-10R		
Well Labeled? Yes	No No No		Protective Po State ID Tag? Grout Seal In	? (Yes)		No No No
Well Information						
Well Depth: SGG	2		Well Casing I	Elevation:		1281.47
Constructed Depth: 57.00			Static Water		190	8.77
Casing Diameter: 2"			Previous Stat	ic: 1211.3	7	<u> </u>
Water Level Before Purge:	72.70		Water Level /	After Sample:	Bel	autemp
Well Volume: 1.29	Gallons	-	Measuremen	t Method:	Elec. V	NLI Šteel Tape
Sampling Information	/ 1		<u> </u>			
Weather Conditions: Temp:	40	Wind: LO	0	Sky: c	loud	Y
Sampling Method: Grundfo		Disp. Bailer		Grab Other:		
	No		Pumping Rat			gpm
Well Purged Dry? (Yes)	No		Time Pump E		<u>214</u>	am / (pm)/
Time Purged Dry? Ta	19		Time of Sam	<u> </u>	324	am / pm
Duplicate Sample? Yes (<u>No)</u> ID:		Sample EH:		.8	
Sample Appearance: Gener	al: Cloudy	Color: ton	Phase	: Lt. Se	<u>d.</u>	Odor: None
Time pH Cond.	°C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1219 6.95 73	9.13	4.29	142.1	1.25	1	
1224 6.91 74	4 9.01	5.39	35.5	\frown	2	rehorge
					3	
					4	
					5	
1 I I	1					

Comments:

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Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
MS	Date: 16007-19
	Unique Station ID: 632810
	Sample ID: S-13
Well Condition Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No Repairs Necessary: No No	Protective Posts?YesNoState ID Tag?YesNoGrout Seal Intact?YesNo
Well Information	
Well Depth: 90.27	Well Casing Elevation: 1296.423
Constructed Depth: 90.19	Static Water Elevation: 1210-82
Casing Diameter: 2"	Previous Static: (310.8)
Water Level Before Purge: 85.60	Water Level After Sample: 55.71
Well Volume: 076 Gallons	Measurement Method: Elec. WI Steel Tape
Sampling Information	
Weather Conditions: Temp: 40 Wind:	LOU Sky: Claudy
Sampling Method: Grundfos (Bladder SSAT Disp. Ba	
Dedicated Equipment: (Yes) No	Pumping Rate: 0.25 gpm
Well Purged Dry? Yes No	Time Pump Began: 1236 am /(pm)
Time Purged Dry?	Time of Sampling: 1248 am / Om
Duplicate Sample? (Yes) No ID: Diplicate	
Sample Appearance: General: را لحضر Color:	none Phase: neme Odor: Sulfaren
Time pH Specific Temp D. O. Cond. °C mg/L	Turbidity Gallons SEQ NTU Removed # Comments:
1240 7.16 681 9.06 5.	09 9.6 1
VA44 7.14 6.83 9.05 4.7	27 8.1 2 2
	69 7.9 3 3
	4
	5
Stabilized? Yes No Amou	int Water Removed: <u>3</u> Gallons

Comments:

-

Stole

ł

Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
M5	Date: 1600-19
	Unique Station ID: 806342
	Sample ID: S-14R
Well Condition Yes No Well Locked? Yes No Well Labeled? Yes No Casing Straight? Yes No Repairs Necessary: Ves No	Protective Posts? Yes No State ID Tag? Yes No Grout Seal Intact? Yes No
Well Information	
Well Depth: <u>\$ 7.</u> []	Well Casing Elevation: 1280.61
Constructed Depth: 70.86	Static Water Elevation: 1261.71
Casing Diameter: 2"	Previous Static: 1201, L(S
Water Level Before Purge: 75.9 C/	Water Level After Sample: 79.03
Well Volume: 1.33 Gallons	Measurement Method: (Elec. WL) Steel Tape
Sampling Information	
	Vind: LOU Sky: Cloudy
	Disp. Bailer Whale Grab Other:
Dedicated Equipment: Kes No	Pumping Rate: 6.25 gpm
Well Purged Dry? Yes No	Time Pump Began: (14) (am) pm
Time Purged Dry?	Time of Sampling: 204 (am) / pm
Duplicate Sample? Yes No ID:	<u>Sample EH: ~34.6</u>
Sample Appearance: General: Clear C	Color: nere Phase: nere Odor: Sulfuraus
	D. O. Turbidity Gallons SEQ ng/L NTU Removed # Comments:
1146 6.91 809 9.13	4,15 60,2 1.5 1
1152 6.79 786 8.82	2.25 16.1 3.0 2
1158 6.75 775 8.78	232 13,2 4,5 3
404 6.73 773 8.78	2.15 15.7 6.0 4
	5
Stabilized? Yes No A	Amount Water Removed: 6. C Gallons
Comments:	

