# **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



15650 36<sup>th</sup> Ave N, Suite 110 Plymouth, MN 55446 Tel 952-346-3900 Fax 952-346-3901 www.carlsonmccain.com

**ENVIRONMENTAL • ENGINEERING • LAND SURVEYING** 

### **TABLE OF CONTENTS**

		DUCTION	
	T.T 1 (	urpose and Scope	
	2.1 G 2.2 20 2.3 20	NDWATER MONITORING AND CORRECTIVE ACTION PROGRAM	2 2
3.0	REFERE	ENCES	4
Figure	e 1	FIGURES Site Map and CC Groundwater Monitoring System	
Annoi	ndiv A	APPENDICES  Laboratory Data	

Carlson McCain, Inc.

### 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:

2019 Groundwater Monitoring and Corrective Action Report Hoot Lake Plant Ash Landfill Otter Tail Power Company

- 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).

2019 Groundwater Monitoring and Corrective Action Report Hoot Lake Plant Ash Landfill Otter Tail Power Company

### 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**





### 2019 CCR Annual Monitoring Report

Hoot Lake Plant Ash Landfill Otter Tail Power Company Fergus Falls, Minnesota FIGURE 1
SITE MAP AND
CCR GROUNDWATER
MONITORING SYSTEM

# Appendix A Laboratory Data





Page:

1 of 9

FINAL REPORT COMPLETION DATE:

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

Chemistry Lab Manager/Date Reviewed

+W 050 May 2019

ality Assurance Director/Date Reviewed

RL = Reporting Limits

NQ = Not Present, Qualitative Only

PQ = Present, Qualitative Only

ND = Not Determined





2 of 9 Page:

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

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

<sup>\*</sup> Holding Time Exceeded

RL = Reporting Limit





3 of 9 Page:

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

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
pH Hq	* 7.0	units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	89.4 @	mq/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	mq/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

<sup>\*</sup> Holding Time Exceeded

RL = Reporting Limit

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





4 of 9 Page:

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

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
рН	* 7.0	units		1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	50.7	mq/L		5.0	ASTM D516-07	25 Apr 19 8:40	KCD
Chloride	12.3	mq/L		3.0	SM 4500 Cl E	25 Apr 19 10:07	SS
Solids, Total Dissolved	438	mq/L	٠.	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	

<sup>\*</sup> Holding Time Exceeded

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





5 of 9 Page:

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

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
рН	* 6.9	units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	84.2 @	mq/L	5.0	ASTM D516-07	25 Apr 19 8:40	KCD
Chloride	15.5	mq/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	$\mathtt{AL}$
Calcium	105.0	mg/L	0.500	SW6010C	29 Apr 19 11:53	KAM
Boron	< 0.1	mq/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	

<sup>\*</sup> 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:

0 = Due to sample matrix # = Due to concentration of other analytes | = Due to sample quantity + = Due to internal standard response |

1 = Due to sample quantity + = Due to internal standard response |

1 = Due to sample MICRO # 1013-M ND WW/DW # R-040

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





6 of 9 Page:

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

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					25 Apr 19	JMS
pH, Field	7.33	units	1.00	SM4500-H+-2011	22 Apr 19 12:17	MS
pH	* 7.2	units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	105	mg/L	5.0	ASTM D516-07	25 Apr 19 8:40	KCD
Chloride	10.3	mg/L	3.0	SM 4500 Cl E	25 Apr 19 10:07	SS
Solids, Total Dissolved	540	mq/L	10	SM 2540 C-97	24 Apr 19 16:00	AL
Calcium	120.0	mq/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

<sup>\*</sup> Holding Time Exceeded





7 of 9 Page:

CERTIFICATE of ANALYSIS - CCR

Project Name: HOOT LAKE PLANT

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

Sample Description: S13

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		, Autoritination .			25 Apr 19	JMS
pH, Field	7.09	units	1.00	SM4500-H+-2011	22 Apr 19 13:05	MS
рН	* 6.9	units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	68.7 @	mq/L	5.0	ASTM D516-07	25 Apr 19 8:59	KCD
Chloride	6.3	mg/L	3.0	SM 4500 Cl E	25 Apr 19 10:26	SS
Solids, Total Dissolved	503	mg/L	10	SM 2540 C-97	24 Apr 19 16:00	AL
Calcium	114.0	mq/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	0.200 @	mg/L	0.020	EPA 300.0	26 Apr 19 17:45	

<sup>\*</sup> Holding Time Exceeded



### MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



8 of 9 Page:

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

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				25 Apr 19	JMS
pH, Field	7.01 units	1.00	SM4500-H+-2011	22 Apr 19 11:36	MS
pH Hq	* 7.0 units	1.0	SM 4500 H+ B-2000	24 Apr 19 12:08	DK
Sulfate	88.9 @ mg/L	5.0	ASTM D516-07	25 Apr 19 8:59	KCD
Chloride	5.0 mg/L	3.0	SM 4500 Cl E	25 Apr 19 10:26	SS
Solids, Total Dissolved	606 mg/L	10	SM 2540 C-97	24 Apr 19 16:00	AL
Calcium	123.0 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	0.220 @ mg/L	0.020	EPA 300.Ó	26 Apr 19 17:45	RMV

<sup>\*</sup> Holding Time Exceeded

AL = 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





9 of 9 Page:

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

# MINNESOTA VALLEY TESTING LABORATORIES, INC.

MVTL

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

**MEMBER ACIL** 

Page: 1 of 1

Quality Control Report Lab IDs: 19-A17492 to 19-A17498 Work Order: 201931-0148 Project: HOOT LAKE PLANT

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec	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	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	<3 <3
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

Approved by:

