2020 Annual Groundwater Monitoring and Corrective Action Report

Blue Pit

Coyote Station
Beulah, North Dakota

Prepared for
Otter Tail Power Company

January 2021

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234 West Century Avenue
Bismarck, ND 58503
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January 2021

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Acronyms

Acronym	Description
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
OTP	Otter Tail Power Company
SSI	Statistically Significant Increase

Executive Summary

This summary provides an overview of the Groundwater Monitoring & Corrective Action Program Status as required by §257.94(e)(6). The CCR unit operated under the detection monitoring program described in §257.94 at the start and at the end of the 2020 annual reporting period. The monitoring program did not identify any statistically significant increases over background for any of the constituents listed in appendix III to the CCR Rule; therefore, constituents listed in appendix IV to the CCR Rule were not monitored and the corrective action provisions of the CCR Rule were not triggered.

1.0 Introduction

Otter Tail Power Company (OTP) operates the Coyote Station (Coyote), located near Beulah, North Dakota. Coyote is a coal-fired electrical generating plant, operation of which results in coal combustion residuals (CCR) as a by-product. The Blue Pit is an existing CCR landfill at Coyote that is required to comply with the provisions of the US Environmental Protection Agency (EPA) CCR Rule (40 CFR Parts 257 and 261, Disposal of Coal Combustion Residuals from Electric Utilities). The Blue Pit is shown on Figure 1.

This 2020 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) describes the monitoring program and results for the Blue Pit at Coyote. The Blue Pit is currently in detection monitoring as described by §257.94 of the CCR Rule.

1.1 Purpose

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

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

1.2 Status of the Groundwater Monitoring and Corrective Action Program

Baseline monitoring was completed in 2017, as documented in the 2017 Annual Groundwater Monitoring and Corrective Action Report, Blue Pit Area (Barr, 2018). The detection monitoring program, which is the evaluation of groundwater monitoring data for statistically significant increases (SSIs) over background levels for the constituents listed in appendix III to the CCR Rule, began on October 17, 2017 and continued through 2020. The monitoring program did not identify any statistically significant increases over background for any of the constituents listed in appendix III to the CCR Rule; therefore, constituents listed in appendix IV to the CCR Rule were not monitored and the corrective action provisions of the CCR Rule were not triggered.

1.3 CCR Rule Requirements

This Annual Report has been prepared in accordance with the requirements of §257.90(e) of the CCR Rule, as outlined in the following Table 1.

Table 1 CCR Rule Requirements

CCR Rule Reference	Content Required in Report	Location
§257.90(e)(1)	Map showing the CCR unit and all monitoring wells that are part of the groundwater monitoring system	Section 2.1.1 Documentation; see Figure 1
§257.90(e)(2)	Discuss any new or decommissioned monitoring wells	Section 2.1.2 Changes to Monitoring System
§257.90(e)(3)	Provide the number and date groundwater samples were collected, and the monitoring (i.e., detection or assessment)	Section 2.2 Monitoring and Analytical Results
§257.90(e)(4)	Discuss any transition between monitoring programs	Section 2.4 Key Activities for Upcoming Year
§257.90(e)(5)	Other information specified in §257.90 through §257.98	Other information not required in this report
§257.90(e)(6)	Overview at beginning of annual report	Executive Summary

2.0 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the Blue Pit for 2020. The groundwater monitoring system is described in Section 2.1, the monitoring and analytical results are described in Section 2.2, key actions completed and problems encountered are described in Section 2.3, and key activities planned for 2021 are described in Section 2.4.

2.1 Groundwater Monitoring System

2.1.1 Documentation

Figure 1 shows an aerial image of the Blue Pit and all upgradient (background) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring system, as required by §257.90(e)(1). Further details on the monitoring system and the Blue Pit monitoring wells are included in the Groundwater Monitoring System Report, Coyote Station Blue Pit Area (Barr, 2016).

2.1.2 Changes to Monitoring System

The groundwater monitoring system was unchanged in 2020.

2.2 Monitoring and Analytical Results

Groundwater samples were collected during two semiannual sampling events. A total of 12 groundwater samples (six monitoring wells and two sampling events) were collected and analyzed for the constituents listed in appendix III (Part 257) in 2020 under the detection monitoring program, consistent with the requirements of §257.94(c). Dates of sampling are reported on the field data sheets and analytical laboratory reports are presented in Appendix A. Results are summarized in Table 2.

2.3 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program during 2020:

- Completed semiannual detection monitoring sampling for each background and downgradient well.
- Evaluated monitoring results pursuant to §257.93(h).
- Evaluated elevated calcium concentrations identified in monitoring well BLUE 14 during the fall 2019 sampling event. Resampling on December 27, 2019 (Appendix A) resulted in a lower concentration that did not verify the exceedance.
- Determined that a statistically significant increase over background levels did not occur for the constituents listed in appendix III at any downgradient monitoring well during the semiannual detection monitoring sampling events.

Problems were not encountered during the reporting period.

2.4 Key Activities for Upcoming Year

The following key groundwater monitoring program activities are planned for 2021:

- Evaluate analytical results from both 2021 semiannual detection monitoring events for statistically significant increases (SSIs) according to the Statistical Analysis Plan, Appendix B of the CCR Groundwater Sampling and Analysis Plan (McCain, 2017).
- Continue the detection monitoring program in accordance with the CCR Rule.

Table 2
Groundwater Analytical Data Summary
Coyote Station
Otter Tail Power Company

		Location	BLUE 6	BLUE 6	BLUE 7	BLUE 7	BLUE 13	BLUE 13	BLUE 14	BLUE 14	BLUE 15	BLUE 15	BLUE 16	BLUE 16
		Date	5/06/2020	10/13/2020	5/05/2020	10/12/2020	5/06/2020	10/13/2020	5/05/2020	10/14/2020	5/06/2020	10/13/2020	5/06/2020	10/13/2020
Parameter	Analysis Location	Units												
Appendix III Parameters														
Boron	Lab	mg/l	**0.39**	**0.39**	**0.41**	**0.39**	**0.44**	**0.60**	**0.60**	< 0.5	**0.45**	**0.46**	**0.43**	**0.39**
Calcium	Lab	mg/l	**155**	**192**	**167**	**198**	**215**	**189**	**336**	**300**	**121**	**122**	**123**	**152**
Chloride	Lab	mg/l	**5.3**	**8.5**	**5.7**	**8.1**	**59.7**	**48.2**	**8.2**	**9.7**	**6.1**	**9.0**	**5.5**	**9.6**
Fluoride	Lab	mg/l	**0.18**	**0.17**	**0.19**	**0.15**	**0.32**	**0.24**	**0.13**	**0.11**	**0.20**	**0.17**	**0.20**	**0.17**
pH	Field	pH units	**6.59**	**6.68**	**6.56**	**6.67**	**6.74**	**6.86**	**6.64**	**6.76**	**6.68**	**6.67**	**6.61**	**6.66**
Solids, total dissolved	Lab	mg/l	**1540**	**2250**	**1680**	**1980**	**4720**	**5090**	**4600**	**4280**	**2260**	**2360**	**1600**	**2030**
Sulfate, as SO4	Lab	mg/l	**688**	**982**	**775**	**987**	**2800**	**2490**	**2420**	**2100**	**966**	**883**	**698**	**853**

