

# 2017 Annual Groundwater Monitoring and Corrective Action Report

CCR Annual Monitoring Report

Slag Pond Area

Coyote Station Beulah, North Dakota

Prepared for Otter Tail Power Company

January 2018

### 2017 CCR Annual Groundwater Monitoring and Corrective Action Report

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### January 2018

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### Acronyms

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

### 1.0 Introduction

Otter Tail Power Company (OTP) operates Coyote Station, a coal-fired generation unit near Beulah, North Dakota. Coal combustion residuals (CCR) from the generating station are placed in three on-site surface impoundments: the Slag Pond, the Sluice Outfall, and Nelsen Pond. These impoundments are existing CCR surface impoundments that are required to comply with the provisions of the US Environmental Protection Agency (EPA) CCR Rule (40 CFR Parts 257 and 261 Disposal of Coal Combustion Residuals From Electric Utilities).

The Slag Pond Area, in which the groundwater monitoring system is located, consists of the Slag Pond, Sluice Outfall, and Nelsen Pond. The location of the Slag Pond Area is shown on (Figure 1). The groundwater monitoring system is a Multiunit Groundwater Monitoring System, as allowed in §257.91 (d). It is not feasible to install a separate groundwater monitoring system for each CCR unit.

This 2017 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) describes the monitoring program and results for the Slag Pond Area at Coyote Station (Site).

### 1.1 Purpose

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

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

### 1.2 Status of the Groundwater Monitoring and Corrective Action Program

Baseline monitoring was completed prior to October 17, 2017. The evaluation of groundwater monitoring data for statistically significant increases over background levels for the constituents listed in Appendix III from the CCR Rule began on October 17, 2017.

### 1.3 CCR Rule Requirements

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

Table 1 CCR Rule Requirements

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

### 2.0 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the CCR unit for the period starting with the effective date of the CCR Rule through the end of 2017. 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 2018 are described in Section 2.4.

### 2.1 Groundwater Monitoring System

#### 2.1.1 Documentation

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

#### 2.1.2 Changes to Monitoring System

The groundwater monitoring system was unchanged in 2017.

### 2.2 Monitoring and Analytical Results

CCR Rule provisions §257.90(e)(3) and §257.94(b) require collection of eight independent samples to establish background water quality for the detection monitoring program. A total of 42 [five monitoring wells (MW 2S, POND N3, POND 6, POND 12, POND 16S) for eight sampling events and one monitoring (POND 10) well for two sampling events] groundwater samples were collected and analyzed for the constituents listed in Appendices III and IV (Part 257) before October 17, 2017. Dates of sampling are reported on the field data sheets and analytical laboratory reports in Appendix A.

### 2.3 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program through 2017:

- Baseline groundwater samples were collected and analyzed for the constituents listed in Appendices III and IV from the CCR Rule.
- A statistical method was selected for evaluating groundwater monitoring data by a qualified professional engineer in 2017.

The field logs indicate that recharge was insufficient for sampling monitoring well POND 10 for Appendices III and IV (Part 257) constituents on September 14, 2016, January 31, 2017, March 1, 2017, March 29, 2017, May 16, 2017, and June 19, 2017. Sampling for Appendices III and IV (Part 257) constituents was successful on October 19, 2016 and November 15, 2016.

### 2.4 Key Activities for Upcoming Year

The following key groundwater monitoring program activities are planned for 2018:

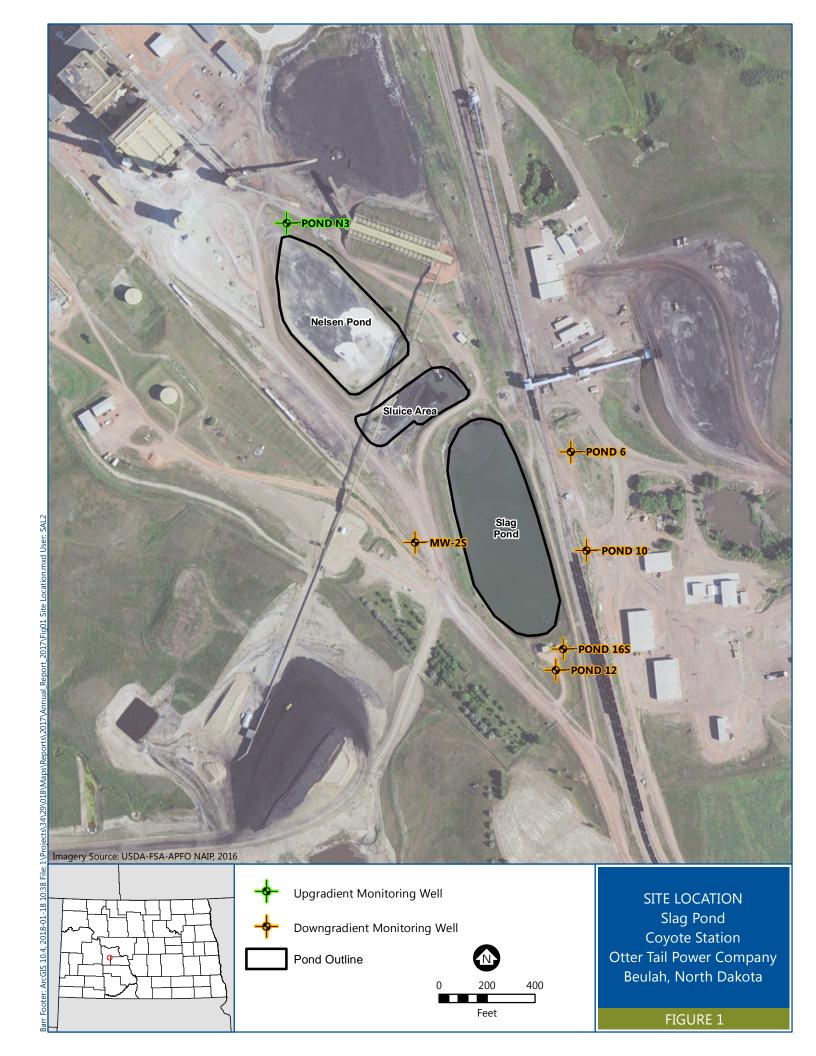
- Evaluate the cause of the low recharge rate noted for monitoring well POND 10 and develop a response to comply with CCR Rule requirements.
- Evaluate analytical results from the 2018 semiannual detection monitoring events for statistically significant increases (SSIs) according to the CCR Groundwater Sampling and Analysis Plan (Carlson McCain, 2017).
- Continue the groundwater monitoring program in accordance with the CCR rule.

### 3.0 References

Barr, 2016, Groundwater Monitoring System Report, Coyote Station Slag Pond 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 Slag Pond Area. Prepared for Otter Tail Power Company. October 2017.

# **Figures**



### **Appendices**

### Appendix A

**Laboratory Reports and Field Sheets** 





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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-2990

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year 3<sup>rd</sup> Quarter 2016

MVTL Laboratory Identifications: 16-W4194 through 16-W4200

Page 1 of 2

Sample Identification	MVTL Laboratory #
Pond6	16-W4194
PondN3	16-W4195
Pond10	Insufficient volume – no sample
Pond12	16-W4196
Pond15S	16-W4197
Pond16S	16-W4198
MW2S	16-W4199
Field Blank (FB)	16-W4200

#### I. RECEIPT

- All samples were received at the laboratory on 16 Sep 2016 at 1040.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 3.8°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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Page 2 of 2

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.

 For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).

DATE:

All laboratory data has been approved by MVTL Laboratories.

Claudette Carroll - MVTL Bismarck Laboratory Manager



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND6

Event and Year: 3RD QTR 2016

Page: 1 of 1

Report Date: 27 Sep 16 Lab Number: 16-W4194 Work Order #:82-2990 Account #: 006106

Date Sampled: 14 Sep 16 11:19 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
	deschool					anny L
Metal Digestion	7.695	ing Maril	10.00	EPA 200.2	16 Sep 16	KMD
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:00	
Field pH	7.28	s.u.	0.1	SM 4500 H+ B	14 Sep 16 11:19	
Field Appearance	Clear		NA	SM 2110	14 Sep 16 11:19	
Field Temperature	12.2	Degrees C	0.1	SM 2550B	14 Sep 16 11:19	JSM
Field Conductivity	3982	umhos/cm	1	EPA 120.1	14 Sep 16 11:19	
Fluoride	0.44	mg/1	0.10	SM4500-F-C	19 Sep 16 17:00	ML
Sulfate	1710	mg/l	5.00	ASTM D516-07	21 Sep 16 13:06	EMS
Chloride	26.4	mg/1	1.0	SM4500-C1-E	23 Sep 16 9:25	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	26 Sep 16 11:43	EV
Total Dissolved Solids	3120	mg/l	5	11750-85	20 Sep 16 13:09	ML
Calcium - Total	143	mg/l	1.0	6010	19 Sep 16 15:16	SZ
Lithium - Total	< 0.1	mg/1	0.10	6010	26 Sep 16 11:49	KMD
Boron - Total	2.88	mg/l	0.10	6010	24 Sep 16 11:18	
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Sep 16 11:00	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	
Barium - Total	0.0352	mg/l	0.0020	6020	21 Sep 16 11:00	
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	
Cobalt - Total	0.0079	mg/1	0.0020	6020	21 Sep 16 11:00	
Lead - Total	< 0.0005	mg/1	0.0005	6020	21 Sep 16 11:00	
Molybdenum - Total	0.0075	mg/1	0.0020	6020	21 Sep 16 11:00	
Selenium - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	
Thallium - Total	< 0.0005	mg/1	0.0020	6020	21 Sep 16 11:00	

\* Holding time exceeded

Approved by:

Clauditte K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix # = Due to con
! = Due to sample quantity + = Due to int

# = Due to concentration of other analytes
+ = Due to internal standard response



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Project Name: OTP Coyote CCR Slag Pond

Sample Description: PONDN3

Event and Year: 3rd QTR 2016

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Report Date: 27 Sep 16 Lab Number: 16-W4195 Work Order #:82-2990 Account #: 006106

Date Sampled: 15 Sep 16 14:20 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

As Receive Result	ed	Method RL	Method Reference	Date Analyzed		Analyst
			EPA 200.2	16 Sep 16	7	KMD
* 6.6	s.u.	0.1	SM4500 H+ B	19 Sep 16	17:00	ML
6.80	s.u.	0.1	SM 4500 H+ B	15 Sep 16	14:20	JSM
Partly Clo	oudy	NA	SM 2110	15 Sep 16	14:20	JSM
13.6	Degrees C	0.1	SM 2550B	15 Sep 16	14:20	JSM
4882	umhos/cm	1	EPA 120.1	15 Sep 16	14:20	JSM
0.27	mg/l	0.10	SM4500-F-C	19 Sep 16	17:00	ML
3310	mg/l	5.00	ASTM D516-07	21 Sep 16	13:06	EMS
38.4	mg/1	1.0	SM4500-C1-E	23 Sep 16	9:25	EMS
< 0.0002	mg/l	0.0002	EPA 245.1	26 Sep 16	11:43	EV
4990		5	I1750-85	20 Sep 16	13:09	ML
490		1.0	6010	19 Sep 16	15:16	SZ
0.44		0.10	6010	26 Sep 16	11:49	KMD
0.49		0.10	6010	24 Sep 16	11:18	KMD
< 0.001	mg/1	0.0010	6020	21 Sep 16	11:00	KMD
0.0026	mg/1	0.0020	6020	21 Sep 16	11:00	KMD
0.0455		0.0020	6020	21 Sep 16	11:00	KMD
< 0.0005		0.0005	6020	21 Sep 16	11:00	KMD
< 0.0005		0.0005	6020	21 Sep 16	11:00	KMD
0.0069		0.0020	6020	21 Sep 16	11:00	KMD
0.0068	mg/l	0.0020	6020	21 Sep 16	11:00	KMD
0.0020		0.0005	6020	21 Sep 16	11:00	KMD
0.0052	mg/1	0.0020	6020	21 Sep 16	11:00	KMD
0.0566	mg/l	0.0020	6020	21 Sep 16	11:00	KMD
< 0.0005	mg/l	0.0005	6020	21 Sep 16	11:00	KMD
	* 6.6 6.80 Partly Clo 13.6 4882 0.27 3310 38.4 < 0.0002 4990 490 0.44 0.49 < 0.001 0.0026 0.0455 < 0.0005 < 0.0005 0.0069 0.0068 0.0020 0.0052 0.0052	* 6.6 s.u. 6.80 s.u. Partly Cloudy 13.6 Degrees C 4882 umhos/cm 0.27 mg/l 3310 mg/l 38.4 mg/l < 0.0002 mg/l 4990 mg/l 490 mg/l 0.44 mg/l 0.49 mg/l 0.0026 mg/l 0.0026 mg/l 0.00455 mg/l < 0.0005 mg/l 0.0069 mg/l 0.0069 mg/l 0.0069 mg/l 0.0068 mg/l 0.00020 mg/l 0.00020 mg/l 0.00020 mg/l 0.00020 mg/l 0.00020 mg/l 0.00020 mg/l 0.00052 mg/l 0.0052 mg/l	* 6.6 s.u. 0.1 6.80 s.u. 0.1 Partly Cloudy NA 13.6 Degrees C 0.1 4882 umhos/cm 1 0.27 mg/l 0.10 3310 mg/l 5.00 38.4 mg/l 1.0 < 0.0002 mg/l 0.0002 4990 mg/l 1.0 0.44 mg/l 0.10 0.44 mg/l 0.10 0.49 mg/l 0.10 < 0.001 mg/l 0.0010 0.0026 mg/l 0.0010 0.0026 mg/l 0.0020 0.0455 mg/l 0.0020 < 0.0005 mg/l 0.0020 < 0.0005 mg/l 0.0020 0.0069 mg/l 0.0020 0.0068 mg/l 0.0020 0.0068 mg/l 0.0020 0.0068 mg/l 0.0020 0.0005 mg/l 0.0020 0.0005 mg/l 0.0020 0.0005 mg/l 0.0020 0.0068 mg/l 0.0020 0.0052 mg/l 0.0020 0.0052 mg/l 0.0020 0.0055 mg/l 0.0020 0.0055 mg/l 0.0020 0.0055 mg/l 0.0020	# 6.6 s.u. 0.1 SM4500 H+ B 6.80 s.u. 0.1 SM 4500 H+ B Partly Cloudy NA SM 2110 13.6 Degrees C 0.1 SM 2550B 4882 umhos/cm 1 EPA 120.1 0.27 mg/l 0.10 SM4500-F-C 3310 mg/l 5.00 ASTM D516-07 38.4 mg/l 1.0 SM4500-Cl-E < 0.0002 mg/l 0.0002 EPA 245.1 4990 mg/l 1.0 6010 0.44 mg/l 0.10 6010 0.49 mg/l 0.10 6010 0.49 mg/l 0.10 6010 0.49 mg/l 0.10 6020 0.0026 mg/l 0.0020 6020 0.00455 mg/l 0.0020 6020 0.0069 mg/l 0.0005 6020 0.0068 mg/l 0.0005 6020 0.0068 mg/l 0.0020 6020 0.0068 mg/l 0.0020 6020 0.0069 mg/l 0.0020 6020 0.0069 mg/l 0.0020 6020 0.0068 mg/l 0.0020 6020 0.0069 mg/l 0.0020 6020 0.0052 mg/l 0.0020 6020 0.0052 mg/l 0.0020 6020 0.0052 mg/l 0.0020 6020 0.0055 mg/l 0.0020 6020	Result   RL   Reference   Analyzed	Result   RL   Reference   Analyzed

\* Holding time exceeded

Approved by:

Clauditte K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\alpha$  = Due to sample matrix  $\beta$  = Due to conduct the elevation  $\beta$  = Due to sample quantity  $\beta$  = Due to interpret  $\beta$ 

# = Due to concentration of other analytes
+ = Due to internal standard response



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Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND12

Event and Year: 3rd QTR 2016

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Report Date: 27 Sep 16 Lab Number: 16-W4196 Work Order #:82-2990 Account #: 006106

Date Sampled: 15 Sep 16 16:25 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst	
Metal Digestion				EPA 200.2	16 Sep 16	KMD	
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:00	ML	
Field pH	7.27	s.u.	0.1	SM 4500 H+ B	15 Sep 16 16:25	JSM	
Field Appearance	Clear		NA	SM 2110	15 Sep 16 16:25	JSM	
Field Temperature	12.9	Degrees C	0.1	SM 2550B	15 Sep 16 16:25	JSM	
Field Conductivity	3536	umhos/cm	1	EPA 120.1	15 Sep 16 16:25	JSM	
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	19 Sep 16 17:00	ML	
Sulfate	1790	mg/l	5.00	ASTM D516-07	21 Sep 16 13:06	EMS	
Chloride	25.7	mg/1	1.0	SM4500-C1-E	23 Sep 16 9:25	EMS	
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	26 Sep 16 11:43	EV	
Total Dissolved Solids	2840	mg/l	5	11750-85	20 Sep 16 13:09	ML	
Calcium - Total	174	mg/1	1.0	6010	19 Sep 16 15:16	SZ	
Lithium - Total	< 0.1	mg/l	0.10	6010	26 Sep 16 11:49	KMD	
Boron - Total	1.97	mg/l	0.10	6010	24 Sep 16 11:18	KMD	
Antimony - Total	< 0.001	mg/1	0.0010	6020	21 Sep 16 11:00	KMD	
Arsenic - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Barium - Total	0.0209	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	
Chromium - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Cobalt - Total	0.0060	mg/1	0.0020	6020	21 Sep 16 11:00	KMD	
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	
Molybdenum - Total	0.0031	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Selenium - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	KMD	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	