that to use vacaum on control Box.

Page:



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FINAL REPORT COMPLETION DATE: 31 Dec. 1904

Date Reported: 24 Dec 2019

JOSH HOLLEN OTTER TAIL POWER CO PO BOX 496 FERGUS FALLS MN 56538-0496 Work Order #: 31-0622 Account #: 006106 PO #: 48679

1 of 5

Project Name: HOOT LAKE PLANT

ager/Date Field Reviewe Dec19 Lab Manager/Date Reviewed Chemistry 21Dar2019 D fr 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.

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CERTIFICATE of ANALYSIS - CCR

MVTI

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

Project Name: HOOT LAKE PLANT

Sample Description: S-2A

Page: 2 of 5

Report Date: 24 Dec 2019 Lab Number: 19-A63827 Work Order #: 31-0622 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Dec 2019 10:47 Sampled By: MVTL FIELD PERSONNEL Date Received: 16 Dec 2019 15:34 PO #: 48679

Temp at Receipt: 4.1C

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
pH, Field Fluoride	6.62 units 0.340 mg/L @ See Narrative	1.00 0.020	SM4500-H+-2011 EPA 300.0	16 Dec 19 10:47 20 Dec 19 10:10	BMW RMV

 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

Project Name: HOOT LAKE PLANT

Sample Description: S-3A-R

Page: 3 of 5

Report Date: 24 Dec 2019 Lab Number: 19-A63828 Work Order #: 31-0622 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Dec 2019 12:06 Sampled By: MVTL FIELD PERSONNEL Date Received: 16 Dec 2019 15:34 PO #: 48679

Temp at Receipt: 4.1C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
pH, Field	7.16	units	1.00	SM4500-H+-2011	16 Dec 19 12:06	
Chloride	11.3	mg/L	3.0	SM 4500 Cl E	18 Dec 19 8:19	



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: HOOT LAKE PLANT

Sample Description: S-13

4 of 5 Page:

Report Date: 24 Dec 2019 Lab Number: 19-A63829 Work Order #: 31-0622 Account #: 006106 Sample Matrix: GROUNDWATER Date Sampled: 16 Dec 2019 11:19 Sampled By: MVTL FIELD PERSONNEL Date Received: 16 Dec 2019 15:34 PO #: 48679

Temp at Receipt: 4.1C

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
pH, Field Fluoride	7.30 units 0.410 mg/L @ See Narrative	1.00 0.020	SM4500-H+-2011 EPA 300.0	16 Dec 19 11:19 20 Dec 19 10:10	

 KL = Reporting Limit

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

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

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

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

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





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Page: 5 of 5

INORGANIC & METALS ANALYSES:

Due to the high concentration of fluoride in the spiked sample, the recovery for the matrix spike duplicate was outside of acceptance range for samples 19-A63827 and 19-A63829. Data was reported based on the acceptable recovery of fluoride in the knowns and the relative percent difference between the matrix spikes.

No other problems were encountered with these analyses.

