



2023 Annual Groundwater Monitoring and Corrective Action Report

Blue Pit

***Coyote Station
Beulah, North Dakota***

Prepared for
Otter Tail Power Company

January 2024

2023 Annual Groundwater Monitoring and Corrective Action Report

Blue Pit

Coyote Station Beulah, North Dakota

January 2024

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Acronyms

Acronym	Description
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
NDAC	North Dakota Administrative Code
NDDEQ	North Dakota Department of Environmental Quality
OTP	Otter Tail Power Company
SSI	Statistically Significant Increase

Executive Summary

This summary provides an overview of the Groundwater Monitoring & Corrective Action Program status as required by 40 CFR §257.94(e)(6). The CCR unit operated under the detection monitoring program described in 40 CFR §257.94 and NDAC 33.1-20-08-06-04 at the start and at the end of the 2023 annual reporting period. The current status is detection monitoring.

The monitoring program did not identify any statistically significant increases over background for any of the detection monitoring constituents listed in Appendix III to the EPA CCR Rule and Appendix I to the NDDEQ CCR Rule; therefore, constituents listed in Appendix IV to the EPA CCR Rule and Appendix II to the NDDEQ CCR Rule were not monitored. Corrective action provisions of the CCR Rules were not required.

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), and the North Dakota Department of Environmental Quality (NDDEQ) CCR Rule (North Dakota Administrative Code [NDAC] Title 33.1, Article 20, Chapter 8). The Blue Pit is shown on Figure 1.

This 2023 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 40 CFR 257.94 of the EPA CCR Rule and NDAC 33.1-20-08-06-04 of the NDDEQ CCR Rule.

1.1 Purpose

As stated in 40 CFR 257.90(e) and NDAC 33.1-20-08-06-01(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). Statistical evaluation of monitoring results under detection monitoring program, which is the evaluation of groundwater monitoring data for statistically significant increases (SSIs) over background began on October 17, 2017, and continued through 2023.

In 2023, the monitoring program did not identify any statistically significant increases over background for any of the detection monitoring constituents listed in the CCR Rules; therefore, assessment monitoring constituents listed in Appendix IV to the EPA CCR Rule and Appendix II to the NDDEQ CCR Rule were not monitored. Corrective action provisions of the CCR Rules were not required.

1.3 CCR Rule Requirements

This Annual Report has been prepared in accordance with the requirements of 40 CFR 257.90(e) of the EPA CCR Rule and NDAC 33.1-20-08-06-01(e) of the NDDEQ CCR Rule, as outlined in the following Table 1.

Table 1 CCR Rule Requirements

EPA CCR Rule Reference (40 CFR)	NDDEQ CCR Rule Reference (NDAC)	Content Required in Report	Location
§257.90(e)(1)	§33.1-20-08-06-01(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)	§33.1-20-08-06-01(e)(2)	Discuss any new or decommissioned monitoring wells	Section 2.1.2 Changes to Monitoring System
§257.90(e)(3)	§33.1-20-08-06-01(e)(3)	All monitoring data obtained under §257.90 through §257.98 and §33.1-20-08-06; provide the number and date groundwater samples were collected, and the monitoring (i.e., detection or assessment)	Section 2.2 Monitoring and Analytical Results; Table 2, Figure 2, Figure 3, Figure 4, Appendices
§257.90(e)(4)	§33.1-20-08-06-01(e)(4)	Discuss any transition between monitoring programs	Not applicable – no transition between monitoring programs occurred
§257.90(e)(5)	§33.1-20-08-06-01(e)(5)	Other information specified in §257.90 through §257.98	Throughout report
§257.90(e)(6)	n/a	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 2023. 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 2024 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 40 CFR 257.90(e)(1) and NDAC 33.1-20-08-06-01(e)(1). The conceptual site model (CSM) used to develop the network along with 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 2023.

2.2 Monitoring and Analytical Results

Groundwater samples were collected during two semiannual sampling events and one verification resampling event. A total of 12 groundwater samples (six monitoring wells and two sampling events) were collected and analyzed for the detection monitoring constituents in 2023 under the detection monitoring program, consistent with the requirements of 40 CFR 257.94(c) and NDAC 33.1-20-08-06-04(c).

Elevated levels of calcium were measured in monitoring well BLUE14 during the spring 2023 detection monitoring event. Monitoring well BLUE14 was resampled for calcium within the 90-day timeframe allowed by the CCR Rule for determination of an SSI. The results of the resampling indicated that calcium concentrations were not statistically significantly higher than background. 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. Groundwater flow data, as required by 40 CFR 257.93(c) and NDAC 33.1-20-08-06-03(c), are presented in Figure 2, Figure 3, Figure 4, and Appendix B.

2.3 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program during 2023:

- Completed semiannual detection monitoring sampling for each background and downgradient well.

-
- Statistical analysis was conducted according to the Statistical Analysis Plan, Appendix B of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2017).
 - Evaluated monitoring results pursuant to 40 CFR 257.93(h) and NDAC 33.1-20-08-06-03(h).
 - Determined that no statistically significant increase over background levels occurred at any downgradient monitoring well during 2023.
 - Completed the closure of 10.10 acres and the reopening of 11.84 acres in the footprint of the Blue Pit in 2023.
 - Problems were not encountered during the reporting period.

The Annual Fugitive Dust Control Report (40 CFR 257.80(c) and NDAC 33.1-20-08-05-01(c)) is included as Appendix C.

2.4 Key Activities for Upcoming Year

The following key groundwater monitoring program activities are planned for 2024:

- Evaluate analytical results from both 2024 semiannual detection monitoring events for statistically significant increases (SSIs) according to the Statistical Analysis Plan (Carlson McCain, 2017).
- Continue the detection monitoring program in accordance with the CCR Rules.

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.

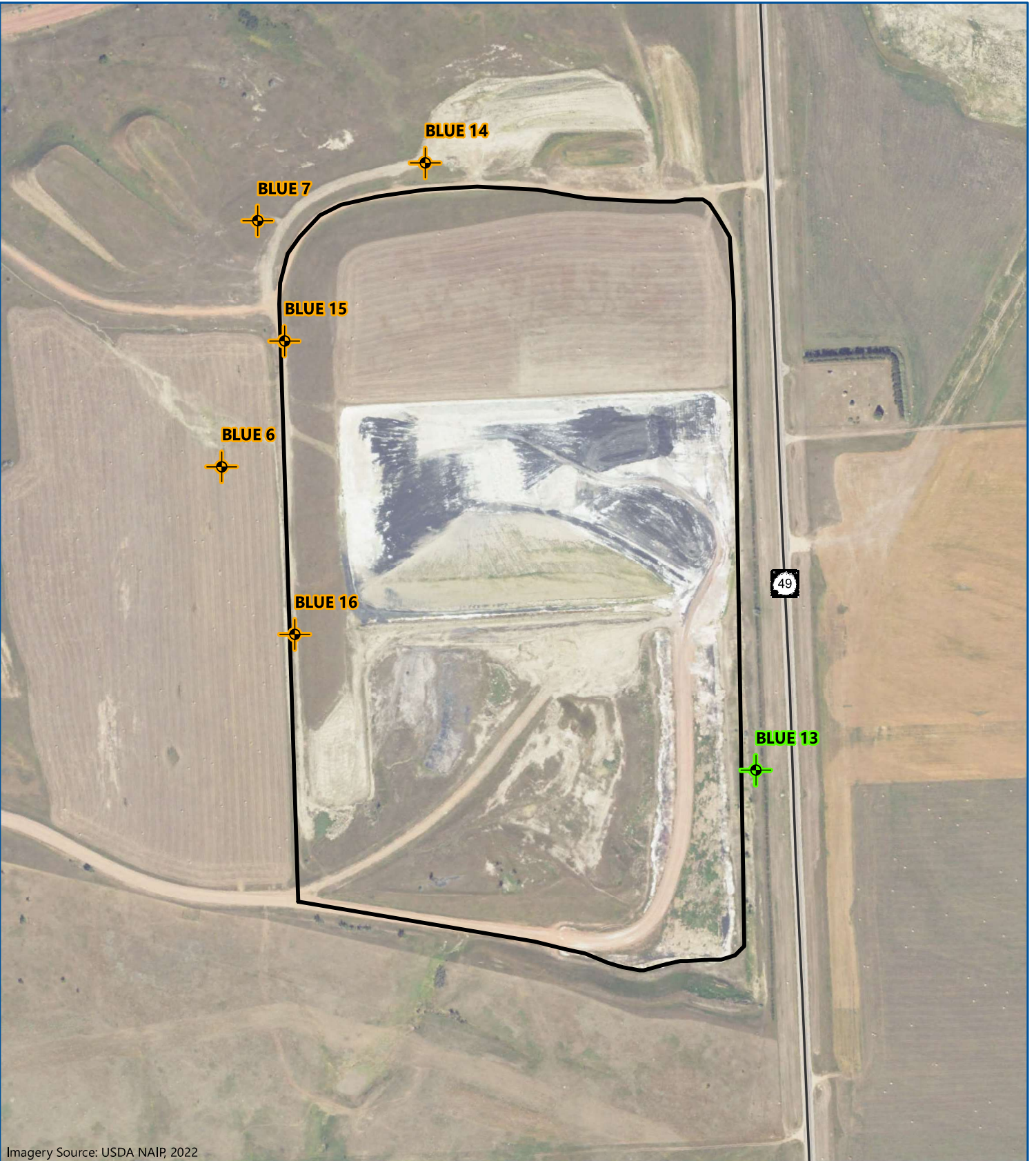
Tables

**Table 2
Groundwater Analytical Data Summary
Coyote Station
Oter Tail Power Company**

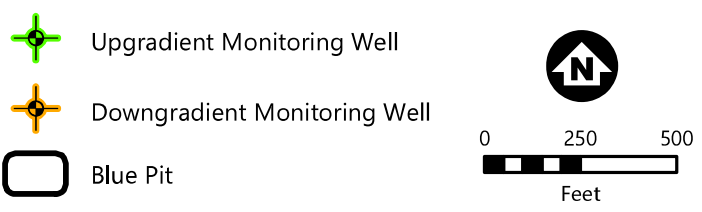
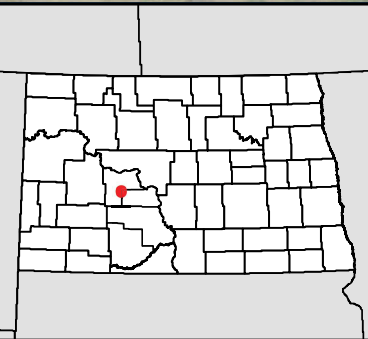
Parameter	Analysis Location	Units	Location	Blue 6	Blue 6	Blue 7	Blue 7	Blue 13	Blue 13	Blue 14	Blue 14	Blue 14	Blue 15	Blue 15	Blue 16	Blue 16	QC	QC
			Date	5/2/23	10/16/23	5/1/23	10/16/23	5/2/23	10/16/23	5/1/23	10/16/23	6/8/23	10/16/23	5/1/23	10/16/23	5/1/23	10/16/23	5/2/23
Sample Type			N	N	N	N	N	N	N	N	Resample	N	N	N	N	N	FB	FB
Appendix III																		
Boron, total	Lab	mg/l	0.37	0.26	0.37	0.28	0.60	< 0.5 U	0.67	--	< 0.5 U	0.44	0.33	0.38	0.30	< 0.1 U	< 0.1 U	
Calcium, total	Lab	mg/l	173	177	175	171	122	119	369	314	285	181	131	122	136	< 1 U	< 1 U	
Chloride	Lab	mg/l	8.1	7.4	8.4	7.0	42.2	51.9	11.5	--	10.5	10.0	8.7	8.5	7.6	< 2.0 U	< 2.0 U	
Fluoride	Lab	mg/l	0.18	0.17	0.18	0.18	0.25	0.25	0.11	--	0.13	0.17	0.20	0.19	0.20	< 0.1 U	< 0.1 U	
pH	Field	pH units	6.59	6.93	6.61	6.65	6.93	6.96	6.72	6.69	6.7	6.58	6.71	6.67	6.67	--	--	
Solids, total dissolved	Lab	mg/l	1750	1880	1860	1750	5090	5060	4920	--	4180	2900	2450	1610	1670	< 10 U	< 10 U	
Sulfate, as SO4	Lab	mg/l	818	834	838	858 J-	2600	2650	2690	--	2310	1440	1010	688	749	< 5 U	< 5 U	
Groundwater Elevation	Field	ft amsl	1923.19	1917.99	1921.39	1917.21	1941.42	1940.07	1923.95	1925.65	1919.84	1922.77	1917.84	1924.92	1918.84	--	--	

-- Not analyzed/Not available.
 N Sample Type: Normal Detection Monitoring
 FB Sample Type: Field Blank
 Resample Sample Type: Normal Detection Monitoring Resample
 U The analyte was analyzed for, but was not detected.
 J- The result is an estimated quantity and may be biased low.