\* Holding time exceeded

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response



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Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND15S

Event and Year: 3rd QTR 2016

1 of 1 Page:

Report Date: 27 Sep 16 Lab Number: 16-W4197 Work Order #:82-2990 Account #: 006106

Date Sampled: 15 Sep 16 15:56 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst	
Metal Digestion		7. 14		EPA 200.2	16 Sep 16	KMD	-
Lab, pH	* 6.5	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:00	ML	
Field pH	6.41	s.u.	0.1	SM 4500 H+ B	15 Sep 16 15:56	JSM	
Field Appearance	Clear		NA	SM 2110	15 Sep 16 15:56	JSM	
Field Temperature	14.1	Degrees C	0,1	SM 2550B	15 Sep 16 15:56	JSM	
Field Conductivity	4387	umhos/cm	1	EPA 120.1	15 Sep 16 15:56	JSM	
Fluoride	0.16	mg/l	0.10	SM4500-F-C	19 Sep 16 17:00	ML	
Sulfate	4900	mg/l	5.00	ASTM D516-07	21 Sep 16 13:25	EMS	
Chloride	134	mg/l	1.0	SM4500-C1-E	23 Sep 16 9:25	EMS	
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	26 Sep 16 11:43	EV	
Total Dissolved Solids	3980	mg/l	5	I1750-85	20 Sep 16 13:09	ML	
Calcium - Total	580	mg/l	1.0	6010	19 Sep 16 15:16	SZ	
Lithium - Total	0.25	mg/l	0.10	6010	26 Sep 16 11:49	KMD	
Boron - Total	0.39	mg/l	0.10	6010	24 Sep 16 11:18	KMD	
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Sep 16 11:00	KMD	
Arsenic - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Barium - Total	0.0223	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	
Chromium - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Cobalt - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	KMD	
Lead - Total	< 0.0005	mg/1	0.0005	6020	21 Sep 16 11:00	KMD	
Molybdenum - Total	0.0024	mg/l	0.0020	6020	21 Sep 16 11:00	KMD	
Selenium - Total	0.0062	mg/1	0.0020	6020	21 Sep 16 11:00	KMD	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD	

\* Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

© = Due to sample matrix

| # = Due to continue to sample quantity

| # = Due to inf

# - Due to concentration of other analytes + - Due to internal standard response

CERTIFICATION: ND # ND-00016

50CT16



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND16S

Event and Year: 3rd QTR 2016

1 of 1 Page:

Report Date: 27 Sep 16 Lab Number: 16-W4198 Work Order #:82-2990 Account #: 006106

Date Sampled: 14 Sep 16 13:42 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	16 Sep 16	KMD
Lab, pH	* 6.6	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:00	ML
Field pH	6.99	s.u.	0.1	SM 4500 H+ B	14 Sep 16 13:42	JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 16 13:42	JSM
Field Temperature	13.3	Degrees C	0.1	SM 2550B	14 Sep 16 13:42	JSM
Field Conductivity	2603	umhos/cm	1	EPA 120.1	14 Sep 16 13:42	JSM
Fluoride	0.24	mg/1	0.10	SM4500-F-C	19 Sep 16 17:00	ML
Sulfate	1310	mg/1	5.00	ASTM D516-07	21 Sep 16 13:25	EMS
Chloride	21.2	mg/1	1.0	SM4500-C1-E	23 Sep 16 9:25	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	26 Sep 16 11:43	EV
Total Dissolved Solids	2100	mg/1	5	11750-85	20 Sep 16 13:09	ML
Calcium - Total	173	mg/1	1.0	6010	19 Sep 16 16:16	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	26 Sep 16 11:49	KMD
Boron - Total	1.39	mg/1	0.10	6010	24 Sep 16 11:18	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Sep 16 11:00	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Barium - Total	0.0468	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD
Cadmium - Total	0.0016	mg/l	0.0005	6020	21 Sep 16 11:00	KMD
Chromium - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Cobalt - Total	0.0302	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD
Molybdenum - Total	0.0120	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Selenium - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Thallium - Total	< 0.0005	mg/1	0.0005	6020	21 Sep 16 11:00	KMD
of VIV and the Vivine and the second						

\* Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix

! = Due to sample quantity

# = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: MW2S

Event and Year: 3rd QTR 2016

1 of 1 Page:

Report Date: 27 Sep 16 Lab Number: 16-W4199 Work Order #:82-2990 Account #: 006106

Date Sampled: 14 Sep 16 14:40 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	16 Sep 16	KMD
Lab, pH	* 6.9	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:0	O ML
Field pH	7.07	s.u.	0.1	SM 4500 H+ B	14 Sep 16 14:4	0 JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 16 14:4	
Field Temperature	16.2	Degrees C	0.1	SM 2550B	14 Sep 16 14:4	0 JSM
Field Conductivity	4554	umhos/cm	1	EPA 120.1	14 Sep 16 14:4	0 JSM
Fluoride	0.27	mg/l	0.10	SM4500-F-C	19 Sep 16 17:0	0 ML
Sulfate	3100	mg/l	5.00	ASTM D516-07	21 Sep 16 13:2	5 EMS
Chloride	26.0	mg/1	1.0	SM4500-C1-E	23 Sep 16 9:2	5 EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	26 Sep 16 11:4	3 EV
Total Dissolved Solids	4740	mg/1	5	I1750-85	20 Sep 16 13:0	9 ML
Calcium - Total	550	mg/l	1.0	6010	19 Sep 16 16:1	6 SZ
Lithium - Total	0.38	mg/l	0.10	6010	26 Sep 16 11:4	9 KMD
Boron - Total	0.28	mg/1	0.10	6010	24 Sep 16 11:1	8 KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	21 Sep 16 11:0	0 KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:0	0 KMD
Barium - Total	0.0118	mg/l	0.0020	6020	21 Sep 16 11:0	0 KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:0	0 KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:0	0 KMD
Chromium - Total	0.0022	mg/l	0.0020	6020	21 Sep 16 11:0	
Cobalt - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:0	0 KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:0	
Molybdenum - Total	0.0022	mg/l	0.0020	6020	21 Sep 16 11:0	0 KMD
Selenium - Total	0.1034	mg/l	0.0020	6020	21 Sep 16 11:0	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:0	0 KMD

\* Holding time exceeded

Approved by:

Claudette K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: FIELDBLANK

Event and Year: 3rd QTR 2016

Page: 1 of 1

Report Date: 27 Sep 16 Lab Number: 16-W4200 Work Order #:82-2990 Account #: 006106

Date Sampled: 15 Sep 16

Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	16 Sep 16	KMD
Lab, pH	* 6.1	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:00	ML
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	19 Sep 16 17:00	ML
Sulfate	< 5	mg/l	5.00	ASTM D516-07	21 Sep 16 13:25	EMS
Chloride	< 1	mg/l	1.0	SM4500-C1-E	23 Sep 16 9:25	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	26 Sep 16 11:43	EV
Total Dissolved Solids	< 5	mg/l	5	11750-85	20 Sep 16 13:05	ML
Calcium - Total	< 1	mg/1	1.0	6010	19 Sep 16 16:16	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	26 Sep 16 11:45	KMD
Boron - Total	< 0.1	mg/l	0.10	6010	24 Sep 16 11:11	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	21 Sep 16 11:00	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Barium - Total	< 0.005 *	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	21 Sep 16 11:00	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:00	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Cobalt - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:0	KMD
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	21 Sep 16 11:00	KMD
Selenium - Total	< 0.002	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Sep 16 11:0	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Cantep 50CTIL

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix
# = Due to con
| = Due to sample quantity + = Due to int

# = Due to concentration of other analytes
+ = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).

**MVTL** 

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MEMBER ACIL

Quality Control Report Lab IDs: 16-W4194 to 16-W4200

Project: OTP Covote CCR Slag Pond

Work Order: 201682-2000

Page: 1 of 3

Dab 1Ds: 10-W-13-to 10	Project: OTP Coyote CCR Slag Pond							Work Order: 201682-2990									
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	100	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.001 < 0.001 < 0.001	0.3384 0.1046 0.8578	85 105 107	75-125 75-125 75-125	0.1046	0.1090	105 109	4.1	20	-		< 0.001
Arsenic - Total mg/l	0.1000	99	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.002 < 0.002 0.0056	0.3382 0.1057 0.8908	85 106 111	75-125 75-125 75-125	0.1057	0.1112	105 111	5.1	20	-	-	< 0.002
Barium - Total mg/l	0.1000	100	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	0.0352 0.0352 0.1212	0.3456 0.1386 0.9014	78 103 98	75-125 75-125 75-125	0.1386	0.1435	99 108	3.5	20	-	-	< 0.002
Beryllium - Total mg/l	0.1000	112	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.0005 < 0.0005 < 0.0005	0.3522 0.1091 0.8944	88 109 112	75-125 75-125 75-125	0.1091	0.1134	110 113	3.9	20	-	-	< 0.0005
Boron - Total mg/l	0.40 0.40	112 110	80-120 80-120	3.00	16-W4194	2.88	5.92	101	75-125	5.92	6.23	112	5.1	20	- -	-	< 0.1 < 0.1 < 0.1
Cadmium - Total mg/l	0.1000	102	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.0005 < 0.0005 0.0008	0.3252 0.0989 0.8152	81 99 102	75-125 75-125 75-125	0.0989	0.1074	101 107	8.2	20	-	-	< 0.0005
Calcium - Total mg/l	20.0 20.0	103 102	80-120 80-120	500 500	16W4197q 16W4199q	580 550	1000 1010	84 92	75-125 75-125	1000 1010	1000 975	84 85	0.0	20 20	-	- - -	<1 <1 <1 <1 <1 <1
Chloride mg/l	30.0	102	80-120	30.0	16-W4177	< 1	27.4	91	80-120	27.4	27.0	90	1.5	20	-	-	< 1 < 1
Chromium - Total mg/l	0.1000	92	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.002 < 0.002 < 0.002	0.3016 0.0986 0.7708	75 99 96	75-125 75-125 75-125	0.0986	0.1030	92 103	4.4	20	-	-	< 0.002

**MVTL** 

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**Quality Control Report** 

Page: 2 of 3

<b>Lab IDs:</b> 16-W4194 to 16-Y					e CCR Slag P	Matrix		Matrix	Matrix	M/CD/		YYU	IKOIUG	er: 201682	-2330	H-20-00-00-00-00-00-00-00-00-00-00-00-00-	a lan exemple and a
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Spike Orig Result	Matrix Spike Result	Spike Rec %	Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Cobalt - Total mg/l	0.1000	94	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	0.0079 0.0079 < 0.002	0.3118 0.1050 0.7708	76 97 96	75-125 75-125 75-125	0.1050	0.1092	93 101	3.9	20	- -	-	< 0.002
Fluoride mg/l	0.50	100	90-110	0.500 0.500	16-W4194 16-W4212	0.44 0.12	0.91 0.62	94 100	80-120 80-120	0.91 0.62	0.93 0.62	98 100	2.2	20 20	-	-	< 0.1 < 0.1
Lead - Total mg/I	0.1000	96	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.0005 < 0.0005 < 0.0005	0.3004 0.0919 0.7592	75 92 95	75-125 75-125 75-125	0.0919	0.0974	97 97	5.8	20	-	-	< 0.0005
Lithium - Total mg/l	0.40	102	80-120	0.400	16-W4194	0.06	0.46	100	75-125	0.46	0.46	100	0.0	20	-	page land	< 0.1 < 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.002 0.002 0.002	16-W4339 16-W4282 16-W4315	< 0.0002 < 0.0002 < 0.0002	0.0018 0.0018 0.0015	90 90 75	70-130 70-130 70-130	0.0018 0.0018 0.0015	0.0018 0.0017 0.0017	90 85 85	0.0 5.7 12.5	20 20 20	-	-	< 0.0002
Molybdenum - Total mg/l	0.1000	100	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	0.0075 0.0075 0.0587	0.3352 0.1174 0.8620	82 110 100	75-125 75-125 75-125	0.1174	0.1211	104 114	3.1	20	-	-	< 0.002
pH units	-	-	-	-	-	_	-	_	-	7.4 7.0	7.4 7.0	-	0.0	20 20	-	-	
Selenium - Total mg/l	0.1000	113	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.002 < 0.002 0.0020	0.3790 0.1148 0.9946	95 115 124	75-125 75-125 75-125	0.1148	0.1233	116 123	7.1	20	-	-	< 0.002
Sulfate mg/l	100 100	105 104	90-110 90-110	100 100	16-W4177 16-W4200	< 5 < 5	105 102	105 102	80-120 80-120	105 102	103 99.0	103 99	1.9	20 20	-	-	< 5 < 5
Thallium - Total mg/I	0.1000	97	80-120	0.400 0.100 0.800	16W4194q 16W4194q 16M2796q	< 0.0005 < 0.0005 < 0.0005	0.3018 0.0914 0.7372	75 91 92	75-125 75-125 75-125	0.0914	0.0966	96 97	5.5	20	-	-	< 0.0005
Total Dissolved Solids mg/l	-	-	_	-	-	-	-	-	-	4740	4760	_	0.4	20	_	_	< 5

Approved by: C. Gawl

Page 3A3



### **Chain of Custody Record**

Projec	t Name:				Name of Sampler(s):
	OTP Coyote	CCR	Slag Pond	Sept 16	Jerenny Meyer
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-049	16	Carbon Copy: Attn: Address:		Work Order Number: 82 - 2000
Phone:	. Development of the property				

	Samp	le Informat	ion			Bottle Type	Analysis			
Lab Number	Sample ID	Date	Time	Sample Type	Simele	500 ml HNO <sub>3</sub> 1 liter 500 ml HNO <sub>3</sub> (Mered).	Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
14194	Pond6	14 Sept 16	Clearly	GW	Clear	xxx	12.18	3982	7.28	
14195	PondN3	15 Sept 16	1420	GW	Partly Cloudy	xxx	13,64	4862	6.80	
_	Pond10	14 Sept 16	1051	GW		1× x	insuffic	enst volum	_	
4196	Pond12	15syt16	1625	GW	Clear	xxx	1290	3536	7.27	
4197	Pond15S	15 Sept 16	1556	GW	Clear	x x x	14.06	4387	6.41	OTP CCR List.
19198	Pond16S	14 Sept 16	1342	GW	Cla	x x x	13,27	2603	6.99	No RadChem.
4199	MW2S	145416	1440	GW	Clear	x x x	16,16	4554	7.07	
CUCPU	Field Blank (FB)	ما انهدی	NA	W	_	x x x	NA	NA	NA	
						1/21-1-11				

Comments: 4- 1654+16

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	Join-	Login	16 5416	Maxu		16,500,000	3.8°C
2							TM563
3				-			



### **Groundwater Assessment**

Company:	OTP Coyote	www.
Event:	Sept 2016	
Sample ID:	Pond 6	
Sampling Personal:	Jerry My-	

· · · · · · · · · · · · · · · · · · ·							_				<del>,                                      </del>		
Phone: (701) 258-97	720								V-100011				
Weather Conditions:		Temp	: 55 °F		Wind:	5 @ 5~	0		Precip	: Suni	ny /Partily C	Toudy / Clou	udy
	Well Info	rmation	1					Sa	ımpling l	nformatio	on		
Well Locked?	Yes	<b>(No)</b>	in manhole			Purgi	ng Method:	Blac	lder		Co	ntrol Setting	s
Well Labeled?	Yes	No				Sampli	ng Method:	Blac	lder		Purge:		sec
Casing Straight?	প্রে	No				Dedica	ted Equip?:	Yes	086		Recover:	57	sec
Grout Seal Intact?	Yes	No	Not Visi	ble		Duplicate	Sample?:	Yes	No		PSI:	20	
Repairs Necessary:						Duplicate	Sample ID:			_	Pumping R	ate: 100	mL/mir
	Diameter:		2"										
Water Level Befo	ore Purge:	16	165	ft		F	Purge Date:	14 Sept 1	6		ing Began:	1059	ann/pm
Total W	ell Depth:	18	3,78	ft		Well P	urged Dry?	Yes	440		Purged Dry:		am/pm
We	II Volume:	Į.	, 2_	liters		Sa	ample Date:	14 Sept 16	<b>)</b>	Time o	f Sampling:	1119	@m/pn
Depth to Top	of Pump:		17.20	ft									
Water Level Afte	r Sample:	j	7,08	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremen	t Method:	Electric	Water Level Inc	licator		List:							
				C: ald	Magazir	-monto							

#### Field Measurements

	lization	Temp	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	<b>Discription:</b> Clarity, Color, Odor, Ect.
SEQ#	secutive) Time	(°C)	±5%	±0.1	(mg/L) ±10%	±20 mV	±10%	0.25 ft	Itemoveu	clear, partly cloudy, cloudy
1	1104	12,43	3892	7.21	1.21	230.9	3,11	17.05	८००	Clear
2	1109	12.41	3923	7.24	1.01	229,7	1.49	17,10	500	Clea
3	1114	12.22	3958	7.27	0,90	227.3	0.93	17.10	500	Cles
4	1119	12,18	3982	7,28	98,0	225,4	0.79	17.11	500	Clear
5										
6										
7										
8										
9										
10						1	ļ			