3.0 References

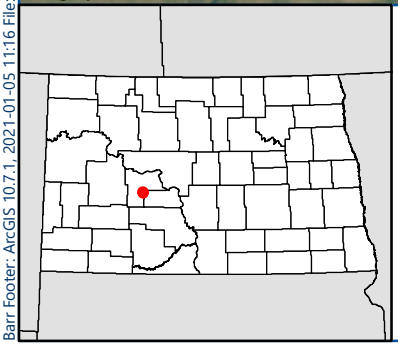
Barr, 2018. 2017 Annual Groundwater Monitoring and Corrective Action Report, Coyote Station Blue Pit Area. Prepared for Otter Tail Power Company. January 2018.

Barr, 2016. Groundwater Monitoring System Report, Coyote Station Blue Pit Area. Prepared for Otter Tail Power Company. November 2016.

Carlson McCain, 2017. CCR Groundwater Sampling and Analysis Plan (Including Statistical Method Selection and Certification), Coyote Station Blue Pit. Prepared for Otter Tail Power Company. October 2017.

Figures

Imagery Source: USDA-FSA-APFO NAIP, 2020



Upgradient Monitoring Well

Downgradient Monitoring Well

Blue Pit

N

0 250 500

Feet

BLUE PIT LOCATION
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

FIGURE 1

Barr Footer: ArcGIS 10.7.1, 2021-01-05 11:16 File: I:\Projects\34\29\018\Maps\Reports\2020\Blue_Pit_CCR_Annual_Report\Figure01 Site Location - Blue Pit.mxd User: MRQ

Appendices

Appendix A

Laboratory Reports and Field Sheets

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

MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 8 Jan 20
Lab Number: 19-W5109
Work Order #:82-3671
Account #: 006106
Date Sampled: 27 Dec 19 10:53
Date Received: 27 Dec 19 12:48
Sampled By: MVTL Field Services

Project Name: OTP Coyote - Blue Pit CCR

PO #: 48895

Sample Description: Blue 14

Temp at Receipt: 5.9C ROI

Event and Year: 4th Qtr 2019

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	27 Dec 19	HT
Field pH	6.72	s.u.	0.1	SM 4500 H+ B	27 Dec 19 10:53	DJN
Field Temperature	4.68	Degrees C	0.1	SM 2550B	27 Dec 19 10:53	DJN
Field Conductivity	4946	umhos/cm	1	EPA 120.1	27 Dec 19 10:53	DJN
Calcium - Total	254	mg/l	1.0	6010D	7 Jan 20 17:41	SZ

Approved by: Claudette K. Carroll CC 9 Jan 2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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: ND # ND-00016

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

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1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

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ACIL

Quality Control Report

Lab ID: 19-W5109 **Project:** OTP Coyote - Blue Pit CCR **Work Order:** 201982-3671

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
Calcium - Total mg/l	20.0	120	80-120	100	20W6q	51.4	149	98	75-125	149	149	98	0.0	20	-	-	< 1
															-	-	< 1

Samples were received in good condition on 27 Dec 2019 at 1248.
Temperature upon receipt at the Bismarck laboratory was 5.9°C. Samples were received on ice and the temperature blank contained ice crystals.
All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
All holding times were met.
Approved methodology was followed for all sample analyses.
All acceptance criteria were met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/duplicates unless noted here.

Approved by: C. Carlson
9 Jan 2020

Laboratories, Inc.
2616 E. Broadway
Bismarck, ND 58501
Phone (701) 258-9720

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Blue Pit CCR	4th Qtr 2019	82-3671

Report To:	Carbon Copy:	Name of Sampler(s):
Attn: Josh Hollen	Attn:	Darren Nieswaag
Address: PO Box 496 Fergus Falls, MN 56538-0496	Address:	
phone:		
email: jhollen@otpco.com		

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter	500mL Nitric	500mL Nitric (filtered)	250mL Sulfuric				Temp (°C)	Spec. Cond.	pH	Analysis Required
W5109	Blue 14	27Dec19	1053	GW	clear		X						4.68	4946	6.72	See attached email

Comments:

Relinquished By:		Sample Condition:		Received by:	
Name:	Date/Time	Location: ~~Log In~~ Walk In #2	Temp (°C) TM562 / TM588	Name:	Date/Time
1	27Dec19 1248		TM805 7 R01 5.9		27Dec2019 1243
2					

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1020
Work Order #:82-1084
Account #: 006106
Date Sampled: 6 May 20
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: FB Blue

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Lab, pH	* 6.0	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	< 5	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	< 1	mg/l	1.0	SM4500-Cl-E	11 May 20 12:44	EV
Total Dissolved Solids	< 10	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	< 1	mg/l	1.0	6010D	11 May 20 12:48	SZ
Boron - Total	< 0.1	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

CC

Approved by: Claudette K. Carroll 15May2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com
MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1021
Work Order #:82-1084
Account #: 006106
Date Sampled: 6 May 20 10:25
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 6

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Field pH	6.59	s.u.	0.1	SM 4500 H+ B	6 May 20 10:25	JSM
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Field Appearance	Clear		NA	SM 2110	6 May 20 10:25	JSM
Field Temperature	9.76	Degrees C	0.1	SM 2550B	6 May 20 10:25	JSM
Field Conductivity	2084	umhos/cm	1	EPA 120.1	6 May 20 10:25	JSM
Fluoride	0.18	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	688	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	5.3	mg/l	1.0	SM4500-Cl-E	11 May 20 13:24	EV
Total Dissolved Solids	1550	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	155	mg/l	1.0	6010D	11 May 20 12:48	SZ
Boron - Total	0.39	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

CC

Approved by: Claudette K. Carroll 15May2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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www.mvtl.com
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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1022
Work Order #:82-1084
Account #: 006106
Date Sampled: 5 May 20 13:15
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 7

