



2024 Annual Groundwater Monitoring and Corrective Action Report

Blue Pit

Coyote Station
Beulah, North Dakota



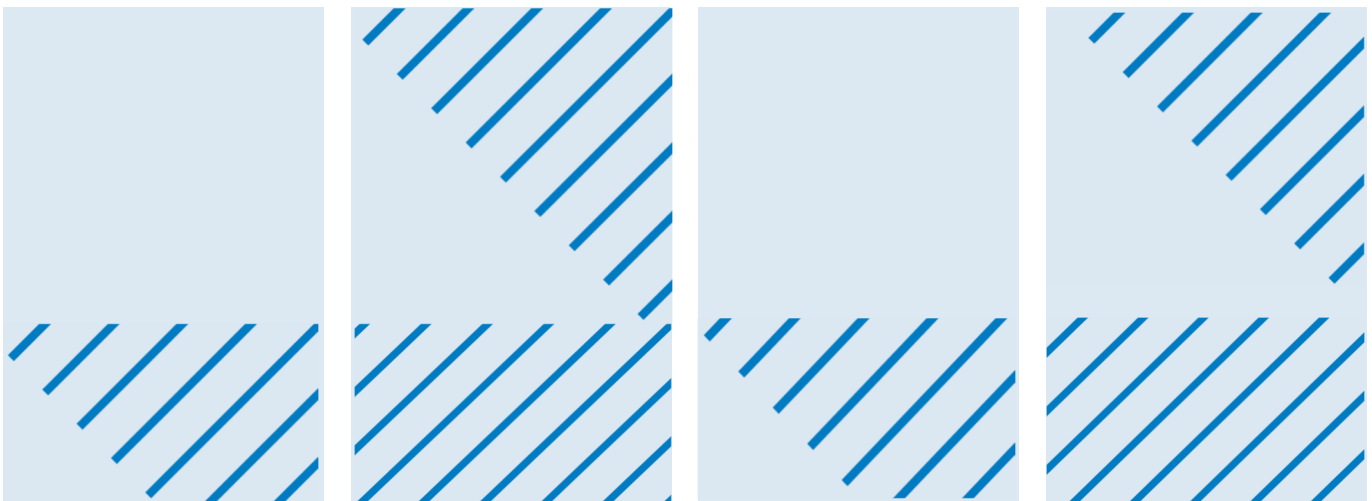
Prepared for
Otter Tail Power Company

Prepared by
Barr Engineering Co.

January 2025

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2024 Annual Groundwater Monitoring and Corrective Action Report

Blue Pit

Coyote Station
Beulah, North Dakota

January 2025



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Acronyms

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
CSM	Conceptual Site Model
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 2024 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 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 2024 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 2024.

In 2024, 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, 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 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the Blue Pit for 2024. 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 2025 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 2024.

2.2 Monitoring and Analytical Results

Groundwater samples were collected during two semiannual sampling events. A total of 12 groundwater samples (six monitoring wells and two sampling events) were collected and analyzed for the detection monitoring constituents in 2024 under the detection monitoring program, consistent with the requirements of 40 CFR 257.94(c) and NDAC 33.1-20-08-06-04(c).

Dates of sampling are reported on the field data sheets, and analytical laboratory reports are presented in Appendix A. Results are summarized in Table 2. 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, and Appendix B.

2.3 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program during 2024:

- Background was statistically evaluated and updated to include data through 2023 according to the Statistical Analysis Plan, [Appendix B](#) of the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2017).
- 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 2024.
- 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 2025:

- Conduct two groundwater sampling events, one in the spring and one in the fall.
- Evaluate analytical results from both 2025 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 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

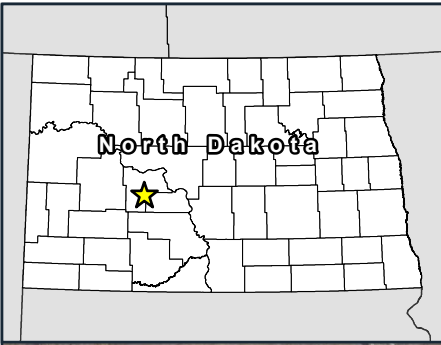
**Table 2
Groundwater Analytical Data Summary
Coyote Station
Otter Tail Power Company**

Location			Blue 6	Blue 6	Blue 7	Blue 7	Blue 13	Blue 13	Blue 14	Blue 14	Blue 15	Blue 15	Blue 16	Blue 16	QC	QC
Date			5/7/24	10/9/24	5/7/24	10/9/24	5/7/24	10/8/24	5/6/24	10/8/24	5/6/24	10/9/24	5/6/24	10/7/24	5/6/24	10/9/24
Sample Type			N	N	N	N	N	N	N	N	N	N	N	N	FB	FB
Parameter	Analysis Location	Units														
Appendix III																
Boron, total	Lab	mg/l	0.37	0.37	0.37	0.36	0.46	0.62	0.49	0.51	0.46	0.48	0.37	0.39	< 0.1 U	< 0.1 U
Calcium, total	Lab	mg/l	195	218	193	200	130	130	292	324	131	135	147	163	< 1 U	< 1 U
Chloride	Lab	mg/l	7.5	9.4	7.5	7.9	48.6	52.1	9.2	9.8	8.2	8.6	9.8	10.7	< 2.0 U	< 2.0 U
Fluoride	Lab	mg/l	0.18	0.15	0.19	0.17	0.25	0.21	0.12	0.11	0.20	0.18	0.19	0.18	< 0.1 U	< 0.1 U
pH	Field	pH units	6.63	6.9	6.62	6.68	7.56	6.91	6.69	6.71	6.61	6.63	6.61	6.66	--	--
Solids, total dissolved	Lab	mg/l	1940	2030	2020	1950	4660	5150	4490	4620	2430	2330	1930	2040	< 10 U	< 10 U
Sulfate, as SO4	Lab	mg/l	917	918	960	801	2600	2500	2420	2360	952	942	841	856	< 5 U	< 5 U
Groundwater Elevation	Field	ft amsl	1917.67	1915.59	1916.85	1914.81	1940.42	1940.15	1919.90	1919.47	1917.48	1915.49	1918.49	1916.23	--	--




-- Not analyzed/Not available.
N Sample Type: Normal Detection Monitoring
FB Sample Type: Field Blank
U The analyte was analyzed for, but was not detected.



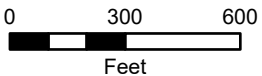
Figures



Barr Footer: ArcGISPro 3.3.2, 2025-01-08 10:57 File: \\Projects\54\29\018\Maps\Reports\2024\Blue Pit CCR AMR 2024\Blue Pit CCR AMR 2024.aprx Layout: Figure01 Site Location User: MRC

-  Upgradient Monitoring Well
-  Downgradient Monitoring Well
-  Blue Pit

Imagery: USDA NAIP (2024)



Blue Pit Location
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

FIGURE 1

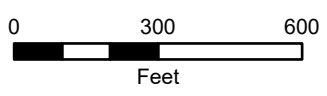


Barr Footer: ArcGISPro 3.3.2, 2025-01-14 08:23 File: I:\Projects\94\29\018\Maps\Reports\2024\Blue Pit CCR AMR 2024.aprx Layout: Figure02 Groundwater Contours and Elevations - Spring 2024 User: MRQ



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

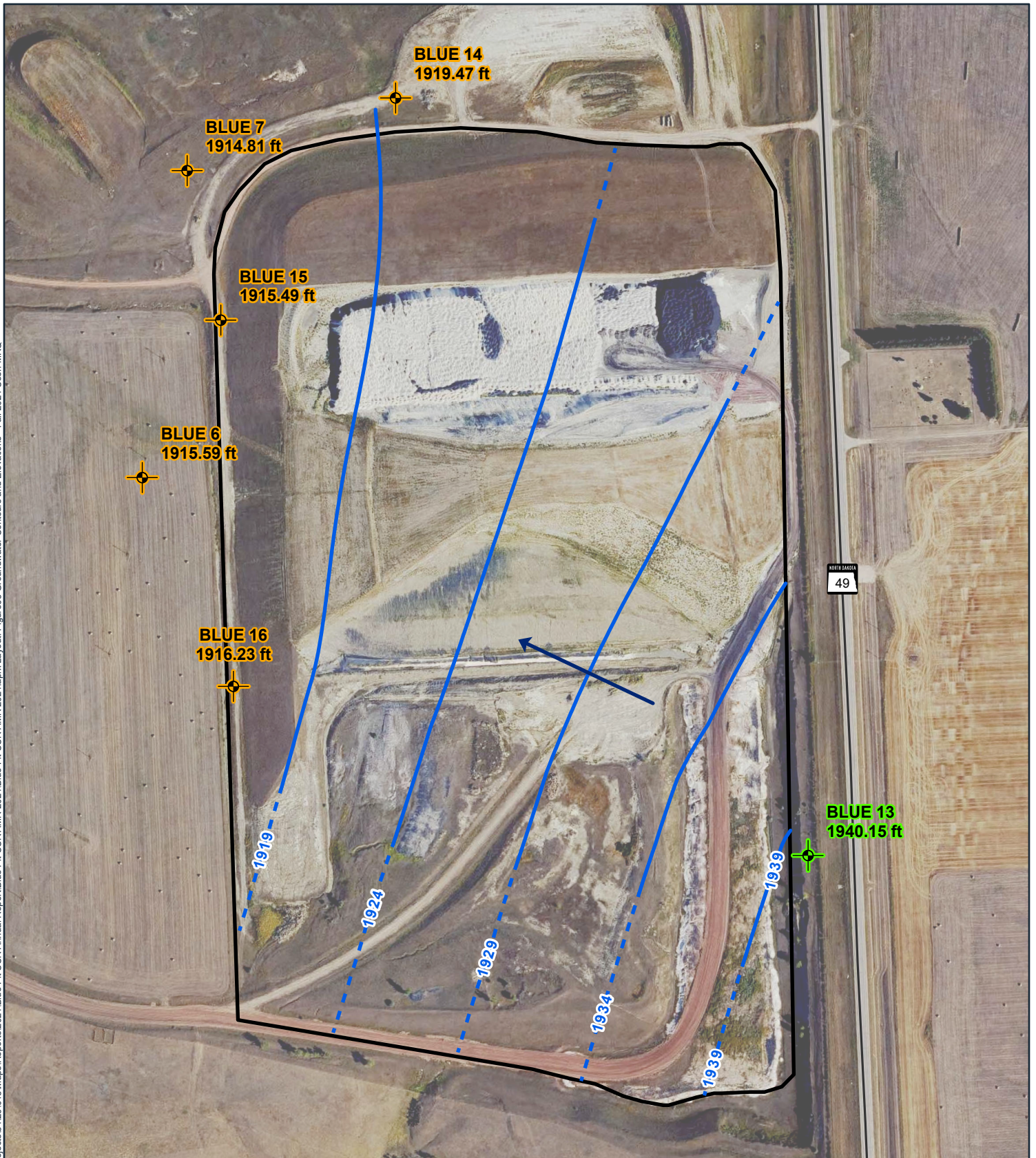
Imagery: USDA NAIP (2024)








**May 2024
Groundwater Contours**
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

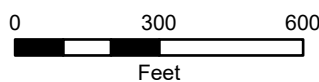
FIGURE 2





Imagery: USDA NAIP (2024)

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



**Fall 2024
Groundwater Contours**
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

FIGURE 3





Appendices



Appendix A

Laboratory and Field Sheets



MINNESOTA VALLEY TESTING LABORATORIES, INC.