Stabilized: Yes No

Total Volume Removed: 2ರಿ೦೦ mL



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	Pond N3	
Sampling Personal:	Jerenny Meye	

Phone: (701) 258-9720

-										
Temp: 6O °F			Wind:	N@5~10		Precip:	Sunny	Sunny / Partly Cloudy / Cloudy		
nformation					Sampling Information					
) No				Purging Method:	Blade	der		Co	ntrol Setting	ıs
				Sampling Method:	Blade	der		Purge:	4	sec.
	***************************************	JANUAR V		Dedicated Equip?:	Yes	(No		Recover:	56	sec.
	Not	t Visible		Duplicate Sample?:	Yes	No		PSI:	25	
	******			Duplicate Sample ID:		-	<u>[</u>	Pumping R	ate: <i>[6</i> 0	mL/min
er:	2"									
je: II. B	3	ft		Purge Date:	15 Sept 16	2	Time Purgii	ng Began:	1040	am)/pm
	•	ft		Well Purged Dry?	Yes	<b>4</b> 0	Time Pu	urged Dry:		am/pm
	_	liters		Sample Date:	15 Saptllo		Time of	Sampling:	1420	am/pth
np: 34.5	52	ft			•					
56		ft		Bottle CCR: 1L R	aw, 500mL l	Nitric, 4-1L	Nitric			
d: Electric V	Nater Lev	el Indicator		List:						
	No N	No   No   No   No   No   No   No   No	No	No No No No No No No No No Not Visible   ter: 2" ge: 11,88 ft oth: 37,07 ft me: 15,5 liters mp: 34,52 ft ole: 16,01 ft	Purging Method: Sampling Method: Sampling Method: Dedicated Equip?: Duplicate Sample?: Duplicate Sample ID:  ter:  ge: ii.88 ft purge Date: Well Purged Dry? The: is.5 liters The: 34.52 ft Dele: ii.01 ft  Bottle CCR: 1L R	Purging Method: Blade Sampling Method: Blade Dedicated Equip?: Yes Duplicate Sample?: Yes Duplicate Sample ID:  ter: 2" ge: II.BB ft Oth: 37.07 ft me: IS.S liters mp: 34.52 ft Dle: III.BB ft Bottle CCR: 1L Raw, 500mL ft Light	Purging Method: Bladder  Sampling Method: Bladder  Dedicated Equip?: Yes (No  Duplicate Sample?: Yes (No  Duplicate Sample ID:  Duplicate Sample ID:  Duplicate Sample ID:  Ter: 2"  The inc: (5,5 liters  The inc: (5,5 lit	Purging Method: Bladder Sampling Method: Bladder Dedicated Equip?: Yes No Duplicate Sample?: Yes No Duplicate Sample ID:  Ter:  2"  ge: II. BB ft Dedicated Equip?: Yes No Duplicate Sample ID:  Purge Date: IS Set III  Well Purged Dry? Yes No Time Purging Method: Bladder Dedicated Equip?: Yes No Duplicate Sample ID:  Purge Date: IS Set III  Sample Date: IS Set III  Bottle CCR: 1L Raw, 500mL Nitric, 4-1L Nitric	Purging Method: Bladder Sampling Method: Bladder Dedicated Equip?: Yes No Duplicate Sample?: Yes No Duplicate Sample ID:  Purge Date: Sample Date: Sampling: Sample Date: Sampling: Sample Date: Sampling: Sampling: Sample Date: Sampling: Sample Date: Sampling:	Purging Method: Bladder Sampling Method: Bladder Dedicated Equip?: Yes No Duplicate Sample?: Yes No Duplicate Sample ID:  Purge Date: Soft  Well Purged Dry? Yes No Time Purged Dry: Sampling Method: Bladder Purge: 4 Recover: S6 Pumping Rate: 160  Pumping Rate: 160  Well Purged Dry? Yes No Time Purged Dry: Sample Date: Sample Date: Sampling: 1040  Well Purged Dry: Bottle CCR: 1L Raw, 500mL Nitric, 4-1L Nitric

#### Field Measurements

	lization secutive)	Temp (°C)	Spec. Cond.	рН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	<b>Discription:</b> Clarity, Color, Odor, Ect.
SEQ#	Time	1	±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1045	14,41	4870	6.83	5,34	193.1	71000	12.09	200,0	Tubid
2	1105	14.01	4875	6.81	1.99	175.0	71000	H.18	2000, O	Tubiel
3	1125	13.86	4880	6.81	3,18	178,5	978.0	14.74	2000,0	Turbid
4	1145	13.67	4879	6.60	2.56	178.9	581.0	15,10	2000.0	Slightly Tunbid
5	ROS	13.68	4878	6.80	2.56	180,7	363,0	15.32	2000.0	Slighthy Tubid
6	1225	13.72	4885	6.80	1,38	183,7	272,0	15.44	200.0	Slightly Turbid
7	1245	13,75	4887	6,81	1,00	194.2	198,0	14.70	2000.0	Slighthatural
8	1305	13.65	4879	6.80	2,02	1926	211.0	15.05	2300,0	Slishth Tubid
9	1325	13.61	4 ८८८	6.80	4,27	191.6	195,0	15,40	2000,0	Slightly Toubid
10	1345	1354	4866	6,80	1,24	191.4	146.0	15.50	2000,0	

Stabilized: Yes No

Total Volume Removed: \_\_\_\_\_mL
Continued on next page

Confined on next pa



#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond N3
Sampling Personal:	Josep oly
Date:	15 Sept 16

Phone: (701) 258-9720

#### Field Measurements

	Field Measurements											
	ization secutive)	Temp (°C)	Spec. Cond.	рН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water	mL Removed	Discription: Clarity, Color, Odor, Ect.		
SEQ#	Time	( 9)	±5%	±0.1	±10%	±20 mV	±10%	0.25 ft	11011101104	clear, partly cloudy, cloudy		
11	1350	13.55	4884	6,80	0,73	191.5	140.0	15,58	500.0	Slightly Tubid		
12	1355	13.62	4884	6.80	2.50	191.4	131.0	15.60	500.0	Slighthe Turked		
13	1900	13,70	4886	6,60	2,26	191,6		15,50	500.0	Slightly Tubid Slightly Tubid Slightly Tubid Slightly Tubid		
14	1405	13,72	4882	6,80	1,98	191.8		15.63	500,0	Slightly Tunbid		
15	1415	13.62	4884	6,80	1,89	191.7	122.0	15,65	500,0	Shightly trabid		
16	1420	13.64	4882	6.80	1.81	191,9	116.0	15.68	500,0	Slightly Tabid		
17												
18												
19												
20												
21								****				
22												
23												
24												
25		ļ	<u> </u>									
26			<u> </u>									
27	-	ļ										
28	-											
29						-	1					
30												

Stabilized:

Yes

No

Total Volume Removed: 21500.0 mL



G	r۸	111	d	wa	tor	As	20	 m	۵n
u	IJ	ш	IU.	wa	161	<b>~</b> 3		 	CII.

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	Pond 10	
Sampling Perso	nal:	
*		

Phone: (701) 256-9	3720						-						
Weather Conditions:		Temp:	•	F	Wind:				Precip	: Sun	ny / Partly C	loudy / Cl	oudy
	Well Info	rmation				•		Sa	ampling	Informatio	on		
Well Locked?	Yes	<b>MO</b>				Purg	ing Method:	Blac	dder		Cor	ntrol Settin	gs
Well Labeled?	YES	No				Sampl	ing Method:	Blac	dder		Purge:		se
Casing Straight?	Yes	No				Dedica	ated Equip?:	Yes	NO		Recover:		se
Grout Seal Intact?	Xes	No	Not Vis	sible		Duplicate	e Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping Ra	ate:	mL/m
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		9,62	ft			Purge Date:	14 Syfl	6	Time Purg	ging Began:		am/pi
Total V	Vell Depth:	2:	2.18	ft		Well F	Purged Dry?	Yes	No	Time F	Purged Dry:		am/p
We	ell Volume:	i	l.S	liters		S	ample Date:	14 Sept 16	)	Time o	of Sampling:	1051	am/p
Depth to To	p of Pump:	•		ft				,					
Water Level After	er Sample:			ft		Bottle	CGR: 1L R	aw, 500mL	Nitric, 4-1	L Nitric			
Measuremer	nt Method:	Electric	Water Level II	ndicator		List:							
				Field I	Massur	omonts							

Stabiliz	ation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 conse	cutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1										
2										
3										
4										
5				and the same of th						
6			The state of the s							
7		- Committee of the Comm	Kanadarak							
8										
9				***						
10										
Stabilized:	Yes	No	· ·	·		T	otal Volume	Removed:		mL

Comments:

insufficient volume

No Souple

Well Mistarically has poor recharge



#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 12
Sampling Personal:	Jeremy Meyer

Phone: (701) 258-9720

Weather Conditions:		Temp:	60°F		Wind:	NOS-10		Precip:	Sunny	/ Partly C	loudy / Eto	udy
	Well Info	rmation					S	ampling Ir	nformation	1		
Well Locked?	Yes	(NO)				Purging Method	Bla	dder		Cor	ntrol Setting	s
Well Labeled?	YES .	No				Sampling Method	Bla	dder		Purge:	4	sec.
Casing Straight?	Yes	No				Dedicated Equip?	Yes	∂Ng		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visi	ible		Duplicate Sample?:	Yes	<b>∠N</b> to		PSI:	25	
Repairs Necessary:						Duplicate Sample ID			Р	umping Ra	ate: <i>j o</i> る	mL/min
Casing	Diameter:	····	2"									
Water Level Befo	ore Purge:	*****	36,63	ft		Purge Date	: 15 Sept	-16	Time Purgin	g Began:	1520	am/pm
Total W	/ell Depth:		40,12	ft		Well Purged Dry		(1)Vi	Time Pu	rged Dry:		am/pm
We	Il Volume:			liters		Sample Date	: 15 Sept	16	Time of S	Sampling:	1625	am/m
Depth to Top	of Pump:	4.00.00	37,50	ft			•				•	
Water Level Afte		30	0.92	ft		Bottle CCR: 1L	Raw, 500ml	Nitric, 4-1L	Nitric	.du		
Measuremen		Electric	Water Level Inc	dicator		List:			_			

### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	<b>₹</b> 10%	0.25 ft		clear, partly cloudy, cloudy
1	1525	13,90	3639	7.27	6.98	172.9	55.1	36.85	50.0	Cles
2	1535	12.59	2547	7.27	3,48	172,7	27.8	36,93	1000.0	Cles
3	1545	12.37	3541	7.27	2,22	168,5	22.7	3693	1000.0	Clear
4	1555	12,41	3545	7,28	1.76	158.7	17.1	37,00	1000,0	Cles .
5	1605	12.52	3537	7.28	1.57	146.6	12.0	36,90	10000	Clear
6	1615	13.06	3530	7.31	1.65	140,6	9.81	36.83	1000.0	Cles
7	1620	12.83	3532	7.28	1,71	1343	6.71	36.86	500,0	Clea
8	1625	12.90	3536	7.27	1.66	127.8	5,36	36,88	2000	Clere
9						**			٠.	
10										
tabilized	Yes	No				T	otal Volume	Removed:	6500.0	mL *

Stabilized:



#### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	Pond KS	
Sampling Personal:	Scremes Mayor	

Phone: (701) 258-9720

Weather C	Conditions:		Temp:	55	°F	Wind:	NOS	-10		Precip:	Sunny / Pa	rtly Cloud	y Clou	函
		Well Info	ormation						Sa	mpling l	nformation			
We	ell Locked?	Yes	NO				Purgir	ng Method:	Blad	der		Control (	Settings	3
	Il Labeled?		No					ng Method:	Blad	der	Р	urge: 4		sec.
	g Straight?		No				Dedicat	ed Equip?:	Yes	<b>(No</b> )	Rec	over: 56		sec.
	Seal Intact?		No	Not V	isible		Duplicate	Sample?:	Yes	₹¥0		PSI: ZO		
Repairs No	***************************************						Duplicate :	Sample ID:		-	Pump	ing Rate:	100	mL/min
		g Diameter:		2"										
Wat	er Level Be		-	32,50	ft		Purge D		15 Sept 11	6	Time Purging Be	egan: 09/	0	@m/pm
		Well Depth:		37,72	ft		Well P	urged Dry?	Yes?	No	Time Purged	Dry: 103	ro Co	am/pm
		ell Volume:		3,2	liters		Sa	mple Date:	15 Sef1	6	Time of Samp	oling: 13 5	7	am/pm
	Depth to To	p of Pump:		35,42	ft					sn/	•			
Wat	ter Level Af	ter Sample:			ft		Bottle	CCR: 1L R	law, 500mL	Nitric, 4-1L	Nitric			
1	Measureme	nt Method:	Electric	Water Level	Indicator		List:			<u>'3</u>				
							4			Pusuffic	iest rechange to	collect all	IL Ni	tric Sayles
					Field	Measure	ements					****		
Stabi	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:			
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed		, Color, Odor, Ect			
SEQ#	Time	ŧ	±5%	±0.1	±10%	±20 mV	±10%	0.25 ft			partly cloudy, cloudy	/		
1	0915	11.86	4093	6.65	5.51	167.9	8,92	33,00	500.0	Clear				

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0915	11.86	4093	6.65	5.51	167.9	8,92	33,00	500.0	Clea
2	0920	11.87	4072	6.66	6.51	168:6	12.7	33,11	500,0	Clear
3	0925	11.68	4054	6.68	7.22	172.1	18.6	33,38	500.0	Clea
4	0935	11.74	4044	6.69	7.88	175.6	12.9	33,58	1800.0	Cles
5	0945	ilise	4047	6.69	8.02	180.5	14.6	33,98	[000,0	Clea
6	955	11.56	4055	6.69	7.41	184,6	1410	34.35	1000.0	der
7	1005	11.61	4052	6.68	6.96	(88.6	15.6	34.70	1000.0	clear
8	1075	11,56	4058	6.67	6,08	194.1	11,3	35,02	1000,0	Clez
9	1025	11.60	4068	6.67	5.66	198.2	8.17	35,35	1000,0	Clean
10	1030	11.82	4075	6.67	4.79	198.3	7.18	Bar of Por	500,0	Clea

Stabilized:

Total Volume Removed: \_\_\_\_\_mL

Continued on next page



Groun	dwater	<b>Assess</b>	ment
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Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pend 15 S
Sampling Personal:	Jereny Mayor
Date: (	S Sept 16

Phone: (701) 258-9720

				F	ield Mea	suremen	ts			
	ization secutive)	Temp (°C)	Spec. Cond.	рН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
11		paged a	sell for	Smin be	fore Say	Ing to a	lear line.			
12	1551	-			•			35,37	_	
13	155[	1406	4387	6.41	4,23	58,2	25,7	35.42	500	eleg
14				,			·			
15										
16										- Control of the Cont
17										
18										
19										
20						\$ 1/4 S	}			
21						·				
22			ier.							· · ·
23										
24										
25				:	ļ					
26	1									
27										
28			<u></u>						<i>***</i> *********************************	
29										
30									000	3

Yes Stabilized:

Total Volume Removed: 4500 mL



Phone: (701) 258-9720

Water Level Before Purge:

Total Well Depth: Well Volume:

Depth to Top of Pump:

Measurement Method:

Water Level After Sample:

### **Field Datasheet**

#### **Groundwater Assessment**

48,83

46.00

39,60

**Electric Water Level Indicator** 

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	Pond (6.5	
Sampling Personal:	Jerenny Huze	

**Control Settings** 

sec.

sec.

mL/min

Purge: 5

PSI: 25

Sunny / Partly Cloudy / Cloudy Wind: Precip: Temp: °F **Weather Conditions:** Sampling Information **Well Information** Purging Method: Well Locked? No Bladder Yes> Isbelied well NO Sampling Method: Bladder Well Labeled? Yes Recover: 55 (No) Casing Straight? Dedicated Equip?: Yes Yes No **Not Visible** Duplicate Sample?: **M**O **Grout Seal Intact?** Yes No Yes Pumping Rate: 100 Duplicate Sample ID: Repairs Necessary: Casing Diameter: 2" 38,11

liters

				Ba.		
	Purge Date:	14 Sept 16		Time Purging Began:	IZZZ	am/pm
	Well Purged Dry?	Yes	100	Time Purged Dry:		am/pm
	Sample Date:	14 Sept 16		Time of Sampling:	1342	am/pm
_		- t				

CCR: 1L Raw, 500mL Nitric, 4-1L Nitric Bottle List:

#### **Field Measurements**

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 consecutive)		(°C)	Cond.	рH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1227	13.73	2533	7.03	2.78	205.8	30,7	38,67	500	Clear
2	1232	13.26	2491	7.60	2.11	207.9	49.3	38,96	500	Clean
3	1292	13,18	2498	7.01	1.93	206.1	35,9	39.06	1000	Clear
4	1252	13,27	2500	7.01	1.77	2071	33,0	39.16	1000	Clear
5	1302	13,15	2529	7.02	1,64	206,2	27.3	39,21	1000	Clen
6	1307	13.23	2543	7,02	1,56	205.6	24.4	39,26	500	Clear
7	1317	13.28	2560	7.03	1,50	204.8	16.7	39,32	1000	Clean
8	1327	(3,15	2576	7.03	1.61	169.7	1(,3	39,37	1000	clear
9	(337	13,19	2602	6,99	1,47	174.1	7,38	39.42	1000	Clear
10	1342	13,27	2603	6.99	1,45	173.6	6.19	39,45	500	Clear