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Field pH	6.56	s.u.	0.1	SM 4500 H+ B	5 May 20 13:15	JSM
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Field Appearance	Clear		NA	SM 2110	5 May 20 13:15	JSM
Field Temperature	9.64	Degrees C	0.1	SM 2550B	5 May 20 13:15	JSM
Field Conductivity	2191	umhos/cm	1	EPA 120.1	5 May 20 13:15	JSM
Fluoride	0.18	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	775	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	5.7	mg/l	1.0	SM4500-Cl-E	11 May 20 13:24	EV
Total Dissolved Solids	1660	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	167	mg/l	1.0	6010D	11 May 20 12:48	SZ
Boron - Total	0.41	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll 15 May 2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1023
Work Order #:82-1084
Account #: 006106
Date Sampled: 6 May 20 9:45
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 13

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Field pH	6.74	s.u.	0.1	SM 4500 H+ B	6 May 20 9:45	JSM
Lab, pH	* 7.4	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Field Appearance	Clear		NA	SM 2110	6 May 20 9:45	JSM
Field Temperature	9.88	Degrees C	0.1	SM 2550B	6 May 20 9:45	JSM
Field Conductivity	4412	umhos/cm	1	EPA 120.1	6 May 20 9:45	JSM
Fluoride	0.32	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	2800	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	59.7	mg/l	1.0	SM4500-Cl-E	11 May 20 13:24	EV
Total Dissolved Solids	4920	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	215	mg/l	1.0	6010D	11 May 20 12:48	SZ
Boron - Total	0.44	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

CC

Approved by: Claudette K. Carroll 15 May 2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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www.mvtl.com
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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1024
Work Order #:82-1084
Account #: 006106
Date Sampled: 5 May 20 15:40
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 14

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Field pH	6.64	s.u.	0.1	SM 4500 H+ B	5 May 20 15:40	JSM
Lab, pH	* 7.2	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Field Appearance	Clear		NA	SM 2110	5 May 20 15:40	JSM
Field Temperature	10.0	Degrees C	0.1	SM 2550B	5 May 20 15:40	JSM
Field Conductivity	5412	umhos/cm	1	EPA 120.1	5 May 20 15:40	JSM
Fluoride	0.12	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	2420	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	8.2	mg/l	1.0	SM4500-Cl-E	11 May 20 13:24	EV
Total Dissolved Solids	4610	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	336	mg/l	1.0	6010D	11 May 20 13:48	SZ
Boron - Total	0.60	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll 15May2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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www.mvtl.com
MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1025
Work Order #:82-1084
Account #: 006106
Date Sampled: 6 May 20 13:45
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 15

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Field pH	6.68	s.u.	0.1	SM 4500 H+ B	6 May 20 13:45	JSM
Lab, pH	* 7.2	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Field Appearance	Clear		NA	SM 2110	6 May 20 13:45	JSM
Field Temperature	10.4	Degrees C	0.1	SM 2550B	6 May 20 13:45	JSM
Field Conductivity	3037	umhos/cm	1	EPA 120.1	6 May 20 13:45	JSM
Fluoride	0.20	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	966	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	6.1	mg/l	1.0	SM4500-Cl-E	11 May 20 13:24	EV
Total Dissolved Solids	2260	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	121	mg/l	1.0	6010D	11 May 20 13:48	SZ
Boron - Total	0.45	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll CC 15May2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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: ND # ND-00016

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

CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 13 May 20
Lab Number: 20-W1026
Work Order #:82-1084
Account #: 006106
Date Sampled: 6 May 20 12:20
Date Received: 6 May 20 15:40
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.6C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 16

Event and Year: Spring 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	7 May 20	SD
Field pH	6.61	s.u.	0.1	SM 4500 H+ B	6 May 20 12:20	JSM
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	7 May 20 18:00	SD
Field Appearance	Clear		NA	SM 2110	6 May 20 12:20	JSM
Field Temperature	11.0	Degrees C	0.1	SM 2550B	6 May 20 12:20	JSM
Field Conductivity	2170	umhos/cm	1	EPA 120.1	6 May 20 12:20	JSM
Fluoride	0.19	mg/l	0.10	SM4500-F-C	7 May 20 18:00	SD
Sulfate	695	mg/l	5.00	ASTM D516-11	13 May 20 10:50	EV
Chloride	5.5	mg/l	1.0	SM4500-Cl-E	11 May 20 13:24	EV
Total Dissolved Solids	1590	mg/l	10	I1750-85	7 May 20 15:52	CC
Calcium - Total	123	mg/l	1.0	6010D	11 May 20 13:48	SZ
Boron - Total	0.43	mg/l	0.10	6010D	12 May 20 14:48	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll CC 15May2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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: ND # ND-00016

MVTL

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Quality Control Report

Lab IDs: 20-W1020 to 20-W1026 **Project:** OTP Coyote - Blue CCR **Work Order:** 202082-1084

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 - Total mg/l	0.40	105	80-120	0.400	20-D1424	0.35	0.70	88	75-125	0.70	0.71	90	1.4	20	-	-	< 0.1
	0.40	108	80-120	0.400	20-W1021	0.39	0.81	105	75-125	0.81	0.79	100	2.5	20	-	-	
				0.400	20-W1022	0.41	0.83	105	75-125	0.83	0.81	100	2.4	20	-	-	
Calcium - Total mg/l	20.0	112	80-120	100	20W1022q	167	249	82	75-125	249	250	83	0.4	20	-	-	< 1
	20.0	111	80-120	100	20W1028q	24.4	122	98	75-125	122	122	98	0.0	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Chloride mg/l	30.0	93	80-120	30.0	20-W1014	5.7	32.1	88	80-120	32.1	32.2	88	0.3	20	-	-	< 1
	30.0	92	80-120	30.0	20-W1022	5.7	31.7	87	80-120	31.7	31.6	86	0.3	20	-	-	< 1
	30.0	92	80-120												-	-	< 1
	30.0	92	80-120												-	-	< 1
Fluoride mg/l	0.50	104	90-110	0.500	20-W1014	0.19	0.70	102	80-120	0.70	0.71	104	1.4	20	-	-	< 0.1
				0.500	20-W1022	0.18	0.70	104	80-120	0.70	0.70	104	0.0	20	-	-	< 0.1
pH units	-	-	-	-	-	-	-	-	-	7.1	7.1	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	7.1	7.1	-	0.0	20	-	-	-
Sulfate mg/l	100	103	80-120	500	20-W1022	775	1250	95	80-120	1250	1280	101	2.4	20	-	-	< 5
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	1550	1700	-	9.2	20	-	-	< 10
	-	-	-	-	-	-	-	-	-	1660	1670	-	0.6	20	-	-	

Samples were received in good condition on 6 May 2020 at 1540.
Temperature upon receipt at the Bismarck laboratory was 2.6°C.
All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
With the exception of pH, all holding times were met.
Approved methodology was followed for all sample analyses.
All acceptance criteria were met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/duplicates unless noted here.