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

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MEMBER ACIL

Page: 1 of 1

Quality Control Rep	ort																
Lab IDs: 19-A63827 to 19-A6	63829	Pro	ject: HC	OT LAK	E PLANT	1	Work		01931-06				1		1	1	T
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 (<)	Rec	Known % Rec Limits	Method Blank
Chloride mg/L		-		60.0 60.0	19-A63908 19-A63382	131 3.2	192 61.3	102 97	86-117 85-115	192 61.3	189 62.8	97 99	1.6 2.4	5 5	100	90-110	< 3
Fluoride mg/L	-	-	-	2.00 0.40	19-D4259 19-A63049	5.70 1.19	7.36 1.58	83 97	80-120 80-120	7.36 1.58	7.20 1.59	75 100	2.2 0.6	10 10	102	90-110	< 0.02

Approved by:

Minnesota Valley Testing Laboratories

 1126 North Front Street
 New Ulm, MN 56003

 Phone: 800 782 3557
 Fax: 507 359 2890

This is an exact copy of the original document By <u>Date 16 D</u>ec19 pages 1-5

Field Service Chain of Custody Record

Project Nar	ne:	Otter Tail Powe		Project	Type:	CCR			Na	me	of Sa	amp	lers	- [32	~	W	ste'r			
	<u></u>	Hoot Lake Plan	nt			Carlean MaCa			_						Λ.	1.L	L	C1.12			
		wer Company		Carbon C	copy:	Carlson McCa				iote I	lum	hor:			14	UN F	-	STC			
Attn:	Paul Vukonic			Attn:		Megan Lindstr	om								21	Ā	10				
Address:	P.O. Box 496		2	Address	<u>.</u>					ork C b Nu	mbo	re'	nbe	<u>-</u> - 2	21	- 0	00	2			
Dhanai	218-739-834	, MN 56038-0496	0							DINU	mbe	13.									
Phone:		ample Informa	ation							E	Bott	le T	уре						Ar	nalysis	
		/	1		1	1		TT	1	7	$\overline{1}$		_	1	4	1	7				1
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	VOC Set	1000-000E	1000 HNO3	Filler? V	500 HNO3	Filter? Y or M	500H2SO4	1000 Amber H200	500 NaOH	Other: 150 H200	Other 150 North	Analysis Required			
A63827	S2A		16A-cu	1047	GW			X										See Atta	atched	F	
28	S3AR				GW			X											U		
29	S-13				GW			X					:						F	2,	
Comments	CCR wells					·)			•					
Samples R	elinquished By	y: 7111	XX	\mathcal{I}				mples					- 1	p	la	(h)	1				-
Date: 16 [PC19				Temp:		Da	te: į (,	, pi	019			Time	é: (15	31	1	Temp:	4.10	1	
	elinquished in		Fridge	Log in C	art	Other:															_
	elinquished By	y:	· · · · · · · · · · · · · · · · · · ·			·		mples	Rec	eivec	By:						 	_			
Date:			Time:		Temp:		Da		mbar	(a)	flle		Time	e:			-	Temp:			_
Delivery:		Samplers	Other:		Other			al Nur als Inf		(S) - I		ea Yes			No						
Transport:		Ambient	(Ice)		Other:		Sea	ais ini	act?		Second A	res			NO						

Hoot Lake

3 wells 12/16/19

COC

Jeff Hoffman

From:	Hollen, Josh <jhollen@otpco.com></jhollen@otpco.com>
Sent:	Tuesday, November 26, 2019 2:51 PM
То:	Jeff Hoffman
Subject:	Hoot Lake - Additional Groundwater sampling needed

Jeff,

We just discussed this on the phone. We need to have 3 wells resampled at our Hoot Lake plant. This is CCR groundwater sampling. Let's get it scheduled.

Two wells need to be resampled for Fluoride, those wells are S-13 and S-2A.

One well needs to be resampled for Chloride, that well is S-3AR.

Let me know when it is scheduled, I will be there to meet the samplers. Also, let me know if you need anything else.

Thanks.