Figures

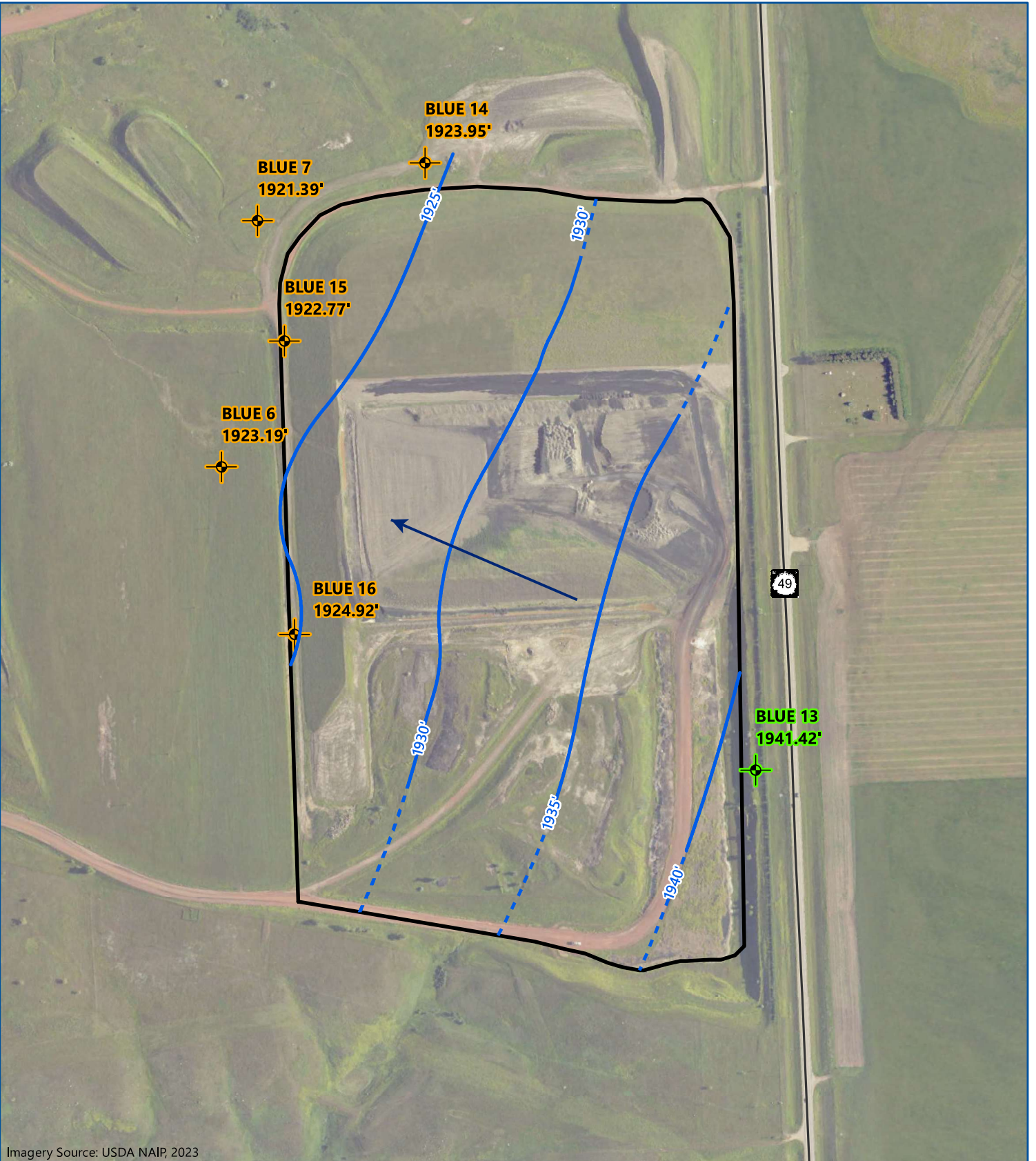


Imagery Source: USDA NAIP, 2022

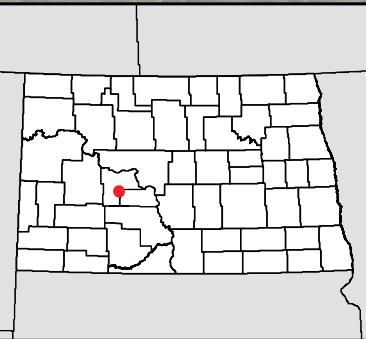







BLUE PIT LOCATION
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

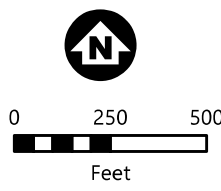
FIGURE 1



Imagery Source: USDA NAIP, 2023

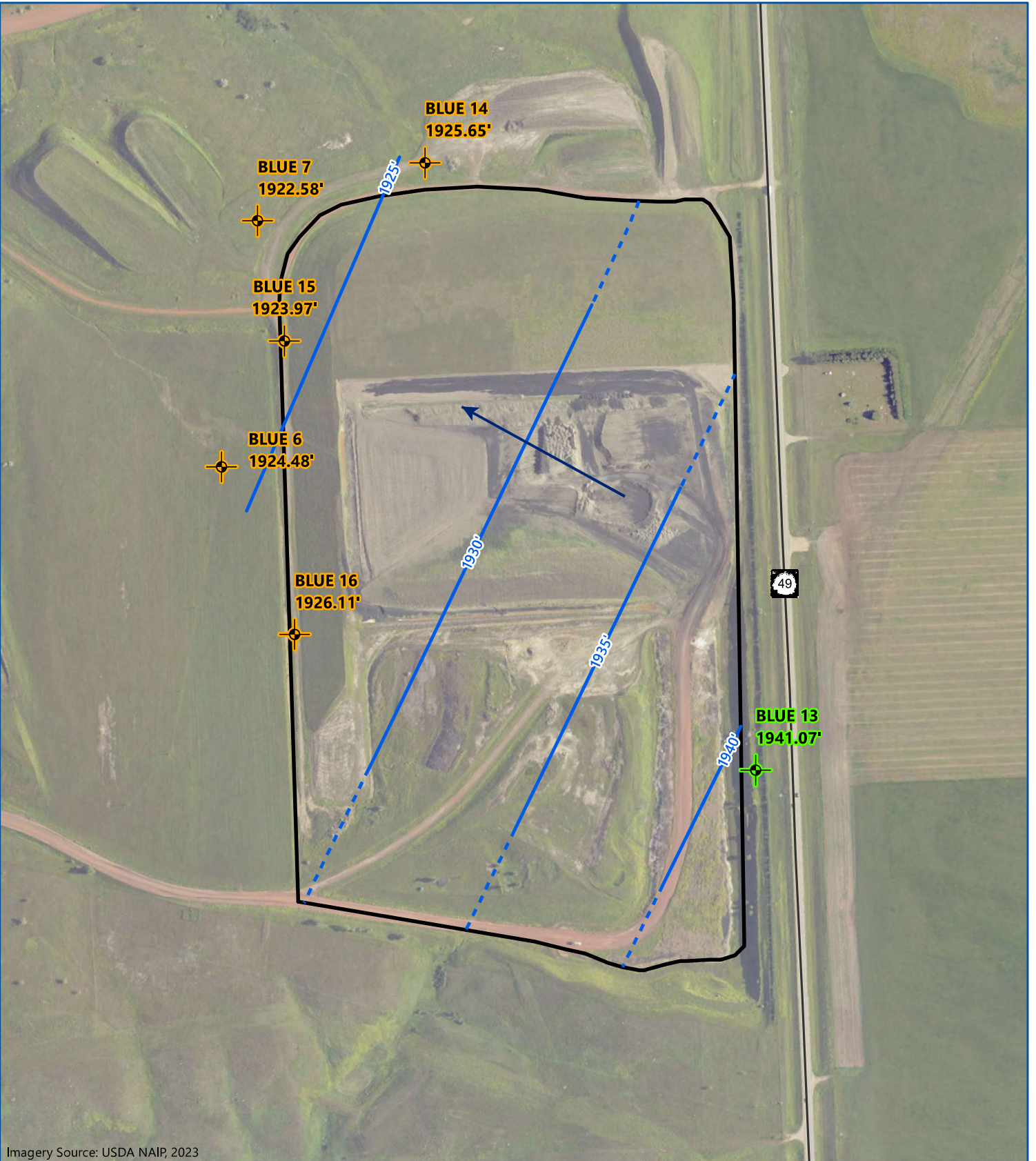


-  Upgradient Monitoring Well
-  Downgradient Monitoring Well
-  Groundwater Contour (ft MSL)
dashed where inferred
-  Groundwater Flow
-  Blue Pit

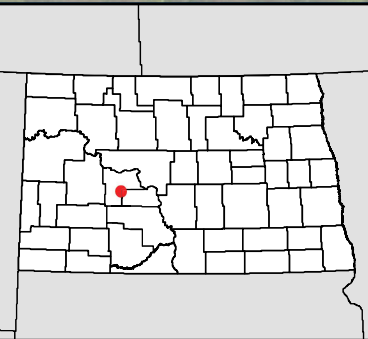







MAY 2023
GROUNDWATER CONTOURS
Coyote Station
Otter Tail Power Company
Beulah, North Dakota