Approved by: C. Carroll

15 May 2020

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Blue 6
Sampling Personal:	

Weather Conditions: Temp: °F Wind: @ Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	~~YES~~	(NO)
Well Labeled?	~~YES~~	NO
Casing Strait?	(YES)	NO
Grout Seal Intact?	YES	NO (Not Visible)
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	61.03	ft
Total Depth of Well:	79.10	ft
Well Volume:	11.1	liters
Depth to Top of Pump:	77.24	ft
Water Level After Sample:	69.90	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	(NO)
Duplicate Sample ID:	—	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 15	Sec.
PSI: 80	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
5 May 2020	1055	Start of Well Purge									
	1100	9.30	2312	6.67	2.28	-0.3	>1000.0	64.00	400.0	2000.0	Cloudy
	1110	9.29	2123	6.70	5.12	39.4	87.3	71.65	400.0	4000.0	Clear
	1120	9.19	2142	6.71	7.51	38.4	113.0	78.13	400.0	4000.0	Partly Cloudy
	1130	9.47	2122	6.69	6.59	38.7	98.7	Below Pump	400.0	4000.0	Partly Cloudy
		Purged	Dry								
6 May 2020	1020	Purged	well to	clear line				61.14	~~100.0~~	~~500.0~~	
	1025	9.76	2084	6.59	1.05	64.4	19.0	65.90	100.0	500.0	Clear

Well Stabilized? YES (NO) Total Volume Purged: 14500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
6 May 2020	1025	9.76	2084	6.59			19.0				Clear

Comments:	

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Blue 7
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: N @ 5-10 Precip: **Sunny / (Partly Cloudy) / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Casing Strait?	(YES)	NO
Grout Seal Intact?	YES	NO (Not Visible)
Repairs Necessary?		

Casing Diameter:	2"	
Water Level Before Purge:	78.52	ft
Total Depth of Well:	97.65	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	78.67	ft
Measurement Method:	**Electric Water Level Indicator**	

SAMPLING INFORMATION

Purging Method:	**Bladder**	
Sampling Method:	**Bladder**	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	(YES)	NO
Duplicate Sample ID:	MS/MSD	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:		
Purge:	5	Sec.
Recover:	25	Sec.
PSI:	60	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
5 May 2020	1153	Start of Well Purge									
	1158	9.68	2260	6.62	3.04	19.6	41.9	78.62	200.0	1000.0	Clear
	1230	9.57	2214	6.65	2.51	12.6	46.8	78.70	200.0	6400.0	Clear
	1300	9.61	2200	6.59	2.54	15.3	11.8	78.65	200.0	6000.0	Clear
	1305	9.65	2193	6.58	2.42	16.1	10.5	78.67	200.0	1000.0	Clear
	1310	9.62	2192	6.58	2.60	16.1	9.71	78.66	200.0	1000.0	Clear
	1315	9.64	2191	6.56	2.50	16.2	9.16	78.65	200.0	1000.0	Clear
		Pump Off									

Well Stabilized? (YES) NO

Total Volume Purged: 16,400.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
5 May 2020	1315	9.64	2191	6.56			9.16				Clear

Comments:	

MVTL
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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Blue 13
Sampling Personal:	Jay Kay

Weather Conditions: Temp: 50 °F Wind: N @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	YES	NO
Well Labeled?	YES	NO
Casing Strait?	YES	NO
Grout Seal Intact?	YES	NO Not Visible
Repairs Necessary?		

Casing Diameter:	2"	
Water Level Before Purge:	105.79	ft
Total Depth of Well:	116.66	ft
Well Volume:	6.7	liters
Depth to Top of Pump:	114.15	ft
Water Level After Sample:	111.85	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	NO

Duplicate Sample?	YES	NO
Duplicate Sample ID:		

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 15	Sec.
PSI: 110	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
5 May 2020	1025	Start of Well Purge									
	1030	9.62	4214	6.64	4.58	46.6	233.0	110.86	400.0	2000.0	Partly Cloudy
	1040	9.69	4075	6.61	6.44	62.7	187.0	113.72	400.0	4000.0	Partly Cloudy
	1045	9.63	4062	6.60	6.36	63.2	235.0	Below Pump	400.0	2000	Partly Cloudy
		Purged Dry									
6 May 2020	0940	Purged well for		5 min to	clear line			107.56			
Sample	0945	9.88	4412	6.74	5.50	87.3	69.6	108.40	100.0	500.0	Clear

Well Stabilized? YES NO

Total Volume Purged: 8500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
6 May 2020	0945	9.88	4412	6.74	5.50		69.6				Clear

Comments:	

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Blue 14
Sampling Personal:	Jay Ehr

Weather Conditions: Temp: °F Wind: @ Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO
Well Labeled?	(YES)	NO
Casing Strait?	(YES)	NO
Grout Seal Intact?	YES	NO (Not Visible)
Repairs Necessary?		
Casing Diameter:	2"	
Water Level Before Purge:	77.48	ft
Total Depth of Well:	87.00	ft
Well Volume:		liters
Depth to Top of Pump:		ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	NO
Duplicate Sample ID:		

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:		
Purge:	5	Sec.
Recover:	25	Sec.
PSI:	50	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
5 May 2020	1410	Start of Well Purge									
	1415	10.04	5541	6.65	6.18	-16.3	468.0	78.15	100.0	500.0	Cloudy
	1445	9.93	5467	6.65	5.11	30.7	98.8	78.25	100.0	3000.0	clear
	1500	9.97	5494	6.70	6.66	27.1	32.0	78.32	100.0	1500.0	Clear
	1515	9.85	5480	6.66	6.39	29.2	16.2	78.40	100.0	1500.0	Clear
	1530	10.16	5431	6.64	6.25	30.7	7.84	78.37	100.0	1500.0	clear
	1535	10.07	5419	6.64	6.18	30.1	8.01	78.39	100.0	500.0	Clear
	1540	10.00	5412	6.64	6.12	29.7	8.03	78.41	100.0	500.0	Clear

Well Stabilized? (YES) NO

Total Volume Purged: 9000.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
5 May 2020	1540	10.00	5412	6.64			8.03				Clear

Comments:	