Josh Hollen Environmental Compliance Specialist Environmental Services Dept. Phone: (218) 739-8314



1

Groundwater Assessme	ent		Site:	Otterta	ail Powe	r Co./Hoot Lake
Sampling Personnel:			Facility ID:	SW-2′	11	
Ben wort			Date: 1(0	Dec 19		
Matt Stin			Unique Statio	on ID: 44435	0	
			Sample ID:	S-2A		
Well Condition				~		
Well Locked?	No		Protective P			No
Well Labeled? Yes	No		State ID Tag			(No)
Casing Straight? Yes	No		Grout Seal II	ntact? (Yes)		No
Repairs Necessary:						
Well Information	•					
Well Depth: 79.	62		Well Casing	Elevation:		1273.776
Constructed Depth: 79.63			Static Water	Elevation:	198.4	/}
Casing Diameter: 2"			Previous Sta	atic: 1197, -	77	
Water Level Before Purge:	75.35		Water Level	After Sample	: 75.	<u>25</u>
Well Volume: , 70			Measuremer	nt Method:	Elec. V	VLI) Steel Tape
Sampling Information			,		L :	
Weather Conditions: Temp	: 12	Wind: L	lu	Sky:	Par	<u>`</u>
Sampling Method: Grundfo	os Bladder SSIT	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment: Kes	No		Pumping Ra	ite: <u>, 25</u>		gpm
Well Purged Dry? Yes	ND_		Time Pump		38	am pm
Time Purged Dry?	<u> </u>		Time of San	npling: /O	47	(am) pm
Duplicate Sample? Yes	(No) ID:		Sample EH:	-10.7		
	ral: Clear	Color: //	hase	e: NOIU		Odor: NCM
Sample Appearance: Gene						- -
		D. O.		Gallons	SEQ	• -
Time pH Cond	ific Temp . ^o C		Turbidity NTU			Comments:
Time pH Cond	ific Temp . ^o C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ	
Тіте рН Солд 1041 (₀₋ 47 [,0	ific Temp . °C フダ フ・ダダ	D. O. mg/L //. (/	Turbidity	Gallons	SEQ #	
Тіте рн Speci Гочі (₀₋ ч7 /0 ⁻¹ 1044 (₀₋ 5(о /08	ific Temp ^o C コダ フ・ダダ えび フ・家子	D. O. mg/L //. (61 //-56	Turbidity NTU O·O O·O	Gallons Removed	SEQ # 1	
Тіте рН Солд 1041 (₀₋ 47 [,0	ific Temp ^o C フタ フ・タタ えの フ・家 3	D. O. mg/L //. (/	Turbidity NTU	Gallons Removed . 75 /-͡s o	SEQ # 1 2	
Тіте рн Speci Гочі (₀₋ ч7 /0 ⁻¹ 1044 (₀₋ 5(о /08	ific Temp ^o C コダ フ・ダダ えび フ・家子	D. O. mg/L //. (61 //-56	Turbidity NTU O·O O·O	Gallons Removed . 75 /-͡s o	SEQ # 1 2 3	
Тіте рн Speci Гочі (₀₋ ч7 /0 ⁻¹ 1044 (₀₋ 5(о /08	ific Temp ^o C コダ フ・ダダ えび フ・家子	D. O. mg/L //·(6/ //·5(6 //.2(0	Turbidity NTU O·O O·O	Gallons Removed . 75 /-So 2 - 25	SEQ # 1 2 3 4	

Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment	site: Ottertail POVEr Co. / HOOT Lake
Sampling Personnel:	Facility ID:
Ber wolf	Date: 16 Aec 14
Mailt Stell	Unique Station ID:
	Sample ID: S-3A-R
Well Condition Well Locked? Yes Well Labeled? Keg Casing Straight? Yes Repairs Necessary: No	Protective Posts? (Yes) No State ID Tag? (Yes) No Grout Seal Intact? Yes (No)
Well Information	
Well Depth: 78.40	Well Casing Elevation: ノンフノ- ちん 2
Constructed Depth: うち・イン	Static Water Elevation: 1203. 37
Casing Diameter: 7 ¹¹	Previous Static: 1203.22
Water Level Before Purge: (19	Water Level After Sample: US.19
Well Volume: / () Gallons	Measurement Method: Elec. We Steel Tape
Sampling Information	
Weather Conditions: Temp: 12 Wind	: LUV sky: Fach
Sampling Method: Grundfos Bladder SSP Disp. E	
Dedicated Equipment: (Yes) No	Pumping Rate: - 25 gpm
Well Purged Dry? Yes N	Time Pump Began: 1/3/ arr / pm
Time Purged Dry?	Time of Sampling: 1204 am 100
Duplicate Sample? Yes No DID:	Sample EH: -30-9
Sample Appearance: General: Cloudy Color	: Tan Phase: Light sed. Odor: Nonu
Time pH Specific Temp D. O. ^O C mg/L	NTU Removed # Comments:
1138 7.10 749 6.56 9.1	9 57.4 1.75 1
1145 7.13 744 6.66 8.	40 46.5 3.50 2
1152 7.15 736 6.72 8.	
1159 7,14 730 677 7.	(1 34,9 7.00 4
	91 33.4 8.75 5
	unt Water Removed: 8 · 15 Gallons