FIGURE 2



Imagery Source: USDA NAIP, 2023

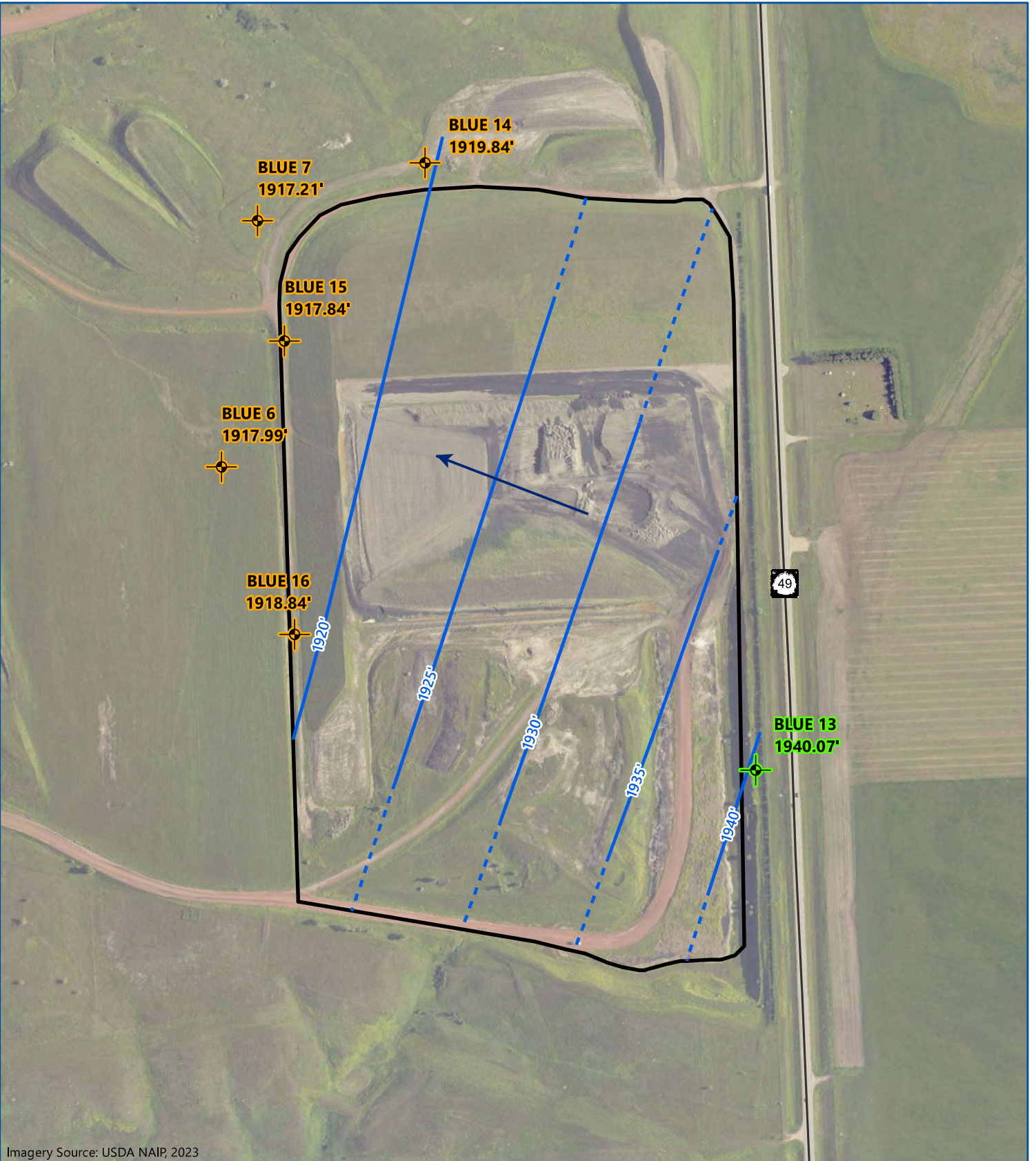


-  Upgradient Monitoring Well
-  Downgradient Monitoring Well
-  Groundwater Contour (ft MSL)
dashed where inferred
-  Groundwater Flow Direction
-  Blue Pit

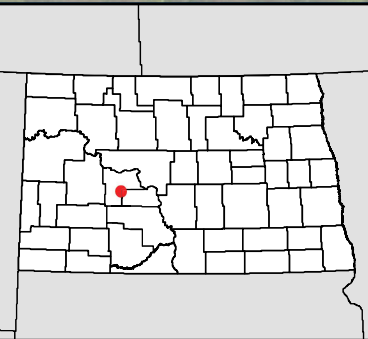

0 250 500
Feet






JUNE 2023
GROUNDWATER CONTOURS
Coyote Station
Otter Tail Power Company
Beulah, North Dakota


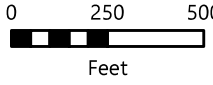
FIGURE 3



Imagery Source: USDA NAIP, 2023



-  Upgradient Monitoring Well
-  Downgradient Monitoring Well
-  Groundwater Contour (ft MSL)
dashed where inferred
-  Groundwater Flow Direction
-  Blue Pit



0 250 500
Feet

OCTOBER 2023
GROUNDWATER CONTOURS
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

FIGURE 4

Appendices

Appendix A

Laboratory Reports and Field Sheets



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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 6106 **Client:** Otter Tail Power Company
Workorder: OTP Coyote Blue Spring 2023 (14232) **PO:** 59625

Josh Hollen
Otter Tail Power Company
PO Box 496
Fergus Falls, MN 56538

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

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

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

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Account #: 6106

Client: Otter Tail Power Company

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

Analysis Results Comments

14232001 (FB Blue)

Sample analyzed beyond holding time.(pH)

14232002 (Blue 6)

Sample analyzed beyond holding time.(pH)

14232003 (Blue 7)

Sample analyzed beyond holding time.(pH)

14232004 (Blue 13)

Sample analyzed beyond holding time.(pH)

14232005 (Blue 14)

Sample analyzed beyond holding time.(pH)

14232006 (Blue 15)

Sample analyzed beyond holding time.(pH)

14232007 (Blue 16)

Sample analyzed beyond holding time.(pH)

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Report Date: Friday, May 19, 2023 5:15:22 PM



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



Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 14232001 **Date Collected:** 05/02/2023 08:48 **Matrix:** Groundwater
Sample ID: FB Blue **Date Received:** 05/02/2023 15:12 **Collector:** MVT L Field Service
Temp @ Receipt (C): 0.8 **Received on Ice:** Yes

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	<5	mg/L	5	1	05/03/2023 11:38	05/03/2023 11:38	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	<0.1	mg/L	0.1	1	05/02/2023 17:35	05/05/2023 09:38	SLZ	
Calcium	<1	mg/L	1	1	05/02/2023 17:35	05/03/2023 11:38	SLZ	

Method: SM4500 H+ B-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH	5.6	units	0.1	1	05/03/2023 17:41	05/03/2023 17:41	RAA	*

Method: SM4500-CI-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	<2.0	mg/L	2.0	1	05/09/2023 11:02	05/09/2023 11:02	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	<0.1	mg/L	0.1	1	05/03/2023 17:41	05/03/2023 17:41	RAA	

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	<10	mg/L	10	1	05/05/2023 08:13	05/05/2023 08:13	RAA	

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**Account #:** 6106**Client:** Otter Tail Power Company**Analytical Results**

Lab ID: 14232002 **Date Collected:** 05/02/2023 08:20 **Matrix:** Groundwater
Sample ID: Blue 6 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.8 **Received on Ice:** Yes

Method: 120.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Specific Conductance - Field	2101	umhos/cm	1	1	05/02/2023 08:20	05/02/2023 08:20	DJN	

Method: 150.2

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH - Field	6.59	units	0.01	1	05/02/2023 08:20	05/02/2023 08:20	DJN	

Method: 170.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Temperature - Field C	7.89	degrees C		1	05/02/2023 08:20	05/02/2023 08:20	DJN	

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	818	mg/L	25	5	05/03/2023 11:39	05/03/2023 11:39	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	0.37	mg/L	0.1	1	05/02/2023 17:35	05/05/2023 09:39	SLZ	
Calcium	173	mg/L	1	1	05/02/2023 17:35	05/03/2023 11:39	SLZ	

Method: SM4500 H+ B-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH	6.9	units	0.1	1	05/03/2023 17:46	05/03/2023 17:46	RAA	*

Method: SM4500-CI-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	8.1	mg/L	2.0	1	05/09/2023 11:03	05/09/2023 11:03	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	0.18	mg/L	0.1	1	05/03/2023 17:46	05/03/2023 17:46	RAA	

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Account #: 6106

Client: Otter Tail Power Company

Analytical Results

Lab ID: 14232002 **Date Collected:** 05/02/2023 08:20 **Matrix:** Groundwater
Sample ID: Blue 6 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.8 **Received on Ice:** Yes

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	1750	mg/L	10	1	05/05/2023 08:13	05/05/2023 08:13	RAA	

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Account #: 6106

Client: Otter Tail Power Company

Analytical Results

Lab ID: 14232003 Date Collected: 05/01/2023 11:46 Matrix: Groundwater
 Sample ID: Blue 7 Date Received: 05/02/2023 15:12 Collector: MVTL Field Service

Temp @ Receipt (C): 0.8

Method: 120.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Specific Conductance - Field	2470	umhos/cm	1	1	05/01/2023 11:46	05/01/2023 11:46	DJN	

Method: 150.2

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH - Field	6.61	units	0.01	1	05/01/2023 11:46	05/01/2023 11:46	DJN	

Method: 170.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Temperature - Field C	11.8	degrees C		1	05/01/2023 11:46	05/01/2023 11:46	DJN	

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	838	mg/L	25	5	05/03/2023 11:40	05/03/2023 11:40	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	0.37	mg/L	0.1	1	05/02/2023 17:35	05/05/2023 09:40	SLZ	
Calcium	175	mg/L	1	1	05/02/2023 17:35	05/03/2023 11:40	SLZ	

Method: SM4500 H+ B-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH	7.0	units	0.1	1	05/03/2023 17:54	05/03/2023 17:54	RAA	*

Method: SM4500-CI-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	8.4	mg/L	2.0	1	05/09/2023 11:05	05/09/2023 11:05	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	0.18	mg/L	0.1	1	05/03/2023 17:54	05/03/2023 17:54	RAA	

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 14232003 **Date Collected:** 05/01/2023 11:46 **Matrix:** Groundwater
Sample ID: Blue 7 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.8

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	1860	mg/L	10	1	05/05/2023 08:13	05/05/2023 08:13	RAA	

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 14232004 **Date Collected:** 05/02/2023 08:45 **Matrix:** Groundwater
Sample ID: Blue 13 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service

Temp @ Receipt (C): 0.8 **Received on Ice:** Yes

Method: 120.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Specific Conductance - Field	5415	umhos/cm	1	1	05/02/2023 08:45	05/02/2023 08:45	DJN	

Method: 150.2

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH - Field	6.93	units	0.01	1	05/02/2023 08:45	05/02/2023 08:45	DJN	

Method: 170.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Temperature - Field C	7.87	degrees C		1	05/02/2023 08:45	05/02/2023 08:45	DJN	

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	2600	mg/L	100	20	05/03/2023 11:41	05/03/2023 11:41	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	0.60	mg/L	0.5	5	05/02/2023 17:35	05/05/2023 09:42	SLZ	
Calcium	122	mg/L	5	5	05/02/2023 17:35	05/03/2023 11:50	SLZ	

Method: SM4500 H+ B-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH	7.4	units	0.1	1	05/03/2023 19:49	05/03/2023 19:49	RAA	*

Method: SM4500-CI-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	42.2	mg/L	2.0	1	05/09/2023 11:06	05/09/2023 11:06	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	0.25	mg/L	0.1	1	05/03/2023 19:49	05/03/2023 19:49	RAA	

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Account #: 6106

Client: Otter Tail Power Company

Analytical Results

Lab ID: 14232004 **Date Collected:** 05/02/2023 08:45 **Matrix:** Groundwater
Sample ID: Blue 13 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service

Temp @ Receipt (C): 0.8 **Received on Ice:** Yes

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	5090	mg/L	10	1	05/05/2023 08:13	05/05/2023 08:13	RAA	

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 14232006 **Date Collected:** 05/01/2023 16:30 **Matrix:** Groundwater
Sample ID: Blue 15 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service

Temp @ Receipt (C): 0.8

Method: 120.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Specific Conductance - Field	3788	umhos/cm	1	1	05/01/2023 16:30	05/01/2023 16:30	DJN	

Method: 150.2

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH - Field	6.58	units	0.01	1	05/01/2023 16:30	05/01/2023 16:30	DJN	

Method: 170.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Temperature - Field C	13.11	degrees C		1	05/01/2023 16:30	05/01/2023 16:30	DJN	

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	1440	mg/L	50	10	05/03/2023 11:50	05/03/2023 11:50	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	0.44	mg/L	0.1	1	05/02/2023 17:35	05/05/2023 09:43	SLZ	
Calcium	181	mg/L	1	1	05/02/2023 17:35	05/03/2023 11:47	SLZ	

Method: SM4500 H+ B-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH	7.0	units	0.1	1	05/03/2023 20:01	05/03/2023 20:01	RAA	*

Method: SM4500-Cl-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	10.0	mg/L	2.0	1	05/09/2023 11:08	05/09/2023 11:08	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	0.17	mg/L	0.1	1	05/03/2023 20:01	05/03/2023 20:01	RAA	

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 14232007 **Date Collected:** 05/01/2023 15:35 **Matrix:** Groundwater
Sample ID: Blue 16 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service

Temp @ Receipt (C): 0.8

Method: 120.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Specific Conductance - Field	2301	umhos/cm	1	1	05/01/2023 15:35	05/01/2023 15:35	DJN	