Field Datasheet

Groundwater Assessment

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Blue 15
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: N @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO	
Well Labeled?	(YES)	NO	
Casing Strait?	(YES)	NO	
Grout Seal Intact?	(YES)	NO	Not Visible
Repairs Necessary?			
Casing Diameter:	2"		
Water Level Before Purge:	75.09	ft	
Total Depth of Well:	87.85	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	75.27	ft	
Measurement Method:	Electric Water Level Indicator		

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	(NO)
Duplicate Sample ID:	—	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 25	Sec.
PSI: 50	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
6 May 2020	1255	Start of Well Purge									
	1300	10.97	3448	6.71	0.67	-19.0	552.0	75.18	100.0	500.0	Partly Cloudy
	1330	10.75	3040	6.67	0.67	24.4	6.61	75.26	100.0	3000.0	Clear
	1335	10.52	3036	6.67	0.65	24.9	5.24	75.26	100.0	500.0	Clear
	1340	10.47	3036	6.68	0.69	24.8	5.86	75.27	100.0	500.0	Clear
	1345	10.37	3037	6.68	0.67	23.8	4.25	75.27	100.0	500.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 5000.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
6 May 2020	1345	10.37	3037	6.68			4.25				Clear

Comments:	

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Blue 16
Sampling Personal:	[illegible]

Weather Conditions: Temp: 60 °F Wind: N @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO	
Well Labeled?	(YES)	NO	
Casing Strait?	(YES)	NO	
Grout Seal Intact?	(YES)	NO	Not Visible
Repairs Necessary?			
Casing Diameter:	2"		
Water Level Before Purge:	73.65	ft	
Total Depth of Well:	97.58	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	75.77	ft	
Measurement Method:	Electric Water Level Indicator		

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	(NO)
Duplicate Sample ID:	—	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 25	Sec.
PSI: ~~50~~ 50	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
6 May 2020	1055	Start of Well Purge									
	1100	11.05	2227	6.65	1.51	21.6	568.0	73.80	100.0	500.0	Partly Cloudy
	1130	10.83	2177	6.61	0.93	43.7	103.0	73.79	100.0	3000.0	Partly Cloudy
	1200	10.84	2182	6.61	1.16	49.6	37.7	73.75	100.0	3000.0	Clear
	1210	10.95	2178	6.60	1.43	50.9	33.2	~~73~~ 75.75	100.0	1000.0	Clear
	1215	10.61	2175	6.61	1.49	48.1	30.7	75.76	100.0	500.0	Clear
	1220	11.02	2170	6.61	1.50	45.8	29.2	75.76	100.0	500.0	Clear

Well Stabilized? (YES) NO

Total Volume Purged: 8500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
6 May 2020	1220	11.02	2170	6.61			29.2				Clear

Comments:	

2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Surface water Assessment

Company:	**OTP Coyote**
Event:	**Spring 2020**
Sample ID:	Contact Water Pool
Sampling Personal:	

Weather Conditions: Temp: °F Wind: @ Precip: **Sunny / Partly Cloudy / Cloudy**

SITE INFORMATION

Source:	**Pond**

SAMPLING INFORMATION

Sampling Method:	**Grab**

Bottle List:
1 Liter Raw
500mL Nitric
~~1 Liter Amber HCl~~
250mL Sulfuric

FIELD READINGS

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)					Appearance or Comment Clarity, Color, Odor, Ect.
6 May 2020	0950										

Comments:	Dry during sampling event

MVTL

2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Blue CCR	Spring 2020	82-1084

Report To:	**Otter Tail Power**	CC:	Collected By:
Attn:	Josh Hollen		
Address:	PO Box 496 Fergus Falls, MN 56538-0496		
Phone:			
Email:	jhollen@otpco.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL Nitric	500 mL Nitric (filtered)	250 mL Sulfuric	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Appearance (clear, partly cloudy, cloudy)	Analysis Required
W1020	FB Blue	6 May 2020	NA	GW	X	X				NA	NA	NA	NA	OTP CCR App 3
W1021	Blue 6	6 May 2020	1025	GW	X	X				9.76	2084	6.59	Clear	
W1022	Blue 7/MS7/MSD7	5 May 2020	1315	GW	3	3				9.64	2191	6.56	Clear	
W1023	Blue 13	6 May 2020	0945	GW	X	X				9.88	4412	6.74	Clear	
W1024	Blue 14	5 May 2020	1540	GW	X	X				10.00	5412	6.64	Clear	
W1025	Blue 15	6 May 2020	1345	GW	X	X				10.37	3037	6.68	Clear	
W1026	Blue 16	6 May 2020	1220	GW	X	X				11.02	2170	6.61	Clear	

Comments:

Relinquished By		Sample Condition		Received By		
Name	Date/Time	Location	Temp (°C)	Name		Date/Time
1	6 May 2020 1540	~~Log In~~ Walk In #2	~~2.6~~ TM562 / TM805			6 May 2020 1540
2						

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www.mvtl.com

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4034
Work Order #:82-2879
Account #: 006106
Date Sampled: 12 Oct 20
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: FB Blue

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Lab, pH	* 6.7	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	16 Oct 20 17:00	HT
Sulfate	< 5	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	< 2	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	< 10	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	< 1	mg/l	1.0	6010D	16 Oct 20 11:44	MDE
Boron - Total	< 0.1	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

CC
5NOV2020

Approved by: Claudette K. Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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: ND # ND-00016

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MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4035
Work Order #:82-2879
Account #: 006106
Date Sampled: 13 Oct 20 11:00
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 6

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Field pH	6.68	s.u.	0.1	SM 4500 H+ B	13 Oct 20 11:00	JSM
Lab, pH	* 6.8	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Field Appearance	Clear		NA	SM 2110	13 Oct 20 11:00	JSM
Field Temperature	9.82	Degrees C	0.1	SM 2550B	13 Oct 20 11:00	JSM
Field Conductivity	2385	umhos/cm	1	EPA 120.1	13 Oct 20 11:00	JSM
Fluoride	0.17	mg/l	0.10	SM4500-F-C	16 Oct 20 18:00	HT
Sulfate	982	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	8.5	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	2250	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	192	mg/l	1.0	6010D	16 Oct 20 11:44	MDE
Boron - Total	0.39	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll CC 5NOV2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4036
Work Order #:82-2879
Account #: 006106
Date Sampled: 12 Oct 20 14:21
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 7