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



Account #: 6106 **Client:** Otter Tail Power Company
Workorder: OTP Coyote-Blue (47724) **PO:** 108237

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

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: 47724001 **Date Collected:** 05/06/2024 14:00 **Matrix:** Groundwater
Sample ID: FB Blue **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		05/10/2024 13:24	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:39	
Calcium	<1	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:35	
Method: SM4500 H+ B-2011							
pH	4.7	units	0.1	1		05/08/2024 13:50	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		05/09/2024 11:22	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		05/08/2024 13:50	
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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



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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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Account #: 6106 **Client:** Otter Tail Power Company

Analytical Results

Lab ID: 47724002 **Date Collected:** 05/07/2024 12:05 **Matrix:** Groundwater
Sample ID: Blue 6 **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2572	umhos/cm	1	1		05/07/2024 12:05	
Method: 150.2							
pH - Field	6.63	units	0.01	1		05/07/2024 12:05	
Method: 170.1							
Temperature - Field C	10.24	degrees C		1		05/07/2024 12:05	
Method: ASTM D516-16							
Sulfate	917	mg/L	25	5		05/10/2024 13:26	
Method: EPA 6010D							
Boron	0.37	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:39	
Calcium	195	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:38	
Method: SM2110							
Appearance - Field	Clear			1		05/07/2024 12:05	
Method: SM4500 H+ B-2011							
pH	6.8	units	0.1	1		05/08/2024 13:57	*
Method: SM4500-CI-E 2011							
Chloride	7.5	mg/L	2.0	1		05/09/2024 11:23	
Method: SM4500-F-C-2011							
Fluoride	0.18	mg/L	0.1	1		05/08/2024 13:57	
Method: USGS I-1750-85							
Total Dissolved Solids	1940	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Report Date: Thursday, May 23, 2024 2:32:34 PM

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 www.MVTL.com

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

Lab ID: 47724003 **Date Collected:** 05/07/2024 11:35 **Matrix:** Groundwater
Sample ID: Blue 7 **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2798	umhos/cm	1	1		05/07/2024 11:35	
Method: 150.2							
pH - Field	6.62	units	0.01	1		05/07/2024 11:35	
Method: 170.1							
Temperature - Field C	9.73	degrees C		1		05/07/2024 11:35	
Method: ASTM D516-16							
Sulfate	960	mg/L	50	10		05/10/2024 13:37	
Method: EPA 6010D							
Boron	0.37	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:40	
Calcium	193	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:44	
Method: SM2110							
Appearance - Field	Clear			1		05/07/2024 11:35	
Method: SM4500 H+ B-2011							
pH	6.8	units	0.1	1		05/08/2024 14:03	*
Method: SM4500-CI-E 2011							
Chloride	7.5	mg/L	2.0	1		05/09/2024 11:24	
Method: SM4500-F-C-2011							
Fluoride	0.19	mg/L	0.1	1		05/08/2024 14:03	
Method: USGS I-1750-85							
Total Dissolved Solids	2020	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments**pH**

Sample analyzed beyond holding time.

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 www.MVTL.com

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

Lab ID: 47724004 **Date Collected:** 05/07/2024 09:57 **Matrix:** Groundwater
Sample ID: Blue 13 **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	6699	umhos/cm	1	1		05/07/2024 09:57	
Method: 150.2							
pH - Field	7.56	units	0.01	1		05/07/2024 09:57	
Method: 170.1							
Temperature - Field C	11.55	degrees C		1		05/07/2024 09:57	
Method: ASTM D516-16							
Sulfate	2600	mg/L	200	40		05/10/2024 13:28	
Method: EPA 6010D							
Boron	0.46	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:42	
Calcium	130	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:46	
Method: SM2110							
Appearance - Field	Clear			1		05/07/2024 09:57	
Method: SM4500 H+ B-2011							
pH	7.7	units	0.1	1		05/08/2024 14:10	*
Method: SM4500-CI-E 2011							
Chloride	48.6	mg/L	2.0	1		05/09/2024 11:25	
Method: SM4500-F-C-2011							
Fluoride	0.25	mg/L	0.1	1		05/08/2024 14:10	
Method: USGS I-1750-85							
Total Dissolved Solids	4660	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments*pH*

Sample analyzed beyond holding time.

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

Lab ID: 47724005 **Date Collected:** 05/06/2024 11:12 **Matrix:** Groundwater
Sample ID: Blue 14 **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	5443	umhos/cm	1	1		05/06/2024 11:12	
Method: 150.2							
pH - Field	6.69	units	0.01	1		05/06/2024 11:12	
Method: 170.1							
Temperature - Field C	10.16	degrees C		1		05/06/2024 11:12	
Method: ASTM D516-16							
Sulfate	2420	mg/L	100	20		05/10/2024 13:29	
Method: EPA 6010D							
Boron	0.49	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:43	
Calcium	292	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:47	
Method: SM2110							
Appearance - Field	Clear			1		05/06/2024 11:12	
Method: SM4500 H+ B-2011							
pH	7.0	units	0.1	1		05/08/2024 14:15	*
Method: SM4500-CI-E 2011							
Chloride	9.2	mg/L	2.0	1		05/09/2024 11:27	
Method: SM4500-F-C-2011							
Fluoride	0.12	mg/L	0.1	1		05/08/2024 14:15	
Method: USGS I-1750-85							
Total Dissolved Solids	4490	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments**pH**

Sample analyzed beyond holding time.

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

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



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

Analytical Results

Lab ID: 47724006 **Date Collected:** 05/06/2024 13:00 **Matrix:** Groundwater
Sample ID: Blue 15 **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	3421	umhos/cm	1	1		05/06/2024 13:00	
Method: 150.2							
pH - Field	6.61	units	0.01	1		05/06/2024 13:00	
Method: 170.1							
Temperature - Field C	10.09	degrees C		1		05/06/2024 13:00	
Method: ASTM D516-16							
Sulfate	952	mg/L	50	10		05/10/2024 13:30	
Method: EPA 6010D							
Boron	0.46	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:44	
Calcium	131	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:54	
Method: SM2110							
Appearance - Field	Clear			1		05/06/2024 13:00	
Method: SM4500 H+ B-2011							
pH	6.9	units	0.1	1		05/08/2024 14:21	*
Method: SM4500-Cl-E 2011							
Chloride	8.2	mg/L	2.0	1		05/09/2024 11:28	
Method: SM4500-F-C-2011							
Fluoride	0.20	mg/L	0.1	1		05/08/2024 14:21	
Method: USGS I-1750-85							
Total Dissolved Solids	2430	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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

Analytical Results

Lab ID: 47724007 **Date Collected:** 05/06/2024 14:39 **Matrix:** Groundwater
Sample ID: Blue 16 **Date Received:** 05/07/2024 15:58 **Collector:** MVTL Field Service

Temp @ Receipt (C): 0.7 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2635	umhos/cm	1	1		05/06/2024 14:39	
Method: 150.2							
pH - Field	6.61	units	0.01	1		05/06/2024 14:39	
Method: 170.1							
Temperature - Field C	10.27	degrees C		1		05/06/2024 14:39	
Method: ASTM D516-16							
Sulfate	841	mg/L	25	5		05/10/2024 13:38	
Method: EPA 6010D							
Boron	0.37	mg/L	0.1	1	05/08/2024 15:38	05/10/2024 10:44	
Calcium	147	mg/L	1	1	05/08/2024 15:38	05/13/2024 11:55	
Method: SM2110							
Appearance - Field	Clear			1		05/06/2024 14:39	
Method: SM4500 H+ B-2011							
pH	6.9	units	0.1	1		05/08/2024 14:28	*
Method: SM4500-Cl-E 2011							
Chloride	9.8	mg/L	2.0	1		05/09/2024 11:29	
Method: SM4500-F-C-2011							
Fluoride	0.19	mg/L	0.1	1		05/08/2024 14:28	
Method: USGS I-1750-85							
Total Dissolved Solids	1930	mg/L	10	1		05/08/2024 15:57	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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

QC Results Summary										WO #:	47724
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	96.3		85	115				
LFB			100	100.0		85	115				
LFB			100	101.0		85	115				
MB		<5									
MB		<5									
MB		<5									
MS/MSD	47724003		1000	97.1	95.1	85	115	1.0	20		
MS/MSD	48128002		500	77.1	77.2	85	115	0.0	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	94.9		90	110				
LFB			30	93.8		90	110				
LFB			30	94.8		90	110				
LFB			30	93.8		90	110				
LFB			30	93.7		90	110				
MB		<2.0									
MB		<2.0									
MB		<2.0									
MB		<2.0									
MB		<2.0									
MS/MSD	47724003		30	92.8	93.8	80	120	0.6	20		
MS/MSD	47886001		30	101.2	99.8	80	120	0.6	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	104.0		85	115				
MB		<0.1									
PDS/PDS	47285002		2	99.0	98.8	75	125	0.2	20		
PDS/PDS	47285003		2	81.7	82.7	75	125	0.7	20		
MS/MSD	47724003		0.4	96.1	93.3	75	125	1.5	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 (%)
LFB-MI			100	110.0		85	115		
MB		<1							
PDS/PDS	47724001		100	105.0	105.0	75	125	0.8	20
DUP	47724003							0.1	20
PDS/PDS	47727001		500	106.0	106.0	75	125	0.0	20
PDS/PDS	47735001		100	107.0	107.0	75	125	0.1	20
PDS/PDS	47954001		500	103.0	102.0	75	125	0.5	20
PDS/PDS	47954002		500	105.0	105.0	75	125	0.0	20
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	100.2		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
CRM-PH			6	100.2		98.33	101.67		
DUP	47724003							1.8	20
DUP	47735002							0.9	20
DUP	47735011							1.0	20
DUP	47770001							0.2	20
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			3.06	106.0		83.99	111.11		
LFB-F			0.5	106.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	104.0		90	110		
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MB-F		<0.1							
MS/MSD	47724001		0.5	106.0	108.0	80	120	1.9	20
MS/MSD	47724003		0.5	100.0	100.0	80	120	0.0	20