Method: 150.2

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH - Field	6.67	units	0.01	1	05/01/2023 15:35	05/01/2023 15:35	DJN	

Method: 170.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Temperature - Field C	13.15	degrees C		1	05/01/2023 15:35	05/01/2023 15:35	DJN	

Method: ASTM D516-16

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Sulfate	688	mg/L	25	5	05/03/2023 11:51	05/03/2023 11:51	AMC	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Boron	0.38	mg/L	0.1	1	05/02/2023 17:35	05/05/2023 09:43	SLZ	
Calcium	122	mg/L	1	1	05/02/2023 17:35	05/03/2023 11:54	SLZ	

Method: SM4500 H+ B-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH	7.0	units	0.1	1	05/03/2023 20:09	05/03/2023 20:09	RAA	*

Method: SM4500-CI-E 2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Chloride	8.5	mg/L	2.0	1	05/09/2023 11:09	05/09/2023 11:09	AMC	

Method: SM4500-F-C-2011

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Fluoride	0.19	mg/L	0.1	1	05/03/2023 20:09	05/03/2023 20:09	RAA	

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Account #: 6106

Client: Otter Tail Power Company

Analytical Results

Lab ID: 14232007 **Date Collected:** 05/01/2023 15:35 **Matrix:** Groundwater
Sample ID: Blue 16 **Date Received:** 05/02/2023 15:12 **Collector:** MVTL Field Service

Temp @ Receipt (C): 0.8

Method: USGS I-1750-85

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Total Dissolved Solids	1610	mg/L	10	1	05/05/2023 08:13	05/05/2023 08:13	RAA	

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**Account #:** 6106**Client:** Otter Tail Power Company**MVTL Field Services**

Sampling Report

Otter Tail Power - Coyote Station

Blue

Sample Event: Spring 2023
 Sampling Dates: May 1-2, 2023

Work Order #: 14232

Well Condition: All wells were found to be in fair condition.
 Lock Condition: None
 Sample Method: Low Flow with Bladder Pump

<u>Samples collected</u>	<u>Duplicate Sample Location</u>
Blue 6	Blue 7 MS/MSD
Blue 7	
Blue 13	
Blue 14	
Blue 15	
Blue 16	
Field Blank Blue	

Samples collected were placed on ice and transported back to the MVTL Laboratory in Bismarck, ND for analysis.

Jeremy Meyer
 MVTL Field Services

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Account #: 6106

Client: Otter Tail Power Company

QC Results Summary										WO #:	14232
Sulfate										Units: mg/L	
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)		
LFB			100	107.0		85	115				
LFB			100	105.0		85	115				
LFB			100	109.0		85	115				
LFB			100	112.0		85	115				
MB		<5									
MB		<5									
MB		<5									
MB		<5									
MS/MSD	13843003		500	80.5	79.9	85	115	0.0	20		
MS/MSD	14232003		500	107.4	107.9	85	115	0.0	20		
MS/MSD	14238003		1000	86.7	88.7	85	115	1.0	20		
Chloride										Units: mg/L	
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)		
LFB			30	93.0		90	110				
LFB			30	93.2		90	110				
LFB			30	93.3		90	110				
LFB			30	93.3		90	110				
LFB			30	94.7		90	110				
LFB			30	94.5		90	110				
LFB			30	93.9		90	110				
MB		<2.0									
MB		<2.0									
MB		<2.0									
MB		<2.0									
MB		<2.0									
MB		<2.0									
MB		<2.0									
MS/MSD	14232003		30	89.5	90.0	80	120	0.3	20		
MS/MSD	14485001		150	132.1	133.1	80	120	0.3	20		

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**Account #:** 6106**Client:** Otter Tail Power Company

Chloride		Units: mg/L							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MS/MSD	14750004		30	131.0	130.2	80	120	0.2	20

Boron		Units: mg/L							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	95.7		85	115		

MB		<0.1							
MS/MSD	14232003		0.4	90.1	94.2	70	130	2.2	20

Calcium		Units: mg/L							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	110.0		85	115		

LFB-MI			100	108.0		85	115		
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MB		<1							
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MB		<1							
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DUP	14216001							0.0	20
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DUP	14232003							5.7	20
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DUP	14238002							0.9	20
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Calcium		Units: mg/L							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDS	13738001		100	106.0	104.0	75	125	1.4	20

PDS/PDS	13759001		100	101.0	103.0	75	125	0.9	20
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PDS/PDS	14216001		100	105.0	105.0	75	125	0.1	20
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PDS/PDS	14232003		100	97.3	97.0	75	125	0.1	20
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PDS/PDS	14232004		500	102.0	101.0	75	125	1.3	20
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pH		Units: units							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	14216011							6.4	20

DUP	14232003							1.2	20
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DUP	14241001							1.0	20
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DUP	14408001							1.9	20
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pH		Units: units							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.7		98.33	101.67		

CRM-PH			6	99.0		98.33	101.67		
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CRM-PH			6	98.8		98.33	101.67		
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Account #: 6106

Client: Otter Tail Power Company

pH		Units: units							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.0		98.33	101.67		

Fluoride		Units: mg/L							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.39	103.0		83.8	111		
LFB-F			0.5	98.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	100.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	14232003		0.5	102.0	104.0	80	120	1.4	20
MS/MSD-F	14232007		0.5	104.0	106.0	80	120	1.4	20

Total Dissolved Solids		Units: mg/L							
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	98.0		90.35	110.33		
MB		<10							
DUP	14238003							11.2	20
DUP	14607008							5.3	20

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Account #: 6106

Client: Otter Tail Power Company

	Minnesota Valley Testing Laboratories 2616 E. Broadway Ave Bismarck, ND 58501 (701) 258-9720	Otter Tail Power Company WO: 14232 	Chain of Custody Record
	Report To: Otter Tail Power Attn: Josh Hollen Address: PO Box 496 Fergus Falls, MN 56538-0496 Phone: Email: jhollen@otpc.com	CC:	Project Name: OTP Coyote - Blue Event: Spring 2023 Sampled By: <i>Parren Niswagan</i>

Lab Number	Sample ID	Date	Time	Sample Type	Sample Containers				Field Readings				Analysis Required	
					1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	Temp (°C)	Spec. Cond.	pH	Appearance (Clear-C, Partly Cloudy-PC, Cloudy-CL)		
001	FB Blue	2 May 23	0848	GW	X	X				NA	NA	NA	NA	OTP CCR App 3 (see attachment)
002	Blue 6	2 May 23	0820	GW	X	X				7.89	2101	6.59	8.16 C	
003	Blue 7/MS7/MSD7	1 May 23	1146	GW	3	3				11.80	2470	6.61	4.97 C	
004	Blue 13	2 May 23	0845	GW	X	X				7.87	5415	6.93	26.14 C	
005	Blue 14	1 May 23	1538	GW	X	X				13.64	5543	6.72	3.51 C	
006	Blue 15	1 May 23	1630	GW	X	X				13.11	3788	6.58	2.36 C	
007	Blue 16	1 May 23	1535	GW	X	X				13.15	2301	6.67	4.76 C	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
<i>Jenny</i>	2 May 23 1512	Log In Walk In #2	0.8 TM562 / TM805	<i>[Signature]</i>	2 May 23 1512

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Account #: 6106

Client: Otter Tail Power Company

CCR - Appendix III Detection Monitoring

*OTP Coyote
Blue Pit*

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

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

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

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Spring 2023
 Sample ID: Blue 15
 Sampling Personal: Darren M. Swanson

Weather Conditions: Temp: 55 °F Wind: N @ 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:	<u>73.11</u>	ft	
Total Depth of Well:	<u>87.80</u>	ft	
Well Volume:	<u>9.1</u>	liters	
Depth to Top of Pump:		ft	
Water Level After Sample:	<u>73.25</u>	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:		
1 Liter Raw		
500mL Nitric		

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

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment
Purge Date	Time										
	<u>1555</u>	Start of Well Purge									
	<u>1615</u>	<u>13.17</u>	<u>3788</u>	<u>6.58</u>	<u>0.24</u>	<u>48.1</u>	<u>15.81</u>	<u>73.31</u>	<u>100</u>	<u>2000</u>	<u>clear</u>
	<u>1620</u>	<u>13.44</u>	<u>3803</u>	<u>6.58</u>	<u>0.24</u>	<u>48.6</u>	<u>3.16</u>	<u>73.25</u>	<u>100</u>	<u>500</u>	<u>clear</u>
	<u>1625</u>	<u>13.55</u>	<u>3764</u>	<u>6.58</u>	<u>0.23</u>	<u>49.1</u>	<u>2.46</u>	<u>73.28</u>	<u>100</u>	<u>500</u>	<u>clear</u>
	<u>1630</u>	<u>13.11</u>	<u>3788</u>	<u>6.58</u>	<u>0.24</u>	<u>49.3</u>	<u>3.36</u>	<u>73.28</u>	<u>100</u>	<u>500</u>	<u>clear</u>
	<u>1635</u>										

Well Stabilized? YES NO Total Volume Purged: 3500 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
<u>May 23</u>	<u>1630</u>	<u>13.11</u>	<u>3788</u>	<u>6.58</u>	<u>3.36</u>	<u>clear</u>

Comments:

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Account #: 6106

Client: Otter Tail Power Company



Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Spring 2023
Sample ID: Blue 7
Sampling Personal: Darren Niesweg

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

Weather Conditions: Temp: 54 °F Wind: Light @ Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION	
Well Locked?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Well Labeled?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Casing Strait?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Grout Seal Intact?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Not Visible</u>
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>76.94</u> ft
Total Depth of Well:	<u>92.75</u> ft
Well Volume:	<u>12.9</u> liters
Depth to Top of Pump:	
Water Level After Sample:	<u>76.97</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION		Control Settings:	
Purging Method:	<u>Bladder</u>	Purge:	<u>4</u> Sec.
Sampling Method:	<u>Bladder</u>	Recover:	<u>56</u> Sec.
Dedicated Equipment?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	PSI:	
Duplicate Sample?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
Duplicate Sample ID:	<u>MS/MSD</u>		
Bottle List:			
1 Liter Raw <u>X3</u>			
500mL Nitric			

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment
Purge Date	Time										
	1111	Start of Well Purge									
	1131	11.60	2495	6.61	0.44	19.4	6.72	76.97	100	2000	clear
	1136	11.71	2482	6.62	0.42	29.1	4.91	76.97	100	500	clear
	1141	11.70	2481	6.61	0.47	16.8	4.83	76.97	100	500	clear
	1146	11.80	2470	6.61	0.42	15.7	4.97	76.97	100	500	clear

Well Stabilized? YES NO Total Volume Purged: 3500 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
1 May 23	116	11.80	2470	6.61	4.97	clear

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Spring 2023
 Sample ID: Blue 14
 Sampling Personal: Darren N. Jensen

Weather Conditions: Temp: 50 °F Wind: NW @ Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION	
Well Locked?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Well Labeled?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Casing Strait?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Grout Seal Intact?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> <u>Not Visible</u>
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>75.60</u> ft
Total Depth of Well:	<u>86.98</u> ft
Well Volume:	<u>7.1</u> liters
Depth to Top of Pump:	<u>-</u> ft
Water Level After Sample:	<u>76.65</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION		Control Settings:
Purging Method:	<u>Bladder</u>	Purge: <u>Sec.</u>
Sampling Method:	<u>Bladder</u>	Recover: <u>Sec.</u>
Dedicated Equipment?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	PSI: <u>5</u>
Duplicate Sample?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
Duplicate Sample ID:		
Bottle List:		
1 Liter Raw		
500mL Nitric		