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	12 Oct 20 14:21	JSM
Lab, pH	* 6.9	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Field Appearance	Clear		NA	SM 2110	12 Oct 20 14:21	JSM
Field Temperature	9.97	Degrees C	0.1	SM 2550B	12 Oct 20 14:21	JSM
Field Conductivity	2434	umhos/cm	1	EPA 120.1	12 Oct 20 14:21	JSM
Fluoride	0.15	mg/l	0.10	SM4500-F-C	16 Oct 20 17:00	HT
Sulfate	987	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	8.1	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	1980	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	198	mg/l	1.0	6010D	16 Oct 20 12:44	MDE
Boron - Total	0.39	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll 5 Nov 2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4037
Work Order #:82-2879
Account #: 006106
Date Sampled: 13 Oct 20 9:40
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 13

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Field pH	6.86	s.u.	0.1	SM 4500 H+ B	13 Oct 20 9:40	JSM
Lab, pH	* 7.1	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Field Appearance	Clear		NA	SM 2110	13 Oct 20 9:40	JSM
Field Temperature	9.32	Degrees C	0.1	SM 2550B	13 Oct 20 9:40	JSM
Field Conductivity	5446	umhos/cm	1	EPA 120.1	13 Oct 20 9:40	JSM
Fluoride	0.24	mg/l	0.10	SM4500-F-C	16 Oct 20 17:00	HT
Sulfate	2490	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	48.2	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	5090	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	189	mg/l	1.0	6010D	16 Oct 20 12:44	MDE
Boron - Total	0.60	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll 5 NOV 2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
@ = Due to sample matrix
! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4038
Work Order #:82-2879
Account #: 006106
Date Sampled: 14 Oct 20 10:20
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 14

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Field pH	6.76	s.u.	0.1	SM 4500 H+ B	14 Oct 20 10:20	JSM
Lab, pH	* 7.0	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Field Appearance	Clear		NA	SM 2110	14 Oct 20 10:20	JSM
Field Temperature	9.17	Degrees C	0.1	SM 2550B	14 Oct 20 10:20	JSM
Field Conductivity	5039	umhos/cm	1	EPA 120.1	14 Oct 20 10:20	JSM
Fluoride	0.11	mg/l	0.10	SM4500-F-C	16 Oct 20 17:00	HT
Sulfate	2100	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	9.7	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	4280	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	300	mg/l	1.0	6010D	16 Oct 20 12:44	MDE
Boron - Total	< 0.5 @	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll 5NOV2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4039
Work Order #:82-2879
Account #: 006106
Date Sampled: 13 Oct 20 14:15
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 15

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	13 Oct 20 14:15	JSM
Lab, pH	* 6.9	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Field Appearance	Clear		NA	SM 2110	13 Oct 20 14:15	JSM
Field Temperature	11.0	Degrees C	0.1	SM 2550B	13 Oct 20 14:15	JSM
Field Conductivity	3226	umhos/cm	1	EPA 120.1	13 Oct 20 14:15	JSM
Fluoride	0.17	mg/l	0.10	SM4500-F-C	16 Oct 20 17:00	HT
Sulfate	883	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	9.0	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	2360	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	122	mg/l	1.0	6010D	16 Oct 20 12:44	MDE
Boron - Total	0.46	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll CC 5NOV2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:
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CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56538-0496

Report Date: 27 Oct 20
Lab Number: 20-W4040
Work Order #:82-2879
Account #: 006106
Date Sampled: 13 Oct 20 12:42
Date Received: 15 Oct 20 8:00
Sampled By: MVTL Field Service

PO #: 48895

Temp at Receipt: 2.0C

Project Name: OTP Coyote - Blue CCR

Sample Description: Blue 16

Event and Year: Fall 2020

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	15 Oct 20	HT
Field pH	6.66	s.u.	0.1	SM 4500 H+ B	13 Oct 20 12:42	JSM
Lab, pH	* 6.8	s.u.	0.1	SM4500-H+-B-11	15 Oct 20 17:00	HT
Field Appearance	Clear		NA	SM 2110	13 Oct 20 12:42	JSM
Field Temperature	10.8	Degrees C	0.1	SM 2550B	13 Oct 20 12:42	JSM
Field Conductivity	2540	umhos/cm	1	EPA 120.1	13 Oct 20 12:42	JSM
Fluoride	0.17	mg/l	0.10	SM4500-F-C	16 Oct 20 17:00	HT
Sulfate	853	mg/l	5.00	ASTM D516-11	21 Oct 20 9:34	SD
Chloride	9.6	mg/l	2.0	SM4500-Cl-E-11	19 Oct 20 9:19	SD
Total Dissolved Solids	2030	mg/l	10	USGS I1750-85	16 Oct 20 16:15	HT
Calcium - Total	152	mg/l	1.0	6010D	16 Oct 20 12:44	MDE
Boron - Total	0.39	mg/l	0.10	6010D	19 Oct 20 13:00	SZ

* Holding time exceeded

Approved by: Claudette K. Carroll 5NOV2020

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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: ND # ND-00016

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ACIL

Quality Control Report

Lab IDs: 20-W4034 to 20-W4040 **Project:** OTP Coyote - Blue CCR **Work Order:** 202082-2879

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 - Total mg/l	0.20	90	80-120	0.400	20-W4036	0.39	0.75	90	75-125	0.75	0.76	92	1.3	20	- -	- -	< 0.1 < 0.1
Calcium - Total mg/l	20.0 20.0	118 114	80-120 80-120	500 100	20W4001q 20W4036q	244 198	750 280	101 82	75-125 75-125	750 280	740 289	99 91	1.3 3.2	20 20	- - - -	- - - -	< 1 < 1 < 1 < 1
Chloride mg/l	30.0	97	80-120	30.0	20-W4036	8.1	37.4	98	80-120	37.4	37.2	97	0.5	20	-	-	< 2
Fluoride mg/l	0.50 0.50	102 100	90-110 90-110	0.500 0.500 0.500	20-W4036 20-W4038 20-W4059	0.15 0.11 0.10	0.61 0.65 0.59	92 108 98	80-120 80-120 80-120	0.61 0.65 0.59	0.62 0.71 0.62	94 120 104	1.6 8.8 5.0	20 20 20	- - -	- - -	< 0.1 < 0.1
pH units	- -	- -	- -	- -	- -	- -	- -	- -	- -	6.9 7.0	7.1 7.1	- -	2.9 1.4	20 20	- -	- -	- -
Sulfate mg/l	100	102	80-120	500	20-W4036	987	1440	91	80-120	1440	1410	85	2.1	20	-	-	< 5
Total Dissolved Solids mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1980 1960 3180	2000 1990 3250	- - -	1.0 1.5 2.2	20 20 20	- - -	- - -	< 10 < 10

Samples were received in good condition on 15 Oct 2020 at 0800.
Temperature upon receipt at the Bismarck laboratory was 2.0°C. Samples were received on ice and evidence of cooling had begun.
All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
With the exception of pH, all holding times were met.
Approved methodology was followed for all sample analyses.
All acceptance criteria were met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/duplicates unless noted here.