1126 North Front Street

New Ulm, MN 56003

Phone: 800 782 3557

Fax: 507 359 2890

### Field Service Chain of Custody Record

Project Na	me:	Otter Tail Pow		Project	Type:	CCR			ļ	Nam	ne o	f Sa	mpl	ers:	M٩	عركم	· 5	itein				
		Hoot Lake Pla	nt		· ·	O-1 M-0-									Ý	Ben	e i l	4				
		ower Company		Carbon	Copy:	Carlson McCa			-	<u> </u>	4- N	l k					. W	011				
Attn:	Paul Vukoni			Attn:		Megan Lindstr	om					<u>lumk</u>		nhar	2	, ,	<i>7</i> 1 <i>2</i>	1/0				
Address:	P.O. Box 49			Address	<u>:</u>			Work Order Number: 31-0148 Lab Numbers:														
		s, MN 56038-049	96						1	_ab	Nur	nper	<u>S.</u>									
Phone:	218-739-83				Bottle Type										lvoio	_						
		Sample Inform	ation						, ,	,	, B	Otti	e ij	/pe				<del>, ,</del>		Alla	lysis	
Lab Number	Sample ID	Unique Station ID	Date	Time	Sample Type	Sample Location	VOCSA	1000 none	1000 HNO3	500 HNO3	Filter? Y or 1:	500 HNO3	Filler? Y or N	500H2SO4	1000 Amber H2SO4	Oth NaOH	Other 150 H2SO4	Analysis	, required			
A17492	S2A		2242019	1334	GW			1		1	N	}						See	Attato	ched		
93	S3AR		1	1611	GW			1		1	N											
94	S51		-	140)	GW		<b>†</b>	1	<u> </u>	1	N			$\top$								7
95	<del></del>		<del></del>	1449	GW		+	1	_		N	_	1	十	$\top$	$\top$		1				
	S52			<del>                                     </del>	<del> </del>		-	1		-+	N	$\neg \dagger$		$\dashv$	+			<u> </u>				_
96	S10R			1217	GW		-			-+	N			$\dashv$	-	-	1					-
97	S13			1305				1	$\dashv$			$\dashv$				+		<del>                                     </del>				$\dashv$
98	S14R		<u></u>	1136	GW		_	1		1	N	$\dashv$		_	_	-	-					_
																		<u> </u>				_
Comments	: CCR wells										4.				-0-	•						<del>-</del>
Samples R	telinquished E	y: Mach					Sa	mple	s Re				1	/	,	di						_
Date: 34019 Time: 15					Temp	0.6 TM7821	Da	te: ے	23	AA	20	19		Γime	: [.	21	<u>(p</u>	Tem	p: <i>0</i>	. 6 C		_
Samples R	Log in (		Other:				1												_			
Samples R	Samples Relinquished By:						Samples Received By:							_								
Date:					Temp:	1	Date: Time: Temp:															
Delive Samplers Other:				Se		Seal Number(s) - If Used					_											
Transport:							Seals Intact? Yes No															

9/11 y cen

# Hoot Lake Site CCR Sampling - 20

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

The X

1000 Nones 500 HADS TOTAL

# )19

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

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

\* Field and Laboratory Measurements

Total Concentration Parameters	N.	/lethod
Boron		6010
Calcium		6010
Chloride	SM4	1500 CL E
Fluoride	E	PA 300
pH	J SM 4	500 H+B-96
Sulfate	AS	TM D516
Dissolved Solids, Total	SM	2540 C-97

New Ulm, MN 56073

507 354 8517

Groundwater Asse	essment			Site:	Ottert	ail Powe	r Co./Hoot Lake
Sampling Personnel:				Facility ID:	SW-2	11	
Ben	1016			Date: 🔎	405/19		
	· · · · · · · · · · · · · · · · · · ·	-		Unique Station			
		-		Sample ID:	S-2A		
Well Condition							
Well Locked?	(Yes) No			Protective Po	osts? (es		No
Well Labeled?	Yes No	- -		State ID Tag			<u>(10)</u>
Casing Straight?	(es) No	-		Grout Seal In	ntact? (Yes		No
Repairs Necessary:							
Well Information	٧ ٠٠٠٠٠						
Well Depth:	79.62	_		Well Casing	Elevation:		1273.776
Constructed Depth:	79.63	-		Static Water	Elevation: /	197.9	<i>Co</i>
Casing Diameter:	2"	-		Previous Sta	itic: //97. (	06	
Water Level Before Pur	ge: 75.8:	<u> </u>		Water Level	After Sample:	75	. 82
Well Volume:	62	Gallons	_	Measuremer	nt Method:	Elec. V	NE Steel Tap
Sampling Information	on			·			
Weather Conditions:	Temp:	01	Wind: N	EQ16	Sky:	Fair	
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	(es No			Pumping Ra	te: , 25		gpm
Well Purged Dry?	Yes (No)	_		Time Pump	Began: /3	25	am / m
Time Purged Dry?	_	_		Time of Sam	npling: 133	34	am / 🔝
Duplicate Sample?	Yes (No	ID:		Sample EH:	-60.4		
Sample Appearance:	General:		Color:	Phase	э:		Odor:
<u> </u>	T	Tanan	<u> </u>	<b>1_</b>	1	1050	
Time pH	Specific Cond.	Temp <sup>o</sup> C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1328 703	918	9.31	1.51	0.0	.75		Ochmica.
1		9.30	<del>                                     </del>	0.0		1	
			1.34	<del></del>	1.50	2	
1334 7.02	919	9.27	1.16e	0.0	2.25	3	
						4	
						5	
Stabilized? Yes	No		Amount Wa	iter Removed:	2,25		Gallons
Comments:		•	. (			<u> </u>	
		<i>y</i>					

New Ulm, MN 56073

507 354 8517

Groundwater Assessment	Site:	Otter	tail Power Co./Hoot Lake
Sampling Personnel:	Facil	ity ID: SW-2	211
MS	Date	: 23Apr19	
Bio	Uniq	ue Station ID: 6746	71
	Sam	ple ID: S-3A	-R
Well Condition Well Locked? Well Labeled? Casing Straight?  Repairs Necessary:  Well Condition Yes No Yes No Yes No	State	ective Posts? (es e ID Tag? / (es et Seal Intact? Yes	No No (Na)
Well Information			
Well Depth: 78,40	Well	Casing Elevation:	1271.562
Constructed Depth: 78.42	Station	c Water Elevation:	1203.30
Casing Diameter: 2"	Prev	ious Static: 13 63.	62
Water Level Before Purge: 68.26	Wate	er Level After Sample	: 68.31
Well Volume: 1.65 Gallo	ns Meas	surement Method:	Elec. WLI Steel Tape
Sampling Information			
Weather Conditions: Temp: 6	3 Wind: NE-1	Sky:	for
	SS/T Disp. Bailer Whale	e Grab Other:	
Dedicated Equipment:  Ves No	Pum	ping Rate: O	
Well Purged Dry? Yes (No)	Time	Pump Began:	5.56 am (pm)
Time Purged Dry?	Time	of Sampling:	/61\ am (pm)
Duplicate Sample? Yes No ID:	Sam	ple EH:	
Sample Appearance: General: Clear	Color: Nave	Phase: New e	Odor: Nove
Time pH Specific Temp Cond.	mg/L NTU	Removed	SEQ # Comments:
1557 7.20 996 9	83 26 0	,0 1.75	1
1604 7.14 999 9	69 ,40 0,	0 3.5	2
1611 7.12 99> 9	71 .53 0	.0 5.25	3
			4
			5
Stabilized? Yes No	Amount Water Re	moved: 5-0	- 5 Gallons
Comments:	<del></del>		