No Yes) Stabilized:

Total Volume Removed: 8000 mL



#### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	MW 25	
Sampling Personal:	Jeren player	-
<del></del>	<del></del>	MINISTRAL PROPERTY OF THE PROP

Phone: (701) 258-9720

							_						
Weather Conditions:	-	Temp:	°F	=	Wind:				Precip:	Sunny	/ Partly C	loudy <u>←CTC</u>	oudy
,	Well Info	rmation						Sa	ımpling lı	nformatio	n		
Well Locked?	Yes	(NO)				Purgi	ng Method:	Blac	lder		Co	ntrol Settino	gs
Well Labeled?	∕Yes)	No				Sampli	ng Method:	Blac	lder		Purge:	4 /4	sec
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	₹fo>		Recover:	56/26	sec
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate	Sample?:	Yes	(NO)		PSI:	20	
Repairs Necessary:						Duplicate	Sample ID:			Į F	oumping R	ate: <i>10</i> 9/	ZanL/mir
Casing	Diameter:		2"									•	
Water Level Befo	ore Purge:	2	13.89	ft		F	Purge Date:	14 Sept	16	Time Purgir	ng Began:	0913	am/pn
Total W	/ell Depth:		6,60	ft		Well P	urged Dry?	Yes	No	Time Pu	ırged Dry:	/७३३	am/pn
Well Volume:		78 -		liters		Sa	ample Date:	14 Sept 16	,	Time of	Sampling:	1400	am/pn
Depth to Top	of Pump:	34	4,40	ft									
Water Level After Sample:		Top	of pung	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measurement Method:		Electric '	Water Level In	dicator		List:					,		

#### **Field Measurements**

Stabilization (3 consecutive)		Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
		(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0918	10.46	4564	6.91	6,93	267,7	3,11	24,57	కల	Clear
2	0923	10,39	4559	6,92	6,92	262,5	2.77	25.18	500	clear
3	७१८४	10.37	4550	6.93	7.0	256,0	3.50	26.01	5¢0	Clear
4	0933	9.79	4530	6.94	8,15	252.7	4.74	27.03	1000	Clear
5	<b>७५५३</b>	10.15	4514	6.96	8,96	243,6	9,51	28,22	2000	clear
6	0953	10.16	4550	7,00	8.86	236.3	5,82	29,13	2000	Clear
7	1003	10,22	4581	7.01	8,66	229,3	4,90	30,38	2000	Cles
8	1013	10.18	4574	6.99	8,53	223,5	2.48	31,33	2000	de
9	1023	10,28	4577	6,98	8:30	215,2	1,53	32,30	2000	Cles
10	£801	10,44	4479	6.93	5,59	21114	0.70	33,40	2000	Cler

(No) Stabilized:

Comments:

Total Volume Removed: \_\_\_\_\_ mL confinued on next page

waterland not stabilizing increased purpose rate to 200 me/min



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	MWZS	
Sampling Personal:	Jerengthy-	
Date: 14 Sept	-16	

Phone: (701) 258-9720

				F	ield Mea	suremen	ts			
Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)		mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
11	1043	10,52	4470	6.91	4.45	206,4	0,51	Top of	2000	Cless
12		well p	ward of	~						
13		l								
14	1935	purged u	well for SA	nin to cles	lne			32.80	500	
15	1440	16.16	4554	7.07	6.66	2000	1.08			Clear
16										
17										
18										Walter Control of the
19										
20										N.
21										
22										
23										
24										
25										
26										
27										
28						/				
29						,				
30										

Stabilized:	
Comments:	

Yes

(No)

Total Volume Removed: i6,500

992.FZ

OTP Coyofe Water levels well Time Patc DO depth to water N3 0943 12.32 13 Sept 16 0947 31,65 155 13 Sept 16 0950 23.90 13 Sept 16 MW25 36.71 0952 13 Sept 16 12 38,19 0953 165 13 Sept 16 19,78 1001 13 Sept 16 10 16.96 1003 13 Sept 16 Blue 13 Sept 16, 1016 73.93 13 Sept 6 1023 75.78 13 Sept 6 77.03 15 1025 63.01 135epr16 1028 80,21 13 Sept 6 1032 79.14 135ep+16 1034 105,35 1046 13 13 Sept lb





#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-2991

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year 3<sup>rd</sup> Quarter 2016

MVTL Laboratory Identifications: 16-W4201 through 16-W4207

Page 1 of 2

Sample Identification	MVTL Laboratory #	
Pond6	16-W4201	
PondN3	16-W4202	
Pond10	Insufficient volume – no sample	
Pond12	16-W4203	
Pond15S	16-W4204	
Pond16S	16-W4205	
MW2S	16-W4206	
Field Blank (FB)	16-W4207	

#### I. RECEIPT

- All samples were received at the laboratory on 16 September 2016 at 1040.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 3.8°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 21 September 2016.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### III. METHODS

- · Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.



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



### CASE NARRATIVE

MVTL Lab Reference No/SDG:

201682-2991

Client:

Ottertail Power Company

Location:

**Coyote Station** 

Project Identification:

**CCR Slag Pond** 

**Event & Year** 

3rd Quarter 2016

**MVTL Laboratory Identifications:** 

Page 2 of 2

16-W4201 through 16-W4207

#### IV. **ANALYSIS**

All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laboratory data has been approved by MVTL Laboratories.

SIGNED:

DATE:

180CT16

Claudette Carroll - MVTL Bismarck Laboratory Manager



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND6

Event and Year: 3RD QTR 2016

1 of 1 Page:

Report Date: 18 Oct 16 Lab Number: 16-W4201 Work Order #:82-2991 Account #: 006106

Date Sampled: 14 Sep 16 11:19 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Recei Result	ived	Method RL	Method Reference	Date Analyzed		Analyst
Field pH	7.28	s.u.	0.1	SM 4500 H+ B	14 Sep 1	6 11:19	JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 1		JSM
Field Temperature	12.2	Degrees C	0.1	SM 2550B	14 Sep 1	6 11:19	JSM
Field Conductivity	3982	umhos/cm	1	EPA 120.1	14 Sep 1	6 11:19	JSM
Radium 226	See Atta	ched Report			3 Oct 1	6	OL
Radium 228	See Atta	ched Report			1 Oct 1	6	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL . Method Reporting Limit

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

# = Due to sample matrix # = Due to co
! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: PONDN3

Event and Year: 3RD QTR 2016

Page: 1 of 1

Report Date: 18 Oct 16 Lab Number: 16-W4202 Work Order #:82-2991 Account #: 006106

Date Sampled: 15 Sep 16 14:20 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Rece: Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.80	s.u.	0.1	SM 4500 H+ B	15 Sep 16 14:20	JSM
Field Appearance	Partly (	Cloudy	NA	SM 2110	15 Sep 16 14:20	JSM
Field Temperature	13.6	Degrees C	0.1	SM 2550B	15 Sep 16 14:20	JSM
Field Conductivity	4882	umhos/cm	1	EPA 120.1	15 Sep 16 14:20	JSM
Radium 226	See Atta	ached Report			3 Oct 16	OL
Radium 228		ached Report			1 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND12

Event and Year: 3RD QTR 2016

1 of 1 Page:

Report Date: 18 Oct 16 Lab Number: 16-W4203 Work Order #:82-2991 Account #: 006106

Date Sampled: 15 Sep 16 16:25 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.27	s.u.	0.1	SM 4500 H+ B	15 Sep 16 16:25	JSM
Field Appearance	Clear		NA	SM 2110	15 Sep 16 16:25	JSM
Field Temperature	12.9	Degrees C	0.1	SM 2550B	15 Sep 16 16:25	JSM
Field Conductivity	3536	umhos/cm	1	EPA 120.1	15 Sep 16 16:25	JSM
Radium 226	See Atta	ched Report		Section	3 Oct 16	OL
Radium 228		ched Report			2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Canreo POCTIL

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

0 = Due to sample matrix # = Due to complete the property # = Due to interpret the property # = Due to interpret # = Due to interpre

# = Due to concentration of other analytes
+ = Due to internal standard response



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND15S

Event and Year: 3RD QTR 2016

1 of 1 Page:

Report Date: 18 Oct 16 Lab Number: 16-W4204 Work Order #:82-2991 Account #: 006106

Date Sampled: 15 Sep 16 15:56 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Recei	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.41	s.u.	0.1	SM 4500 H+ B	15 Sep 16 15:56	JSM
Field Appearance	Clear		NA	SM 2110	15 Sep 16 15:56	JSM
Field Temperature	14.1	Degrees C	0.1	SM 2550B	15 Sep 16 15:56	JSM
Field Conductivity	4387	umhos/cm	1	EPA 120.1	15 Sep 16 15:56	JSM
Radium 226	See Atta	ched Report			3 Oct 16	OL
Radium 228	See Atta	ched Report			2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Cantlo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix  $\emptyset$  = Due to conduct to sample quantity 0 + = Due to interpret 0

# = Due to concentration of other analytes
+ = Due to internal standard response



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND16S

Event and Year: 3RD QTR 2016

Page: 1 of 1

Report Date: 18 Oct 16 Lab Number: 16-W4205 Work Order #:82-2991 Account #: 006106

Date Sampled: 14 Sep 16 13:42 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.99	s.u.	0.1	SM 4500 H+ B	14 Sep 16 13:42	JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 16 13:42	JSM
Field Temperature	13.3	Degrees C	0.1	SM 2550B	14 Sep 16 13:42	JSM
Field Conductivity	2603	umhos/cm	1	EPA 120,1	14 Sep 16 13:42	JSM
Radium 226	See Atta	ched Report			3 Oct 16	OL
Radium 228	See Atta	ched Report			2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K. Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to come to sample quantity # = Due to interpret to the sample quantity # = Due

# = Due to concentration of other analytes + = Due to internal standard response



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: MW2S

Event and Year: 3RD QTR 2016

Page: 1 of 1

Report Date: 18 Oct 16 Lab Number: 16-W4206 Work Order #:82-2991 Account #: 006106

Date Sampled: 14 Sep 16 14:40 Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

	As Recei Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.07	s.u.	0.1	SM 4500 H+ B	14 Sep 16 14:40	JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 16 14:40	JSM
Field Temperature	16.2	Degrees C	0.1	SM 2550B	14 Sep 16 14:40	JSM
Field Conductivity	4554	umhos/cm	1	EPA 120.1	14 Sep 16 14:40	JSM
Radium 226	See Atta	ched Report			3 Oct 16	OL
Radium 228	See Atta	ched Report			2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Cantel

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response



Method

RL

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



Page:

1 of 1

Report Date: 18 Oct 16 Lab Number: 16-W4207 Work Order #:82-2991

Account #: 006106 Date Sampled: 15 Sep 16

Date Received: 16 Sep 16 10:40 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.8C

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Slag Pond

Sample Description: FIELD BLANK

Event and Year: 3RD QTR 2016

As Received Result Radium 226 See Attached Report Method Date Reference Analyzed

Analyst OL

Radium 228

See Attached Report

3 Oct 16 2 Oct 16

OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\Theta$  = Due to sample matrix H = Due to code to the property H = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



Date: 10/11/2016

CLIENT:

MVTL Laboratories, Inc.

**CASE NARRATIVE** 

Project:

Lab Order:

201682-2291

S1609366

ASTM approved and recognized standards

Report ID: S1609366001

Samples 16-W4201 Pond6, 16-W4202 PondN3, 16-W4203 Pond12, 16-W4204 Pond15S, 16-W4205 Pond16S, 16-W4206 MW2S, and 16-W4207 Field Blank were received on September 21, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012

All Quality Control parameters met the accentance criteria defined by EPA and Inter-Mountain Laboratories except as

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-001

ClientSample ID: 16-W4201 Pond6

COC:

Date Reported

10/11/2016

Report ID

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/14/2016 11:19:00 AM

DateReceived: 9/21/2016 8:02:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/l	nit
Radionuclides - Total							
Radium 226	0.18	pCi/L		0.2	SM 7500 Ra-B	10/03/2016 1454	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB
Radium 228	-3.7	pCi/L		1	Ga-Tech	10/01/2016 1859	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	10/01/2016 1859	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank В

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 7



### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-002

ClientSample ID: 16-W4202 PondN3

COC:

Date Reported

10/11/2016

Report ID

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/14/2016 2:20:00 PM

DateReceived: 9/21/2016 8:02:00 PM

FieldSampler:

Matrix:

Water

Comments

Analyses	Daniela	11-:-	01	DI.	B. 2. 17 3	D ( A I 1/1	•.
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.5	pCi/L		0.2	SM 7500 Ra-B	10/03/2016 1454	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB
Radium 228	-6.7	pCi/L		1	Ga-Tech	10/01/2016 2200	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	10/01/2016 2200	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

0 Outside the Range of Dilutions

Х Matrix Effect **RL** - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded Η

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 7



### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-003 ClientSample ID: 16-W4203 Pond12

COC:

Date Reported

10/11/2016

Report ID

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/15/2016 4:25:00 PM

DateReceived: 9/21/2016 8:02:00 PM

FieldSampler:

Matrix:

Water

Commonte

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	10/03/2016 1454	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB
Radium 228	-6.2	pCi/L		1	Ga-Tech	10/02/2016 101	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	10/02/2016 101	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	10/02/2016 101	

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range Е

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

0 Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 7



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-004

ClientSample ID: 16-W4204 Pond15S

COC:

Date Reported

10/11/2016

Report ID

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/15/2016 3:56:00 PM

DateReceived:

9/21/2016 8:02:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/l	nit
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	10/03/2016 1454	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB
Radium 228	0.6	pCi/L		1	Ga-Tech	10/02/2016 401	МВ
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	10/02/2016 401	MB
radidili 220 i 10030II (±)	5.2	poi/L			Ga-Teun	10/02/2010 40	JI

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Ε Value above quantitation range

Analyte detected below quantitation limits J

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

Calculated Value

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 7



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-005

ClientSample ID: 16-W4205 Pond16S

COC:

Date Reported

10/11/2016

Report ID

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/14/2016 1:42:00 PM

DateReceived: 9/21/2016 8:02:00 PM FieldSampler:

Matrix:

Water

Commonte

ual RL	Method	D 4 A 1 10	
	Method	Date Analyzed/I	nit
0.2	SM 7500 Ra-B	10/03/2016 1454	MB
	SM 7500 Ra-B	10/03/2016 1454	MB
1	Ga-Tech	10/02/2016 702	MB
	Ga-Tech	10/02/2016 702	MB
	0.2	0.2 SM 7500 Ra-B SM 7500 Ra-B 1 Ga-Tech	0.2 SM 7500 Ra-B 10/03/2016 1454 SM 7500 Ra-B 10/03/2016 1454 1 Ga-Tech 10/02/2016 702

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits J

Value exceeds Monthly Ave or MCL or is less than LCL М

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 7



### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-006

ClientSample ID: 16-W4206 MW2S

COC:

Report ID

10/11/2016

Date Reported

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/14/2016 2:40:00 PM

DateReceived: 9/21/2016 8:02:00 PM

FieldSampler:

Matrix:

Water

#### Commonto

Comments							•
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	10/03/2016 1454	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB
Radium 228	2.2	pCi/L		1	Ga-Tech	10/02/2016 1003	MB
Radium 228 Precision (±)	3.4	pCi/L			Ga-Tech	10/02/2016 1003	MB

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Ε Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 7



### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-2291

Lab ID:

S1609366-007

ClientSample ID: 16-W4207 Field Blank

COC:

Date Reported 10/11/2016

Report ID

S1609366001

WorkOrder:

S1609366

CollectionDate: 9/15/2016

DateReceived:

9/21/2016 8:02:00 PM

FieldSampler:

Matrix:

Water

#### Commente

Comments								
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init		
Radionuclides - Total								
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	10/03/2016 1454	MB	
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB	
Radium 228	-5.3	pCi/L		1	Ga-Tech	10/02/2016 1304	MB	
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	10/02/2016 1304	MB	

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Е Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

О Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 7 of 7



### **ANALYTICAL QC SUMMARY REPORT**

CLIENT:

MVTL Laboratories, Inc.