- For some analytes, the reported results were elevated due to additional dilutions required to minimize the effects of sample matrix.

Approved by: C. Carlo

5 NOV 2020

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Fall 2020**
Sample ID:	Blue 6
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: S @ 5-10 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

WELL INFORMATION

Well Locked?	YES	(NO)	
Well Labeled?	(YES)	NO	
Casing Strait?	(YES)	NO	
Grout Seal Intact?	YES	NO	~~Not Visible~~
Repairs Necessary?			
Casing Diameter:	2"		
Water Level Before Purge:	65.85	ft	
Total Depth of Well:	79.15	ft	
Well Volume:	8.2	liters	
Depth to Top of Pump:	72.58	ft	
Water Level After Sample:	72.06	ft	
Measurement Method:	Electric Water Level Indicator		

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	(NO)
Duplicate Sample ID:		

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 15	Sec.
PSI: ~~60~~	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
12 Oct 2020	1136	**Start of Well Purge**									
	1141	10.51	1988	6.68	0.29	70.8	214.16	68.60	300.0	1500.0	Slightly Turbid
	1201	11.04	2040	6.72	4.85	117.8	77.77	~~70~~.76	300.0	6000.0	Clear
	1211	11.35	2298	6.77	6.90	128.1	56.32	Below Pump	300.0	3000.0	Clear
		Purged	Dry								
13 Oct 2020	1055	Purged	well for 5 min	to clear	line			~~OHES~~	—	—	
	1100	9.82	2385	6.68	5.52	191.4	43.04	~~Below~~ 66.07	200.0	1000.0	Slightly Turbid

Well Stabilized? YES (NO) Total Volume Purged: 11,500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
13 Oct 2020	1100	9.82	2385	6.68			43.04				Clear

Comments: Slight obstruction in well about 60' down. Pump did not go down smoothly

13 Oct 2020 Had to pull pump due to stuck check ball before purging well for 5 min

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Fall 2020**
Sample ID:	Blue 7
Sampling Personal:	

Weather Conditions: Temp: 60 °F Wind: S @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	YES	NO	
Well Labeled?	YES	NO	
Casing Strait?	YES	NO	
Grout Seal Intact?	YES	NO	Not Visible
Repairs Necessary?			

Casing Diameter:	2"	
Water Level Before Purge:	82.62	ft
Total Depth of Well:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	82.73	ft
Measurement Method:	**Electric Water Level Indicator**	

SAMPLING INFORMATION

Purging Method:	**Bladder**	
Sampling Method:	**Bladder**	
Dedicated Equipment?	YES	NO

Duplicate Sample?	YES	NO
Duplicate Sample ID:	MS/MSD	

Bottle List:	
2-1 Liter Raw	1L
2-500mL Nitric	1-500mL Nitric
500mL Nitric (filtered)	
250mL Sulfuric	

Control Settings:		
Purge:	5	Sec.
Recover:	25	Sec.
PSI:		

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
12 Oct 2020	1246	**Start of Well Purge**									
	1251	10.29	2321	6.72	0.12	12.2	104.93	82.74	100.0	500.0	Clear
	1311	10.05	2381	6.66	0.56	3.0	48.85	82.73	100.0	2000.0	Clear
	1331	10.22	2348	6.67	1.11	13.4	32.54	82.74	100.0	2000.0	Clear
	1351	10.15	2009	6.86	2.64	19.8	29.86	82.62	100.0	2000.0	Clear
	1411	10.12	2411	6.70	2.73	25.7	25.61	82.68	100.0	2000.0	Clear
	1416	10.06	2402	6.68	2.79	33.6	25.02	82.70	100.0	500.0	Clear
	1421	9.97	2434	6.67	2.82	32.9	24.88	82.71	100.0	500.0	Clear

Well Stabilized? YES NO Total Volume Purged: 9500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
12 Oct 2020	1421	9.97	2434	6.67			24.88				Clear

Comments:	12 Oct 2020 Collected Field Blank

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Fall 2020**
Sample ID:	Blue 13
Sampling Personal:	

Weather Conditions: Temp: 40 °F Wind: S @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

WELL INFORMATION

Well Locked?	**YES**	**NO**	
Well Labeled?	**YES**	**NO**	
Casing Strait?	**YES**	**NO**	
Grout Seal Intact?	**YES**	**NO**	**Not Visible**
Repairs Necessary?			

Casing Diameter:	**2"**	
Water Level Before Purge:	105.54	ft
Total Depth of Well:	116.65	ft
Well Volume:	6.8	liters
Depth to Top of Pump:	114.12	ft
Water Level After Sample:	113.05	ft
Measurement Method:	**Electric Water Level Indicator**	

SAMPLING INFORMATION

Purging Method:	**Bladder**	
Sampling Method:	**Bladder**	
Dedicated Equipment?	**YES**	**NO**

Duplicate Sample?	**YES**	**NO**
Duplicate Sample ID:	—	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 15	Sec.
PSI: 100	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		Clarity, Color, Odor, Ect. clear, slightly turbid, turbid
12 Oct 2020	1056	**Start of Well Purge**									
	1101	10.25	4672	6.85	1.11	142.1	41.17	111.80	300.0	1500.0	Clear
	1121	10.88	5526	7.15	0.14	1.6	7.21	Below Pump	300.0	6000.0	Clear
		Purged	Dry								
13 Oct 2020	0935	Purged	well	for 5min	to Clear	1hr		106.85	~~100.0~~	~~500.0~~	~~Clear~~
	0940	9.32	5446	6.86	1.50	77.6	2.05		200.0	1000.0	Clear

Well Stabilized? **YES** **NO**

Total Volume Purged: 8500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
13 Oct 2020	0940	9.32	5446	6.86			2.05				Clear

Comments:	

Field Datasheet

Groundwater Assessment

MVTL
2616 E. Broadway Ave, Bismarck, ND
Phone: (701) 258-9720

Company:	OTP Coyote
Event:	Fall 2020
Sample ID:	Blue 14
Sampling Personal:	Sean Flynn

Weather Conditions: Temp: 40°F Wind: N @ 10-15 Precip: **Sunny / Partly Cloudy / ~~Cloudy~~**

WELL INFORMATION

Well Locked?	~~YES~~	NO	
Well Labeled?	~~YES~~	NO	
Casing Strait?	~~YES~~	NO	
Grout Seal Intact?	YES	NO	~~Not Visible~~
Repairs Necessary?			