New Ulm, MN 56073

507 354 8517

Groundwater Ass	essment			Site:	Ottert	ail Powe	er Co./Hoot Lake
Sampling Personnel:				Facility ID:	SW-2	11	
Ben	Wolf	_		Date: 2ユ	Hpr. 119		
				Unique Stati	on ID: 81483	30	
		_		Sample ID:	S-51		
Well Condition							
Well Locked?	Yes No	<u>-</u>		Protective Po			<u>(60)</u>
Well Labeled?	Yes No	_		State ID Tag			No
Casing Straight?	€es No	-		Grout Seal II	ntact? Yes		No
Repairs Necessary:							
Well Information							
Well Depth:	55.60	_		Well Casing	Elevation:		1286.904
Constructed Depth:	55.60	_		Static Water	Elevation: /	235.8	37
Casing Diameter:	2"	_		Previous Sta	ntic: 1236	89	
Water Level Before Pu	rge: 51.03	}		Water Level	After Sample:	510	?3
Well Volume:	, 75	Gallons	_	Measureme	nt Method:	Elec. \	NLI Steel Tape
Sampling Informati	on					× (	
Weather Conditions:	Temp:	21	Wind: مرا	12016	Sky:	Fai.	
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	(es) No			Pumping Ra	te: , 25		gpm
Well Purged Dry?	Yes 😡	_		Time Pump	Began: /33	<u>52</u>	am / 🛍
Time Purged Dry?				Time of San	npling: 140	2/	am / (km)
Duplicate Sample?	Yes No	_ _ID:		Sample EH:	-114.8		
Sample Appearance:	General: ∠	Lear	Color: No	7 Phase	e: Light s	ted.	Odor: Sulfuro
7	Specific	Temp	D. O.	Turbidity	Gallons	SEQ	
Time pH	Cond.	°C	mg/L	NTU	Removed	#	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		9.00	1.40	1.0	2.25	3	
			1 '	1		4	
		1	•				
				<u> </u>	225	5	
Stabilized? Yes	No		Amount Wa	ter Removed:	2.25		Gallons
Comments:							

New Ulm, MN 56073

507 354 8517.

Groundwater Assessment		Site:	Otter	tail Powe	er Co./Hoot Lake
Sampling Personnel:		Facility ID:	SW-2	211	
Ber wolf		Date: 22	4pr.119		
		Unique Stati	on ID:		
		Sample ID:	S-52		
Well Condition					
Well Locked? (Yes No		Protective P			No
Well Labeled? (es) No		State ID Tag			No
Casing Straight? Yes No		Grout Seal I	ntact? (es/		No
Repairs Necessary:					
Well Information					
Well Depth: 88.30		Well Casing	Elevation:		1286.623
Constructed Depth: 88.30		Static Water	Elevation:	215.7	4
Casing Diameter: 2"		Previous Sta	atic: 12/5	92	
Water Level Before Purge: 70,88		Water Level	After Sample	: 70.	88
Well Volume: 2.84 Gallons		Measureme	nt Method:	Elec. \	NL Steel Tape
Sampling Information					
Weather Conditions: Temp: 61	Wind: ゃ	Legalo.	Sky:	Fai	^
Sampling Method: Grundfos Bladder SS/T	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment: (Fest No		Pumping Ra	ite: , 25	5	gpm
Well Purged Dry? Yes No		Time Pump	Began: 14	//3	am / m
Time Purged Dry?		Time of San	npling: 14	49.	am / pm
Duplicate Sample? Yes (No) ID:	_	Sample EH:	-121.9	•	
Sample Appearance: General: Clear	Color: //	ירט Phase	e: No 7 e	,	Odor: Sulfurou
T T- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1-					
10 10 10 10 10 10 10 10 10 10 10 10 10 1	D. O.	Turbidity	Gallons	SEQ	Comments:
Specific Temp	ma/l	MITH	Pomovod		
Time pH Cond. °C	mg/L	NTU (C)	Removed	#	Comments.
Time pH Cond. °C 1425 7.01 926 9.00	,24	0.0	3	1	Ochiments.
Time pH Cond. °C 1425 7.01 926 9.00 1437 7.01 926 9.01	,24	0.0	3		Comments.
Time pH Cond. °C 1425 7.01 926 9.00	,24	0.0	3	1	·
Time pH Cond. °C 1425 7.01 926 9.00 1437 7.01 926 9.01	,24	0.0	3	1 2	
Time pH Cond. °C 1425 7.01 926 9.00 1437 7.01 926 9.01	,24	0.0	3	1 2 3	
Time pH Cond. °C 1425 7.01 926 9.00 1437 7.01 926 9.01	,24	0.0	3 6	1 2 3 4	Gallons

New Ulm, MN 56073

Exceptions to Protocol:

507 354 8517

Groundwa	ater Asse	ssment			Site:	Otterta	ail Powe	er Co./Hoot La	ike
Sampling Pe	ersonnel:				Facility ID:	SW-2	11		
		MS			Date: JAN	wig			
					Unique Statio	on ID: 80634	11		
					Sample ID:	S-10F	{		
Well Cond		^				- ^1			
Well Locked	<del></del>	Yes No			Protective Po			No	
Well Labeled		Yes No			State ID Tag			No	
Casing Strai		Tes/ No			Glout Sear III	itact! 163		INO	
Repairs Nec									
Well Depth:		80:62			Well Casing	Elevation:		1281.47	
Constructed	Depth:	57.00			Static Water			211,37	
Casing Diam		2"			Previous Sta			9.15	
Water Level		~ 4	(1)		Water Level	After Sample:	180	an giver O	
Well Volume		,72	Gallons		Measuremen	nt Method:	(Elec)	WLI Steel	Тарє
Sampling	Informatio	n							
Weather Co		Temp:	54	Wind:	1-10	Sky:	For		
Sampling Mo	ethod:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:			
Dedicated E	quipment:	Yes No	(B)		Pumping Ra	te: 🕜	<u> 35</u>	gpm ·	
Well Purged	l Dry?(	Yes YNO-	-2	. (4)	Time Pump I	Began:	1158	(am̂ √	pm
Time Purged	d Dry? (313	7,	27×8°		Time of Sam	pling:	1217	am /	(pm)
Duplicate Sa	ample? 4	<del>Vest</del> No	ID: The	rectle	Sample EH:	~57	7.2		
Sample App	earance:	General:	ander	Color: ten	Phase	: re-e	-	Odor: Nor	<u>-ę</u>
7		Specific	Temp	D. O.	Turbidity	Gallons	SEQ		F17, 4 150
Time	рН	Cond.	°C	mg/L	NTU	Removed	#	Comments:	
1205	7.41	837	937	9.65	114.8	1.75	1		
1319	764	483	9.41	10.18	1098	3,5	2		
1-219						505	3		
1217	7.33	842	9.63	6.34	51,3		4	rechar	6
				1			5		
Stabilized?	Yes /	No	and the second s	Amount Wa	ter Removed:	<u>'</u> 3-5		Gallons	
Comments									
:			, ,	1 2 -					