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment
Purge Date	Time										
	<u>1238</u>	<u>Start of Well Purge</u>									
	<u>1258</u>	<u>13.76</u>	<u>5556</u>	<u>6.74</u>	<u>0.44</u>	<u>74.2</u>	<u>10.95</u>	<u>76.62</u>	<u>100</u>	<u>2000</u>	<u>Clear</u>
	<u>1318</u>	<u>13.54</u>	<u>5725</u>	<u>6.73</u>	<u>0.41</u>	<u>62.0</u>	<u>6.73</u>	<u>76.65</u>	<u>100</u>	<u>2000</u>	<u>Clear</u>
	<u>1328</u>	<u>13.95</u>	<u>5714</u>	<u>6.73</u>	<u>0.38</u>	<u>54.9</u>	<u>4.91</u>	<u>76.65</u>	<u>100</u>	<u>1000</u>	<u>Clear</u>
	<u>1333</u>	<u>13.88</u>	<u>5688</u>	<u>6.72</u>	<u>0.32</u>	<u>54.2</u>	<u>4.92</u>	<u>76.65</u>	<u>100</u>	<u>500</u>	<u>Clear</u>
	<u>1338</u>	<u>13.64</u>	<u>5543</u>	<u>6.72</u>	<u>0.40</u>	<u>54.7</u>	<u>3.51</u>	<u>76.65</u>	<u>100</u>	<u>500</u>	<u>Clear</u>
Well Stabilized?		<u>YES</u>	<u>NO</u>	Total Volume Purged: <u>6000</u> Liters							

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
<u>May 23</u>	<u>1338</u>	<u>13.64</u>	<u>5543</u>	<u>6.72</u>	<u>3.51</u>	<u>Clear</u>

Comments:

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Account #: 6106

Client: Otter Tail Power Company



Field Datasheet

Groundwater Assessment

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

Company: OTP Coyote
 Event: Spring 2023
 Sample ID: Blue 16
 Sampling Personal: Darin Marwan

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

WELL INFORMATION			
Well Locked?	YES	<u>NO</u>	
Well Labeled?	<u>YES</u>	NO	
Casing Strait?	YES	NO	
Grout Seal Intact?	<u>YES</u>	NO	Not Visible
Repairs Necessary?			
Casing Diameter:	<u>2"</u>		
Water Level Before Purge:	<u>71.07</u> ft		
Total Depth of Well:	<u>97.55</u> ft		
Well Volume:	<u>164</u> liters		
Depth to Top of Pump:			
Water Level After Sample:	<u>71.05</u> ft		
Measurement Method:	<u>Electric Water Level Indicator</u>		

SAMPLING INFORMATION		
Purging Method:	<u>Bladder</u>	
Sampling Method:	<u>Bladder</u>	
Dedicated Equipment?	<u>YES</u>	NO
Duplicate Sample?	YES	<u>NO</u>
Duplicate Sample ID:		
Control Settings:		
Purge:	<u>4</u>	Sec.
Recover:	<u>50</u>	Sec.
PSI:		
Bottle List:		
1 Liter Raw		
500mL Nitric		

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment
Purge Date	Time										
	<u>1405</u>	<u>Start of Well Purge</u>									
<u>May 23</u>	<u>1425</u>	<u>13.11</u>	<u>2172</u>	<u>6.68</u>	<u>0.53</u>	<u>90.9</u>	<u>29.47</u>	<u>71.03</u>	<u>100</u>	<u>2000</u>	<u>clear</u>
	<u>1505</u>	<u>12.77</u>	<u>2155</u>	<u>6.68</u>	<u>0.87</u>	<u>93.7</u>	<u>16.42</u>	<u>71.02</u>	<u>100</u>	<u>2000</u>	<u>clear</u>
	<u>1525</u>	<u>12.72</u>	<u>2299</u>	<u>6.67</u>	<u>1.16</u>	<u>96.1</u>	<u>7.96</u>	<u>71.03</u>	<u>100</u>	<u>2000</u>	<u>clear</u>
	<u>1535</u>	<u>13.12</u>	<u>2311</u>	<u>6.67</u>	<u>1.26</u>	<u>97.3</u>	<u>5.15</u>	<u>71.03</u>	<u>100</u>	<u>2000</u>	<u>clear</u>
	<u>1538</u>	<u>13.35</u>	<u>2278</u>	<u>6.67</u>	<u>1.32</u>	<u>97.5</u>	<u>5.03</u>	<u>71.03</u>	<u>100</u>	<u>500</u>	<u>clear</u>
	<u>1535</u>	<u>13.15</u>	<u>2301</u>	<u>6.67</u>	<u>1.31</u>	<u>97.4</u>	<u>4.76</u>	<u>71.03</u>	<u>100</u>	<u>500</u>	<u>clear</u>
Well Stabilized?		<u>YES</u>	NO	Total Volume Purged: <u>9000</u> Liters							

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
<u>1 May 23</u>	<u>1535</u>	<u>13.15</u>	<u>2301</u>	<u>6.67</u>	<u>4.76</u>	<u>clear</u>

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Spring 2023
Sample ID: Blue 6
Sampling Personal: Darren Wisway

Weather Conditions: Temp: 33 °F Wind: Light Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION	
Well Locked?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Well Labeled?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Casing Strait?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Grout Seal Intact?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> Not Visible
Repairs Necessary?	<u>Cracked around grout seal</u>
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>59.04</u> ft
Total Depth of Well:	<u>79.15</u> ft
Well Volume:	<u>12.4</u> liters
Depth to Top of Pump:	
Water Level After Sample:	<u>62.33</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION		Control Settings:	
Purging Method:	<u>Bladder</u>	Purge:	<u>4</u> Sec.
Sampling Method:	<u>Bladder</u>	Recover:	<u>56</u> Sec.
Dedicated Equipment?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	PSI:	<u>1</u>
Duplicate Sample?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>		
Duplicate Sample ID:			
Bottle List:			
<u>1 Liter Raw</u>			
<u>500mL Nitric</u>			

FIELD READINGS

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment
Start of Well Purge											
Purge Date	Time										
	<u>0900</u>										
	<u>0905</u>	<u>4.47</u>	<u>2553</u>	<u>6.73</u>	<u>0.72</u>	<u>22.9</u>	<u>3.12</u>	<u>60.52</u>	<u>100</u>	<u>500</u>	<u>Clear</u>
<u>0925</u>	<u>4.30</u>	<u>2423</u>	<u>6.90</u>	<u>6.25</u>	<u>71.3</u>	<u>13.91</u>	<u>71.94</u>	<u>600</u>	<u>13000</u>	<u>Clear</u>	
								<u>TOP of Pump</u>			
<u>1 May 23</u>	<u>0815</u>							<u>59.03</u>	<u>100</u>	<u>500</u>	<u>Clear</u>
<u>2 May 23</u>											

Well Stabilized? YES NO Total Volume Purged: 13,000 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	DO	ORP	Turbidity (NTU)	Appearance or Comment
<u>2 May 23</u>	<u>0820</u>	<u>7.89</u>	<u>2101</u>	<u>6.59</u>	<u>1.74</u>	<u>74.0</u>	<u>8.16</u>	<u>Clear</u>

Comments:

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Report Date: Friday, May 19, 2023 5:15:22 PM



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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Spring 2023
 Sample ID: Blue 13
 Sampling Personal: Darren Niesway

Weather Conditions: Temp: 33 °F Wind: light @ Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION	
Well Locked?	YES NO <u>Cap is broken</u>
Well Labeled?	YES NO
Casing Strait?	YES NO
Grout Seal Intact?	YES NO <u>cracked concrete Not Visible</u>
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>103.85</u> ft
Total Depth of Well:	<u>116.65</u> ft
Well Volume:	<u>2.9</u> liters
Depth to Top of Pump:	
Water Level After Sample:	<u>104.81</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION		Control Settings:	
Purging Method:	<u>Bladder</u>	Purge:	<u>4</u> Sec.
Sampling Method:	<u>Bladder</u>	Recover:	<u>11</u> Sec.
Dedicated Equipment?	<u>YES</u> NO	PSI:	
Duplicate Sample?	<u>YES</u> NO		
Duplicate Sample ID:			
Bottle List:			
1 Liter Raw			
500mL Nitric			

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment
Purge Date	Time										
	0940	Start of Well Purge									
1 May 23	1000	9.69	5943	6.90	1.27	3.9	113.11	113.89	600	13000	ST (SD)
		purged dry									
		top of pump									
2 May 23	0840	started to purge well									
							103.11		500		

Well Stabilized? YES ~~NO~~ Total Volume Purged: 12,500 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Appearance or Comment
2 May 23	0815	7.87	5415	6.93	3.59	51.5	26.19	clear

Comments: FB Blue collected at well,

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet
Groundwater Assessment

Company: OTP Coyote
Event: Spring 2023
Sample ID: Blue
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:			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:			
Bottle List:			
1 Liter Raw			
500mL Nitric			
Control Settings:			
Purge:		Sec.	
Recover:		Sec.	
PSI:			

FIELD READINGS											
Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment Clarity, Color, Odor, Ect.
Purge Date	Time										
		Start of Well Purge									
Well Stabilized?		YES	NO	Total Volume Purged: _____ Liters							

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	Pumping Rate mL/Min	mL Removed	Appearance or Comment Clarity, Color, Odor, Ect.

Comments: _____

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Account #: 6106 **Client:** Otter Tail Power Company
Workorder: OTP Coyote - Blue (17852) **PO:** 59625

Josh Hollen
Otter Tail Power Company
PO Box 496
Fergus Falls, MN 56538

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

C. Carroll

Claudette Carroll, Lab Manager Bismarck, ND

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

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

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Account #: 6106

Client: Otter Tail Power Company

Workorder Summary

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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Page 2 of 8



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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 17852001 **Date Collected:** 06/08/2023 13:10 **Matrix:** Groundwater
Sample ID: Blue 14 **Date Received:** 06/08/2023 14:50 **Collector:** MVTL Field Service
Temp @ Receipt (C): 5.8 **Received on Ice:** Yes

Method: 120.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Specific Conductance - Field	5225	umhos/cm	1	1	06/08/2023 13:10	06/08/2023 13:10	JSM	

Method: 150.2

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
pH - Field	6.69	units	0.01	1	06/08/2023 13:10	06/08/2023 13:10	JSM	

Method: 170.1

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Temperature - Field C	15.7	degrees C		1	06/08/2023 13:10	06/08/2023 13:10	JSM	

Method: EPA 6010D

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	By	Qual
Calcium	314	mg/L	5	5	06/08/2023 17:48	06/12/2023 14:07	SLZ	

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Account #: 6106

Client: Otter Tail Power Company

MVTL Field Services

Sampling Report

Otter Tail Power - Coyote Station

Blue

Sample Event:	Resample 14	Work Order #:	17852
Sampling Dates:	8-Jun-23		
Well Condition:	All wells were found to be in fair condition.		
Lock Condition:	None		
Sample Method:	Low Flow with Bladder Pump		

<u>Samples collected</u>	<u>Duplicate Sample Location</u>
Blue 14	None
Resample for Calcium	

Samples collected were placed on ice and transported back to the MVTL Laboratory in Bismarck, ND for analysis.