Work Order:

S1609366

Project:

201682-2291

Date: 10/11/2016

Report ID: S1609366001

Radium 228 by Ga/Tech	Sample Type MBLK		Units: pCi/L			
MB-388 (09/30/16 12:49)	RunNo: 139392	PrepDa	ate: 09/26/16 12	!:00 Ba	tchID: 12360	
Analyte	Result	RL	Spike Ref S	amp %REC	% Rec Limits	Qual
Total Radium 228	ND	1				
Radium 228 by Ga/Tech	Sample Type LCS		Units: pCi/L			
LCS-388 (09/30/16 15:50)	RunNo: 139392	PrepDa	ate: 09/26/16 12	:00 Bat	tchID: 12360	
Analyte	Result	RL	Spike Ref S	amp %REC	% Rec Limits	Qual
Total Radium 228	40	1	38.5	105	61.3 - 120	
Radium 228 by Ga/Tech	Sample Type MS		Units: pCi/L			
S1609279-001AMS (10/01/16 06:55)	RunNo: 139392	PrepDa	ate: 09/26/16 12	:00 Bat	chID: 12360	
Analyte	Result	RL	Spike Ref Sa	amp %REC	% Rec Limits	Qual
Total Radium 228	74	1	77 NE	96.6	64.3 - 120	
Radium 228 by Ga/Tech	Sample Type MSD		Units: pCi/L			
S1609279-001AMSD (10/01/16 09:56)	RunNo: 139392	PrepDa	ate: 09/26/16 12	:00 Bat	chID: 12360	
Analyte	Result	RL	Conc %RF	D %REC	% RPD Limits	Qual
Total Radium 228	72	1	74 2.73	3 83.1	20	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MBLK		Units: pCi/L			
MB-1667 (10/03/16 14:54)	RunNo: 139587	PrepDa	ite: 09/26/16 0:0	00 Bat	chID: 12387	
Analyte	Result	RL	Spike Ref Sa	amp %REC	% Rec Limits	Qual
Radium 226	ND	0.2				
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCS		Units: pCi/L			
LCS-1667 (10/03/16 14:54)	RunNo: 139587	PrepDa	ite: 09/26/16 0:0	00 Bat	chID: 12387	
Analyte	Result	RL	Spike Ref Sa	mp %REC	% Rec Limits	Qual
Radium 226	5.4	0.2	5.99	90.4	67.1 - 122	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MS		Units: pCi/L			
S1609357-004CMS (10/04/16 16:23)	RunNo: 139587	PrepDa	te: 09/26/16 0:0	0 Bat	chID: 12387	
Analyte	Result	RL	Spike Ref Sa	ımp %REC	% Rec Limits	Qual
Radium 226	6.6	0.2	5.99 ND	110	65 - 131	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MSD		Units: pCi/L			
S1609357-004CMSD (10/04/16 16:23)	RunNo: 139587	PrepDa	te: 09/26/16 0:0	0 Bate	chID: 12387	
Analyte	Result	RL	Conc %RP	D %REC	% RPD Limits	Qual
Radium 226	5.9	0.2	6.6 10.8	98.5	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- X Matrix Effect



## LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

# **Chain of Custody Record**

Page 1 of 1	
-------------	--

Toll Free: (8		201682-2991					201682-2991							
Company Nam	e and Address:			Account #							Phone #:			
	W W.	·									701-258-9720			
		VTL		Contact:							Fax #:			
	•	<u>Broadway</u> ND 58501		N	Claud	ette	<del>)</del>				For faxed report check box			
Rilling Address	indicate if differen			Name of S	ampier:						E-mail: ccarroll@mvtl.com			
Dilling Address	(maicate ii uniteren	t from above).		Quote Nur	mhor						For e-mail report check box			
	PO B	ox 249		Quote Nui	libei						Date Submitted: 9/19/2016			
		, MN 56073		Project Na	ıme/Numbe						Purchase Order #:			
		liojourite	aric/italijibe	-1.					BL5668					
		Sample Information					В	ottle	Ty	ре	Analysis			
	51609366													
							103	pa						
						eated	토	als	a					
IML Lab			Sample	Date	Time	real	E O	3 VI pre	ss Jar	e				
Number	MVTL Lab Number	Client Sample ID	Type	Sampled	Sampled	Unt	100	VOC Vials Umpreserved	Glas	Other	Analysis Required			
	16-W4201	Pond6		9/14/2016	1119						Ra226 & Ra228 on all			
∞2_	16-W4202	PondN3		9/14/2016	1420									
003	16-W4203	Pond12		9/15/2016	1625									
	16-W4204	Pond15S		9/15/2016	1556									
005	16-W4205	Pond16S		9/14/2016	1342									
006	16-W4206	MW2S		9/14/2016	1440									
007	16-W4207	Field Blank		9/15/2016										
1				1			I			1				

Comments: All results must be reported as a numerical value.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
C. Jackson	09/19/16	1700		Kathy Bous	9.21.16	15:43	20.2
2.							



**Groundwater Assessment** 

Company:	OTP Coyote						
Event:	Sept 2016						
Sample ID:	Pond 6						
Sampling Personal:	Jerry My-						

Phone: (701) 258-9720 55 °F Wind: S @ 5~10 Weather Conditions: Temp: Sunny / Partly Cloudy / Cloudy Precip:

	Well Information											
Well Locked?	Yes	(No	in manhole									
Well Labeled?	(Pes	No										
Casing Straight?	<b>FER</b>	No										
Grout Seal Intact?	Yes	No	Not Visit	ole)								
Repairs Necessary:												
Casing	Diameter:		2"									
Water Level Be	fore Purge:	16	,65	ft								
Total V	Vell Depth:	18	75	ft								
W	ell Volume:	[c	2	liters								
Depth to To	p of Pump:	j	7.20	ft								
Water Level Aft	er Sample:	1	7,08	ft								
Measureme	nt Method:	Electric	Water Level Ind	icator								

	Sa	mpling	Information	on		
Purging Method	Blac	lder		Co	ontrol Setting	ıs
Sampling Method	Bladder			Purge:	3	sec.
Dedicated Equip?	Yes	<b>O</b> V0		Recover:	57	sec.
Duplicate Sample?:	Yes	7 <b>N</b> ∙9		PSI:	Zo	
Duplicate Sample ID		_		Pumping R	late: 100	mL/min
Purge Date	14 Sept 16		Time Purg	ging Began:	1059	@n/pm
Well Purged Dry?	Yes	440	Time F	Time Purged Dry:		am/pm
Sample Date	: 14 Sept 16	14 Sept 16		f Sampling:	1119	@n/pm
				-		
Bottle CCR: 1L F	Raw, 500mL	Nitric, 4-1	L Nitric			****
List:						

### **Field Measurements**

Stabil	ization .	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1104	12,43	3892	7.21	1.21	230.9	3,11	17.05	500	Clear
2	1109	12.41	3923	7,24	1001	229,7	1.49	17,10	500	Clea
3	1114	12.22	3958	7.27	୬,୩୦	227.3	0,93	17.10	500	Clea
4	1119	12,18	3982	7,28	0,86	225,4	0.79	17.11	Sao	Clear
5										
6										
7										
8										
9										
10										

Stabilized: No Total Volume Removed: 2000



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond N3
Sampling Personal:	Te ema Meray

Phone: (701) 258-9720

Phone: (701) 258-9	3/20							***************************************	***************************************			
Weather Conditions:		Temp:	ර්ට	°F	Wind:	Nesalo		Precip	: Sunı	ny / Partly (	Cloudy / Clo	oùdy
	Well Info	ormation					S	ampling l	nformatio	on		
Well Locked?	₹es	No				Purging Method	: Bla	dder		Co	ntrol Setting	gs
Well Labeled?	(res	No				Sampling Method	: Bla	dder	1	Purge:	4	sec.
Casing Straight?	Yes)	No	-			Dedicated Equip?	: Yes	(NG)	1	Recover:		sec.
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate Sample?:	Yes	∠No	]		25	
Repairs Necessary:						Duplicate Sample ID	: -		]	Pumping R	ate: /60	mL/min
Casing	Diameter:		2"									
Water Level Bef	ore Purge:	11.80	}	ft		Purge Date	: IS Sept 1	6	Time Purg	ing Began:	1040	∰/pm
Total V	Vell Depth:	37,0	7	ft		Well Purged Dry	? Yes	<b>M</b>	Time F	urged Dry:		am/pm
We	ell Volume:	15.5		liters		Sample Date	: 15 Smft	ls	Time of	f Sampling:	1420	am/pm
Depth to Top	of Pump:	34.5	2	ft								
Water Level After	er Sample:	16,0	Ì	ft		Bottle CCR: 1L	Raw, 500mL	Nitric, 4-1L	Nitric			
Measuremer	nt Method:	Electric W	/ater Lev	el Indicator		List:						

### Field Measurements

Stabilization		Temp	Spec.		DO	ORP	Turbidity	,	mL	Discription:	
(3 cons	secutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.	
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy	
1	1045	14,41	4870	6.83	5,34	1931	71000	12.09	500,0	Twblel	
2	1105	14.01	4675	6.81	1.99	175.0	71000	4.18	2000,0	Tubiel	
3	1125	13.86	4880	6.81	3,18	178,5	978.0	14.74	2000,0	Tunbid	
4	1145	13.67	4879	6,60	2.56	178.9	581.0	15,10	2000,0	Slighthy Tunbid	
5	ROS	13.68	4878	6.80	2.56	180,7	363,0	15,32	2000.0	Slighthy Tubid	
6	1225	13.72	4885	6.60	1.38	183,7	272.0	15.44	2000.0	Slightly Tentid	
7	1245	13,75	4887	6,81	1,00	194.2	198.0	14.70	2000.0	Slighthetatise	
8	1305	13.65	4879	6.80	2,02	1926	211.0	15,05	2,000,0	Slighth timbed	
9	1325	13.61	4682	6.80	4,27	191.6	195.0	15.40	2000,0	Slighth Tunbid	
10	1345	13,54	4666	6,80	1,24	191.4	146.0	15.50	2000,0		

Comments:

Total Volume Removed: \_\_\_\_ mL
Continued on next page



### **Groundwater Assessment**

Company: OTP Coyote

Event: Sept 2016

Sample ID: Pond NS

Sampling Personal: Javen Market

Date: (5 Sept 16)

Phone: (701) 258-9720

### Field Measurements

Field Measurements											
			Water	mL	Discription:						
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.	
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy	
11	1350	13,55	4684	6,80	0,73	191.5	140.0	15,58	500.0	Slightly Tubid	
12	1355	13.62	4884	6.80	2.50	191.4		15.60	500.0	Slightly Tubid	
13	内侧	13.70	4886	6,60	2,26	191,6		15,58	500.0	Slightly Tubid	
14	1405	13,72	4 682	6.80	1,98	191.8	117.0	15.63	500.0	Slightly Tubid Slightly Turbid	
15	1415	(3.62	4884	6,80	1.69	191.7	122.0	15,65	500,0	Shylly tubid	
16	1420	13.64	4882	6.80	1.81	191.9	116,0	15.68	500,0	Shightly Tubid	
17										,	
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29						~					
30											

Stabilized:

Yes

No

Total Volume Removed: 21500,0 mL



### **Groundwater Assessment**

**OTP Coyote** 

Sept 2016

Sample	ID:
--------	-----

Company:

Pond 10

Sampling Personal
-------------------

Phone: (701) 258-9	9720						_	· · · · · · · · · · · · · · · · · · ·					
Weather Conditions:		Temp:	۰[		Wind:				Precip	: Sun	ny / Partly Cl	oudy / Cle	oudy
	Well Info	rmation						Sa	ampling I	nformati	on		
Well Locked?	Yes	<b>40</b>				Purgi	ing Method:	Blac	lder		Con	trol Settin	as
Well Labeled?	Yes	No	1			Sampli	ing Method:	Blac	lder	1	Purge:		se
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	NO		Recover:		se
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate	Sample?:	Yes	No	1	PSI:	****	
Repairs Necessary:						Duplicate	Sample ID:			1	Pumping Ra	te:	mL/mi
Casing	Diameter:		2"							_	<u> </u>		
Water Level Bef	ore Purge:		9,62	ft		F	Purge Date:	14 Sefle	6	Time Purg	ging Began:		am/pi
Total V	Vell Depth:	23	2,16	ft		Well F	urged Dry?	Yes	No	Time I	Purged Dry:		am/pi
We	ell Volume:		ι\$	liters		Sa	ample Date:	14 Sept 16	)	Time o	f Sampling:	1051	(am∕pi
Depth to Top	o of Pump:	•		ft									<u> </u>
Water Level Afte	er Sample:	-		ft		Bottle	CGR: 1L Ra	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremer	nt Method:	Electric	Water Level In	dicator		List:							
				Field I	Measure	ements							

						moasarc	11101110			
Stabiliz (3 conse		Temp (°C)	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1										
2										
3										
4										4
5										
6			- THE PROPERTY AND ADDRESS OF THE PARTY AND AD							•
7			AMARANAMA							
8				***************************************						
9			•	-						
- 10										
Stabilized:	Yes	No			***************************************	T	otal Volume	Removed:		mL

Comments:

Total
Prosufficient Volume
No Souple
Well Nistarically has poor reclarge



Phone: (701) 258-9720

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 12
Sampling Personal:	Jeremy Neyer
	· ,

1 110110. (101) 200 01							-						
Weather Conditions:		Temp:	60°F		Wind:	NOS	,~10		Precip	o: <b>Sun</b>	ny / Partly 0	Cloudy /¿Gło	udy
\	<b>N</b> ell Info	rmation						S	ampling	Informati	on .		
Well Locked?	Yes	(NO)				Purgi	ng Method:	Bla	dder		Co	ntrol Setting	js
Well Labeled?	YES	No				Sampli	ng Method:	Bla	dder		Purge:	4	sec.
Casing Straight?	Xes	No				Dedica	ted Equip?:	Yes	ON9		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visi	ble		Duplicate	Sample?:	Yes	∠No		PSI:	25	
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	late: /のご	mL/min
Casing	Diameter:		2"										
Water Level Befo	re Purge:	3	6,63	ft		F	Purge Date:	15 Sept	-16	Time Pur	ging Began:	1520	am/pm
Total W	ell Depth:	H	0,12	ft		Well Purged Dry?		Yes	(N)	Time	Purged Dry:	. 6	am/pm
Wel	ll Volume:	-		liters		Sa	ample Date:	15 Sept	16	Time o	of Sampling:	1625	am/pm
Depth to Top	of Pump:		7,50	ft									
Water Level After Sample: 36.92				ft		Bottle CCR: 1L Raw, 500mL Nitric, 4-1				L Nitric	15.4	****	
Measurement Method: Electric Water L				licator		List:							

### Field Measurements

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	<b>₫</b> 10%	0.25 ft		clear, partly cloudy, cloudy
1	1525	13,90	3639	7.27	6.98	172.9	55.1	36,85	5¢0.0	Cles
2	1535	12.59	2547	1.27	3,46	172,7	27.8	36,93	[000.0	Cler
3	1545	12.37	3541	7.27	2,22	168,5	22.7	36.93	1000.0	Clea
4	1555	12.41	3545	7,28	1.76	158.7	17.1	37,00	1000.0	Clear
5	1605	12-52	3537	7.28	1.57	146.6	12.0	36,90	100000	Clear
6	1615	13.06	3530	7,31	1.65	140,6	9.81	36.83	1000.0	Cles
7	1620	12.63	3532	7.28	1.71	1343	6.71	36.86	500,0	Clea
8	1625	12.90	3536	7.27	1.66	127.8	5,36	36,88	<b>೯</b> ೯%	Class
9						ų			1	
10										

Stabilized:

No

Total Volume Removed: USOO. D mL



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 155
Sampling Personal:	Screeney Meyer

2010 E. DIO	2010 E. Broadway Ave, Bishlarck, ND							_	Campling resonal.						
Phor	ne: (701) 258-9	9720						-			į ,				
Weather C	onditions:		Temp:	55	°F	Wind:	NOS	~(O		Precip:	Sunny / Part	ly Cloudy(C	loudy		
			rmation						Sa	mpling l	nformation				
We	ell Locked?	Yes	No				Purgir	ng Method:	ethod: Bladder Contr			Control Setti	ontrol Settings		
	II Labeled?	450	No				Samplir	ng Method:	Blad	der	Pur	ge: 4	sec.		
	g Straight?		No				Dedicat	ed Equip?:	Yes	<b>(PD)</b>	Reco		sec.		
	Seal Intact?		No	Not V	isible		Duplicate	Sample?:	Yes	<b>1</b> 00	F	SI: ZO			
Repairs No	ecessary:						Duplicate \$	Sample ID:		-	Pumpir	g Rate: 1 A	> mL/min		
Casing Diameter: 2"															
Wat	er Level Bet	fore Purge:	2	32,50	ft		Р	Purge Date: 15 Set 16		6	Time Purging Beg		(am/pm		
	Total V	Well Depth:	(A)	37.72	ft		Well P	urged Dry?		No	Time Purged [	<u> </u>	am/pm		
	W	ell Volume:		3,2	liters		Sa	mple Date:	1554F1	<u>6</u>	Time of Sampli	ng: 1355	am/pm		
	Depth to To	p of Pump:	•	35,42	ft					m/	^		,		
Wat	er Level Aft	ter Sample:			ft		Bottle	CCR: 1L R	aw, 500mL	Nitric 4-1L	. Nitric				
Ī	Measureme	nt Method:	Electric	Water Level	Indicator		List:								
					Field	Measure	monte			Fusuffle	iest recharge to	collect All 12	. Withic sayles		
								18/-4	T1	r	D'				
Stabi	lization	Temp	Spec.		DO	ORP	Turbidity	1	mL_	<b>.</b>	Discription:	l			
(3 con	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed		y, Color, Odor, Ect.				
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		<u> </u>	partly cloudy, cloudy				
1	6915	11.86	4093	6.65	5.51	167.9	8,92	33,00	200.0	Clea					
<del></del>	+		1	1	1. 1º i	11.62 /	12 7	22 11	<b>_</b>	Ci.		1			