New Ulm, MN 56073

507 354 8517

Groundwater Assessment			Site:	Ottert	ail Powe	er Co./Hoot Lake
Sampling Personnel:			Facility ID:	SW-2	11	
~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	<b>.</b>		Date: 3	P17946		
	_		Unique Station	on ID: 63281	0	
	_		Sample ID:	S-13		
Well Condition Well Locked? Well Labeled? Casing Straight?  Repairs Necessary:	-		Protective Po State ID Tag Grout Seal Ir	? / Yes		No No No
Well Information						
Well Depth: 90.27	_		Well Casing	Elevation:		1296.423
Constructed Depth: 90.19	_		Static Water	Elevation:	1210	18.C
Casing Diameter: 2"	_		Previous Sta	tic: 1210.	41	•
Water Level Before Purge: &S	5.61		Water Level	After Sample:	<u></u> 8	6.40
Well Volume: 6.76	Gallons	_	Measuremer	nt Method:	Elec.	WLI Steel Tap
Sampling Information Weather Conditions: Temp: Sampling Method: Grundfos	S G (Bladder SSA)	Wind: N	-10 to 15	Sky:	Fer	<u>~</u>
Dedicated Equipment: Ves No			Pumping Ra		)5	gpm
Well Purged Dry? Yes No	_	_ )	Time Pump I	Beganl J44 H	<del>) } {</del>	S and pm
Time Purged Dry?  Duplicate Sample?	- ( ); ID: ( );	JAM 19	Time of Sam	pling: 1	305 .8	am (pm)
Sample Appearance: General:	Duptat	Color: New	Phase	: Dare		Odor: Sulva
Time pH Specific Cond.	Temp <sup>O</sup> C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
1240 7,29 779	10.37	5.11	27.1	.	1	
7 1246 7.17 812	9.50	1.06	5.4	3	2	
1 1250 7.10 815	9.37	60.1	2.5	3	3	
1305 7.09 814	9.38	1.05	1.9	A	4	
					5	
Stabilized? Yes No		Amount Wat	er Removed:			Gallons
Comments: Dalcate	)					

New Ulm, MN 56073

507 354 8517

Groundwater Assessment		Site:	Otterta	ail Powe	r Co./Hoot Lake
Sampling Personnel:		Facility ID:	SW-2	11	
MS		Date: 22A	119		
		Unique Station	ID: 80634	2	
		Sample ID:	S-14R		
Well Condition					
Well Locked? Yes No		Protective Post			No
Well Labeled? Yes No		State ID Tag?	Yes		No
Casing Straight? Yes No		Grout Seal Inta	ct? Yes		No
Repairs Necessary:					
Well Information					
Well Depth: \$7.1\		Well Casing Ele	evation:		1280.61
Constructed Depth: 70.86		Static Water El	evation:	201,4	18
Casing Diameter: 2"		Previous Static	: (200	-61	
Water Level Before Purge: 79.13		Water Level Af	ter Sample:	79,1	8
Well Volume: にうる Gallons		Measurement I	Method:	etec. V	₩ Steel Tape
Sampling Information		<del> </del>			
Weather Conditions: Temp: 54	Wind: ん	-10	Sky:	Farr	
Sampling Method: Grundfos Bladder SS	À Disp. Bailer	Whale G	rab Other:		
Dedicated Equipment: Tes No		Pumping Rate:	0,2	5	gpm
Well Purged Dry? Yes No		Time Pump Be		1119	(alm / pm
Time Purged Dry?		Time of Sampli	ing:	1136	ann / pm
Duplicate Sample? Yes No ID:	The second secon	Sample EH:	- 12		
Sample Appearance: General: Clay	Color: Nov	Phase:	vere		Odor: Sutherae
Specific Temp	D. O.	Thidifu	allons	SEQ	
	mg/L	1 1	lemoved	#	Comments:
1118 7.06 925 9.31		11.2	1 <i>ර</i> ති	1	
1124 7.03 921 9.20		85	3.0	2	
1130 7.03 916 9.16			4.5	<b>†</b>	<u> </u>
		4.9		3	
1136 7.01 918 911	7 5,17	1.1	6.0	4	
			-	5	
Stabilized? Yes No	Amount Wa	ter Removed:	6.0		Gallons
Comments:					





Page: 1 of 9

FINAL REPORT COMPLETION DATE: 8 NOV19

Date Reported: 4 Nov 2019

85NOV19

JOSH HOLLEN OTTER TAIL POWER CO PO BOX 496 FERGUS FALLS MN 56538-0496 Work Order #: 31-0500 Account #: 006106

PO #: 48679

Project Name: HOOT LAKE CCR

05Nov 19 Quality Assurance Director/Date Reviewed

RL = Reporting Limits

NQ = Not Present, Qualitative Only

PQ = Present, Qualitative Only

ND = Not Determined





2 of 9 Page:

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

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					22 Oct 19	JMS
pH, Field	6.79	units	1.00	SM4500-H+-2011	16 Oct 19 12:49	BMW
pH	* 6.9	units	1.0	SM 4500 H+ B-2000	18 Oct 19 12:50	AL
Sulfate	148 @	mg/L	5.0	ASTM D516-07	24 Oct 19 9:27	AKF
Chloride	< 3	mg/L	3	SM 4500 Cl E	23 Oct 19 10:32	SS
Solids, Total Dissolved	656	mg/L	10	SM 2540 C-97	22 Oct 19 16:10	NB
Calcium	135.0	mg/L	0.500	SW6010C	23 Oct 19 15:01	KAM
Boron	0.139	mg/L	0.100	SW6010C	23 Oct 19 15:01	KAM
Fluoride	0.480 @	mg/L	0.020	EPA 300.0	31 Oct 19 11:30	RMV

<sup>\*</sup> 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:

0 = Due to sample matrix
| = Due to concentration of other analytes
| = Due to sample quantity
| = Due to sample quantity
| = Due to internal standard response
| = Due to sample quantity | = Due to internal standard response | = D RL = Reporting Limit





3 of 9 Page:

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

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

<sup>\*</sup> Holding Time Exceeded





4 of 9 Page:

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

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

<sup>\*</sup> 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:

| Pue to sample matrix | = Due to concentration of other analytes | = Due to sample quantity | + = Due to internal standard response
| REPORTIFICATION: MN LAB # 027-015-125 | WI LAB # 999447680 | ND MICRO # 1013-M | ND WW/DW # R-040 RL = Reporting Limit





5 of 9 Page:

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

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 Receiv Result	As Received Result		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 mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1	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 RMV

\* Holding Time Exceeded

RL = Reporting Limit 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 matrix

! = Due to sample quantity

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





6 of 9 Page:

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

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 mg/L mg/L	1.00 1.0 5.0 3.0 10 0.500 0.1	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 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	AKF SS NB KAM KAM

\* Holding Time Exceeded

RE = 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

CERTIFICATION: MN LAB # 027-015-125

WI LAB # 999447680

ND MICRO # 1013-M

ND WW/DW # R-040



MINNESOTA VALLEY TESTING LABORATORIES, INC. 1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page: 7 of 9

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

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
Н	* 7.2	units	1.0	SM 4500 H+ B-2000	18 Oct 19 12:50	AL
Sulfate	76.0 @	mg/L	5.0	ASTM D516-07	24 Oct 19 9:45	AKF
Chloride	7.7	mq/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	mq/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

RL = Reporting Limit 



MINNESOTA VALLEY TESTING LABORATORIES, INC. 1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page: 8 of 9