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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 (%)
MS/MSD	47735002		0.5	92.0	90.0	80	120	0.6	20
MS/MSD	47736003		0.5	96.0	96.0	80	120	0.0	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	100.0		90.35	110.33		

MB		<10							
----	--	-----	--	--	--	--	--	--	--

DUP	47736001							0.2	20
-----	----------	--	--	--	--	--	--	-----	----

DUP	47836002							0.8	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: 47724 	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 2024 Sampled By: <i>Josh Hollen</i>

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	6 May 24	1400	GW	X	X			NA	NA	NA	NA	OTP CCR App 3
002	Blue 6	7 May 24	1205	GW	X	X			70.24	2572	6.63	C	
003	Blue 7/MS7/MSD7	7 May 24	1135	GW	3	3			9.73	2798	6.62	C	
004	Blue 13	7 May 24	0957	GW	X	X			11.55	6699	7.56	C	
005	Blue 14	6 May 24	1112	GW	X	X			10.16	5443	6.69	C	
006	Blue 15	6 May 24	1300	GW	X	X			10.09	3421	6.61	C	
007	Blue 16	6 May 24	1439	GW	X	X			10.27	2635	6.61	C	

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp (°C)	Name	Date/Time
<i>[Signature]</i>	7 May 24 1558	Log In Walk In #2	20.07 TM562 / TM303	<i>H House</i>	7 May 24 1558

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Account #: 6106

Client: Otter Tail Power Company

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

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

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

Coyote Blue Pit Sampling - 2024 CCR

Site	Parameter List	Well Depth	Diameter (Inches)	Well Elevation	Sample Equipment	Dedicated?	Pump Rate (ml/minute)	Goes Dry?	Sample Frequency**
BLUE13	CCR 3	116.46	2	2045.27	Bladder	No	LOW FLOW	Yes	2,4
BLUE6-93	CCR 3	78.85	2	1982.22	Bladder	No	LOW FLOW	YES	2,4
BLUE14	CCR 3	86.97	2	1999.55	Bladder	No	LOW FLOW	No	2,4
BLUE15	CCR 3	87.74	2	1995.88	Bladder	No	LOW FLOW	No	2,4
BLUE16	CCR 3	97.63	2	1995.94	Bladder	No	LOW FLOW	No	2,4
BLUE7-93	CCR 3	97.26	2	1998.38	Bladder	No	LOW FLOW	No	2,4

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

** Sample Periods

2 = May 28 - June 1

4 = Early November

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Account #: 6106

Client: Otter Tail Power Company

5/7/24, 3:53 PM

Calibration_1025047_2024-05-07.html

Calibration Report

Instrument Aqua TROLL 600
Serial Number 1025047
Created 5/7/2024

Sensor **Conductivity**
Serial Number 1022539
Last Calibrated 5/7/2024

Calibration Details
TDS Conversion Factor (ppm) 0.65
Cell Constant 1.035
Offset 0.00 µS/cm
Reference Temperature 25.00 °C

Calibration Point 1

Pre Measurement
Actual Conductivity 1,082.9 µS/cm
Specific Conductivity 1,347.3 µS/cm

Post Measurement
Actual Conductivity 1,135.7 µS/cm
Specific Conductivity 1,413.0 µS/cm

Sensor **RDO**
Serial Number 1014554
Last Calibrated 5/7/2024

Calibration Details
Slope 1.1419283
Offset -0.00 mg/L

Calibration point 100%
Concentration 8.03 mg/L
Pre Measurement 104.88 %Sat
Post Measurement 100.00 %Sat
Temperature 15.05 °C
Barometric Pressure 924.03 mbar

J May 24

file:///C:/Users/jmeyer/AppData/Local/Microsoft/Windows/NetCache/Content.Outlook/LO0ILZMK/Calibration_1025047_2024-05-07.html

1/2

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Account #: 6106

Client: Otter Tail Power Company

5/7/24, 3:53 PM

Calibration_1025047_2024-05-07.html

Sensor **pH/ORP**
Serial Number 953082
Last Calibrated 5/7/2024

Calibration Details

Calibration Point 1

pH of Buffer 4.00 pH
pH mV 140.3 mV
Temperature 14.48 °C

Pre Measurement

pH 3.99 pH
pH mV 140.3 mV

Post Measurement

pH 4.00 pH
pH mV 135.4 mV

Calibration Point 2

pH of Buffer 7.04 pH
pH mV -27.2 mV
Temperature 14.51 °C

Pre Measurement

pH 7.05 pH
pH mV -27.2 mV

Post Measurement

pH 7.04 pH
pH mV -26.2 mV

Calibration Point 3

pH of Buffer 10.11 pH
pH mV -197.5 mV
Temperature 14.63 °C

Pre Measurement

pH 10.10 pH
pH mV -197.7 mV

Post Measurement

pH 10.11 pH
pH mV -190.7 mV

Slope and Offset 1

Slope -65.1 mV/pH
Offset -25.0 mV

Slope and Offset 2

Slope -55.5 mV/pH
Offset -24.9 mV

ORP

ORP Solution Zobell's
Offset 14.6 mV
Temperature 14.75 °C
Pre Measurement 241.8 mV
Post Measurement 242.5 mV

Sensor **Turbidity**
Serial Number 1022520
Last Calibrated 5/7/2024

Calibration Details

Slope 0.9090995
Offset -0.14 NTU

Calibration Point 1

Pre Measurement 0.01 NTU
Post Measurement 0.10 NTU

Calibration Point 2

Pre Measurement 98.03 NTU
Post Measurement 100.00 NTU

Sensor **Barometric Pressure**
Serial Number 1025047
Last Calibrated Factory Defaults

Sensor **Pressure**
Serial Number 1023082
Last Calibrated Factory Defaults

Handwritten signature and date: Jm 7 May 24

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Account #: 6106

Client: Otter Tail Power Company

5/7/24, 3:46 PM

Calibration_1025047_2024-05-06.html

Calibration Report

Instrument Aqua TROLL 600
Serial Number 1025047
Created 5/6/2024

Sensor Conductivity
Serial Number 1022539
Last Calibrated 5/6/2024

Calibration Details

TDS Conversion Factor (ppm) 0.65
Cell Constant 0.987
Offset 0.00 µS/cm
Reference Temperature 25.00 °C

Calibration Point 1

Pre Measurement

Actual Conductivity 1,160.4 µS/cm
Specific Conductivity 1,397.7 µS/cm

Post Measurement

Actual Conductivity 1,173.1 µS/cm
Specific Conductivity 1,413.0 µS/cm

Sensor RDO
Serial Number 1014554
Last Calibrated 5/6/2024

Calibration Details

Slope 1.1974647
Offset -0.00 mg/L

Calibration point 100%

Concentration 7.54 mg/L
Pre Measurement 88.86 %Sat
Post Measurement 100.00 %Sat
Temperature 18.06 °C
Barometric Pressure 968.41 mbar

Handwritten signature and date: 7 May 24

file:///C:/Users/jmeyer/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/L00ILZMK/Calibration_1025047_2024-05-06.html

1/2

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Account #: 6106

Client: Otter Tail Power Company

5/7/24, 3:46 PM

Calibration_1025047_2024-05-06.html

Sensor **pH/ORP**
Serial Number 953082
Last Calibrated 5/6/2024

Calibration Details

Calibration Point 1

pH of Buffer 4.00 pH
pH mV 140.2 mV
Temperature 15.59 °C

Pre Measurement

pH 4.11 pH
pH mV 140.0 mV

Post Measurement

pH 4.00 pH
pH mV 135.8 mV

Calibration Point 2

pH of Buffer 7.04 pH
pH mV -28.9 mV
Temperature 15.72 °C

Pre Measurement

pH 7.08 pH
pH mV -27.0 mV

Post Measurement

pH 7.04 pH
pH mV -26.1 mV

Calibration Point 3

pH of Buffer 10.11 pH
pH mV -198.8 mV
Temperature 15.64 °C

Pre Measurement

pH 10.10 pH
pH mV -198.9 mV

Post Measurement

pH 10.11 pH
pH mV -192.6 mV

Slope and Offset 1

Slope -54.97 mV/pH
Offset -24.7 mV

Slope and Offset 2

Slope -56 mV/pH
Offset -24.7 mV

ORP

ORP Solution Zobell's
Offset 13.8 mV
Temperature 15.32 °C
Pre Measurement 242.0 mV
Post Measurement 241.8 mV

Sensor **Turbidity**
Serial Number 1022520
Last Calibrated 5/6/2024

Calibration Details

Slope 0.8917325
Offset -0.24 NTU

Calibration Point 1

Pre Measurement 0.65 NTU
Post Measurement 0.10 NTU

Calibration Point 2

Pre Measurement 100.12 NTU
Post Measurement 100.00 NTU

Sensor **Barometric Pressure**
Serial Number 1025047
Last Calibrated Factory Defaults

Sensor **Pressure**
Serial Number 1023082
Last Calibrated Factory Defaults

J
7 May 24

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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 2024
 Sample ID: Blue 6
 Sampling Personal: Jay H...