Jeremy Meyer
MVTL Field Services

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**Account #:** 6106**Client:** Otter Tail Power Company**QC Results Summary****WO #:** 17852

Calcium									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	105.0		85	115		
LFB-MI			100	112.0		85	115		
LFB-MI			100	108.0		85	115		
MB		<1							
MB		<1							
MB		<1							
DUP	17714002							6.3	20
DUP	17719001							1.8	20
DUP	17846029							0.8	20
DUP	17852001							1.0	20
DUP	17868002							0.9	20

Calcium									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDS	17268002		100	103.0	106.0	75	125	2.1	20
PDS/PDS	17268007		100	103.0	103.0	75	125	0.3	20
PDS/PDS	17448005		500	97.3	103.0	75	125	3.1	20
PDS/PDS	17714005		100	98.1	106.0	75	125	5.4	20
PDS/PDS	17714006		100	107.0	106.0	75	125	0.5	20
PDS/PDS	17846032		500	105.0	108.0	75	125	1.5	20

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Account #: 6106

Client: Otter Tail Power Company

	Minnesota Valley Testing Laboratories 2616 E. Broadway Ave Bismarck, ND 58501 (701) 258-9720	Otter Tail Power Company WO: 17852 	Chain of Custody Record
	Report To: Otter Tail Power Attn: Josh Hollen Address: PO Box 496 Fergus Falls, MN 56538-0496 Phone: Email: jhollen@otpc.com		Project Name: OTP Coyote - Blue Event: Sampled By: <i>J. Hollen</i>

Report To: Otter Tail Power Attn: Josh Hollen Address: PO Box 496 Fergus Falls, MN 56538-0496 Phone: Email: jhollen@otpc.com	CC:	Project Name: OTP Coyote - Blue Event: Sampled By: <i>J. Hollen</i>
--	-----	--

Lab Number	Sample ID	Sample Information		Sample Type	Sample Containers				Field Readings				Analysis Required
		Date	Time		1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	Temp (°C)	Spec. Cond.	pH	Appearance (Clear-C, Partly Cloudy-PC, Cloudy-CL)	
001	Blue 14	6 Jun 23	1310	GW	X	X			15.70	5225	6.69	C	Calcium

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
<i>J. Hollen</i>	8 Jun 23 7450	Log In Walk In #2	ROI 5.8 TM562 / TM805	<i>J. Hollen</i>	8 Jun 23 1450
2					

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**
 Event: **Spring 2023**
 Sample ID: **Blue 14**
 Sampling Personal: *[Signature]*

Weather Conditions: Temp: **90°F** Wind: **S @ 5-10** Precip: **Sunny/ Partly Cloudy / Cloudy**

WELL INFORMATION	
Well Locked?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Well Labeled?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Casing Strait?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Grout Seal Intact?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Not Visible
Repairs Necessary?	
Casing Diameter:	2"
Water Level Before Purge:	73.90 ft
Total Depth of Well:	ft
Well Volume:	liters
Depth to Top of Pump:	ft
Water Level After Sample:	74.80 ft
Measurement Method:	Electric Water Level Indicator

SAMPLING INFORMATION	
Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equipment?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Duplicate Sample?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Duplicate Sample ID:	
Bottle List:	
1 Liter Raw	
500mL Nitric	
Control Settings:	
Purge:	Sec.
Recover:	Sec.
PSI:	

Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate ml/Min	mL Removed	Appearance or Comment
Purge Date	Time										
8 June 23	1150	Start of Well Purge									
	1200	24.21	5529	6.67	0.94	162.8	28.81	74.63	100.0	1000.0	Clear
	1220	24.51	5454	6.63	0.33	61.9	22.10	74.60	100.0	2000.0	Clear
	1240	15.08	5288	6.69	0.19	45.7	13.75	74.65	100.0	2000.0	Clear
	1300	15.34	5255	6.70	0.23	46.1	4.91	74.71	100.0	2000.0	Clear
	1305	15.65	5225	6.69	0.21	42.1	3.11	74.74	100.0	500.0	Clear
	1310	15.70	5225	6.69	0.24	38.4	3.37	74.76	100.0	500.0	Clear
Well Stabilized?		YES	NO	Total Volume Purged: 6000.0 Liters							

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
8 June 23	1310	15.70	5225	6.69	3.37	Clear

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Surface water Assessment

Company: OTP Coyote

Event: _____

Sampling Personal: J. Jones

Weather Conditions: Temp: 90 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

Well ID	Date	Time	Casing Diameter	Water Level (ft)	Total Depth (ft)	Comments
Blue 6		1134	2"	57.75		
Blue 7		1138	2"	75.75		
Blue 13		1336	2"	104.20		
Blue 14		1143	2"	73.90		
Blue 15		1127	2"	71.91	—	
Blue 16		1131	2"	69.83	—	

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Account #: 6106 **Client:** Otter Tail Power Company
Workorder: OTP Coyote - Blue Fall 2023 (31257) **PO:** 59625

Josh Hollen
Otter Tail Power Company
PO Box 496
Fergus Falls, MN 56538

Certificate of Analysis

Approval

All data reported has been reviewed and approved by:

Claudette Carroll, Lab Manager Bismarck, ND

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

NEW ULM LAB CERTIFICATIONS:
MN LAB # 027-015-125 ND WW/DW # R-040

BISMARCK LAB CERTIFICATIONS:
MN LAB # 038-999-267 ND W/DW # ND-016

Workorder Comments

All analytes with dilution factors greater than 1 (displayed in DF column) required dilution due to matrix or high concentration of target analyte unless otherwise noted and reporting limits (RDL column) have been adjusted accordingly.

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**Account #:** 6106**Client:** Otter Tail Power Company**Analytical Results**

Lab ID: 31257001 **Date Collected:** 10/16/2023 **Matrix:** Groundwater
Sample ID: FB Blue **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1	10/25/2023 11:27	10/25/2023 11:27	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	10/17/2023 16:50	10/26/2023 09:55	
Calcium	<1	mg/L	1	1	10/17/2023 16:50	10/23/2023 10:50	
Method: SM4500 H+ B-2011							
pH	6.3	units	0.1	1	10/17/2023 16:20	10/17/2023 16:20	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1	10/24/2023 11:39	10/24/2023 11:39	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1	10/17/2023 16:20	10/17/2023 16:20	
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Sample Comments

Time sampled was not supplied by the client.

Analysis Results Comments**pH**

Sample analyzed beyond holding time.

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Report Date: Monday, November 27, 2023 3:38:34 PM

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**Account #:** 6106**Client:** Otter Tail Power Company**Analytical Results**

Lab ID: 31257002 **Date Collected:** 10/16/2023 16:16 **Matrix:** Groundwater
Sample ID: Blue 6 **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2193	umhos/cm	1	1	10/16/2023 16:16	10/16/2023 16:16	
Method: 150.2							
pH - Field	6.93	units	0.01	1	10/16/2023 16:16	10/16/2023 16:16	
Method: 170.1							
Temperature - Field C	16.28	degrees C		1	10/16/2023 16:16	10/16/2023 16:16	
Method: ASTM D516-16							
Sulfate	834	mg/L	25	5	10/25/2023 11:28	10/25/2023 11:28	
Method: EPA 6010D							
Boron	0.26	mg/L	0.1	1	10/17/2023 16:50	10/26/2023 09:57	
Calcium	177	mg/L	1	1	10/17/2023 16:50	10/23/2023 10:53	
Method: SM4500 H+ B-2011							
pH	6.7	units	0.1	1	10/17/2023 16:26	10/17/2023 16:26	*
Method: SM4500-CI-E 2011							
Chloride	7.4	mg/L	2.0	1	10/24/2023 11:40	10/24/2023 11:40	
Method: SM4500-F-C-2011							
Fluoride	0.17	mg/L	0.1	1	10/17/2023 16:26	10/17/2023 16:26	
Method: USGS I-1750-85							
Total Dissolved Solids	1880	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Analysis Results Comments**pH**

Sample analyzed beyond holding time.

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 31257003 **Date Collected:** 10/16/2023 13:40 **Matrix:** Groundwater
Sample ID: Blue 7 **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2238	umhos/cm	1	1	10/16/2023 13:40	10/16/2023 13:40	
Method: 150.2							
pH - Field	6.65	units	0.01	1	10/16/2023 13:40	10/16/2023 13:40	
Method: 170.1							
Temperature - Field C	12.17	degrees C		1	10/16/2023 13:40	10/16/2023 13:40	
Method: ASTM D516-16							
Sulfate	858	mg/L	50	10	10/25/2023 11:33	10/25/2023 11:33	*
Method: EPA 6010D							
Boron	0.28	mg/L	0.1	1	10/17/2023 16:50	10/26/2023 09:59	
Calcium	171	mg/L	1	1	10/17/2023 16:50	10/23/2023 10:54	
Method: SM4500 H+ B-2011							
pH	6.8	units	0.1	1	10/17/2023 16:32	10/17/2023 16:32	*
Method: SM4500-Cl-E 2011							
Chloride	7.0	mg/L	2.0	1	10/24/2023 11:41	10/24/2023 11:41	
Method: SM4500-F-C-2011							
Fluoride	0.18	mg/L	0.1	1	10/17/2023 16:32	10/17/2023 16:32	
Method: USGS I-1750-85							
Total Dissolved Solids	1750	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Analysis Results Comments**Sulfate**

Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample recovery was acceptable.

pH

Sample analyzed beyond holding time.

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 31257004 **Date Collected:** 10/16/2023 16:50 **Matrix:** Groundwater
Sample ID: Blue 13 **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	6084	umhos/cm	1	1	10/16/2023 16:50	10/16/2023 16:50	
Method: 150.2							
pH - Field	6.96	units	0.01	1	10/16/2023 16:50	10/16/2023 16:50	
Method: 170.1							
Temperature - Field C	13.91	degrees C		1	10/16/2023 16:50	10/16/2023 16:50	
Method: ASTM D516-16							
Sulfate	2650	mg/L	200	40	10/25/2023 13:38	10/25/2023 13:38	
Method: EPA 6010D							
Boron	<0.5	mg/L	0.5	5	10/17/2023 16:50	10/26/2023 10:21	
Calcium	119	mg/L	5	5	10/17/2023 16:50	10/23/2023 10:55	
Method: SM4500 H+ B-2011							
pH	7.1	units	0.1	1	10/17/2023 16:38	10/17/2023 16:38	*
Method: SM4500-Cl-E 2011							
Chloride	51.9	mg/L	2.0	1	10/24/2023 11:42	10/24/2023 11:42	
Method: SM4500-F-C-2011							
Fluoride	0.25	mg/L	0.1	1	10/17/2023 16:38	10/17/2023 16:38	
Method: USGS I-1750-85							
Total Dissolved Solids	5060	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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**Account #:** 6106**Client:** Otter Tail Power Company**Analytical Results**

Lab ID: 31257005 **Date Collected:** 10/16/2023 12:40 **Matrix:** Groundwater
Sample ID: Blue 14 **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	5044	umhos/cm	1	1	10/16/2023 12:40	10/16/2023 12:40	
Method: 150.2							
pH - Field	6.7	units	0.01	1	10/16/2023 12:40	10/16/2023 12:40	
Method: 170.1							
Temperature - Field C	12.18	degrees C		1	10/16/2023 12:40	10/16/2023 12:40	
Method: ASTM D516-16							
Sulfate	2310	mg/L	100	20	10/25/2023 13:39	10/25/2023 13:39	
Method: EPA 6010D							
Boron	<0.5	mg/L	0.5	5	10/17/2023 16:50	10/26/2023 10:23	
Calcium	285	mg/L	5	5	10/17/2023 16:50	10/23/2023 10:56	
Method: SM4500 H+ B-2011							
pH	6.8	units	0.1	1	10/17/2023 17:38	10/17/2023 17:38	*
Method: SM4500-Cl-E 2011							
Chloride	10.5	mg/L	2.0	1	10/24/2023 11:43	10/24/2023 11:43	
Method: SM4500-F-C-2011							
Fluoride	0.13	mg/L	0.1	1	10/17/2023 17:38	10/17/2023 17:38	
Method: USGS I-1750-85							
Total Dissolved Solids	4180	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Analysis Results Comments**pH**

Sample analyzed beyond holding time.