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

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	6.73 * 7.1 78.7 @ 4.1 567	units units mg/L mg/L mg/L	1.00 1.0 5.0 3.0	SM4500-H+-2011 SM 4500 H+ B-2000 ASTM D516-07 SM 4500 C1 E SM 2540 C-97	22 Oct 19 16 Oct 19 12:04 18 Oct 19 12:50 24 Oct 19 9:45 23 Oct 19 10:32 22 Oct 19 17:34	AKF
Calcium Boron Fluoride	122.0 < 0.1 0.430 @	mg/L mg/L mg/L	0.500 0.1 0.020	SW6010C SW6010C EPA 300.0	23 Oct 19 15:28 23 Oct 19 15:28 31 Oct 19 18:21	KAM KAM RMV

\* Holding Time Exceeded



MINNESOTA VALLEY TESTING LABORATORIES, INC. 1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



9 of 9 Page:

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

MVTL

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

MEMBER ACIL

Page: 1 of 1

Quality Control Report
Lab IDs: 19-A53390 to 19-A53396

Lab IDs: 19-A53390 to 19-A53396 Project: HOOT LAKE CCR Work Order: 201931-0500

Lab IDs: 19-A53390 to 19-A 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	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	555 593 55.5 91.8 97.5	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	104 108 102	80-120 80-120 80-120	< 5 < 5 < 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
1 P INSOLIA
By Date 170cf/9
pages 1-10
pages 1-10

<u>Project Nar</u>	ne:	Otter Tail P	ower Co		<b>Project</b>	Type:	CCR				Nam	ne o	of Sa	mple	ers: /	rat	45	Sije			1	
		Hoot Lake I															(In		1			
	Otter Tail Pov		У		Carbon (	Copy:	Carlson McCa									150	1	ررع	Flo			
Attn:	Paul Vukonic				Attn:		Megan Lindstr	om		1	Quo	te N	lumb	er:		7:	7	-00	`			
Address:	P.O. Box 496				<u>Address</u>	<u>:</u>					Wor	<u>k O</u>	rder	Num	ber:	31		200	J			
	Fergus Falls,		0496								Lab	Nur	mber	<u>s:</u>								
Phone:	218-739-834	9																				
	Sa	ample Info	rmation									В	ottl	е Ту						Analysi	s	
Lab Number	Sample ID	Unique Station ID	Date		Time	Sample Type	Sample Location	Voc Set	1000 none	1000 HNO3	500 HNO3	Filter? Y or A.	500 HNO3	Filter? Y or N	1000 Azi	500 NaOH	Other: 150 us	Other 150 No	Analysis Required			
A53390	S2A		160	CN9	BUL	GW			1			N							See Attato	ched		
91	S3AR			ſ	1335	ĞW			1		1	N										
92	S51				140.7	GW			1		1	N										
93	S52					GW			1		1	N										
94	S10R					GW			1	$\neg$	1	N										
95	S13				-	GW			1	$\neg$	1	N	$\top$	$\top$	$\top$							
96	S14R		1			GW		Н	1	$\dashv$	-	N		十	+	$\vdash$						
'/0	5 14 K		-		120	GVV	+		-+	$\dashv$	-+	IN	$\dashv$	+	+	+						
							<del> </del>	$\vdash$	+	-	$\dashv$	$\dashv$	$\dashv$	+	+	$\vdash$	$\vdash$	-				
							<del> </del>	-	$\dashv$	-	-	$\dashv$	$\dashv$	+	+-	-	$\vdash$	$\vdash$				
							1															
Comments:	CCR wells														1	0		•				
Samples Re	elinquished By	1990	1	7				Sar	nples	s Re	ecei	ved	Ву:	U	-/	Tu	de	er				
Date: i	70019		Tim	e: 127	30	Temp:	3.0 (M784)	Dat	e: /	70	ct	19		T	ime:	133	30		Temp: 3	. OC		
	elinquished int	io:	Frid	lge	Log in C		Other:															
Samples Re	elinquished By	r:						Sar	nple	s Re	ecei	ved	Ву:									
Date:			Tim			Temp:		Dat							ime:				Temp:			
Delivery:		Samplers	Oth									) - If	Use									
Transr		Ambient	(Îce	1		Other:	*	<b>ISea</b>	als In	tac	t?		,	es /		No					)	1

### 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

рН\*

<sup>\*</sup> Field and Laboratory Measurements

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

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

New Ulm, MN 56073

Groundwater Assessi	ment			Site:	Otter I	all Pow	er Co./ Hoot Lake
Sampling Personnel:				Facility ID:	SW-21	1	
Ber h	rolf			Date:	oct 16	J	
				Unique Statio			
				Sample ID:	S-2A		
Well Condition							
Well Locked?	S No			Protective Po			No
Well Labeled?	S No			State ID Tag?	The second secon	(	Nò) No
Casing Straight?	S No			Grout Seal Int	tact? Yes		INU
Repairs Necessary:							
Well Information	-010						
Well Depth:	79.62			Well Casing E	Elevation:		1273.776
Constructed Depth: 79	.63			Static Water I	Elevation: /	197	77
Casing Diameter: 2"				Previous Stat	ic: \$197.9	Ĉ6	
Water Level Before Purge:	7(0-01			Water Level A	After Sample:	76	201
Well Volume: , 5		llons		Measurement	t Method:	EJec. V	VL) Steel Tape
Sampling Information	1			_			
Weather Conditions: Te	emp: 41		Wind: Z		Sky: 🗸	10u	dy
Sampling Method: Gru	undfos Pla	dder SS/T	Disp. Bailer	Whale	Grab Other:		·
Dedicated Equipment: Ye	S No			Pumping Rate	e: <u>,25</u>	,	gpm
Well Purged Dry? Ye	s Mg			Time Pump B	egan: <i>[23</i>	7	am / pm)
Time Purged Dry?				Time of Samp	oling: 1290	6	am / pm
Duplicate Sample? Ye	es (No) ID:	-		Sample EH: -	-21-9		
Sample Appearance: Ge	eneral:	lear	Color: N		יושת:		Odor: 201
	ITA	mn I	<b>D</b> 0	[]	O-II	CEO.	
1 (1 1 1 1 1	pecific Te ond. °C	1	D. O. mg/L	, ,	Gallons Removed	SEQ #	Comments:
1240 6.80 1	1048 8	.82	,	0.0	75	Ĺ.	
		<del></del>	1.20 .94		100	1	
	063 8	80	P -	0.5	1.50	2	
1246 6.79 1	068 8	7.79	, 83	0.0	2.25	3	
· .						4	
						5	
Stabilized? Yes No	0		Amount Wat	er Removed:	2.25		Gallons