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

WELL INFORMATION	
Well Locked?	<u>YES</u> NO
Well Labeled?	<u>YES</u> NO
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>64.86</u> ft
Total Depth of Well:	<u>79.10</u> ft
Well Volume:	<u>9.0</u> liters
Top of Pipe	<u>71.85</u> ft
Water Level After Sample:	<u>67.27</u> ft
Measurement Method:	<u>Electric Water Level Indicator</u>

SAMPLING INFORMATION		
Purging Method:	<u>Bladder</u>	Control Settings:
Sampling Method:	<u>Bladder</u>	Purge: <u>8</u> Sec.
Dedicated Equipment?	<u>YES</u> NO	Recover: <u>12</u> Sec.
	<i>Tubing Replaced Tubing</i>	PSI: <u>—</u>
Bottle List:		Duplicate Sample?
1 Liter Raw		<u>YES / NO</u>
500mL Nitric		Duplicate Sample ID:
		<u>—</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
Purge Date	Time	Start of Well Purge									
6 May 24	1450										
	1510	<u>10.60</u>	<u>2390</u>	<u>6.70</u>	<u>2.55</u>	<u>67.9</u>	<u>10.07</u>	<u>Below Pipe</u>	<u>300.0</u>	<u>600.0</u>	<u>Clear</u>
7 May 24	1200										
	1205	<u>10.24</u>	<u>2572</u>	<u>6.63</u>	<u>5.03</u>	<u>64.7</u>	<u>7.43</u>	<u>65.05</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>

Well Stabilized? YES NO Total Volume Purged: 650.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
<u>7 May 24</u>	<u>1205</u>	<u>10.24</u>	<u>2572</u>	<u>6.63</u>	<u>7.43</u>	<u>Clear</u>

Comments:

NA or -- not applicable

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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 2024
Sample ID: Blue 7
Sampling Personal: [Signature]

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

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

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

FIELD READINGS table with columns: Purge 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.

Summary table with columns: Sample Date, Time, Temp. (°C), Spec. Cond., pH, Turbidity (NTU), Appearance or Comment.

Comments:

NA or - = not applicable

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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 2024
Sample ID: Blue 13
Sampling Personal: J. H.

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

WELL INFORMATION table with fields: Well Locked?, Well Labeled?, 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?, Control Settings, Bottle List, Duplicate Sample?

FIELD READINGS

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

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

Comments:

NA or -- not applicable

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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 2024
Sample ID: Blue 14
Sampling Personal: Jenny R

Weather Conditions: Temp: 50 °F Wind: E @ 10-15 Precip: Sunny / Partly Cloudy (Cloudy)

WELL INFORMATION	
Well Locked?	<input checked="" type="checkbox"/> YES NO
Well Labeled?	<input checked="" type="checkbox"/> YES NO
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>79.65</u> ft
Total Depth of Well:	<u>86.95</u> ft
Well Volume:	<u>4.5</u> liters
Water Level After Sample:	<u>80.73</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 NO
<i>Tubing</i>	
Control Settings:	
Purge:	<u>8</u> Sec.
Recover:	<u>52</u> Sec.
PSI:	<u>—</u>

Bottle List:	
1 Liter Raw	
500mL Nitric	

Duplicate Sample?	
YES / <input checked="" type="checkbox"/> NO	
Duplicate Sample ID:	
<u>—</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										
	<u>1007</u>	<u>Start of Well Purge</u>									
	<u>1027</u>	<u>10.37</u>	<u>5577</u>	<u>6.72</u>	<u>1.33</u>	<u>70.8</u>	<u>3.74</u>	<u>80.26</u>	<u>100.0</u>	<u>2000.0</u>	<u>Clear</u>
	<u>1047</u>	<u>10.18</u>	<u>5469</u>	<u>6.70</u>	<u>2.54</u>	<u>66.4</u>	<u>6.74</u>	<u>80.55</u>	<u>100.0</u>	<u>2000.0</u>	<u>Clear</u>
	<u>1057</u>	<u>10.23</u>	<u>5459</u>	<u>6.70</u>	<u>2.60</u>	<u>67.6</u>	<u>5.66</u>	<u>80.63</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1102</u>	<u>10.23</u>	<u>5451</u>	<u>6.70</u>	<u>2.76</u>	<u>68.0</u>	<u>4.11</u>	<u>80.68</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1107</u>	<u>10.18</u>	<u>5448</u>	<u>6.69</u>	<u>2.81</u>	<u>68.5</u>	<u>4.66</u>	<u>80.70</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1112</u>	<u>10.16</u>	<u>5443</u>	<u>6.69</u>	<u>2.80</u>	<u>69.2</u>	<u>1.96</u>	<u>80.72</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
Well Stabilized?		<input checked="" type="checkbox"/> YES		NO							
Total Volume Purged:										<u>6500.0</u>	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.
<u>6 May 24</u>	<u>1112</u>	<u>10.16</u>	<u>5443</u>	<u>6.69</u>			<u>1.96</u>				<u>Clear</u>

Comments:

NA or -- not applicable

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Account #: 6106

Client: Otter Tail Power Company



Field Datasheet

Groundwater Assessment

Company: OTP Coyote
 Event: Spring 2024
 Sample ID: Blue 16
 Sampling Personal: JTB

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

Weather Conditions: Temp: 50 °F Wind: E @ 10-15 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
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>77.45</u> ft
Total Depth of Well:	<u>97.50</u> ft
Well Volume:	<u>12.4</u> liters
Water Level After Sample:	<u>77.53</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 <u>Tubing</u>
Control Settings:	
Purge:	<u>88</u> Sec.
Recover:	<u>52</u> Sec.
PSI:	<u>—</u>
Duplicate Sample?	<u>YES / (NO)</u>
Duplicate Sample ID:	<u>—</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										
	<u>1324</u>	<u>Start of Well Purge</u>									
	<u>1344</u>	<u>10.13</u>	<u>2627</u>	<u>6.61</u>	<u>0.06</u>	<u>25.4</u>	<u>56.01</u>	<u>77.51</u>	<u>100.0</u>	<u>2000.0</u>	<u>Clear</u>
	<u>1404</u>	<u>10.23</u>	<u>2631</u>	<u>6.61</u>	<u>0.03</u>	<u>35.7</u>	<u>12.90</u>	<u>77.51</u>	<u>100.0</u>	<u>2000.0</u>	<u>Clear</u>
	<u>1414</u>	<u>10.32</u>	<u>2620</u>	<u>6.61</u>	<u>0.02</u>	<u>31.9</u>	<u>7.35</u>	<u>77.51</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1419</u>	<u>10.29</u>	<u>2634</u>	<u>6.61</u>	<u>0.02</u>	<u>30.2</u>	<u>5.34</u>	<u>77.52</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1424</u>	<u>10.29</u>	<u>2644</u>	<u>6.61</u>	<u>0.01</u>	<u>34.1</u>	<u>4.87</u>	<u>77.52</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1429</u>	<u>10.28</u>	<u>2634</u>	<u>6.61</u>	<u>0.02</u>	<u>31.6</u>	<u>4.32</u>	<u>77.52</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1434</u>	<u>10.27</u>	<u>2635</u>	<u>6.61</u>	<u>0.01</u>	<u>30.4</u>	<u>4.27</u>	<u>77.53</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>

Well Stabilized? YES NO Total Volume Purged: 7000.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment Clarity, Color, Odor, Ect.
<u>6 May 24</u>	<u>1439</u>	<u>10.27</u>	<u>2635</u>	<u>6.61</u>	<u>4.27</u>	<u>Clear</u>

Comments: Collected Field Blank @ 1400

NA or -- not applicable

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Account #: 6106

Client: Otter Tail Power Company

Analytical Results

Lab ID: 67289001 **Date Collected:** 10/09/2024 10:15 **Matrix:** Groundwater
Sample ID: FB Blue **Date Received:** 10/10/2024 08:42 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: ASTM D516-16							
Sulfate	<5	mg/L	5	1		10/16/2024 11:30	
Method: EPA 6010D							
Boron	<0.1	mg/L	0.1	1	10/10/2024 16:55	10/24/2024 10:50	
Calcium	<1	mg/L	1	1	10/10/2024 16:55	10/17/2024 10:09	
Method: SM4500 H+ B-2011							
pH	6.5	units	0.1	1		10/10/2024 16:39	*
Method: SM4500-Cl-E 2011							
Chloride	<2.0	mg/L	2.0	1		10/15/2024 09:57	
Method: SM4500-F-C-2011							
Fluoride	<0.1	mg/L	0.1	1		10/10/2024 16:39	
Method: USGS I-1750-85							
Total Dissolved Solids	<10	mg/L	10	1		10/11/2024 14:20	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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

Lab ID: 67289002 **Date Collected:** 10/09/2024 09:25 **Matrix:** Groundwater
Sample ID: Blue 6 **Date Received:** 10/10/2024 08:42 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2521	umhos/cm	1	1		10/09/2024 09:25	
Method: 150.2							
pH - Field	6.9	units	0.01	1		10/09/2024 09:25	
Method: 170.1							
Temperature - Field C	11.42	degrees C		1		10/09/2024 09:25	
Method: ASTM D516-16							
Sulfate	918	mg/L	25	5		10/16/2024 11:32	
Method: EPA 6010D							
Boron	0.37	mg/L	0.1	1	10/10/2024 16:55	10/24/2024 10:52	
Calcium	218	mg/L	1	1	10/10/2024 16:55	10/17/2024 10:10	
Method: SM2110							
Appearance - Field	Clear			1		10/09/2024 09:25	
Method: SM4500 H+ B-2011							
pH	7.2	units	0.1	1		10/10/2024 16:45	*
Method: SM4500-Cl-E 2011							
Chloride	9.4	mg/L	2.0	1		10/15/2024 09:58	
Method: SM4500-F-C-2011							
Fluoride	0.15	mg/L	0.1	1		10/10/2024 16:45	
Method: USGS I-1750-85							
Total Dissolved Solids	2030	mg/L	10	1		10/11/2024 14:20	

Analysis Results Comments**pH**

Sample analyzed beyond holding time.