Stabi	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	69,15	i1.86	4093	6.65	5.51	167.9	8,92	33,00	500.0	Clea
2	0920	11.87	4072	6.66	6.51	168.6	12.7	33.11	500,0	Clear
3	0925	11.68	4054	6.68	7.22	172.1	18.6	33,38	500.0	Clea
4	0935	11.74	4044	6.69	7.88	175.6	12.9	33,58	1800.0	Cles
5	0945	11,58	4047	6.69	8.02	180.5	14.6	33.98	[000.0	Clea
6	0955	11.56	4055	6,69	7.41	184,6	14:0	34,35	1000.0	Cler
7	1005	11.61	4052	6.68	6.96	(88.6	15.6	34,70	1000.0	clear
8	1075	11.56	4058	6.67	6,08	194.1	11,3	35,02	1000,0	Clez
9	1025	11.60	4068	6.67	5.66	198.2	8,17	35,35	1000.0	Clear
10	1030	11.82	4075	6.67	4.79	198,3	7.18	- Bap of Pong	500.0	Clea

Stabilized:

Total Volume Removed: \_\_\_\_\_mL

Confined on next page



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	Pend 15 S	
Sampling Personal:	Jeren May -	
Date: (	S Sept 16	_

Phone: (701) 258-9720

### Field Measurements

Field Measurements										
Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
11		punged a	ell for	Smin be	Fere Simp	ling to c	learline.			
12	1551	\\ \			·			35,37		
13	1556	1406	4387	6.41	4.23	58,2	25,7	35.42	580	dea
14				(						
15										
16										
17										
18										
19										
20						\$ 18 8				
21						ng sh <sup>ada</sup> gir	. 5.0			
22			·				4-			•
23										
24										
25						-				
26										
27								,		
28						7		1		·
29										
30										

Stabilized:	Yes	(No)
		52

Total Volume Removed: 4500 mL



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Ponol (65
Sampling Personal:	Jesenny Muse

Phone: (701) 258-9720 °F **Weather Conditions:** Temp: Wind: Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Wen information										
Well Locked?	Yes	No		_						
Well Labeled?	Yes	MO	Isbelied a	rel(						
Casing Straight?	Yes	No								
Grout Seal Intact?	Yes	No	Not Vi	sible						
Repairs Necessary:										
Casing	g Diameter:	2"								
Water Level Be	fore Purge:	38,11								
Total V	Well Depth:	Ĺ	ft							
W	ell Volume:	d	liters							
Depth to To	p of Pump:	46.00								
Water Level Aff	er Sample:	39,60								
Measureme	nt Method:	Electric	: Water Level I	ndicator						

Sampling Information										
Purging Method	Bla	dder		Co	ontrol Settin	gs				
Sampling Method	Bia	dder	]	Purge:	5	sec.				
Dedicated Equip?	Yes	No		Recover:	SS	sec.				
Duplicate Sample?:	Yes	(NO)		PSI:	25					
Duplicate Sample ID			]	Pumping F	Rate: 100	mL/min				
			<del></del> 5.							
Purge Date	: 14 Sept1	6	Time Purg	ing Began:	1272	am/pm				
Well Purged Dry	Yes	Yes (No		Purged Dry:		am/pm				
Sample Date	: 14 Sept 1	6	Time o	f Sampling:	1342	am/pm				
	t									
Bottle CCR: 1L	Raw, 500mL	. Nitric, 4-1L	. Nitric							
List:										

### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1227	13.73	2533	7.03	2.78	205.8	30,7	38.67	500	Clede
2	1232	13.26	2491	7.00	2.11	207.9	49.3	38,96	500	Clea
3	1292	13,18	2498	7.01	1.93	206.1	35.9	39,06	1000	Clear
4	1252	13,27	2500	7.01	1.77	2071	33,0	39.16	1000	Clear
5	1302	(3,15	2529	7.02	1.64	20612	27.3	39,21	1000	Cles
6	1307	13.23	2543	7,02	1,56	205.6	24.4	39,26	500	Clear
7	1317	13.28	2560	7.03	1,50	204.8	16,7	39,32	1000	Clear
8	1327	13,15	2576	7.03	16,61	169,7	1(,3	39,37	1000	clear
9	(337	13,19	2602	6,99	1,47	1741	7,38	39,42	1000	Clear
10	1342	13,27	2603	७.१९	1,45	173.6	6.19	39.45	500	Clear

Stabilized: No Total Volume Removed: 8000 mL



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	MW 25	
Sampling Personal:	Jeren Muza	

Phone: (701) 258-9720

Depth to Top of Pump: Water Level After Sample:

Measurement Method:

1 Holle. (101) 250-51	20				-		•					
Veather Conditions:		Temp	: °F	Wind:		Precip	Sunny / Partly (	_ Cloudy <i>ਦ</i> ⊂ਿ	oudy.			
V	Nell Info	rmation	1		Sampling Information							
Well Locked?	Yes	(No)			Purging Method:	Bladder	Co	ontrol Setting	as			
Well Labeled?	(Yes)	No			Sampling Method:	Bladder	Purge:		sec.			
Casing Straight?	Yes	No			Dedicated Equip?:	Yes (No)	Recover:	- 1	sec.			
Grout Seal Intact?	Yes	No	Not Visible		Duplicate Sample?:	Yes (No)	PSI:	20				
Repairs Necessary:					Duplicate Sample ID:		Pumping R	late: 100/	zanL/min			
Casing [	Diameter:		2"				<del></del>					
Water Level Befo	re Purge:	¥. <b>4</b>	23.89 ft		Purge Date:	14 Sept 16	Time Purging Began:	0913	an/pm			
Total We	ell Depth:		\$6,60 ft		Well Purged Dry?	Nes No	Time Purged Dry:		am/pm			
Well	l Volume:	78	liters		Sample Date:	14 Sept 16	Time of Sampling:	1400	am/om			

Bottle

List:

### Field Measurements

	T Old Moderation										
Stabi	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:	
(3 con	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.	
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy	
1	0918	10,46	4564	6.91	6,93	267,7	3,11	24,57	500	Clear	
2	0923	10,39	4559	6,92	6,92	262,5	277	25.18	500	Clear	
3	७१८८	10.37	4550	6.93	1.II	2560	3,50	26.01	500	Clear	
4	0933	9,79	4530	6.94	8,15	252.7	4.74	27.03	1000	Clea	
5	0943	10,15	4514	6.96	8.96	243,6	9,51	28,22	2000	clear	
6	0953	10.16	4550	7,00	8.86	236.3	5,82	29,13	2000	Clear	
7	1003	10,22	4581	7.01	8,66	229,3	4,90	30,38	2000	Cles	
8	1013	10.18	4574	6.99	8,53	223,5	2,48	31,33	2000	de	
9	1023	10,28	4577	6,98	<i>७</i> ८३०	215,2	1,53	32.30	2000	Cler	
10	1033	10,44	4479	6.93	5,59	211.4	0,70	33,40	2000	Cles	

Stabilized:

CCR: 1L Raw, 500mL Nitric, 4-1L Nitric

Comments:

Total Volume Removed: \_\_\_\_\_ mL

water land not stabilizing increased purpose water to zoo me/win

34,40

**Electric Water Level Indicator** 

am/pm



Phone: (701) 258-9720

# **Field Datasheet**

**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	Sept 2016	
Sample ID:	Mwzs	
Sampling Personal:	Jeveng My -	***************************************
Date: 14 Sept		

Field Measurements

	ization secutive)	Temp (°C)	Spec. Cond.	рН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft	Removed	clear, partly cloudy, cloudy
11	1043	10,52	4470	6.91	4.45	206,4	0,51	Top of	2000	Ches
12		well p	ward d							
13			J							
14	1435	purged a	ell for sn	rin to clea	line			32.80	500	
15	1440	16.16	4554	7.07	6.66	2000	1.08			Clear
16										
17			,							
18										
19										
20										<b>&gt;</b>
21										
22										
23										
24										
25										
26										
27										
28						/				
29						, L				
30		(No)								

Stabilized:

Yes

(N<sub>9</sub>/

Total Volume Removed: 16,500

OTP Coyote Water levels

well Time depth to water patc DU 0943 N3 13 Sept 16 1232 0947 31,65 13 Sept 16 0950 23.90 MW25 13 Stpt 16 36,71 0952 13 Sept 66 12 38,19 8953 165 13 Sept 16 19,78 1001 13 Sept 16 16.96 1003 13 Sept 16 Blue 13 Sept 16, 1016 73.93 1023 75.78 16 13 Sept 6 15 13 Sept 6 77.03 1025 63.01 6 13 Sept 6 1028 7 13 Sept 6 14 13 Sept 16 80,21 1032 1034 79.14 105,35 13 13 Sept 6 1046

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

# **Chain of Custody Record**

Projec	t Name:		Name of Sampler(s):
	OTP Coyote RadChem	Slag Pond Sept 16	Jerenthy
	Otter Tail Power	Carbon Copy:	Work Order Number:
Attn:	Paul Vukonich	Attn:	00 0001
Address:	PO Box 496	Address:	XX-2001
	Fergus Falls, MN 56538-0496		00.0.111
Phone:			

	Samp	le Informati	ion			Bottle Type	Fi	eld Para	ameters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Mee me	1000 mt HNO <sub>3</sub>	Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
10640	Pond6	14 Sept 16	1119	GW	Clear	4	12.18	3982	7.28	
4202	PondN3	15 Sept 16	1420	GW	partly Cloudy	4	13,64	4882	6.80	
	Pond10	14 Sept 6	1051	GW	*	4-	insufflet	ent volu	æ	
4203	Pond12	15 Seiflo	1625	GW	Clear	4	12.90	3536		
POER	Pond15S	15 Sept 16	1556	GW	Clear	4	14.06	4387	6.41	OTP CCR combined
4205	Pond16S	14 Set 16	1342	GW	Clear	4	13.27	2603	6.99	RadChem
4206	MW2S	14 Sept 16	1440	GW	Clear	4	16.16	4554	7.07	
4207	Field Blank (FB)	15 Sept 16	NA	w	Clear	4	NA	NA	NA	

Comments: 16 Sef16

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	John	Login	16 Sept 16 1040	March		16 Sept 2016	3.8°C TM562
2		3					
3							1



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### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-3450 IML Lab Reference No/SDG: S1610372

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond Pit

Event & Year Oct 2016

MVTL Laboratory Identifications: 16-W4934 through 16-W4939

IML Laboratory Identifications: S1610372-001 through S1610372-006

Page 1 of 2

Sample Identification	IML Laboratory #	MVTL Laboratory #
Pond6	S1610372-001	16-W4934
PondN3	S1610372-002	16-W4935
Pond10	n/a	Insufficient recharge – no sample
Pond12	S1610372-003	16-W4936
Pond15S	n/a	Insufficient recharge – no sample
Pond16S	S1610372-004	16-W4937
MW2S	S1610372-005	16-W4938
Field Blank (FB)	S1610372-006	16-W4939

### I. RECEIPT

- All samples were received at the laboratory on 20 Oct 2016 at 757.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 0.3°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 25 Oct 2016.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.



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### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201682-3450 IML Lab Reference No/SDG: S1610372

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond Pit

Event & Year Oct 2016

MVTL Laboratory Identifications: 16-W4934 through 16-W4939

IML Laboratory Identifications: S1610372-001 through S1610372-006

Page 2 of 2

### III. METHODS

Approved methodology was followed for all sample analyses.

Please refer to the IML Case Narrative for more information regarding methodology.

### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: DATE: 14 DEC 16

Claudette Carroll - MVTL Bismarck Laboratory Manager



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Pond6

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W4934 Work Order #:82-3450 Account #: 006106

Date Sampled: 19 Oct 16 14:40 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3 ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.21	s.u.	0.1	SM 4500 H+ B	19 Oct 16 14:40	JSM
Field Appearance	Clear		NA	SM 2110	19 Oct 16 14:40	JSM
Field Temperature	11.6	Degrees C	0.1	SM 2550B	19 Oct 16 14:40	JSM
Field Conductivity	4190	umhos/cm	1	EPA 120.1	19 Oct 16 14:40	JSM
Radium 226	4.000,7	ched Report			8 Nov 16	OL
Radium 228		ched Report			25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# Due to sample matrix # Due to continue to sample quantity # Due to interpretable to the sample to the sample quantity # Due to interpretable to the sample to the sam

# \* Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: PondN3

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W4935 Work Order #:82-3450 Account #: 006106

Date Sampled: 18 Oct 16 13:42 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3 ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.66	s.u.	0.1	SM 4500 H+ B	18 Oct 16 13:42	JSM
	Clear	4.77	NA	SM 2110	18 Oct 16 13:42	JSM
Field Appearance		Degrees C	0.1	SM 2550B	18 Oct 16 13:42	JSM
Field Temperature	12.6	umhos/cm	1	EPA 120.1	18 Oct 16 13:42	JSM
Field Conductivity	5192		+	2171 22012	8 Nov 16	OL
Radium 226 Radium 228		ched Report ched Report			25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to continuous to the pure to sample quantity # = Due to interpretable to the pure to the p

# = Due to concentration of other analytes
\* = Due to internal standard response



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Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Pond12

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W4936 Work Order #:82-3450 Account #: 006106

Date Sampled: 19 Oct 16 10:21 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3 ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.22	s.u.	0.1	SM 4500 H+ B	19 Oct 16 10:21	JSM
Field Appearance	Clear	7.00	NA	SM 2110	19 Oct 16 10:21	JSM
Field Temperature	9.51	Degrees C	0.1	SM 2550B	19 Oct 16 10:21	JSM
Field Conductivity	3678	umhos/cm	1	EPA 120.1	19 Oct 16 10:21	JSM
		ched Report	-	200002002	8 Nov 16	OL
Radium 226 Radium 228		ched Report			25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canrep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Pond16S

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W4937 Work Order #:82-3450 Account #: 006106

Date Sampled: 19 Oct 16 12:43 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3 ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.94	s.u.	0.1	SM 4500 H+ B	19 Oct 16 12:43	JSM
Field Appearance	Clear		NA	SM 2110	19 Oct 16 12:43	JSM
Field Temperature	11.0	Degrees C	0.1	SM 2550B	19 Oct 16 12:43	JSM
Field Conductivity	2941	umhos/cm	1	EPA 120.1	19 Oct 16 12:43	JSM
	10/21/21/21	ched Report		TIME DIDIE	8 Nov 16	OL
Radium 226 Radium 228		ched Report			25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

### = Due to sample matrix ## = Due to co

! = Due to sample quantity # = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: MW2S

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W4938 Work Order #:82-3450 Account #: 006106

Date Sampled: 19 Oct 16 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3 ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed		Analyst
Field pH	6.94	s.u.	0.1	SM 4500 H+ B	19 Oct 16	8:40	JSM
Field Appearance	Clear		NA	SM 2110	19 Oct 16	8:40	JSM
Field Temperature	9.12	Degrees C	0.1	SM 2550B	19 Oct 16	8:40	JSM
Field Conductivity	4671	umhos/cm	1	EPA 120.1	19 Oct 16	8:40	JSM
Radium 226		ched Report			8 Nov 16		OL
Radium 228	75.77.79(1.71.19.19.1)	ched Report			25 Nov 16		OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset = \text{Due to sample matrix}$   $\parallel = \text{Due to constant}$ 

! = Due to sample quantity

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Field Blank

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W4939 Work Order #:82-3450 Account #: 006106

Date Sampled: 19 Oct 16

Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3 ROI

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226 Radium 228	See Attached Report See Attached Report			8 Nov 16 25 Nov 16	OL OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix  $\emptyset$  = Due to continuous  $\emptyset$  = Due to sample quantity  $\emptyset$  + = Due to interpretable  $\emptyset$  + Due to interpretable  $\emptyset$ 

# = Due to concentration of other analytes
+ = Due to internal standard response



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945-

Date: 12/1/2016

CLIENT: Project:

Lab Order:

MVTL Laboratories, Inc.