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

Groundwater Ass	essment			Site:	Otter T	ail Powe	er Co./ Hoot Lake
Sampling Personnel:				Facility ID:	SW-21	1	
	MS	_		Date: 16	00+19		
		<del>-</del>		Unique Static	on ID: 674671		
		-		Sample ID:	S-3A-R		
Well Condition Well Locked? Well Labeled? Casing Straight? Repairs Necessary:	(Yes) No (Yes) No	-		Protective Po State ID Tag' Grout Seal In	? (Yes		No No No
Well Information							
Well Depth:	78.40	_		Well Casing	Elevation:		1271.562
Constructed Depth:	78.42	<del>-</del>		Static Water			
Casing Diameter:	2"			Previous Sta	tic: 12-03	), 3C	3
Water Level Before Pu	rge: රිහි	.34_		Water Level	After Sample:		
Well Volume:	1.64	Gallons	_	Measuremen	t Method:	€lec. W	NI Steel Tape
Sampling Informati							
Weather Conditions:	Temp:	40	Wind: Low	<u> </u>	Sky: <	cloud.	4
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	(es) No	_		Pumping Rat			gpm /
Well Purged Dry?	Yes (No	<u> </u>		Time Pump E		314	am / pm
Time Purged Dry?		<del>-</del>	, or	Time of Sam	pling:	335	am / (pm)
Duplicate Sample?	Yes No	ID:	<del></del>	Sample EH:	3	7./	
Sample Appearance:	General:	Clear	Color: /V	Phase	: NON		Odor: Si Syllana
Time pH	Specific Cond.	Temp °C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	Comments:
132/ 6.80	726	8.85	1.22	29	1075	1	
1328 6.84	726	8,90	1-66	3.9	3.5	2	
1336 6.80	726	8.91	1.52	3.0	5,25	3	
						4	
						5	
Stabilized? Yes	No No		Amount Wa	ter Removed:	\$,25		Gallons
Comments:							

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

Groundwater Assessment	Site:	Otter Tail Pow	ver Co./ Hoot Lake
Sampling Personnel:	Facility ID:	SW-211	
Ben Wolf	Date: 1/0 0	oct 19	
<u> </u>	Unique Station	ID: 814830	
	Sample ID:	S-51	
Well Condition			
Well Locked? (es) No	Protective Post		<u>(10)</u>
Well Labeled? Yes No	State ID Tag? Grout Seal Inta	ct? Yes	No
Casing Straight? Yes No	Glodi Gedi Illia	ot: You	
Repairs Necessary: Well Information			
Well Depth: 55-60	Well Casing El	evation:	1286.9
Constructed Depth: 55.60	Static Water El	57 71	0.3/
Casing Diameter: 2"	Previous Static	: 1235.87	
Water Level Before Purge: 50-59	Water Level Af	ter Sample: 50	59
Well Volume: , 82 Gallons	Measurement I	Vlethod: E(ec. V	WLI) Steel Tape
Sampling Information		2	
Weather Conditions: Temp: 4/	Wind: LEU	Sky: <i>(10</i>	udy
Sampling Method: Grundfos Bladder SSIT	Disp. Bailer Whale G	rab Other:	
Dedicated Equipment: (Yés) No	Pumping Rate:		gpm
Well Purged Dry? Yes No	Time Pump Be	gan: 1347	am / om
Time Purged Dry?	Time of Sampli	ing: 1407	am / pm
Duplicate Sample? Yes (No) ID:	Sample EH: 4	<del>-97.</del> 2	
Sample Appearance: General: Clear	Color: ルッフン Phase:	Light Sed.	Odor: Sulfancus
Specific Temp	D. O. Turbidity G	Gallons SEQ	
Time pH Cond. OC	1	Removed #	Comments:
1351 7.41 802 8.50	2.05 72.5	/ 1	
1355 7.13 827 8.44	198 69.2	$\mathcal{Z}$ 2	i
1359 7.03 843 8.43	.80 56.4	3 3	
1403 7.61 845 8.43	1.64 20.7	4	
1407 7.01 844 8.43	,59 13.4	5 5	
Stabilized? Yes	Amount Water Rèmoved:	5	Gallons

Comments:

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

Groundwater Assessment		Site:	Otter T	ail Powe	r Co./ Hoot Lake
Sampling Personnel:		Facility ID:	SW-21	1	_
Ben Wolf		Date: / Co	oct 19		
		Unique Station			
		Sample ID:	S-52		
Well Condition					
Well Locked? Yes No	1	Protective Pos State ID Tag?			<u>10</u>
Well Labeled? Yes No Casing Straight? Yes No		Grout Seal Int			<u>40</u>
Repairs Necessary:					
Well Information					
Well Depth: 88-30		Well Casing E	Elevation:	1	286.62
Constructed Depth: 88.30		Static Water E	Elevation:	<u> 215.6</u>	7
Casing Diameter: 2"		Previous Stati	ic: 1218	5.74	
Water Level Before Purge: 70. 95		Water Level A	After Sample:	70.	95
Well Volume: 2 83 Gallons		Measurement	Method:	Elec. W	i)I Steel Tape
Sampling Information	1	<i>a</i>			,
	Nind: $\nu$	OV	Sky:	do	id y
Sampling Method: Grundfos Bladder SS/T)	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment: (Yes) No		Pumping Rate			gpm
Well Purged Dry? Yes (10)		Time Pump B	2 5	<u>5</u>	am / pm
Time Purged Dry?		Time of Samp		<u>/</u>	am / pm)
Duplicate Sample? Yes No ID:	·····	Sample EH:	-117.3		-
Sample Appearance: General: ( ) cut	Color: 1/C	シクシ Phase:	NOIL	. (	Odor: S4K400
	D. O.	Turbidity	Gallons	SEQ	
Time pH Cond. <sup>O</sup> C r	ng/L	NTU	Removed	# (	Comments:
1427 6.91 903 8.48	,26	2.9	<u> </u>	1	
1429 6 91 906 8.48	125	1.9	6	2	
1451 6.94 906 8.48	.25	0.4	ξ	3	
				4	
				<del> </del>	
			Ù	5	
Stabilized? Yes No	Amount Wa	ter Removed:	1		Gallons
Comments:					

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

Groundwater Assessment	Site:	Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID:	SW-211
ms	Date: 16 ()	CT19
	Unique Station	ID: 806341
	Sample ID:	S-10R
Well Condition Well Locked? Well Labeled? Casing Straight?  Repairs Necessary:	Protective Pos State ID Tag? Grout Seal Inta	(Yes) No
Well Information		
Well Depth: SQ62	Well Casing E	levation: 1281.47
Constructed Depth: 57.00	Static Water E	
Casing Diameter: 2"	Previous Station	c: 411.37
Water Level Before Purge: 72.		$\cdot > \cdot \cdot$
Well Volume: 1.24 Gal	s Measurement	Method: Elec. WLI Steel Tape
Sampling Information		
Weather Conditions: Temp:	) Wind: LOU	Sky: cloudy
Sampling Method: Grundfos Black	SS/T Disp. Bailer Whale	Grab Other:
Dedicated Equipment: Yes No	Pumping Rate	
Well Purged Dry? Yes No	Time Pump Be	
Time Purged Dry? 1219	Time of Samp	
Duplicate Sample? Yes No ID:	Sample EH:	13-8
Sample Appearance: General: Cla	Color: ton Phase:	Lt. Sed. Odor: New
Specific Tell Cond. Cond.		Gallons SEQ Removed # Comments:
73-	3 4.29 142.1	1.25 1
10/9/10/19		
1224 691 744	01 5.39 35.5	2 relorge
		3
		4
		5
Stabilized? Yes No	Amount Water Removed:	(,25 Gallons