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Report Date: Friday, October 25, 2024 4:41:24 PM



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

Analytical Results

Lab ID: 67289005 **Date Collected:** 10/08/2024 14:33 **Matrix:** Groundwater
Sample ID: Blue 14 **Date Received:** 10/10/2024 08:42 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	5623	umhos/cm	1	1		10/08/2024 14:33	
Method: 150.2							
pH - Field	6.71	units	0.01	1		10/08/2024 14:33	
Method: 170.1							
Temperature - Field C	15.02	degrees C		1		10/08/2024 14:33	
Method: ASTM D516-16							
Sulfate	2360	mg/L	100	20		10/16/2024 11:35	
Method: EPA 6010D							
Boron	0.51	mg/L	0.5	5	10/10/2024 16:55	10/24/2024 10:58	
Calcium	324	mg/L	5	5	10/10/2024 16:55	10/17/2024 10:35	
Method: SM2110							
Appearance - Field	Clear			1		10/08/2024 14:33	
Method: SM4500 H+ B-2011							
pH	7.0	units	0.1	1		10/10/2024 17:03	*
Method: SM4500-CI-E 2011							
Chloride	9.8	mg/L	2.0	1		10/15/2024 10:02	
Method: SM4500-F-C-2011							
Fluoride	0.11	mg/L	0.1	1		10/10/2024 17:03	
Method: USGS I-1750-85							
Total Dissolved Solids	4620	mg/L	10	1		10/11/2024 14:20	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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

Lab ID: 67289006 **Date Collected:** 10/09/2024 10:05 **Matrix:** Groundwater
Sample ID: Blue 15 **Date Received:** 10/10/2024 08:42 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	3252	umhos/cm	1	1		10/09/2024 10:05	
Method: 150.2							
pH - Field	6.63	units	0.01	1		10/09/2024 10:05	
Method: 170.1							
Temperature - Field C	11.56	degrees C		1		10/09/2024 10:05	
Method: ASTM D516-16							
Sulfate	942	mg/L	50	10		10/16/2024 11:36	
Method: EPA 6010D							
Boron	0.48	mg/L	0.1	1	10/10/2024 16:55	10/24/2024 10:59	
Calcium	135	mg/L	1	1	10/10/2024 16:55	10/17/2024 10:36	
Method: SM2110							
Appearance - Field	Clear			1		10/09/2024 10:05	
Method: SM4500 H+ B-2011							
pH	6.9	units	0.1	1		10/10/2024 17:09	*
Method: SM4500-CI-E 2011							
Chloride	8.6	mg/L	2.0	1		10/15/2024 10:03	
Method: SM4500-F-C-2011							
Fluoride	0.18	mg/L	0.1	1		10/10/2024 17:09	
Method: USGS I-1750-85							
Total Dissolved Solids	2330	mg/L	10	1		10/11/2024 14:20	

Analysis Results Comments*pH*

Sample analyzed beyond holding time.

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

Analytical Results

Lab ID: 67289007 **Date Collected:** 10/07/2024 14:32 **Matrix:** Groundwater
Sample ID: Blue 16 **Date Received:** 10/10/2024 08:42 **Collector:** MVTL Field Service
Temp @ Receipt (C): 0.1 **Received on Ice:** Yes

Parameter	Results	Units	RDL	DF	Prepared	Analyzed	Qual
Method: 120.1							
Specific Conductance - Field	2647	umhos/cm	1	1		10/07/2024 14:32	
Method: 150.2							
pH - Field	6.66	units	0.01	1		10/07/2024 14:32	
Method: 170.1							
Temperature - Field C	18.31	degrees C		1		10/07/2024 14:32	
Method: ASTM D516-16							
Sulfate	856	mg/L	25	5		10/16/2024 11:37	
Method: EPA 6010D							
Boron	0.39	mg/L	0.1	1	10/10/2024 16:55	10/24/2024 11:00	
Calcium	163	mg/L	1	1	10/10/2024 16:55	10/17/2024 10:46	
Method: SM2110							
Appearance - Field	Clear			1		10/07/2024 14:32	
Method: SM4500 H+ B-2011							
pH	7.0	units	0.1	1		10/10/2024 17:15	*
Method: SM4500-CI-E 2011							
Chloride	10.7	mg/L	2.0	1		10/15/2024 10:09	
Method: SM4500-F-C-2011							
Fluoride	0.18	mg/L	0.1	1		10/10/2024 17:15	
Method: USGS I-1750-85							
Total Dissolved Solids	2040	mg/L	10	1		10/11/2024 14:20	

Analysis Results Comments

pH

Sample analyzed beyond holding time.

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Account #: 6106

Client: Otter Tail Power Company

QC Results Summary							WO #: 67289			
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	100.0		85	115			
LFB			100	95.3		85	115			
LFB			100	96.0		85	115			
LFB			100	98.6		85	115			
LFB			100	101.0		85	115			
LFB			100	97.9		85	115			
LFB			100	104.0		85	115			
LFB			100	97.9		85	115			
MB		<5								
MB		<5								
MB		<5								
MB		<5								
MB		<5								
MB		<5								
MB		<5								
MB		<5								
MS/MSD	67244001		1000	84.5	83.9	85	115	0.0	20	
MS/MSD	67289003		500	105.9	109.6	85	115	1.5	20	
MS/MSD	67312002		500	83.7	82.3	85	115	0.9	20	
MS/MSD	67447003		500	80.9	81.1	85	115	0.2	20	
MS/MSD	67467011		10000	88.1	92.1	85	115	2.0	20	
MS/MSD	67472001		1000	101.7	91.1	85	115	3.8	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	98.2		90	110			
LFB			30	97.9		90	110			
LFB			30	97.9		90	110			
LFB			30	97.8		90	110			
LFB			30	97.5		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	97.6		90	110		
LFB			30	98.0		90	110		
LFB			30	97.9		90	110		
LFB			30	97.3		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							
MS/MSD	66884003		30	106.7	91.1	80	120	9.1	20
MS/MSD	67150001		30	104.8	100.6	80	120	0.8	20
MS/MSD	67289003		30	95.3	93.2	80	120	1.7	20
MS/MSD	67447003		30	102.6	93.5	80	120	7.2	20
MS/MSD	67467011		30	95.4	90.7	80	120	2.1	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	94.5		85	115		
LFB-OE			0.4	96.4		85	115		
MB		<0.1							
MB		<0.1							
MS/MSD	67289001		0.4	96.0	99.7	70	130	3.8	20
MS/MSD	67289003		0.4	92.4	93.1	70	130	0.4	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	112.0		85	115		
LFB-MI			100	107.0		85	115		
MB		<1							

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Account #: 6106

Client: Otter Tail Power Company

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 (%)
MB		<1							
PDS/PDSD	65433006		100	96.1	96.0	75	125	0.0	20
PDS/PDSD	65702016		100	91.8	92.8	75	125	0.6	20
PDS/PDSD	65827002		100	101.0	101.0	75	125	0.0	20
DUP	65827007							0.5	20
DUP	67289002							0.9	20
DUP	67289003							1.1	20
PDS/PDSD	67289003		100	96.9	100.0	75	125	1.1	20
PDS/PDSD	67441001		100	102.0	104.0	75	125	1.7	20
PDS/PDSD	67441009		500	103.0	95.4	75	125	3.5	20
PDS/PDSD	67447003		100	101.0	102.0	75	125	0.4	20
PDS/PDSD	67467010		100	99.6	100.0	75	125	0.5	20
PDS/PDSD	67601001		100	98.3	101.0	75	125	1.7	20

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	98.5		98.33	101.67		
CRM-PH			6	98.8		98.33	101.67		
CRM-PH			6	98.7		98.33	101.67		
CRM-PH			6	99.5		98.33	101.67		
DUP	67289003							2.7	20
DUP	67290004							1.2	20
DUP	67441006							0.8	20

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			3.06	94.8		83.99	111.11		
LFB-F			0.5	102.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	100.0		90	110		
LFB-F			0.5	102.0		90	110		
MB-F		<0.1							
MB-F		<0.1							

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Account #: 6106

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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							
MS/MSD	67289003		0.5	104.0	102.0	80	120	1.5	20
MS/MSD	67290004		0.5	104.0	104.0	80	120	0.0	20
MS/MSD	67441008		0.5	104.0	104.0	80	120	0.0	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		
CRM			736	98.0		90.35	110.33		
MB		<10							
MB		<10							
DUP	67251001							9.6	20
DUP	67467013							0.0	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: 67289 	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: Fall 2024 Sampled By: <i>Jeremy Meyer / Ethan Greis</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: Fall 2024 Sampled By: <i>Jeremy Meyer / Ethan Greis</i>
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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-CU)		
<i>001</i>	FB Blue	<i>9 Oct 24</i>	<i>1015</i>	GW	X	X			NA	NA	NA	NA	OTP CCR App 3	
<i>002</i>	Blue 6	<i>9 Oct 24</i>	<i>0925</i>	GW	X	X			11.42	2521	6.90	C		
<i>003</i>	Blue 7/MS7/MSD7	<i>9 Oct 24</i>	<i>1055</i>	GW	3	3			12.41	2579	6.68	C		
<i>004</i>	Blue 13	<i>8 Oct 24</i>	<i>1520</i>	GW	X	X			14.83	6540	6.91	C		
<i>005</i>	Blue 14	<i>8 Oct 24</i>	<i>1433</i>	GW	X	X			15.02	5623	6.71	C		
<i>006</i>	Blue 15	<i>9 Oct 24</i>	<i>1005</i>	GW	X	X			11.56	3252	6.63	C		
<i>007</i>	Blue 16	<i>7 Oct 24</i>	<i>1432</i>	GW	X	X			18.31	2647	6.66	C		

Comments:

Relinquished By		Sample Condition		Received By	
Name	Date/Time	Location	Temp	Name	Date/Time
<i>[Signature]</i>	<i>10 Oct 24</i> <i>0842</i>	Walk In #2	0.1 °C/TM #05 ROI/WN	<i>[Signature]</i>	<i>10 Oct 24</i> <i>0935</i> <i>0842</i>
					<i>YH</i> <i>20 Oct 24</i> <i>(A)</i>

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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 2024
Sample ID: Blue 16
Sampling Personal: [Signature]