201682-3450

S1610372

**CASE NARRATIVE** 

Report ID: S1610372001

Samples 16-W4934 Pond6, 16-W4935 PondN3, 16-W4936 Pond12, 16-W4937 Pond16S, 16-W4938 MW2S, and 16-W4939 FIELD BLANK were received on October 25, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: All

Wade Nieuwsma, Assistant Laboratory Manager



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3450

Lab ID:

S1610372-001 ClientSample ID: 16-W4934 Pond6

COC:

201682-3450

Date Reported 12/1/2016

Report ID

S1610372001

WorkOrder:

S1610372

CollectionDate: 10/19/2016 2:40:00 PM

DateReceived: 10/25/2016 2:33:00 PM

FieldSampler:

Matrix:

Water

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	11/08/2016 1212	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1212	MB
Radium 228	-3.3	pCi/L		2	Ga-Tech	11/25/2016 314	MB
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	11/25/2016 314	MB

#### These results apply only to the samples tested.

#### Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

0 Outside the Range of Dilutions

Matrix Effect

#### RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Η

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3450

Lab ID:

S1610372-002 ClientSample ID: 16-W4935 PondN3

COC:

201682-3450

Date Reported 12/1/2016

Report ID

S1610372001

WorkOrder:

S1610372

CollectionDate: 10/18/2016 1:42:00 PM

DateReceived: 10/25/2016 2:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	11/08/2016 1212	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1212	МВ
Radium 228	0.0	pCi/L		2	Ga-Tech	11/25/2016 618	MB
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	11/25/2016 618	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3450

Lab ID:

S1610372-003 ClientSample ID: 16-W4936 Pond12

COC:

201682-3450

Date Reported

12/1/2016

Report ID

S1610372001

WorkOrder:

S1610372

CollectionDate: 10/19/2016 10:21:00 AM

DateReceived: 10/25/2016 2:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.17	pCi/L		0.2	SM 7500 Ra-B	11/08/2016 1212	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1212	MB
Radium 228	2.0	pCi/L		2	Ga-Tech	11/25/2016 922	MB
Radium 228 Precision (±)	3.1	pCi/L			Ga-Tech	11/25/2016 922	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Ε Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL - Reporting Limit** 

Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory 1

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3450

Lab ID:

S1610372-004 ClientSample ID: 16-W4937 Pond16S

COC:

201682-3450

Date Reported 12/1/2016

Report ID

S1610372001

WorkOrder:

S1610372

CollectionDate: 10/19/2016 12:43:00 PM

DateReceived: 10/25/2016 2:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	11/08/2016 1212	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1212	MB
Radium 228	-0.4	pCi/L		2	Ga-Tech	11/25/2016 1227	MB
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	11/25/2016 1227	MB

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL - Reporting Limit** 

С Calculated Value

Н Holding times for preparation or analysis exceeded

1 Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3450

Lab ID:

S1610372-005 ClientSample ID: 16-W4938 MW2S

COC:

201682-3450

Date Reported 12/1/2016

Report ID

S1610372001

WorkOrder:

S1610372

CollectionDate: 10/19/2016 8:40:00 AM

DateReceived: 10/25/2016 2:33:00 PM

FieldSampler: Matrix:

Water

Commonte

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
			4,00.		Wiethou	Date Analyzeun	1114
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	11/08/2016 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1415	МВ
Radium 228	1.9	pCi/L		2	Ga-Tech	11/25/2016 1531	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	11/25/2016 1531	MB

### These results apply only to the samples tested.

#### Qualifiers:

- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- М Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

#### **RL - Reporting Limit**

С Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3450

Lab ID:

S1610372-006

COC:

ClientSample ID: 16-W4939 FIELD BLANK

201682-3450

Date Reported 12/1/2016

Report ID

S1610372001

WorkOrder:

S1610372

CollectionDate: 10/19/2016

DateReceived: 10/25/2016 2:33:00 PM

FieldSampler:

Matrix:

Water

#### Commonte

Result	Units	Qual	RL	Method	Date Analyzed/Init	
0.1	pCi/L		0.2	SM 7500 Ra-B	11/08/2016 1415	MB
0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1415	MB
-0.2	pCi/L		2	Ga-Tech	11/25/2016 1836	MB
2.9	pCi/L			Ga-Tech	11/25/2016 1836	MB
	0.1 0.1 -0.2	0.1 pCi/L 0.1 pCi/L -0.2 pCi/L	0.1 pCi/L 0.1 pCi/L -0.2 pCi/L	0.1 pCi/L 0.2 0.1 pCi/L -0.2 pCi/L 2	0.1 pCi/L 0.2 SM 7500 Ra-B 0.1 pCi/L SM 7500 Ra-B -0.2 pCi/L 2 Ga-Tech	0.1 pCi/L 0.2 SM 7500 Ra-B 11/08/2016 1415 0.1 pCi/L SM 7500 Ra-B 11/08/2016 1415 -0.2 pCi/L 2 Ga-Tech 11/25/2016 1836

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

CLIENT:

MVTL Laboratories, Inc.

Work Order:

S1610372

Project:

201682-3450

Date: 12/1/2016

Report ID: S1610372001

Radium 228 by Ga/Tech	Sample Type MBLK	Units: pCi/L				
MB-399 (11/26/16 13:02)	RunNo: 141245	PrepDate: 1	1/07/16 14:00	Bate	chID: 12572	
Analyte	Result	RL Sp	ke Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1				
Radium 228 by Ga/Tech	Sample Type LCS	U	nits: pCi/L			
LCS-399 (11/23/16 14:21)	RunNo: 141245	PrepDate: 1	1/07/16 14:00	Bato	:hID: 12572	
Analyte	Result	RL Sp	ke Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	35	1 39	.1	89.8	61.3 - 120	
Radium 228 by Ga/Tech	Sample Type LCSD	Units: pCi/L				
LCSD-399 (11/23/16 17:25)	RunNo: 141245	PrepDate: 11/07/16 14:00		Bato	:hID: 12572	
Analyte	Result	RL Co	nc %RPD	%REC	% RPD Limits	Qual
Total Radium 228	41	1 3	5 14.8	104	20	
Radium 228 by Ga/Tech	Sample Type MS	U	nits: pCi/L			
S1610375-002AMS (11/24/16 05:43)	RunNo: 141245	PrepDate: 1	1/07/16 14:00	Bato	hID: 12572	
Analyte	Result	RL Spi	ke Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	62	2 78	2 ND	79.7	64.3 - 120	
Radium 228 by Ga/Tech	Sample Type MSD	U	nits: pCi/L			
S1610375-002AMSD (11/24/16 08:47)	RunNo: 141245	PrepDate: 1	1/07/16 14:00	Bato	hID: 12572	
Analyte	Result	RL Co	nc %RPD	%REC	% RPD Limits	Qual
Total Radium 228	65	2 62	3.77	82.8	20	

#### Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- X Matrix Effect



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

CLIENT:

MVTL Laboratories, Inc.

S

S1610372

Work Order: Project:

201682-3450

Date: 12/1/2016

Report ID: S1610372001

Radium 226 in Water - Total by SM7500RA_B	Sample Type MBLK	Unit	s: pCi/L			
MB-1682 (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/	31/16 0:00	Bate	chID: 12505	
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2				
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCS	Unit	s: pCi/L			
LCS-1682 (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/31/16 0:00		Bato	hlD: 12505	
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	5.4	0.2 5.99		89.7	67.1 - 122	
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCSD	Unit	s: pCi/L			
LCSD-1682 (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/	31/16 0:00	Bato	hID: 12505	
Analyte	Result	RL Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	5.9	0.2 5.4	8.91	98.0	20	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MS	Unit	s: pCi/L			
S1610375-002AMS (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/	31/16 0:00	Bato	:hID: 12505	
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	12.8	0.2 12	0.3	105	65 - 131	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MSD	Unit	s: pCi/L			
S1610375-002AMSD (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/	31/16 0:00	Bato	hID: 12505	
Analyte	Result	RL Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	12.0	0.2 12.8	6.25	98.0	20	

Qualifiers:

В

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits

E Value above quantitation range

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect



### LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501 Phone: (701) 258-9720

## **Chain of Custody Record**

Pa	ıge	1	of	1	
	19C		O1		

	1 110116. (101)	4JU-J1 4U			1									
Toll Free: (8	300) 279-6885 <u> </u>	Fax: (701) 258-9724									ž	201682-3450		
Company Nam	ne and Address:		****	Account #	<b>#</b> :			***			Ph	one #:		
	I\/I	IVTL		Contact:			·				701-258-9720			
		Broadway		Claudette					Fax #:					
	Bismarcl	k, ND 58501		Name of S	***************************************	Jell	<u>e</u>				-	For faxed report check box		
Billing Addres	s (indicate if differen	t from above):		- Name of Gampler.						-	E-mail: ccarroll@mvtl.com For e-mail report check box			
	20.0		Quote Nu	mber						Da	te Submitted:			
	<u>PO B</u> <u>New Ulm</u>								···		21-Oct-16			
	Mew Ollil		Project Na	ame/Numb	er:					Pu	rchase Order #:			
		Sample Information		<u>L</u>		T		_441_			<u> </u>	BL5700		
S161037	}			1	T	┼		ottle	<u>  y                                   </u>	pe	Т	Analysis		
			-			9	HN03	s						
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Umpreserved	Glass Jar	Other		Analysis Required		
100	16-W4934	Pond6	GW	19-Oct-16	1440		4					Ra226 & Ra228		
002	16-W4935	PondN3	GW	18-Oct-16	1342		4					Ra226 & Ra228		
003	16-W4936	Pond12	GW	19-Oct-16	1021		4		<u> </u>			Ra226 & Ra228		
004	16-W4937	Pond16S	GW	19-Oct-16		<del>                                     </del>	4							
005	16-W4938	MW2S				<del> </del>	<del>                                     </del>					Ra226 & Ra228		
006			GW	19-Oct-16	840		4					Ra226 & Ra228		
000	16-W4939	Field Blank	GW	19-Oct-16			4					Ra226 & Ra228		
Commente: Al	I resulte must be	orted as a numerical value												
Comments, M	LICOURS HUSE DE FEN	anea as a numerical valu	^											

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	21-Oct-16	1700		Kathy Brown	10 25110	111.22	12 11 5
2.				- MING 8090	10.23.10	14.22	15.4



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 6
Sampling Personal:	lean thy

Phone: (701) 258-9	9720										i t		
Weather Conditions:		Temp:	45 °F		Wind:	N@5-	10		Precip	: Suni	ny / Partiy C	ا مالکانکانکانکانکانکانکانکانکانکانکانکانکانک	udy
	Well Info	rmation	l					Sa	ampling	Informatio	on		
Well Locked?	Yes	<b>₩</b>	in monhole			Purgi	ing Method:	Blac	lder	· ·	Co	ontrol Setting	
Well Labeled?	<del>Y</del> €\$	No				Sampli	ing Method:	Blac	lder	7	Purge:	3	sec
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	₩ô	7		57	sec
Grout Seal Intact?	Yes	No	Not Visib	e e		Duplicate	Sample?:	Yes	₫Ñ0		PSI:	20	
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	late: 100	mL/mir
Casing	Diameter:		2"							<b>-</b>	<u> </u>		
Water Level Bef	ore Purge:		2.98	ft		F	Purge Date:	in out 16	>	Time Purg	ing Began:	1410	am/pn
Total V	Vell Depth:			ft		Well F	urged Dry?	Yes	(No)	Time F	urged Dry:		am/pn
We	ell Volume:			liters		Sa	ample Date:	190c+16	,		f Sampling:	1440	am/ph
Depth to Top	p of Pump:		- 17.25	ft							······································		
Water Level Afte	er Sample:	Bela	~ Pump	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-11	_ Nitric			
Measuremer	nt Method:	Electric	Water Level India	ator		List:							
		-											

#### Field Measurements

						modelic				
Stabili	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1415	13.02	3993	7.10	3.21	174.5	2,93	Below PunkBP	500	Clea
2	1420	12,51	4064	7.09	2.15	179.3	1,43	BP		Clean
3	1425	11,59	4123	7,13	1,73	180,6	0.68	BP	500	Clear
4	1930	11.46	4154	7.19	1.54	180,6	0.53	Br	500	Class
5	1435	11.67	4182	7,19	1,50	181,3	0.49	BP	50	des
6	1440	11,57	4190	7,21	1,44	181.7	0.54	BP	500	Clear
7								<u> </u>		
8										
9										
10									···········	

Stabilized: Comments:

Total Volume Removed: 3000 mL

water lend below pump during purging but purging rate kept up at 100 ml/min.



#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond N3
Sampling Personal:	Jeren oly

Phone: (701) 258-9720

J						_						
	Temp:	45 %	=	Wind:	SØ5-	-10		Precip	: Sunr	y / Partiy C	loudy / Clo	udy
ell Info	rmation						Sa	mpling	Informatio	n		
Yes	ND				Purg	ing Method:	Blac	lder		Со	ntrol Setting	s
Yes	No				Sampl	ing Method:	Blac	lder	1	Purge:	S	sec
रें	No				Dedica	ted Equip?:	Yes	<b>(6</b> M)	7	Recover:	25/55	sec
Yes	∕Nō)	Not Vis	ible		Duplicate	e Sample?:	Yes	(Na	1	PSI:	25	
					Duplicate	Sample ID:		_	7	Pumping R	ate: 2 <i>00/</i>	comL/mii
iameter:		2"										
e Purge:		il.66	ft			Purge Date:	18 Octi	6	Time Purg	ing Began:	1137	am/pn
Il Depth:			ft		Well F	Purged Dry?	Yes	No	Time P	urged Dry:		am/pn
Volume:			liters		S	ample Date:	18 Oct 1	6	Time of	Sampling:	1342	am/pr
of Pump:	-		ft					***************************************				
Sample:		17.90	ft		Bottle	CCR: 1L Ra	aw, 500mL	Nitric, 4-1l	_ Nitric		,	
Method:	Electric V	Vater Level Ir	dicator		List:							
	Yes Yes Yes Yes iameter: e Purge: Il Depth: Volume: of Pump: Sample:	Temp:  Ves No Yes No Ye	Temp: 45 °F  Vell Information  Yes No	Temp: 45 °F  Vell Information  Yes No Not Visible  iameter: 2" e Purge: ii.66 ft  Il Depth: ft  Volume: liters of Pump: ft  Sample: i7.90 ft	Temp: 45 °F Wind:  Vell Information  Yes No Idameter: 2" Purge: 11.65 ft Il Depth: ft Volume: liters of Pump: ft Sample: 17.90 ft	Temp: 45 °F Wind: S@S-  Vell Information  Yes No  Yes No  Dedicate  Sample  Purg  Sample  Sample  Sample  Purg  Sample  Sample  Sample  Purg  Sample  Sample  Sample  Bottle	Temp: 45 °F Wind: 5@5-10    Vest No	Temp: 45 °F Wind: \$@\$-10  Vell Information  Yes No Yes Dedicated Equip?: Yes Duplicate Sample?: Yes Duplicate Sample ID:  Yes No Yes Duplicate Sample ID:  Yes No Yes No Yes Duplicate Sample ID:  Yes No Yes No Yes Duplicate Sample ID:  Yes Duplicate Sample ID:  Yes No Yes Duplicate Sample ID:  Yes Dupl	Temp: 45 °F Wind: \$@\$-10 Preciping  Yes No Purging Method: Bladder  Sampling Method: Bladder  Sampling Method: Bladder  Sampling Method: Bladder  Sampling Method: Bladder  Dedicated Equip?: Yes No  Duplicate Sample?: Yes No  Duplicate Sample ID:  Purge Date: 18 Oct 16  Well Purged Dry? Yes No  Well Purged Dry? Yes No  Sample Date: 18 Oct 16  Bottle CCR: 1L Raw, 500mL Nitric, 4-11	Temp: 45 °F Wind: \$\$5-10 Precip: Sunn    Ves No	Temp: 45 °F Wind: \$\$5-10 Precip: Sunny / Partity Content on Sampling Information  Yes No Purging Method: Bladder Content on Sampling Method: Bladder Purge: Purge: Dedicated Equip?: Yes No Policated Equip?: Yes No Policated Equip?: Yes No Policated Equip?: Yes No Policated Equip?: Policated Equip?: Policated Equip?: Policated Equip?: Purge: Purge: Purge: Purge: Purge: Purge: Purge Date: Purge Date: Purge Date: Purge Date: Purged Dry: Well Purged Dry: Sample Date: Policated Equip?: Time Purged Dry: Sample Date: Purged Dry: Purged Dry: Sample Date: Purged Dry:	Temp: \$\frac{\text{L}}{\text{S}} \circ F\$ Wind: \$\frac{\text{S}}{\text{S}} = 10\$ Precip: Sunny / Partiv Cloudy / Cloudy

#### Field Measurements

Stabili	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL.	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1142	12.93	5201	6,67	4.81	134.2	546.0	13,79	1000	partly cloudy
2 "	120-29152	12,79	5191	6.66	5,30	1427	564,0	16.48	2000	partly Clovely
3	1212	3,22	5199	6,65	4.88	150.7	122.0	16:97	4000	Partly cloudy
4	1232	12.94	5197	6,65	4.69	155,5	66.7	12.05	4000	partly Cloudy
5	1252	12.84	5190	6.66	4.44	155,6	44.0	17.26	4000	party Clouds
6	1312	12.87	5204	6.66	5,19	156.2	32,7	17.44	4000	porthe Clords
7	1332	12.82	5200	6166	5,77	159.1	25,5	17.73	4000	Clear
8	1337	12.74	2119	6.66	5.61	159.1	24.7	17.69	1000-500	Clear
9	1342	12,58	5192	6.66	6,02	159.2	25:4	12.75		
10	( )									

Stabilized:

Total Volume Removed: 24,000 mL

Comments:

water level not stabilizing
becomed purse rate to 100 my/min @ 1152



#### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2016	
Sample ID:	Pend 10	Shut 182
<u> </u>		

2010 E. Broadway Ave, Bis	smarck, ND							Sampling F	Personal:	رادس	7 Elen-		
Phone: (701) 258-9	720						•				1		
Veather Conditions:	1	Temp:	°F		Wind:	**			Precip:	Suni	ny / Partly C	Cloudy / Clou	ıdv
,	Well Info	rmation						Sa		nformatio			
Well Locked?	Yes	NO)				Purg	ing Method:		dder			ntrol Settings	 3
Well Labeled?	Yes	No				Sampl	ing Method:	Blad	dder		Purge:	5/3	sec
Casing Straight?	<u>(63)</u>	No				Dedica	ted Equip?:	Yes	No	1	Recover:	55./57	sec
Grout Seal Intact?		No	Not Visibl	е		Duplicate	e Sample?:	Yes	(No	1	PSI:	20/10	,
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: 100/	cmL/mir
Casing	Diameter:		2"							4	<u> </u>		
Water Level Befo	ore Purge:	27	92 19,92	ft			Purge Date:	18 Oct 1	6	Time Purg	ing Began:	1114	@m/pn
Total W	/ell Depth:	2	2.05	ft		Well F	urged Dry?	(Yes)	No	<del> </del>	urged Dry:	419 W21	@m/pn
We	ell Volume:		1.4	liters			ample Date:				Sampling:	1333	am/pm
Depth to Top	of Pump:	ZE	),40	ft									411.1/ part
Water Level Afte	er Sample:	Below p.	n	ft		Bottle	CCR: 1L R	aw. 500mL	Nitric. 4=11	-Nitric			
Measuremen	t Method:	Electric V	Vater Level Indic	ator		List:							
				Fiold	Mossuro	monte							