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

Groundwater Assessment	Site: Otter Tail Power Co./ Hoot Lake
Sampling Personnel:	Facility ID: SW-211
<u> </u>	Date: 160C+19
	Unique Station ID: 632810
	Sample ID: S-13
Well Condition Well Locked? Well Labeled? Casing Straight?  Repairs Necessary:  Yes No Yes No Yes No	Protective Posts? Yes No State ID Tag? Yes No Grout Seal Intact? Yes No
Well Information	
Well Depth: 90・こて	Well Casing Elevation: 1296.423
Constructed Depth: 90.19	Static Water Elevation: 1 2 10- 82
Casing Diameter: 2"	Previous Static: (3)0.8
Water Level Before Purge: 85.6e	Water Level After Sample: \$5.71
Well Volume: 0 76 Gallons	Measurement Method: Elec. WL Steel Tape
Sampling Information	
Weather Conditions: Temp: 40 Wind:	LOU Sky: Claudy
Sampling Method: Grundfos Bladder SSAT Disp. Bail	
Dedicated Equipment: (Ves) No	Pumping Rate: 0.25 gpm
Well Purged Dry? Yes No	Time Pump Began: 1236 am /(pm)
Time Purged Dry?	Time of Sampling: 1348 am / m
Duplicate Sample? Yes No ID: Duplicate	Sample EH:
Sample Appearance: General: Claim Color:	nera Phase: rene Odor: Sulking
Time pH Specific Temp D. O. mg/L	Turbidity Gallons SEQ NTU Removed # Comments:
1040 7.16 681 9.06 5.0	9 9.6 1 1
NHH 7.14 6.83 9.05 4.7	
1248 7.12 685 9.04 4.6	
	4
	5
Stabilized? Yes No Amoun	t Water Removed: 3 Gallons
Commonto:	

Comments:

Exceptions to Protocol:

Shore

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

New Ulm, MN 56073

Groundwater Ass	essment			Site:	Otter 7	Tail Pow	er Co./ Hoot Lake
Sampling Personnel:	. [			Facility ID:	SW-21	11	
	_	Date: 160	C+19				
		_		Unique Station	on ID: 80634	2	
		-		Sample ID:	S-14R		
Well Condition Well Locked? Well Labeled? Casing Straight? Repairs Necessary:	Yes No Yes No Yes No	-		Protective Po State ID Tag Grout Seal In	? Yes		No No No
Well Information	<b>-</b> 2 ( )						
Well Depth:	11.58	-		Well Casing			1280.61
Constructed Depth:	70.86	-		Static Water	~		1.71
Casing Diameter:	2"	<del>-</del>		Previous Sta			0
Water Level Before Pu					After Sample:		9.03
Well Volume:	1.33	Gallons	_	Measuremer	t Method:	Elec. 1	NL) Steel Tape
Sampling Informati			,	<b>ሐ</b> ል 1		_ 1	,
Weather Conditions:	Temp:	40	Wind: Z	<u> </u>	Sky: (	<u> 2100</u>	1917
Sampling Method:	Grundfos	(Bladder SSEE)	Disp. Bailer	Whale	Grab Other:		
Dedicated Equipment:	(es) No	-		Pumping Rat			gpm
Well Purged Dry?	Yes (No)	-		Time Pump F		40	(am)/ pm
Time Purged Dry?		- ID		Time of Sam		1204	(am) / pm
Duplicate Sample?	Yes (No /			Sample EH:		7.6	- (8)
Sample Appearance:	General:	clear	Color: Ne	Phase	: renu		Odor: Sulfural
Time pH	Specific Cond.	Temp <sup>O</sup> C	D. O. mg/L	Turbidity NTU	Gallons Removed	SEQ #	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	3.15	15.7	6.0	4	
		3.				5	
Stabilized? Yes	No		Amount Wat	ter Removed:	6.0	)	Gallons
Comments:							
Had to	,	tam on		7)			



1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page:

FINAL REPORT COMPLETION DATE: 31 Dec. 1904

1 of 5

Date Reported: 24 Dec 2019

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

Project Name: HOOT LAKE PLANT

Lab Manager/Date Reviewed

21Da 2019 Quality Assurance Director/Date Reviewed

RL = Reporting Limits

NQ = Not Present, Qualitative Only

PQ = Present, Qualitative Only

ND = Not Determined



1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page: 2 of 5

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-2A

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	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 sample quantity

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



1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page: 3 of 5

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

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 Receive Result	d	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	



1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page: 4 of 5

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

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	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 sample quantity

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



1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890 2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724 1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885 www.mvtl.com



Page: 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.



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

**MEMBER ACIL** 

Page: 1 of 1

Quality Control Report
Lab IDs: 19-A63827 to 19-A63829 Work Order: 201931-0622 Project: HOOT LAKE PLANT

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	19-A63908	131	192	102	86-117 85-115	192 61.3	189 62.8	97 99	1.6 2.4	5	100	90-110	< 3
1	-	-	-	60.0	19-A63382	3.2	61.3	97	83-113	01.5	02.8	77	2.4	٧			
Fluoride mg/L	-	-	-	2.00	19-D4259	5.70	7.36	83	80-120	7.36	7.20	75	2.2	10	102	90-110	< 0.02
	-	-	-	0.40	19-A63049	1.19	1.58	97	80-120	1.58	1.59	100	0.6	10			

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 16 Dec19
pages 1-5

Project Name:       Otter Tail Power Co.       Project Type:       CCR       Name of Samplers:       Den WO         Report To:       Otter Tail Power Company       Carbon Copy:       Carlson McCain       Mame of Samplers:       Carbon Samplers:       Carbon Copy:       Carlson McCain	114
Hoot Lake Plant	, , ,
	,te
Attn: Paul Vukonich Attn: Megan Lindstrom Quote Number:	1
Address: P.O. Box 496   Mork Order Number: 3 \ 0 620	<b>)</b>
Fergus Falls, MN 56038-0496	1
Phone: 218-739-8349	
Sample Information Bottle Type	Analysis
Lab Number  Sample ID  Unique Station ID  Sample Type Sample Location  Time  1000 HN03 500 HN03 500 HN03 Filler? Y or N	Required
A63827 S2A 16A-C4 1047 GW X Se	ee Attatched
	01.
	ε,
29 S-13 L 119 GW X	Γ,
Comments: CCR wells	
Samples Relinquished By: // All dlu)	-
Date: 16 JAC19 Time: 1534 Temp: 4, 1 TM784 Date: 16 DULA Time: 1534 Te	emp: 4.10
Samples Relinquished into: Fridge Log in Cart Other:	
Samples Relinquished By:  Samples Received By:	
Date: Time: Temp: Date: Time: Te	emp:
Delivery: Samplers Other: Seal Number(s) - If Used	
Transport: Ambient (Ice) Other: Seals Intact? Yes No	

Hoof Lake

3 wells 12/16/19

#### **Jeff Hoffman**

From:

Hollen, Josh <jhollen@otpco.com>

Sent:

Tuesday, November 26, 2019 2:51 PM

To:

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.