Weather Conditions: Temp: 70 °F Wind: 5 @ S-W 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
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>79.77</u> ft
Total Depth of Well:	<u>97.50</u> ft
Well Volume:	<u>11.0</u> liters
Water Level After Sample:	<u>79.74</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
Control Settings:	
Purge:	<u>B</u> Sec.
Recover:	<u>S?</u> Sec.
PSI:	<u>—</u>
Bottle List:	
<u>1 Liter Raw</u>	
<u>500mL Nitric</u>	
Duplicate Sample?	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Duplicate Sample ID:	
<u>—</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
Purge Date	Time										Clarity, Color, Odor, Ect.
	1302	Start of Well Purge									
	1322	17.50	2646	6.66	0.80	28.7	32.43	79.77	100.0	2000.0	Clear
	1342	17.74	2657	6.66	0.82	52.4	16.19	79.72	100.0	2000.0	Clear
	1352	17.81	2673	6.66	0.50	49.9	15.12	79.70	100.0	1000.0	Clear
	1402	17.92	2655	6.67	0.54	47.6	15.33	79.73	100.0	1000.0	Clear
	1412	18.03	2652	6.67	0.63	49.9	15.16	79.69	100.0	1000.0	Clear
	1417	18.09	2651	6.67	0.67	54.01	14.09	79.74	100.0	500.0	Clear
	1422	18.15	2651	6.66	0.70	56.4	16.78	79.74	100.0	500.0	Clear
	1427	18.30	2649	6.66	0.74	58.6	11.80	79.72	100.0	500.0	Clear
	1432	18.31	2647	6.66	0.80	59.3	13.61	79.74	100.0	500.0	Clear
Well Stabilized?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO except for turbidity									
Total Volume Purged:										9000.0	Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
7 Oct 24	1432	18.31	2647	6.66	13.61	Clear

Comments: Turbidity ~~was~~ was not stabilizing below 5 NTU

NA or - = not applicable

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



Account #: 6106

Client: Otter Tail Power Company

CCR - Appendix III Detection Monitoring

Field Parameters

pH*

* Field and Laboratory Measurements

Total Concentration Parameters

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

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

10/10/24, 5:57 AM

VuSitu_Calibration_1025047_2024-10-07.html

Calibration Report

Instrument Aqua TROLL 800
Serial Number 1025047
Created 10/7/2024
Sensor Conductivity
Serial Number 1025198
Last Calibrated 10/7/2024

Calibration Details
TDS Conversion Factor (ppm) 0.85
Cell Constant 0.893
Offset 0.00 µS/cm
Reference Temperature 25.00 °C

Calibration Point 1

Pre Measurement
Actual Conductivity 1,235.1 µS/cm
Specific Conductivity 1,437.1 µS/cm
Post Measurement
Actual Conductivity 1,214.4 µS/cm
Specific Conductivity 1,413.0 µS/cm

Sensor RDO
Serial Number 1120735
Last Calibrated 10/7/2024

Calibration Details
Slope 1.058590
Offset -0.00 mg/L
Calibration point 100%
Concentration 8.24 mg/L
Pre Measurement 101.87 %Sat
Post Measurement 100.00 %Sat
Temperature 15.87 °C
Barometric Pressure 897.05 mbar

Sensor pH/ORP
Serial Number 1112398
Last Calibrated 10/7/2024

Calibration Details

Calibration Point 1
pH of Buffer 4.00 pH
pH mV 168.2 mV
Temperature 18.45 °C

Pre Measurement
pH 5.93 pH
pH mV 169.3 mV

Post Measurement
pH 4.00 pH
pH mV 165.5 mV

Calibration Point 2
pH of Buffer 7.02 pH
pH mV -3.8 mV
Temperature 18.99 °C

Pre Measurement
pH 8.93 pH
pH mV -4.0 mV

Post Measurement
pH 7.02 pH
pH mV -3.7 mV

Calibration Point 3
pH of Buffer 10.06 pH
pH mV -180.2 mV
Temperature 18.30 °C

Pre Measurement
pH 8.97 pH
pH mV -180.4 mV

Post Measurement
pH 10.06 pH
pH mV -178.7 mV

Slope and Offset 1
Slope -37.2 mV/pH
Offset -2.7 mV

Slope and Offset 2
Slope -58.23 mV/pH
Offset -2.6 mV

ORP
Oxidation Solution Cobalt/Fe
Offset -1.5 mV
Temperature 9.33 °C
Pre Measurement 253.8 mV
Post Measurement 249.6 mV

Sensor Turbidity
Serial Number 1132499
Last Calibrated 10/7/2024

Calibration Details
Slope 1.051974
Offset -0.66 NTU

Calibration Point 1
Pre Measurement 0.37 NTU
Post Measurement 0.10 NTU

Calibration Point 2
Pre Measurement 98.27 NTU
Post Measurement 100.00 NTU

Sensor Barometric Pressure
Serial Number 1025047
Last Calibrated Factory Defaults

Sensor Pressure
Serial Number 1023082
Last Calibrated Factory Defaults

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Account #: 6106

Client: Otter Tail Power Company

10/10/24, 5:56 AM

VuSitu_Calibration_1025047_2024-10-08.html

Calibration Report

Instrument Aqua TROLL 600
Serial Number 1025047
Created 10/8/2024

Sensor Conductivity
Serial Number 102339
Last Calibrated 10/8/2024

Calibration Details
TDS Conversion Factor (ppm) 0.85
Cell Constant 0.987
Offset 0.00 µS/cm
Reference Temperature 25.00 °C

Calibration Point 1
Pre Measurement
Actual Conductivity 1,244.7 µS/cm
Specific Conductivity 1,364.0 µS/cm

Post Measurement
Actual Conductivity 1,288.4 µS/cm
Specific Conductivity 1,413.0 µS/cm

Sensor RDO
Serial Number 1120735
Last Calibrated 10/8/2024

Calibration Details
Slope 1.0035574
Offset 0.00 mg/L

Calibration Point 100%
Concentration 8.78 mg/L
Pre Measurement 86.88 %Sat
Post Measurement 100.00 %Sat
Temperature 18.98 °C
Barometric Pressure 1,080.6 mbar

Sensor pH/ORP
Serial Number 1122988
Last Calibrated 10/8/2024

Calibration Point 1
pH of Buffer 4.00 pH
pH mV 165.8 mV
Temperature 20.29 °C

Pre Measurement
pH 4.06 pH
pH mV 166.8 mV

Post Measurement
pH 4.00 pH
pH mV 164.2 mV

Calibration Point 2
pH of Buffer 7.02 pH
pH mV -10.4 mV
Temperature 20.42 °C

Pre Measurement
pH 7.12 pH
pH mV -9.8 mV

Post Measurement
pH 7.02 pH
pH mV -10.2 mV

Calibration Point 3
pH of Buffer 10.05 pH
pH mV -184.9 mV
Temperature 20.48 °C

Pre Measurement
pH 10.12 pH
pH mV -185.2 mV

Post Measurement
pH 10.05 pH
pH mV -182.1 mV

Slope and Offset 1
Slope -58.89 mV/pH
Offset -9.2 mV

Slope and Offset 2
Slope -57.81 mV/pH
Offset -8.2 mV

ORP
Oxid Solution Zebell's
Offset 4.9 mV
Temperature 11.42 °C
Pre Measurement 240.5 mV
Post Measurement 246.9 mV

Sensor Turbidity
Serial Number 1133469
Last Calibrated 10/8/2024

Calibration Details
Slope 17.74413855
Offset -1.37 NTU

Calibration Point 1
Pre Measurement 2.04 NTU
Post Measurement 0.10 NTU

Calibration Point 2
Pre Measurement 137.97 NTU
Post Measurement 130.00 NTU

Sensor Barometric Pressure
Serial Number 1023347
Last Calibrated Factory Defaults

Sensor Pressure
Serial Number 1023382
Last Calibrated Factory Defaults

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Account #: 6106

Client: Otter Tail Power Company

10/10/24, 6:18 AM

VuSitu_Calibration_744333_2024-10-09_2.html

Calibration Report

Instrument Aqua TROLL 800
Serial Number 744333
Created 10/9/2024
Sensor RDO
Serial Number 804583
Last Calibrated 10/9/2024

Calibration Details
Slope 1.224353
Offset -0.00 mg/L

Calibration Point 100%
Concentration 7.63 mg/L
Pre Measurement: 89.04 %Sat
Post Measurement: 100.00 %Sat
Temperature 16.27 °C
Barometric Pressure 1,024.8 mbar

Sensor pH/ORP
Serial Number 112445
Last Calibrated 10/9/2024

Calibration Details

Calibration Point 1
pH of Buffer 4.00 pH
pH mV 170.5 mV
Temperature 20.88 °C

Pre Measurement
pH 3.97 pH
pH mV 170.3 mV

Post Measurement
pH 4.00 pH
pH mV 168.2 mV

Calibration Point 2
pH of Buffer 7.02 pH
pH mV -4.1 mV
Temperature 20.73 °C

Pre Measurement
pH 7.15 pH
pH mV -4.2 mV

Post Measurement
pH 7.02 pH
pH mV -4.0 mV

Calibration Point 3
pH of Buffer 10.35 pH
pH mV -178.8 mV
Temperature 20.85 °C

Pre Measurement
pH 10.27 pH
pH mV -175.0 mV

Post Measurement
pH 10.05 pH
pH mV -176.1 mV

Slope and Offset 1
Slope -57.63 mV/pH
Offset -3.0 mV

Slope and Offset 2
Slope -57.56 mV/pH
Offset -3.0 mV

ORP
ORP Solution Zobell's
Offset -3.8 mV
Temperature 11.69 °C
Pre Measurement: 281.4 mV
Post Measurement: 246.1 mV

Sensor Conductivity
Serial Number 845642
Last Calibrated 10/9/2024

Calibration Details
TDS Conversion Factor (ppm) 0.65
Cell Constant 0.973
Offset 0.00 µS/cm
Reference Temperature 25.00 °C

Calibration Point 1

Pre Measurement
Actual Conductivity 1,222.4 µS/cm
Specific Conductivity 1,454.2 µS/cm

Post Measurement
Actual Conductivity 1,187.2 µS/cm
Specific Conductivity 1,413.0 µS/cm

Sensor Turbidity
Serial Number 114173
Last Calibrated 10/9/2024

Calibration Details
Slope 0.93544215
Offset 0.64 NTU

Calibration Point 1
Pre Measurement: 0.00 NTU
Post Measurement: 0.10 NTU

Calibration Point 2
Pre Measurement: 136.30 NTU
Post Measurement: 133.00 NTU

Sensor Barometric Pressure
Serial Number 744333
Last Calibrated Factory Defaults

Sensor Pressure
Serial Number 798138
Last Calibrated Factory Defaults

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Account #: 6106

Client: Otter Tail Power Company

10/10/24, 6:17 AM

VuSitu_Calibration_744333_2024-10-09.html

Calibration Report

Instrument Aqua TROLL 800
Serial Number 744333
Created 10/09/2024

Sensor RDD
Serial Number 854583
Last Calibrated 10/9/2024

Calibration Details
Slope 1.2240353
Offset -0.00 mg/L

Calibration Point 100%
Concentration 7.43 mg/L
Pre Measurement: 88.54 % Sat
Post Measurement: 100.00 % Sat
Temperature 9.27 °C
Barometric Pressure 1,024.8 mbar