Comments:

A sumple became cloudy during sampling

Groundwater Assessment		Site:	Ottertail Pow	er Co./Hoot Lake
Sampling Personnel:		Facility ID:	SW-211	
Ben wolf		Date: 110 Dec	19	
Matt Stain		Unique Station ID		
		Sample ID:	S-13	
Well Condition	<u> 2000 - 1995 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997</u>			
Well Locked? Yes No		Protective Posts?	(Yes)	No
Well Labeled? Yes No		State ID Tag?	reg	No
Casing Straight? Yes No		Grout Seal Intact?	? Yes)	No
Repairs Necessary:				
Well Information				
Well Depth: 90-27		Well Casing Eleve	ation:	1296.423
Constructed Depth: 90.19		Static Water Elev	ation: 12/1/2	23
Casing Diameter: 2"		Previous Static:	1210.82	
Water Level Before Purge: \$5.19		Water Level After	Sample: \$5	. 25
Well Volume: • 83 0	Gallons	Measurement Me	thod: Elec.	WIA Steel Tape
Sampling Information				
Weather Conditions: Temp:) Wind	: LU	sky: Fai	×
Sampling Method: Grundfos	Bladder SS/T Disp. E	Bailer Whale Grab	Other:	Part
Dedicated Equipment: Yes No		Pumping Rate:	, 25	gpm
Well Purged Dry? Yes No		Time Pump Bega	n: 1107	(am)/ pm
Time Purged Dry?		Time of Sampling	: 1119	am / pm
Duplicate Sample? Yes 😡 I	ID:	Sample EH: 19	6	
Sample Appearance: Constal: 1	lea- Color	· NOJU Phase: L.	ght sed.	Odor: Sulfura
Sample Appearance: General: 🏒				
	Temp DO	Turbidity	, 	
Specific	Temp D. O. ^o C mg/L		, 	Comments:
Time pH Specific	^o C mg/L	NTU Rem	ons SEQ oved #	Comments:
Time pH Specific Cond. 1111 7,29 760	<u>^</u>	NTU Rem 35 10-4	ons SEQ	Comments:
Time pH Specific Cond. G 1111 7.29 760 115 7.30 759	°C mg/L 8/16/8/2 8/20/8/2	NTU Rem 35 10-4 37 6-7 -	ons SEQ oved # 1 2 2	Comments:
Time pH Specific Cond. G 1111 7.29 760 115 7.30 759	°C mg/L 8/16/8/2 8/20/8/2	NTU Rem 35 10-4 37 6-7 -	ons SEQ oved # 1 2 3 3 3	Comments:
Time pH Specific Cond. G 1111 7.29 760 115 7.30 759	°C mg/L 8/16/8/2 8/20/8/2	NTU Rem 35 10-4 37 6-7 -	ons SEQ oved # 1 2 3 3 4	Comments:
Time pH Specific Cond. G 1111 7.29 760 115 7.30 759	°C mg/L 8.16 R 8.20 R 8.24 R 24 R 2	NTU Rem 35 104 37 6.7 - 39 4.5 .	ons SEQ oved # 1 2 3 3 3	Comments:

Exceptions to Protocol:

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