COC

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.



#### Tosh Hollen

**Environmental Compliance Specialist** Environmental Services Dept.

Phone: (218) 739-8314

otpco.com









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

<b>Groundwater Asses</b>	sment			Site:	Otterta	il Powe	r Co./Hoo	ot Lake_
Sampling Personnel:				Facility ID:	SW-21	1		
Ben vo	i +			Date: 1(g	Dec 19			
matt stir	1			Unique Statio	on ID: 444350	)		
				Sample ID:	S-2A			
Well Condition								
Well Locked? ₹	es No			Protective Po			No_	
Well Labeled? Y	es No			State ID Tag			(No) No	
	(S) No			Grout Seal Ir	ntact? (Yes)		NO	
Repairs Necessary:			1					
Well Information	-0 ( )							_
Well Depth:	79.62			Well Casing		vad .	1273.776	<u> </u>
Constructed Depth: 7	9.63			Static Water		198.4	13	
Casing Diameter: 2	)!! -			Previous Sta	tic: 1197. 7	77		
Water Level Before Purg	e: 75.35	- )		Water Level	After Sample:	75-	<i>25</i>	
		Gallons	_	Measuremer	nt Method:	E/ec. V	vLi) St	eel Tape
Sampling Information								
Weather Conditions: T	Гетр: <u> </u>	2	Wind: L	.lv	Sky:	Fair		
Sampling Method:	Grundfos	Bladder SS/T	Disp. Bailer	Whale	Grab Other:			
Dedicated Equipment: ปั	(es No			Pumping Ra	te: , 25		gpm	
Well Purged Dry?	/es (Ng)			Time Pump	Began: 10,	38	aff	n) pm
Time Purged Dry?				Time of Sam	npling: /O	47	(ar	n) pm
Duplicate Sample?	res (No)	ID:	<b>-</b>	Sample EH:	-10.7			
Sample Appearance: 0	General: C	Jear	Color: //	ファン Phase	e: NOIU		Odor: 🛕	10m
	: : : : : -	Temp	D. O.	T. ushi dife	Gallons	SEQ	<u> </u>	
	Specific Cond.	°C	mg/L	Turbidity NTU	Removed	#	Comme	nts:
	1,078	7.99	11.61	0.0	. 75	1		
1044 1056	1080	7-83	11.56	0.0	1-50	2		
			1					
1047 6-62	1080	7.76	11.26	0.0	2,25	3		
						4		
					1	5		
Stabilized? Yes	No		Amount Wa	ter Removed:	2-25		Gallons	
Comments:								

### Minnesota Valley Testing Laboratories, Inc.

New Ulm, MN 56073

507 354 8517

Groundwater Assessment	Site: Othertail POVEr Co. / HOOT Lake
Sampling Personnel:	Facility ID:
Ber wolf	Date: 10 12019
matt Stell	Unique Station ID:
, , , , , , , , , , , , , , , , , , , ,	Sample ID: S-3A-R
Well Condition	
Well Locked? Yes No	Protective Posts? (Yes) No
Well Labeled? No No	State ID Tag? Yes No Grout Seal Intact? Yes (No)
Casing Straight? (es No	Grout Seal Intact? Yes (No)
Repairs Necessary:	
Well Information	Well Casing Elevation: /27/-662
Well Depth: 18.40	
Constructed Depth: $76.47$	Static Water Elevation: 1203.37  Previous Static: 1203.22
Casing Diameter: 7 <sup>N</sup>	1 m
Water Level Before Purge: (8.19	
Well Volume: / Gallons	Measurement Method: Efec. Wild Steel Tape
Sampling Information	LU Sky: Fait
Weather Conditions: Temp: 12 Wind:	LU Sky: Fair
Sampling Method: Grundfos Bladder SSM Disp. Bailer	Whale Grab Other:
Dedicated Equipment: (Yes) No	Pumping Rate: 25 gpm
Well Purged Dry? Yes No	Time Pump Began: //3/ am / pm
Time Purged Dry?	Time of Sampling: 120 4 am 1 of 5
Duplicate Sample? Yes (10) ID:	Sample EH: -3 0-9
Sample Appearance: General: Cloudy Color: T	an Phase: Light sed, Odor: None
Specific Temp D. O.	Turbidity Gallons SEQ
Time pH Cond. C mg/L	NTU Removed # Comments:
1138 7.10 749 6.56 9.19	57.4 1.75 1
1145 7.13 744 6.66 8.40	46.5 3.50 2
1162 7.19 736 6,72 8.17	39.8 5.25 3
1159 7.14 730 677 7.61	34,9 7,00 4
1206 7.16 727 6.88 6.91	33.4 8.75 5
	Vater Removed: 8.15 Gallons
Comments:	
X sample beca	eme of
Exceptions to Protocol:	Goady during Tonas
	ine cloudy during sampling
	_

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

Groundwater Ass	essment			Site:	Otter	tail Pow	er Co./Hoot Lake	
Sampling Personnel:				Facility ID:	SW-2	211		
Ben	WH	_		Date:	Dec 19			
Matt	wolf Stair	_		Unique Stat		10		
		_		Sample ID:	S-13			
Well Condition								
Well Locked?	Yes No			Protective F			No	
Well Labeled? Casing Straight?	Yes No Yes No	<del>-</del>		State ID Ta			No No	
Repairs Necessary:	163) 110	_		Glout Geal	intact: res		NO	
Well Information								
Well Depth:	90-27	_		Well Casing	Elevation:		1296.423	
Constructed Depth:	90.19	-		Static Wate	r Elevation:	1211,2	23	
Casing Diameter:	2"	<del></del>		Previous St	atic: /2/0	1,82		
Water Level Before Pu	irge: \$5.19	_ 		Water Level After Sample: \$5, 25				
	. 83	Gallons	<u> </u>	Measureme		Elec.		
Sampling Information	on							
Weather Conditions:	Temp:	)	Wind:	LLV	Sky:	Fai	Υ	
Sampling Method:	Grundfos	Bladder SS/T	) Disp. Bailer	Whale	Grab Other:			
Dedicated Equipment:	YES No			Pumping Ra			gpm	
Well Purged Dry?	Yes (No)	<b></b>		Time Pump	Began: //0	7	(am)/ pm	
Time Purged Dry?		_		Time of Sampling: 1119 am / pm				
Duplicate Sample?	Yes (No)	ID:	<del>-</del>	Sample EH	:19.6			
Sample Appearance:	General:	Cloq-	Color: √	ロクレ Phas	e: Light s	ird.	Odor: Sulfur	
	Specific	Temp	D. O.	Turbidity	Gallons	SEQ		
Time pH	Cond.	°C	mg/L	NTU	Removed	#	Comments:	
1111 7.29	760	8.16	8.35	10.4		1		
1115 7.30	759	8.20	8.37	6.7	2	2		
1119 7.30	760	8.24	8.39	4.5	3	3		
					,	4		
						5		
Stabilized? Yes	No		Amount Wa	ater Removed	: 3	1-	Gallons	
Comments:								