Sensor pH/ORP
Serial Number 1112448
Last Calibrated 10/9/2024

Calibration Details

Calibration Point 1
pH of Buffer 4.00 pH
pH mV 170.5 mV
Temperature 20.58 °C

Pre Measurement
pH 5.97 pH
pH mV 170.3 mV

Post Measurement
pH 4.00 pH
pH mV 168.2 mV

Calibration Point 2
pH of Buffer 7.02 pH
pH mV -4.1 mV
Temperature 20.73 °C

Pre Measurement
pH 7.15 pH
pH mV -4.2 mV

Post Measurement
pH 7.02 pH
pH mV -4.0 mV

Calibration Point 3
pH of Buffer 10.35 pH
pH mV -178.4 mV
Temperature 20.85 °C

Pre Measurement
pH 10.37 pH
pH mV -178.3 mV

Post Measurement
pH 10.35 pH
pH mV -178.1 mV

Slope and Offset 1
Slope -57.43 mV/pH
Offset -3.0 mV

Slope and Offset 2
Slope -57.26 mV/pH
Offset -3.0 mV

ORP
ORP Solution Zobell's
Offset -3.6 mV
Temperature 11.87 °C
Pre Measurement: 287.4 mV
Post Measurement: 248.1 mV

Sensor Conductivity
Serial Number 845642
Last Calibrated 10/9/2024

Calibration Details
TDS Conversion Factor (ppm) 0.65
Cell Constant 2.166
Offset 0.00 µS/cm
Reference Temperature 25.00 °C

Calibration Point 1

Pre Measurement
Actual Conductivity 1,287.3 µS/cm
Specific Conductivity 1,468.2 µS/cm

Post Measurement
Actual Conductivity 1,281.3 µS/cm
Specific Conductivity 1,413.0 µS/cm

Sensor Turbidity
Serial Number 1141173
Last Calibrated 10/9/2024

Calibration Details
Slope 0.93544215
Offset 0.64 NTU

Calibration Point 1
Pre Measurement: 0.00 NTU
Post Measurement: 0.10 NTU

Calibration Point 2
Pre Measurement: 106.30 NTU
Post Measurement: 100.00 NTU

Sensor Barometric Pressure
Serial Number 744333
Last Calibrated Factory Defaults

Sensor Pressure
Serial Number 799338
Last Calibrated Factory Defaults

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Account #: 6106

Client: Otter Tail Power Company

10/10/24, 5:56 AM

VuSitu_Calibration_1025047_2024-10-09.html

Calibration Report

Instrument Aqua TROLL 600	
Serial Number	1025047
Created	10/9/2024
Sensor Conductivity	
Serial Number	1022358
Last Calibrated	10/9/2024
Calibration Details	
TDS Conversion Factor (ppm)	0.85
Cell Constant	0.871
Offset	0.00 $\mu\text{S/cm}$
Reference Temperature	25.00 °C
Calibration Point 1	
Pre Measurement	
Actual Conductivity	1,305.2 $\mu\text{S/cm}$
Specific Conductivity	1,435.2 $\mu\text{S/cm}$
Post Measurement	
Actual Conductivity	1,285.0 $\mu\text{S/cm}$
Specific Conductivity	1,413.0 $\mu\text{S/cm}$
Sensor RDO	
Serial Number	1120735
Last Calibrated	10/9/2024
Calibration Details	
Slope	1.0019365
Offset	-0.00 mg/L
Calibration point 100%	
Concentration	8.58 mg/L
Pre Measurement:	101.08 %Sat
Post Measurement:	100.00 %Sat
Temperature	18.82 °C
Barometric Pressure	1,026.9 mbar
Sensor pH/ORP	
Serial Number	1112098
Last Calibrated	10/9/2024
Calibration Details	
Calibration Point 1	
pH of Buffer	4.00 pH
pH mV	167.6 mV
Temperature	20.31 °C
Pre Measurement	
pH	4.04 pH
pH mV	164.5 mV
Post Measurement	
pH	4.00 pH
pH mV	162.0 mV
Calibration Point 2	
pH of Buffer	7.02 pH
pH mV	-2.5 mV
Temperature	20.42 °C
Pre Measurement	
pH	7.01 pH
pH mV	-6.6 mV
Post Measurement	
pH	7.02 pH
pH mV	-8.3 mV
Calibration Point 3	
pH of Buffer	10.05 pH
pH mV	-185.8 mV
Temperature	20.43 °C
Pre Measurement	
pH	10.07 pH
pH mV	-186.2 mV
Post Measurement	
pH	10.05 pH
pH mV	-183.0 mV
Slope and Offset 1	
Slope	-37.65 mV/pH
Offset	-8.3 mV
Slope and Offset 2	
Slope	-58.19 mV/pH
Offset	-8.3 mV
ORP	
ORP Solution	4.00mV
Offset	5.4 mV
Temperature	18.74 °C
Pre Measurement:	236.5 mV
Post Measurement:	236.0 mV
Sensor Turbidity	
Serial Number	1133469
Last Calibrated	10/9/2024
Calibration Details	
Slope	0.037475
Offset	0.68 NTU
Calibration Point 1	
Pre Measurement:	0.00 NTU
Post Measurement:	0.10 NTU
Calibration Point 2	
Pre Measurement:	76.82 NTU
Post Measurement:	100.00 NTU
Sensor Barometric Pressure	
Serial Number	1025047
Last Calibrated	Factory Defaults
Sensor Pressure	
Serial Number	1023082
Last Calibrated	Factory Defaults

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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 2024
Sample ID: Blue 6
Sampling Personal: J. J. [signature]

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

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

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

FIELD READINGS

Table with columns: Purge 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.

Table with columns: Sample Date, Time, Temp. (C), Spec. Cond., pH, Turbidity (NTU), Appearance or Comment.

Comments:

NA or - = not applicable

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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 2024
Sample ID: Blue 7
Sampling Personal: J. J. [Signature]

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
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>83.52</u> ft
Total Depth of Well:	<u>97.71</u> ft
Well Volume:	<u>8.7</u> liters
Water Level After Sample:	<u>83.62</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
<i>Tubing</i>	
Control Settings:	
Purge:	<u>8</u> Sec.
Recover:	<u>12</u> Sec.
PSI:	<u>—</u>

Bottle List:	
1 Liter Raw	x3
500mL Nitric	
Duplicate Sample? <u>YES</u> / NO	
Duplicate Sample ID: <u>M5 / MSD</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
Purge Date	Time	Start of Well Purge									
9 Oct 24	1010	13.45	2648	6.74	1.02	37.8	9.42	83.60	100.0	1000.0	Clear
	1020	13.28	2604	6.74	0.46	22.9	10.19	83.61	100.0	1000.0	Clear
	1040	12.53	2586	6.71	0.33	2.2	6.49	83.61	100.0	1000.0	Clear
	1045	12.70	2592	6.70	0.31	-4.2	4.72	83.61	100.0	500.0	Clear
	1050	12.44	2587	6.69	0.28	-10.4	3.26	83.61	100.0	500.0	Clear
	1055	12.41	2579	6.68	0.27	-11.5	2.98	83.61	100.0	500.0	Clear

Well Stabilized? (YES) NO Total Volume Purged: 4500.0 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
9 Oct 24	1055	12.41	2579	6.68	2.98	Clear

Comments: Collected field blank @ 1015

NA or - = not applicable

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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 2024
 Sample ID: Blue 13
 Sampling Personal: Jrb

Weather Conditions: Temp: 65 °F Wind: S @ 10-15 Precip: Sunny / Partly Cloudy / Cloudy

WELL INFORMATION	
Well Locked?	<u>YES</u> NO
Well Labeled?	<u>YES</u> NO
Repairs Necessary?	<u>Flange broken</u>
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>105.12</u> ft
Total Depth of Well:	<u>116.75</u> ft
Well Volume:	<u>7.2</u> liters
Top of Pump:	<u>ft</u>
Water Level After Sample:	<u>108.33</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
<u>Tubing</u>	
Control Settings:	
Purge:	<u>8</u> / <u>12</u> Sec.
Recover:	<u>12</u> / <u>30</u> Sec.
PSI:	<u>100</u> / <u>---</u>
Bottle List:	
<u>1 Liter Raw</u>	
<u>500mL Nitric</u>	
Duplicate Sample?	
<u>YES / (NO)</u>	
Duplicate Sample ID:	
<u>---</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
7 Oct 24 8 Oct 24	1530	Start of Well Purge									
	1540	12.69	5917	6.95	0.72	6.0	41.59	Relamping	300.0	5400.0	Clear
	1505	17.72	6394	6.79	3.06	65.0	55.20	103.43	100.0	500.0	Clear
	1510	14.82	6420	6.90	1.38	33.9	17.02	105.15	100.0	500.0	Clear
	1520	14.83	6540	6.91	0.28	10.9	2.08	107.67	100.0	500.0	Clear

Well Stabilized? YES (NO) Total Volume Purged: 300 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment
8 Oct 24	1520	14.83	6540	6.91	2.08	Clear

Comments:

NA or - = not applicable

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

Report Date: Friday, October 25, 2024 4:41:24 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: Fall 2024
 Sample ID: Blue 44
 Sampling Personal: Jeremy King