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 31257006 **Date Collected:** 10/16/2023 15:05 **Matrix:** Groundwater
Sample ID: Blue 15 **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	3108	umhos/cm	1	1	10/16/2023 15:05	10/16/2023 15:05	
Method: 150.2							
pH - Field	6.71	units	0.01	1	10/16/2023 15:05	10/16/2023 15:05	
Method: 170.1							
Temperature - Field C	12.92	degrees C		1	10/16/2023 15:05	10/16/2023 15:05	
Method: ASTM D516-16							
Sulfate	1010	mg/L	50	10	10/25/2023 13:41	10/25/2023 13:41	
Method: EPA 6010D							
Boron	0.33	mg/L	0.1	1	10/17/2023 16:50	10/26/2023 10:24	
Calcium	131	mg/L	1	1	10/17/2023 16:50	10/23/2023 10:57	
Method: SM4500 H+ B-2011							
pH	6.8	units	0.1	1	10/17/2023 17:44	10/17/2023 17:44	*
Method: SM4500-Cl-E 2011							
Chloride	8.7	mg/L	2.0	1	10/24/2023 11:44	10/24/2023 11:44	
Method: SM4500-F-C-2011							
Fluoride	0.20	mg/L	0.1	1	10/17/2023 17:44	10/17/2023 17:44	
Method: USGS I-1750-85							
Total Dissolved Solids	2450	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 31257007 **Date Collected:** 10/16/2023 16:00 **Matrix:** Groundwater
Sample ID: Blue 16 **Date Received:** 10/16/2023 18:15 **Collector:** MVTL Field Service
Temp @ Receipt (C): 4.8 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2220	umhos/cm	1	1	10/16/2023 16:00	10/16/2023 16:00	
Method: 150.2							
pH - Field	6.67	units	0.01	1	10/16/2023 16:00	10/16/2023 16:00	
Method: 170.1							
Temperature - Field C	13.14	degrees C		1	10/16/2023 16:00	10/16/2023 16:00	
Method: ASTM D516-16							
Sulfate	749	mg/L	25	5	10/25/2023 13:42	10/25/2023 13:42	
Method: EPA 6010D							
Boron	0.30	mg/L	0.1	1	10/17/2023 16:50	10/26/2023 10:26	
Calcium	136	mg/L	1	1	10/17/2023 16:50	10/23/2023 10:58	
Method: SM4500 H+ B-2011							
pH	6.8	units	0.1	1	10/17/2023 17:51	10/17/2023 17:51	*
Method: SM4500-Cl-E 2011							
Chloride	7.6	mg/L	2.0	1	10/24/2023 11:46	10/24/2023 11:46	
Method: SM4500-F-C-2011							
Fluoride	0.20	mg/L	0.1	1	10/17/2023 17:51	10/17/2023 17:51	
Method: USGS I-1750-85							
Total Dissolved Solids	1670	mg/L	10	1	10/19/2023 16:52	10/19/2023 16:52	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 6106

Client: Otter Tail Power Company

QC Results Summary							WO #: 31257		
Sulfate									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			100	102.0		85	115		
LFB			100	96.5		85	115		
LFB			100	95.3		85	115		
LFB			100	100.0		85	115		
LFB			100	96.7		85	115		
LFB			100	98.2		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
LFB			100	102.0		85	115		
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MB		<5							
MS/MSD	31043001		1000	93.2	93.1	85	115	0.0	20
MS/MSD	31257003		1000	81.7	83.1	85	115	0.6	20
MS/MSD	31258006		100	99.5	100.6	85	115	0.8	20
MS/MSD	31449001		500	86.8	86.6	85	115	0.1	20
MS/MSD	31724004		2000	88.7	90.5	85	115	0.8	20
MS/MSD	31740009		2000	88.5	86.4	85	115	0.8	20
MS/MSD	31817001		2000	93.0	94.5	85	115	1.2	20
MS/MSD	31825010		10000	65.7	59.9	85	115	6.1	20
Chloride									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	94.0		90	110		

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Account #: 6106

Client: Otter Tail Power Company

Chloride									
Units: mg/L									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB			30	92.9		90	110		
LFB			30	93.2		90	110		
LFB			30	93.7		90	110		
LFB			30	93.9		90	110		
LFB			30	94.5		90	110		
LFB			30	94.7		90	110		
LFB			30	94.5		90	110		
LFB			30	94.4		90	110		
LFB			30	94.7		90	110		
LFB			30	94.0		90	110		
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MB		<2.0							
MS/MSD	31257003		30	83.8	80.6	80	120	2.8	20
MS/MSD	3124002		30	97.8	97.1	80	120	0.4	20
MS/MSD	31743001		30	122.4	122.5	80	120	0.0	20
MS/MSD	31825014		30	95.3	94.4	80	120	0.0	20
MS/MSD	31877011		30	121.3	123.9	80	120	1.0	20
Calcium									
Units: mg/L									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDSD	31257001		100	100.0	99.9	75	125	0.1	20
PDS/PDSD	31419001		100	87.7	86.5	75	125	0.4	20

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Account #: 6106

Client: Otter Tail Power Company

Calcium									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
PDS/PDS	31612001		500	96.8	95.6	75	125	1.1	20
PDS/PDS	31740003		1000	93.4	95.6	75	125	1.6	20
PDS/PDS	31740013		100	94.8	94.6	75	125	0.2	20
PDS/PDS	31761002		100	88.6	92.9	75	125	2.0	20

Boron									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-OE			0.4	93.0		85	115		
MB		<0.1							
MS/MSD	31257003		0.4	93.2	88.8	75	125	2.7	20

Calcium									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
LFB-MI			100	112.0		85	115		
MB		<1							
DUP	31257007							3.8	20
DUP	31419004							1.1	20

pH									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
DUP	31258001							0.3	20
DUP	31288001							0.7	20
DUP	31314001							0.3	20

pH									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-PH			6	99.2		98.33	101.67		
CRM-PH			6	98.3		98.33	101.67		
CRM-PH			6	98.7		98.33	101.67		
CRM-PH			6	98.7		98.33	101.67		

Fluoride									
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM-F			3.06	93.1		83.99	111.11		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	92.0		90	110		
LFB-F			0.5	104.0		90	110		
LFB-F			0.5	92.0		90	110		

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Account #: 6106

Client: Otter Tail Power Company

Fluoride			Units: mg/L						
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD-F	31257003		0.5	96.0	102.0	80	120	4.4	20
MS/MSD-F	31257003		0.5	94.0	88.0	80	120	4.7	20
MS/MSD-F	31258004		0.5	100.0	102.0	80	120	0.8	20
Total Dissolved Solids			Units: mg/L						
QC Type	Original Sample ID	Blank Result	Spike Amount	Spike % Recovery	Spike Duplicate % Recovery	Lower Control Limit (%)	Upper Control Limit (%)	RPD (%)	RPD Limit (%)
CRM			736	99.0		90.35	110.33		
MB		<10							
DUP	31465002							2.5	20

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 6106

Client: Otter Tail Power Company

	Minnesota Valley Testing Laboratories	Otter Tail Power Company	Chain of Custody Record
	2616 E. Broadway Ave Bismarck, ND 58501 (701) 258-9720	WO: 31257 	

Report To: Otter Tail Power	CC:	Project Name: OTP Coyote - Blue
Attn: Josh Hollen		Event: Fall 2023
Address: PO Box 496 Fergus Falls, MN 56538-0496		Sampled By: <i>J. Hollen</i>
Phone:		
Email: jhollen@otpc.com		

Lab Number	Sample Information				Sample Containers				Field Readings				Analysis Required
	Sample ID	Date	Time	Sample Type	1 Liter Raw	500 mL HNO3	500 mL HNO3 (filtered)	250 mL H2SO4	Temp (°C)	Spec. Cond.	pH	Appearance (Clear-C, Partly Cloudy-PC, Cloudy-CL)	
001	FB Blue	16 Oct 23	16	GW	X	X			NA	NA	NA	NA	OTP CCR App 3
002	Blue 6	16 Oct 23	1616	GW	X	X			16.20	2193	6.93	C	
003	Blue 7/MS7/MSD7	16 Oct 23	1340	GW	3	3			12.17	2238	6.65	C	
004	Blue 13	16 Oct 23	1650	GW	X	X			13.91	6084	6.96	C	
005	Blue 14	16 Oct 23	1240	GW	X	X			12.13	5044	6.70	C	
006	Blue 15	16 Oct 23	1505	GW	X	X			12.92	3108	6.71	C	
007	Blue 16	16 Oct 23	1600	GW	X	X			13.14	2220	6.67	C	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
<i>J. Hollen</i>	16 Oct 23 18:15	Log In Walk-in #2	RS 1 4.6 TM562 / TM803	<i>Althea Huse</i>	17 Oct 23 0800

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Fall 2023
Sample ID: Blue 6
Sampling Personal: [Signature]

Weather Conditions: Temp: 65 °F Wind: 5 @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION		
Well Locked?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Well Labeled?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Casing Strait?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Grout Seal Intact?	<input type="checkbox"/> YES	<input type="checkbox"/> NO <u>Not Visible</u>
Repairs Necessary?		
Casing Diameter:	<u>2"</u>	
Water Level Before Purge:	<u>64.24</u>	ft
Total Depth of Well:	<u>79.15</u>	ft
Well Volume:	<u>9.2</u>	liters
Depth to Top of Pump:	<u>72.00</u>	ft
Water Level After Sample:	<u>67.15</u>	ft
Measurement Method:	<u>Electric Water Level Indicator</u>	

SAMPLING INFORMATION		
Purging Method:	<u>Bladder</u>	
Sampling Method:	<u>Bladder</u>	
Dedicated Equipment?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Duplicate Sample?	<u>NO</u>	
Duplicate Sample ID:		
Bottle List:		
<u>1 Liter Raw</u>		
<u>500mL Nitric</u>		
Control Settings:		
Purge:	<u>10</u>	Sec.
Recover:	<u>10</u>	Sec.
PSI:	<u>80</u>	

FIELD READINGS												
Stabilization Parameters (3 Consecutive)		Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate ml/Min	ml Removed	Appearance or Comment Clarity, Color, Odor, Ect. clear, slightly turbid, turbid	
<u>16 Oct 23</u>	<u>1116</u>	<u>Start of Well Purge</u>										
	<u>1128</u>	<u>10.46</u>	<u>2213</u>	<u>6.79</u>	<u>1.24</u>	<u>73.3</u>	<u>20.40</u>	<u>70.03</u>	<u>300.0</u>	<u>300.0</u>	<u>Clear</u>	
	<u>1138</u>	<u>12.60</u>	<u>2205</u>	<u>6.79</u>	<u>0.58</u>	<u>60.8</u>	<u>7.51</u>	<u>72.00</u>	<u>300.0</u>	<u>300.0</u>	<u>Clear</u>	
		<u>Purged by</u>										
	<u>1611</u>	<u>Purged well for 5 min to clean line</u>										
	<u>1616</u>	<u>16.28</u>	<u>2193</u>	<u>6.93</u>	<u>12.51</u>	<u>96.6</u>	<u>22.03</u>	<u>65.05</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>	
Well Stabilized?		<input checked="" type="checkbox"/> YES		<input checked="" type="checkbox"/> NO								
Total Volume Purged:										<u>6800.0</u>	Liters	

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment Clarity, Color, Odor, Ect.
<u>16 Oct 23</u>	<u>1616</u>	<u>16.28</u>	<u>2193</u>	<u>6.93</u>	<u>22.03</u>	<u>Clear</u>

Comments:

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Account #: 6106

Client: Otter Tail Power Company



Field Datasheet
Groundwater Assessment

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

Company: OTP Coyote
Event: Fall 2023
Sample ID: Blue 7
Sampling Personal: [Signature]

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

WELL INFORMATION table with fields: Well Locked?, Well Labeled?, Casing Strait?, Grout Seal Intact?, Repairs Necessary?, Casing Diameter, Water Level Before Purge, Total Depth of Well, Well Volume, Depth to Top of Pump, Water Level After Sample, Measurement Method.

SAMPLING INFORMATION table with fields: Purging Method, Sampling Method, Dedicated Equipment?, Duplicate Sample?, Duplicate Sample ID, Bottle List.

Control Settings table with fields: Purge, Recover, PSI.

FIELD READINGS

Main field readings table with columns: Purge Date, Time, Temp, Spec. Cond., pH, DO, ORP, Turbidity, Water Level, Pumping Rate, mL Removed, Appearance or Comment.

Well Stabilized? YES NO Total Volume Purged: 3500.0 Liters

Summary table with columns: Sample Date, Time, Temp, Spec. Cond., pH, Turbidity, Appearance or Comment.