Casing Diameter:	2"	
Water Level Before Purge:	79.93	ft
Total Depth of Well:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	~~NO~~

Duplicate Sample?	YES	~~NO~~
Duplicate Sample ID:	—	

Control Settings:		
Purge:	5	Sec.
Recover:	55	Sec.
PSI:		

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
14 Oct 2020	0900	**Start of Well Purge**									
	0905	9.46	5297	6.77	3.24	64.4	104.67	80.25	100.0	500.0	Clear
	0935	9.23	5068	6.78	8.31	129.5	58.35	81.11	100.0	3000.0	Clear
	1005	9.27	5034	6.76	7.77	136.4	37.17	81.70	100.0	3000.0	Clear
	1010	9.17	5054	6.75	7.62	133.4	24.75	81.87	100.0	500.0	Clear
	1015	9.15	5028	6.75	7.42	130.0	21.77	81.98	100.0	500.0	Clear
	1020	9.17	5039	6.76	7.27	126.1	29.09	82.16	100.0	500.0	Clear

Well Stabilized? **YES** / NO

Total Volume Purged: 8000.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
14 Oct 2020	1020	9.17	5039	~~6.76~~			29.09				Clear

Comments:	

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Fall 2020**
Sample ID:	Blue 15
Sampling Personal:	Jay Mag

Weather Conditions: Temp: 50 °F Wind: S @ 5-10 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO	
Well Labeled?	(YES)	NO	
Casing Strait?	(YES)	NO	
Grout Seal Intact?	(YES)	NO	Not Visible
Repairs Necessary?			

Casing Diameter:	2"	
Water Level Before Purge:	79.70	ft
Total Depth of Well:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	79.88	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	(NO)
Duplicate Sample ID:	—	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

Control Settings:	
Purge: 5	Sec.
Recover: 55	Sec.
PSI: 80	

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
13 Oct 2020	1320	Start of Well Purge									
	1325	12.20	3221	6.86	2.98	4.4	37.06	79.82	100.0	500.0	Clear
	1355	10.83	2847	6.68	0.77	34.8	13.01	79.85	100.0	3000.0	Clear
	1405	11.09	3229	6.67	0.91	28.7	8.30	79.86	100.0	1000.0	Clear
	1410	10.94	3225	6.67	0.83	27.6	6.24	79.86	100.0	500.0	Clear
	1415	11.04	3226	6.67	0.92	27.0	5.04	79.87	100.0	500.0	Clear

Well Stabilized? (YES) NO

Total Volume Purged: 5500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment Clarity, Color, Odor, Ect.
13 Oct 2020	1415	11.04	3226	6.67			5.04				Clear

Comments:	

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Fall 2020**
Sample ID:	Blue 16
Sampling Personal:	

Weather Conditions: Temp: 50 °F Wind: S @ 5-10 Precip: **Sunny / (Partly Cloudy) / Cloudy**

WELL INFORMATION

Well Locked?	(YES)	NO	
Well Labeled?	(YES)	NO	
Casing Strait?	(YES)	NO	
Grout Seal Intact?	YES	NO	~~Not Visible~~
Repairs Necessary?			

Casing Diameter:	2"	
Water Level Before Purge:	78.96	ft
Total Depth of Well:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	79.04	ft
Measurement Method:	Electric Water Level Indicator	

SAMPLING INFORMATION

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equipment?	YES	(NO)

Duplicate Sample?	YES	(NO)
Duplicate Sample ID:	—	

Control Settings:		
Purge:	5	Sec.
Recover:	55	Sec.
PSI:	80	

Bottle List:
2-1 Liter Raw
2-500mL Nitric
500mL Nitric (filtered)
250mL Sulfuric

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level	Pumping Rate	Liters Removed	Appearance or Comment
Purge Date	**Time**		±5%	±0.1	±10%	±10	<5.0	(ft)	mL/Min		clear, slightly turbid, turbid
13 Oct 2020	1122	**Start of Well Purge**									
	1127	9.68	2501	6.97	3.10	91.5	350.83	79.03	100.0	500.0	Slightly Turbid
	1157	10.51	2526	6.67	0.59	63.3	100.57	79.06	100.0	3000.0	Clear
	1227	10.77	2536	6.67	0.67	71.9	49.48	79.04	100.0	3000.0	Clear
	1232	10.83	2538	6.67	0.64	72.5	36.93	79.05	100.0	500.0	Clear
	1237	10.86	2538	6.66	0.61	73.5	37.86	79.06	100.0	500.0	Clear
	1242	10.76	2540	6.66	0.56	73.3	35.02	79.06	100.0	500.0	Clear

Well Stabilized? (YES) NO

Total Volume Purged: 8000.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH			Turbidity (NTU)				Appearance or Comment
											Clarity, Color, Odor, Ect.
13 Oct 2020	1242	10.76	2540	6.66			35.02				Clear

Comments:	

MVTL

2616 E. Broadway Ave
Bismarck, ND 58501
(701) 258-9720

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Blue CCR	Fall 2020	82-2879

Report To:	Otter Tail Power	CC:	Collected By:
Attn:	Josh Hollen		
Address:	PO Box 496 Fergus Falls, MN 56538-0496		
Phone:			
Email:	jhollen@otpco.com		

Lab Number	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL Nitric	500 mL Nitric (filtered)	250 mL Sulfuric	1 Liter Nitric	Temp (°C)	Spec. Cond.	pH	Appearance (clear, partly cloudy, cloudy)	Analysis Required
W4034	FB Blue	12 Oct 2020	NA	GW	X	X				NA	NA	NA	NA	OTP CCR App 3
W4035	Blue 6	13 Oct 2020	1100	GW	X	X				9.82	2385	6.68	Clear	
W4036	Blue 7/MS7/MSD7	12 Oct 2020	1421	GW	3	3				9.97	2434	6.67	Clear	
W4037	Blue 13	13 Oct 2020	0940	GW	X	X				9.32	5446	6.86	Clear	
W4038	Blue 14	14 Oct 2020	1020	GW	X	X				9.17	5039	6.76	Clear	
W4039	Blue 15	13 Oct 2020	1415	GW	X	X				11.04	3226	6.67	Clear	
W4040	Blue 16	13 Oct 2020	1242	GW	X	X				10.76	2540	6.66	Clear	

Comments:

Relinquished By		Sample Condition		Received By		
Name	Date/Time	Location	Temp (°C)	Name		Date/Time
1	15 Oct 2020 0800	~~Log In~~ Walk In #2	TM562 / ~~TM805~~	Emily Dirau		15 Oct 2020 0800
2						