Weather Conditions: Temp: 70 °F Wind: S @ 5-12 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
Repairs Necessary?	
Casing Diameter:	<u>2"</u>
Water Level Before Purge:	<u>80.08</u> ft
Total Depth of Well:	<u>86.95</u> ft
Well Volume:	<u>4.2</u> liters
Water Level After Sample:	<u>82.62</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
Control Settings:	
Purge:	<u>8</u> Sec.
Recover:	<u>52</u> Sec.
PSI:	<u>---</u>
Bottle List:	
<u>1 Liter Raw</u>	
<u>500mL Nitric</u>	
Duplicate Sample?	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
Duplicate Sample ID:	
<u>---</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										
<u>8 Oct 24</u>	<u>1330</u>	<u>Start of Well Purge</u>									
	<u>1358</u>	<u>14.95</u>	<u>5822</u>	<u>6.72</u>	<u>0.73</u>	<u>85.1</u>	<u>20.18</u>	<u>81.15</u>	<u>100.0</u>	<u>2000.0</u>	<u>Clear</u>
	<u>1408</u>	<u>15.10</u>	<u>5667</u>	<u>6.69</u>	<u>0.50</u>	<u>47.4</u>	<u>8.72</u>	<u>81.37</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1418</u>	<u>15.01</u>	<u>5675</u>	<u>6.68</u>	<u>0.40</u>	<u>41.4</u>	<u>4.05</u>	<u>81.70</u>	<u>100.0</u>	<u>1000.0</u>	<u>Clear</u>
	<u>1423</u>	<u>14.78</u>	<u>5588</u>	<u>6.69</u>	<u>0.42</u>	<u>40.6</u>	<u>2.88</u>	<u>82.00</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1428</u>	<u>14.93</u>	<u>5624</u>	<u>6.70</u>	<u>0.44</u>	<u>37.0</u>	<u>3.17</u>	<u>82.05</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>
	<u>1433</u>	<u>15.02</u>	<u>5623</u>	<u>6.71</u>	<u>0.43</u>	<u>30.1</u>	<u>2.71</u>	<u>82.34</u>	<u>100.0</u>	<u>500.0</u>	<u>Clear</u>

Well Stabilized? YES NO Total Volume Purged: 85.5 Liters

Sample Date	Time	Temp. (°C)	Spec. Cond.	pH	Turbidity (NTU)	Appearance or Comment Clarity, Color, Odor, Ect.
<u>8 Oct 24</u>	<u>1433</u>	<u>15.02</u>	<u>5623</u>	<u>6.71</u>	<u>2.71</u>	<u>Clear</u>

Comments:

NA or - = not applicable

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

Report Date: Friday, October 25, 2024 4:41:24 PM



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Account #: 6106

Client: Otter Tail Power Company



Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Fall 2024
Sample ID: Blue 15
Sampling Personal: Ethan Gross

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

Weather Conditions: Temp: 50 °F Wind: 0-5 @ 0 Precip: Sunny / Partly Cloudy / Cloudy

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

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

FIELD READINGS

Table with columns: Purge 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.

Table with columns: Sample Date, Time, Temp. (°C), Spec. Cond., pH, Turbidity (NTU), Appearance or Comment.

Comments: error in conductivity calibration. Recalibrated at 0946. Error resolved after satib recalibration.

NA or - = not applicable

MVTL guarantees the accuracy of the analysis done on the sample submitted for testing. It is not possible for MVTL to guarantee that a test result obtained on a particular sample will be the same on any other sample unless all conditions affecting the sample are the same, including sampling by MVTL.

Report Date: Friday, October 25, 2024 4:41:24 PM



Appendix B Groundwater Flow Calculations

Appendix B
Annual Groundwater Monitoring and Corrective Action Report

Coyote Blue Pit Groundwater Velocity Calculation

Sampling Date	5/6/2024
----------------------	----------

Upgradient (BLUE 13)

Top of Casing Elevation	2045.27	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	104.85	ft below TOC	
Water Level Elevation	1940.42	ft amsl	

Downgradient (BLUE 15)

Top of Casing Elevation	1995.88	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	78.40	ft below TOC	
Water Level Elevation	1917.48	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	22.94	ft	
gradient (i)	0.010	ft/ft	
linear velocity (V)	0.0070	ft/day	
V	2.6	ft/yr	

Appendix B
Annual Groundwater Monitoring and Corrective Action Report

Coyote Blue Pit Groundwater Velocity Calculation

Sampling Date	10/08/24
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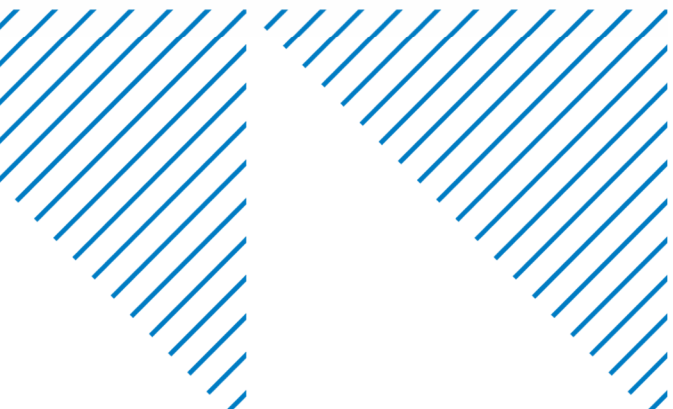
Upgradient (BLUE 13)

Top of Casing Elevation	2045.27	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	105.12	ft below TOC	
Water Level Elevation	1940.15	ft amsl	

Downgradient (BLUE 15)

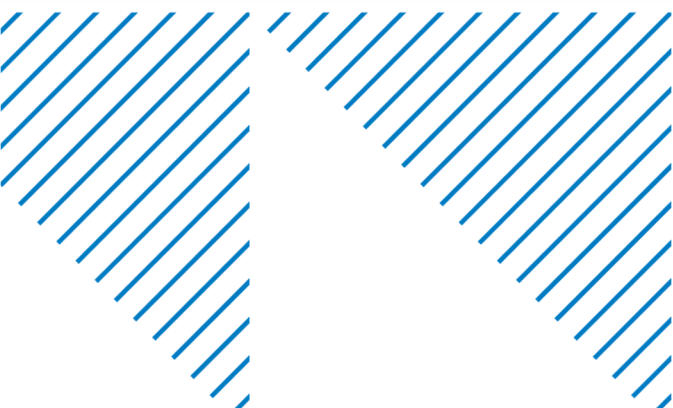
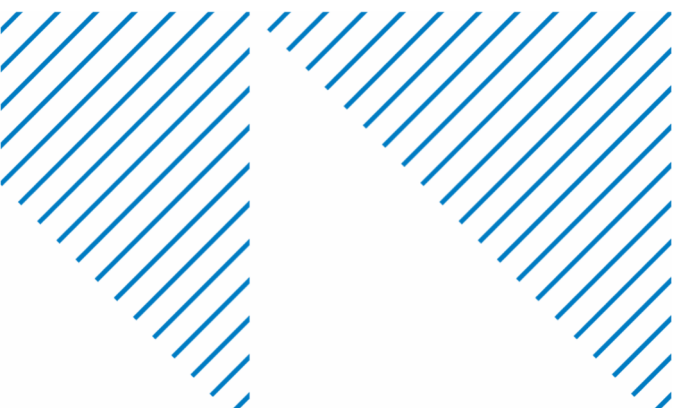
Top of Casing Elevation	1995.88	ft amsl	<i>Groundwater Monitoring System Report (Barr, 2016)</i>
Depth to Water	80.39	ft below TOC	
Water Level Elevation	1915.49	ft amsl	

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	24.66	ft	
gradient (i)	0.010	ft/ft	
linear velocity (V)	0.0076	ft/day	
V	2.8	ft/yr	



Appendix C

Annual Fugitive Dust Control Report



2024 Annual Fugitive Dust Control Report

Coyote Station Plant – Blue Pit

Date: December 4, 2024

Introduction

This report fulfills the requirements of 257.80(c) in 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 is located in Mercer County, North Dakota. This Annual Report covers the time period from December 2023 to December 2024.

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. The third is a summary of any corrective measures taken. See Table 1 for citizen complaints.

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 CCR prior to its transfer from silos to transport vehicles and is also used to wet the in-place CCR 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 CCR disposal areas.

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
10/11/24	Citizen complaint to the State of ND on Oct. 5, 2024. State relayed the complaint to OTP on Oct. 11, 2024	Yes	See attached response to State of ND. Regional conditions that day were sustained wind speeds of 35 to 45 mph with gusts up to 65 mph. No CCR hauling occurred on this day.

Summary of corrective measures taken

See the attached correspondence with the North Dakota Department of Environmental Quality below.

Hollen, Josh

From: Hollen, Josh
Sent: Wednesday, October 16, 2024 11:29 AM
To: Quach, Anthony
Subject: RE: Ash Complaint
Attachments: 2023 - Coy Fugitive Dust Control Plan.pdf

Hi Anthony,

Thank you for your email on October 11, 2024, about a citizen complaint of fugitive dust from the Coyote Station Blue Pit Landfill. Per your email, the citizen was concerned about dust blowing over State Highway 49 on Saturday, October 5, 2024.

Saturday, October 5th was an extremely windy day. Past weather data for that day indicate wind speeds of 35 to 45 mph for the day with reported wind gusts of up to 65 mph on several occasions. Regarding dust mitigation efforts, no ash hauling, or other solid waste activities occurred at the Blue Pit on the day in question.

Please see the attached Fugitive Dust Control Plan for the Blue Pit. Best management practices for controlling fugitive dust may include adding some water to the ash to limit dust creation, controlling vehicle speed if we are hauling ash, or discontinue hauling ash for the day if it is too windy. Plant personnel are trained on identifying blowing fugitive dust conditions and can take the necessary actions to control fugitive dust whenever present. Our approach of suspending all ash hauling activity on October 5th was in line with our best management practices during excessive windy conditions.

Please let me know if you have any additional concerns or questions.



Josh Hollen

Environmental Compliance
Environmental Services [

Phone: (218) 739-8314

otpc.com

From: Quach, Anthony <aQuach@nd.gov>
Sent: Friday, October 11, 2024 2:22 PM
To: Hollen, Josh <jhollen@otpc.com>
Subject: Ash Complaint

This is an EXTERNAL email. DO NOT open attachments or click links in suspicious email.

Hi Josh,

A citizen had called the division of Waste Management today regarding ash/dust blowing over Hwy 49 last Saturday October 5, 2024. The individual in question wants to know what the Otter Tail Power Coyote Station is doing to reduce or eliminate dust issues.

Thanks,

Anthony Quach

Division of Waste Management • Solid Waste Program

701-328-5156 • 701.328.5200 (fax) • aquach@nd.gov • <https://deq.nd.gov/>

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