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Fall 2023
 Sample ID: Blue 13
 Sampling Personal: JTB

Weather Conditions: Temp: 65°F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION	
Well Locked?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> <u>Hinge broken</u>
Well Labeled?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Casing Strait?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Grout Seal Intact?	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> <u>Not Visible</u>
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>105.20</u> ft
Total Depth of Well:	<u>116.65</u> ft
Well Volume:	<u>7.1</u> liters
Depth to Top of Pump:	<u>113.80</u> ft
Water Level After Sample:	<u>108.52</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION	
Purging Method:	<u>Bladder</u>
Sampling Method:	<u>Bladder</u>
Dedicated Equipment?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Duplicate Sample?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Duplicate Sample ID:	<u>---</u>
Bottle List:	
<u>1 Liter Raw</u>	
<u>500mL Nitric</u>	

Control Settings:	
Purge:	<u>10</u> Sec.
Recover:	<u>10</u> Sec.
PSI:	<u>80</u>

FIELD READINGS

Stabilization Parameters (3 Consecutive)	Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate ml/Min	mL Removed	Appearance or Comment Clarity, Color, Odor, Ect.	
Purge Date	Time										
16 Oct 23	1035	Start of Well Purge									
	1045	10.51	5962	6.90	1.90	139.2	35.26	110.31	300.0	3000.0	Clear
	1055	10.59	6000	6.91	1.59	69.5	22.91	Below Port	300.0	3000.0	Clear
	1645	Pumped well for 5 min to clean line									
	1650	13.91	6084	6.96	2.35	48.7	90.36	106.52	100.0	500.0	

Well Stabilized? YES NO Total Volume Purged: 6500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment Clarity, Color, Odor, Ect.
16 Oct 23	1650	13.91	6084	6.96	90.36	

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Fall 2023
 Sample ID: Blue 14
 Sampling Personal: [Signature]

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

WELL INFORMATION	
Well Locked?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Well Labeled?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Casing Strait?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Grout Seal Intact?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <u>Not Visible</u>
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>79.41</u> ft
Total Depth of Well:	<u>—</u> ft
Well Volume:	<u>—</u> liters
Depth to Top of Pump:	<u>—</u> ft
Water Level After Sample:	<u>81.28</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION		Control Settings:	
Purging Method:	<u>Bladder</u>	Purge:	<u>10</u> Sec.
Sampling Method:	<u>Bladder</u>	Recover:	<u>50</u> Sec.
Dedicated Equipment?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	PSI:	<u>80</u>
Duplicate Sample?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
Duplicate Sample ID:	<u>—</u>		
Bottle List:			
<u>1 Liter Raw</u>			
<u>500ml Nitric</u>			

FIELD READINGS

Stabilization Parameters (3 Consecutive)	Time	Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate ml/Min	mL Removed	Appearance or Comment
											Clarity, Color, Odor, Ect.
16 Oct 23											clear, slightly turbid, turbid

Well Stabilized? YES NO Total Volume Purged: 5000.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
16 Oct 23	1240	12.18	5044	6.70	3.41	Clear

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Fall 2023
 Sample ID: Blue 15
 Sampling Personal: L.H.

Weather Conditions: Temp: 65 °F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION			
Well Locked?	<u>YES</u>	NO	
Well Labeled?	<u>YES</u>	NO	
Casing Strait?	<u>YES</u>	NO	
Grout Seal Intact?	<u>YES</u>	NO	Not Visible
Repairs Necessary?			
Casing Diameter:	<u>2"</u>		
Water Level Before Purge:	<u>78.04</u>	ft	
Total Depth of Well:		ft	
Well Volume:		liters	
Depth to Top of Pump:		ft	
Water Level After Sample:	<u>78.10</u>	ft	
Measurement Method:	<u>Electric Water Level Indicator</u>		

SAMPLING INFORMATION	
Purging Method:	<u>Bladder</u>
Sampling Method:	<u>Bladder</u>
Dedicated Equipment?	<u>YES</u> ^{Tubing}
Duplicate Sample?	<u>YES</u> ^{NO}
Duplicate Sample ID:	<u>---</u>
Bottle List:	
<u>1 Liter Raw</u>	
<u>500ml Nitric</u>	

Control Settings:	
Purge:	<u>80</u> Sec.
Recover:	<u>50</u> Sec.
PSI:	<u>80</u>

FIELD READINGS

Stabilization Parameters (3 Consecutive)	Time	Temp. (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±10	Turbidity (NTU) <5.0	Water Level (ft)	Pumping Rate ml/Min	mL Removed	Appearance or Comment
											Clarity, Color, Odor, Ect.
Purge Date <u>16 Oct 23</u>	Start of Well Purge										
	<u>1430</u>	<u>12.03</u>	<u>3311</u>	<u>6.64</u>	<u>0.34</u>	<u>-30.6</u>	<u>16.97</u>	<u>78.09</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1440</u>	<u>12.08</u>	<u>3172</u>	<u>6.66</u>	<u>0.26</u>	<u>-34.8</u>	<u>8.16</u>	<u>78.09</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1450</u>	<u>13.23</u>	<u>3136</u>	<u>6.68</u>	<u>0.17</u>	<u>-30.6</u>	<u>6.22</u>	<u>78.09</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1455</u>	<u>13.35</u>	<u>3125</u>	<u>6.70</u>	<u>0.15</u>	<u>-32.2</u>	<u>5.03</u>	<u>78.10</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1500</u>	<u>13.18</u>	<u>3113</u>	<u>6.70</u>	<u>0.13</u>	<u>-35.0</u>	<u>4.52</u>	<u>78.10</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1505</u>	<u>12.97</u>	<u>3108</u>	<u>6.71</u>	<u>0.13</u>	<u>-39.1</u>	<u>1.29</u>	<u>78.10</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
Well Stabilized? <u>YES</u> NO											
Total Volume Purged: <u>4500.0</u> Liters											

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
<u>16 Oct 23</u>	<u>1505</u>	<u>12.92</u>	<u>3108</u>	<u>6.71</u>	<u>1.29</u>	<u>Clear</u>

Comments:

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Account #: 6106

Client: Otter Tail Power Company



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

Field Datasheet
Groundwater Assessment

Company: OTP Coyote
Event: Fall 2023
Sample ID: Blue 16
Sampling Personal: J. L. H.

Weather Conditions: Temp: 65°F Wind: S @ 5-10 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION table with rows for Well Locked, Well Labeled, Casing Strait, Grout Seal Intact, Repairs Necessary, Casing Diameter, Water Level Before Purge, Total Depth of Well, Well Volume, Depth to Top of Pump, Water Level After Sample, Measurement Method.

SAMPLING INFORMATION table with rows for Purging Method, Sampling Method, Dedicated Equipment, Duplicate Sample, Duplicate Sample ID.

Control Settings table with rows for Purge, Recover, PSI.

Bottle List table with rows for 1 Liter Raw, 500ml Nitric.

FIELD READINGS

Large table for Field Readings with columns: Purge Date, Time, Temp, Spec. Cond., pH, DO, ORP, Turbidity, Water Level, Pumping Rate, mL Removed, Appearance or Comment.

Summary table for Well Stabilized status and Total Volume Purged.

Sample Date table with columns: Sample Date, Time, Temp, Spec. Cond., pH, Turbidity, Appearance or Comment.

Comments: Collected Field Blank (FB) @ 1530

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Appendix B

Groundwater Flow Calculations

Appendix B
Annual Groundwater Monitoring and Corrective Action Report

Coyote Blue Pit Groundwater Velocity Calculation

Sampling Date	5/1/2023
----------------------	----------

Upgradient (BLUE 13)

Top of Casing Elevation	2045.27	ft amsl
Depth to Water	103.85	ft below TOC
Water Level Elevation	1941.42	ft amsl

Groundwater Monitoring System Report (Barr, 2016)

Downgradient (BLUE 15)

Top of Casing Elevation	1995.88	ft amsl
Depth to Water	73.11	ft below TOC
Water Level Elevation	1922.77	ft amsl

Groundwater Monitoring System Report (Barr, 2016)

horizontal hydraulic conductivity (Kh)	5.20E-05	cm/s
	1.47E-01	ft/day
porosity (n)	0.2	
horizontal distance	2403.4	ft
WL elevation difference	18.65	ft
gradient (i)	0.008	ft/ft
linear velocity (V)	0.0057	ft/day
V	2.1	ft/yr

Groundwater Monitoring System Report (Barr, 2016)

Groundwater Monitoring System Report (Barr, 2016)

Appendix B
Annual Groundwater Monitoring and Corrective Action Report

Coyote Blue Pit Groundwater Velocity Calculation

Sampling Date	6/8/2023
----------------------	----------

Upgradient (BLUE 13)

Top of Casing Elevation	2045.27	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	104.20	ft below TOC	
Water Level Elevation	1941.07	ft amsl	

Downgradient (BLUE 15)

Top of Casing Elevation	1995.88	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	71.91	ft below TOC	
Water Level Elevation	1923.97	ft amsl	

horizontal hydraulic conductivity (Kh)	5.20E-05	cm/s	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
	1.47E-01	ft/day	
porosity (n)	0.2		<i>Groundwater Monitoring System Report (Barr, 2016)</i>
horizontal distance	2403.4	ft	
WL elevation difference	17.10	ft	
gradient (i)	0.007	ft/ft	
linear velocity (V)	0.0052	ft/day	
V	1.9	ft/yr	

Appendix B
Annual Groundwater Monitoring and Corrective Action Report

Coyote Blue Pit Groundwater Velocity Calculation

Sampling Date	10/16/2023
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Upgradient (BLUE 13)

Top of Casing Elevation	2045.27	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	105.20	ft below TOC	
Water Level Elevation	1940.07	ft amsl	

Downgradient (BLUE 15)

Top of Casing Elevation	1995.88	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	78.04	ft below TOC	
Water Level Elevation	1917.84	ft amsl	

horizontal hydraulic conductivity (Kh)	5.20E-05	cm/s	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
	1.47E-01	ft/day	
porosity (n)	0.2		<i>Groundwater Monitoring System Report (Barr, 2016)</i>
horizontal distance	2403.4	ft	
WL elevation difference	22.23	ft	
gradient (i)	0.009	ft/ft	
linear velocity (V)	0.0068	ft/day	
V	2.5	ft/yr	

Appendix C

Annual Fugitive Dust Control Report

Coal Combustion Residuals
2023 Annual Fugitive Dust Control Report
Coyote Station Plant – Blue Pit
Date: December 5, 2023

Introduction

This report is the Annual Fugitive Dust Control Report that is required by the Coal Combustion Residual (CCR) rule that went into effect in October of 2015. This report is for the Blue Pit landfill for the Coyote Station Plant located in Mercer County, North Dakota. It is for the time period of December 2022 to December 2023.

Section 257.80(c) of the CCR requires three segments for the completion of this report. The first is actions taken by the owner/operator to control CCR fugitive dust. The second is a record of all citizen complaints (Table 1). The third is a summary of any corrective measures taken.

Actions taken to control CCR fugitive dust

The following Best Management Practices have been identified as CCR fugitive dust control measures at the Coyote Plant.

Water

- Fugitive dust is largely controlled by the use of water. Water is used to condition the ash prior to its transfer from silos to transport vehicles and is also used to wet the in-place ash and haul roads as needed.

Vehicle Speed Control

- Drivers are instructed to travel no faster than 25 miles per hour when traveling to and from ash disposal areas or other CCR units.

Minimize the Open Working Area

- The working face of the landfill or CCR unit will be as small as is practicable to prevent erosion. This is accomplished by installing intermediate and final cover to reduce footprint size.

Vehicle covering

- Occasionally other vehicles may be used to transport CCR. These vehicles will be enclosed or covered during transport if fugitive dust is a concern.

Curtailling operations

- In extreme weather events, transport of CCR will be reduced or delayed until conditions improve.

Table 1
Citizen Complaint Record

Fugitive Dust Citizen Complaint			
Date	Citizen Complaint	Was complaint confirmed (Yes/No)	Corrective Measures Taken
	No citizen complaints occurred over this time period		

Summary of corrective measures taken

There were no emergency corrective measures taken in the Blue Pit landfill due to the lack of fugitive dust present from this CCR unit.