#### rieid Weasurements

Stabili	zation	Temp	Spec.	Ī.	DO	ORP	Touchidit.	18/-4		I
		1 -	_		1	1	Turbidity	l .	mL.	Discription:
	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1119	12.B7	3332	7.14	હ.૦1	103.2	25,2	Below Pung	500	Clea
2	i(2)	13, (1	335(	7.14	7.87	102.0		Below Py	200	Clean
3										
4										
5										
6										
7										
8	***									
9 .	1334							20,45		
10	ì335	13.64	3209	7.42	10.07	171.4	10.1			Clear
Stabilized:	Yes	Ño					otal Volume	Removed:	700	mL

Comments:

Collected ILRaw! Soom Nitru before well want day @ 14029 Sampled well @ Some/min Left pump in well to try to complete sayding at a laterdate



#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 12
Sampling Personal:	lam ela

Dhara (704) 050 0	2200									*~~	1/0	•——	
Phone: (701) 258-9	9720												
<b>Veather Conditions:</b>		Temp:	40 °F		Wind:	NOST	10		Precip:	Suni	ny / Partly (	Cloudy / CTo	udy)
	Well Info	rmation						Sa	ampling I				
Well Locked?	Yes	(No				Purg	ing Method:		dder		T	ontrol Setting	IS
Well Labeled?	Yes	No				Sampl	ing Method:	Bia	dder		Purge:		sec
Casing Straight?	(Yes)	No				Dedica	ited Equip?:	Yes	<b>(No)</b>			~ ~ /	
Grout Seal Intact?	Yes	No	Not Visi	ble		Duplicate	e Sample?:	Yes	(No		PSI:	1.6	
Repairs Necessary:							Sample ID:					Rate: 200/1	ص اسان اسار اسان
Casing	Diameter:		2"				, , , , , , , , , , , , , , , , , , , ,			1	[		
Water Level Bef	ore Purge:	36	»90	ft			Purge Date:	19 Oct 10	,	Time Purg	ing Began:	0926	am/pn
Total V	Vell Depth:			ft			ourged Dry?		No		Purged Dry:	<u> </u>	am/pr
We	ell Volume:			liters			ample Date:				f.Sampling:		@m/pn
Depth to Top	of Pump:	æ		ft			*		The state of the s				- Constitution
Water Level After	er Sample:	3	7,48	ft		Bottle	CCR: 1L R	aw. 500mL	Nitric, 4-1L	Nitric	····		
Measuremer	nt Method:	Electric V	Vater Level Inc	licator		List:		,					

#### Field Measurements

O4 - 1- 11	1141	Toman	T C	1		Wicasure				
	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0931	9,52	3724	7.14	1,19	208.1	30.1	37.41	1000	Clay
2	0991	9,71	3715	7.18	0.69	187,3	19.8	37.86	2000	Clear
3	0951	9,53	3688	7.19	0.62	184.0	10.4	37,43	1000	cles
4	0956	9.46	3682	7.20	1,21	175.5	6.96	37.47	500	Clear
5	1001	9.45	3682	7.21	1, Si	156.8	4.65	37,42	500	Cles
6	1006	9,53	3673	7.21	1.59	152.3	3.56	37.46	200	clear
7	1011	9,49	3680	7.21	1.68	144.7	2,85	37.42	500	clear
8	1016	9,59	3673	7,22	1.69	189.2	2,55	37.47	500	Clear
9	1021	9.51	3678	7,22	1.69	135.7	2.49	37,41	500	Clear
10										
abilized	Yes	No		***************************************	•		-4-137-1	<u> </u>	7000	1

Total Volume Removed: 7000 mL

Comments:

At 0941 decreased purging vote to 100ml/one due to coster lead not stabilizing



**Groundwater Assessment** 

Wind:

Company:	OTP Coyote
Event:	2016
Sample ID:	Pard 15s
Sampling Personal:	Jem gla

Phone: (701) 258-9720

Weather Conditions:		Temp:	°F
	Well Info	rmation	
Well Locked?	Yes	MOD	
Well Labeled?	<b>Yes</b>	No	
Casing Straight?	des)	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			
Casing	Diameter:		2"
Water Level Bef	ore Purge:	4.3	5.35 3555 ft
Total V	Vell Depth:		37,72 ft
W	ell Volume:		
Depth to To	o of Pump:		35,59 ft
Water Level Aft	er Sample:		ft
Measuremer	nt Method:	Electric \	Nater Level Indicator

	Precip	o: <b>Sun</b> r	Sunny / Partly Cloudy / Cloudy						
	Sampling	Informatio	on						
Purging Method:	Bladder		Co	ontrol Settings	<del></del> S				
Sampling Method:	Bladder		Purge:	5.	sec.				
Dedicated Equip?:	Yes 🗫		Recover:	25/55	sec.				
Duplicate Sample?:	Yes 478		PSI:	45					
Duplicate Sample ID:		7	Pumping R	ate: 200/10	್ mL/min				
Purge Date:	18 oct 16	Time Purg	ing Began:	1428	am/pm				
Well Purged Dry?	XG€> No	Time F	urged Dry:	1453	am/pm				
Sample Date:	19 Oct 16	Time of	Sampling:	0821	am/pm				
					·				
Bottle CCR: 1L R	aw, 500mL Nitric, 4-1	L Nitric							

**Field Measurements** 

~ .		T	T	T		measure				
	ilization	Temp	Spec.	Į.	DO	ORP	Turbidity	Water	mL	Discription:
	nsecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1433	10,35	4352	6,55	11,30	179.1	17.9	Balow port BP	1000	Clear
2	7436	10.36	4351	6,54	11.36	139.4	15.3	Below Pry	600-	des
3	1438	10.25	4353	6.54	10.49	176.7	10.4	BP	1000	Clear
4	1443	10.32	4351	6.53	9.91	177.6	6,53	3P	1000	Clear
5	(448	10.70	4339	6.52	8,93	174.7	4.59	BP	1000	cles
6	1453	10.85	4347	6.52	8,83	174.2	(13)	RP	500	cle
7		<u> </u>		0,70	101-3	100		17.1	500	Clar
8										
9	3619	pog-d an	11 for 2	min Lo	clear lim	@/0021/	100 5.	89	<b>3</b> 00	
10	0821	7.46	4327	6.51	7.53	276.4	2,89	07	<b>3</b> -0	n/a
tabilized		180		10.51	1 ,3		otal Valuma	Domestical S	£-// 0.5	Cles

Total Volume Removed: \*\*/600 mL

Comments:

\* 18 Oct 16there is At 1440 reduced purging iste to 100ml/min Since all was not purgling day this event well eventally possed day at 1953 left pump in well while it rechanged Poor recharge, only able to collect Field reading will try to sample it a later date



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 165
Sampling Personal:	Jern Man

Phone: (701) 258-9	9720						_				. ,		
Weather Conditions:		Temp:	40	°F	Wind:	NOS	-10		Precip	: Suni	ny / Partly 0	Cloudy / Ch	oudy
	Well Info	rmation						Sa	ampling l	nformation	on		
Well Locked?	Ye₃	No				Purg	ing Method:		dder			ntrol Settin	as
Well Labeled?	Yes	No					ing Method:	Blac	dder		Purge:		sec
Casing Straight?	Yes	No					ted Equip?:	Yes	(Nio		Recover:		sec
Grout Seal Intact?	Yes	No	Not	Visible			e Sample?:	Yes	(No		····	40	
Repairs Necessary:					•		Sample ID:	C. 1997			Pumping R		mL/mir
Casing	Diameter:		2"					***		<u>-1</u>			
Water Level Bef	ore Purge:	[4]	7.90	t ft			Purge Date:	19 out 16	•	Time Purg	ing Began:	168	am∕pn
Total V	Vell Depth:			ft		Well F	Purged Dry?	Yes	No	Time F	urged Dry:	Character	am/pm
We	ell Volume:			liters			ample Date:	19 Oct 14	- Whereas	Time o	f Sampling:	1243	am/pn
Depth to To	p of Pump:		-	ft						-1			\$3600°
Water Level Aft	er Sample:		40.04	₹ ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremer	nt Method:	Electric V	Vater Leve	el Indicator		List:	•		•	*· "(			
				Field	Measure	ements							

Stabil	ization	Temp	Spec.		1 1010		T	147 /	T .	
			1 -		DO	ORP	Turbidity	Water	mL	Discription:
<u>`</u>	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1113	10,25	2842	6.93	0.90	181.5	43.7	39.43	500	partly cloudy
2	1123	10,65	2837	6.94	1,06	171.0	65.9	39.48	1000	party clevely
3	1143	10.60	2866	6.92	1.06	160:9	40.1	39,52	2000	parth clarky
4	1153	10:51	2886	6.91	1112	157.8	28,2	39.61	1000	partly cloudy
5	1213	11101	2915	6.90	1.18	148,0	15.8	39,70	2000	Clea
6	1233	10.93	2936	6.93	1.06	139.8	10.4	39,90	2000	Clear
7	[238	10.75	2942	692	1.05	138.4	10.7	39.85	500	Cles
8	1243	11.02	2941	6.94	1007	137.8	10.1	39,93	500	Cla
9							'			
10										·

Total Volume Removed: 4500 mL

Comments:



### **Groundwater Assessment**

Company:	OTP Coyote								
Event:	2016								
Sample ID:	MWZs								
Sampling Personal:	love it								

Phone: (701) 258-9720

Phone: (701) 258-9720										, ,		
Weather Conditions:	her Conditions: Temp: 냭ㅇ °F				いのうてつ Precip: Sunny / Partly C						loudy / Œ	oudy
Well Int		Sampling Information										
Well Locked? 7es	\$ (No)		÷	Purging Method:		Blad	Bladder		Control Settings			
Well Labeled? Yes	No				Sampl	ing Method:	Blad	der	1	Purge:		sec
Casing Straight? Yes	No				Dedica	ted Equip?:	Yes	No		Recover:	25/55	sec
Grout Seal Intact? Yes	No	Not Visi	ble		Duplicate	Sample?:	Yes	No	1	PSI:	40	···
Repairs Necessary:					Duplicate	Sample ID:			1	Pumping R	ate: 200/	€∂∂mL/mi≀
Casing Diameter		2"							- '	· · · · · · · · · · · · · · · · · · ·		
Water Level Before Purge	: 2	13, 25	ft			Purge Date:	18 act	В	Time Purgi	ing Began:	1457	am/pñ
Total Well Depth	:		ft		Well F	urged Dry?	Yes )	No No	Time P	urged Dry:	1607	am/pr
Well Volume	<u></u>		liters		Sa	ample Date:	19 Octile	?	Time of	Sampling:	0646	@m/pr
Depth to Top of Pump	: 3	4.50	ft									
Water Level After Sample	: '3'	3,56	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric. 4-1L	Nitric Nitric			
Measurement Method:	Electric	Water Level Inc	licator		List:			, , , , , , , , , , , , , , , , , , , ,				
		**				4. 19						

Field Measurements

					i icia	Micasuic	menta			
Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1502	9.97	4849	6194	13:62	169.2	2.45	25,43	1000	Cles
2	1507	9.84	4 806	6.95	14,02	169,0	4.10	26.98	1000	Clear
3	1527	9,76	4808	401	1417	170.4	5,42	29.95	4000	Cleed
4	1547	9,57	4842	7.00	13,85	17209	7.89	32,35	4000	Cles
5	1607	9,41	4942	6.95	13,05	173.6	7.69	Below Pag	4000	Class
6								7		
7										
8							·			
9	0837	purged	call for 3	min to cle	ar line o	100 ml/min		31,15	300	
10	0840	9,12	4671	6.94	8,92	253,8	0.86			Clear
	37	/>m		<del></del>			1	<u> </u>		· ••

Stabilized: Yes Comments:

Total Volume Removed: 14000 ml

Left pump in well while it recharged.



## **Chain of Custody Record**

Projec	t Name:				Name of Sampler(s):	
	OTP Coyote F	RadChem	Slag Pond	Oct 2016	Jerenny Mene	
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496		Carbon Copy: Attn: Address:	OTP Josh Hollen	Work Order Number: 82-3450	
Email:	Fergus Falls, MN 56538-049 pvukonich@otpco.com	6	Email:	jhollen@otpco.com		

	Samp	le Informat	ion			Bottle Type	F	ield Para	Analysis	
Lab Number	Sample ID	Date	Time	Sample Type	Sample appearance	1000 ml HNO <sub>3</sub>	Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W4934	Pond6	19 oct 16	1440	GW	Clear	4	1457	4190	7.21	
W4935	PondN3	18 Oct 16	1342	GW	clear	4	12,58	5192	6.66	
15498to	Pond10	19 oct 16	1335	GW	clear	44	13.64	3209	7.42	
W4936	Pond12	19 Oct 16	1021	GW	Clear	4	9.51	3678	7,22	
	Pond15S	19 oct 16	0821	GW	Clear	4	146	4327	6.51	OTP CCR combined
WY937	Pond16S	1900t16	1243	GW	Clear	4	11.02	2941	6.94	RadChem
W4938	MW2S	190c+16	0840	GW	Clear	4	9,12	4671	6.94	
W4935	Field Blank (FB)	19 Oct 16	NA	W		4	NA	NA	NA	

Comments: only able to collect field readings on wells Pond 10 & Pond 15s due to insufficient rechange will try to sample wells at a later det

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
10	1786	Login	200ct16 0757	C. Cento		757	0.3 ROI THS
2		3					
3							2



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



#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-3451

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year October 2016

MVTL Laboratory Identifications: 16-W4940 through 16-W4946

Page 1 of 2

Sample Identification	MVTL Laboratory #
Pond6	16-W4940
PondN3	16-W4941
Pond10	16-W4942
Pond12	16-W44943
Pond15S	Insufficient recharge – no sample
Pond16S	16-W4944
MW2S	16-W4945
Field Blank (FB)	16-W4946

#### I. RECEIPT

- All samples were received at the laboratory on 20 Oct 2016 at 757.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 0.3°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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



#### **CASE NARRATIVE**

MVTL Lab Reference No/SDG:

201682-3451

Client:

Ottertail Power Company

Location:

**Coyote Station** 

Project Identification:

**CCR Slag Pond** 

**Event & Year** 

October 2016

**MVTL Laboratory Identifications:** 

16-W4940 through 16-W4946

Page 2 of 2

#### IV. **ANALYSIS**

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - o For some metals, the reported results were elevated due to additional dilutions required to minimize the effects of sample matrix.

Alliaborator	y data has been appro		ries.	5.641	
SIGNED:	Clauditte	ania	DATE:_	SNNIG	
Clau	dette Carroll - MVTL Bi	smarck Laboratory M	anager		

## MVTL

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**Quality Control Report** 

Page: 1 of 3

Lab IDs: 16-W4940 to 16-W4946 Project: OTP Coyote Slag Pond CCR Work Order: 201682-3451 Matrix Matrix Matrix MSD/ MSD/ LCS LCS LCS Matrix Matrix Spike Matrix Spike Spike Dup MSD/ MSD MSD/ Dup Known Known % Rec Spike Rec Spike Spike Orig Spike Rec % Rec Orig Dup Rec Dup RPD Rec % Rec Method Amt % Limits ID Amt Result Result % Limits Result Result Analyte % Limit (<) (%) RPD Limits Blank Antimony - Total mg/l 0.0160 101 80-120 0.400 16W4827q < 0.001 0.4254 106 75-125 0.4254 0.4232 106 0.5 20 < 0.001 0.400 16W4940a < 0.001 0.4198 105 75-125 0.4198 0.4182 105 0.4 20 0.400 16W4941a < 0.001 0.4254 106 75-125 0.4254 0.4232 106 0.5 20 Arsenic - Total mg/l 0.0160 92 80-120 0.400 16W4827q 0.0074 0.4176 103 75-125 0.4176 0.4218 104 1.0 20 < 0.002 0.400 16W4940q < 0.002 0.4348 109 75-125 0.4348 0.4006 100 20 8.2 0.400 16W4941q < 0.002 0.4096 102 75-125 0.4096 0.4152 104 20 1.4 Barium - Total mg/l 0.0160 96 80-120 0.400 16W4827q 0.0982 0.5160 104 75-125 0.5160 0.4952 99 4.1 20 < 0.002 0.400 16W4940q 0.0372 0.4450 102 75-125 0.4450 0.4382 100 1.5 20 0.400 16W4941a 0.0197 0.4462 107 75-125 0.4462 0.4400 105 1.4 20 ... Beryllium - Total mg/l 0.0160 96 80-120 0.400 16W4827a < 0.0005 0.4352 109 75-125 0.4352 0.4338 108 0.3 20 < 0.0005 0.400 16W4940a < 0.0005 0.4702 118 75-125 0.4702 0.4384 110 7.0 20 0.400 16W4941q < 0.0005 | 0.4828 121 75-125 0.4828 0.4804 20 120 0.5 Boron - Total mg/l 0.40 120 80-120 0.400 16-W4827 0.44 0.79 88 75-125 0.79 0.80 90 1.3 20 < 0.1 0.40 110 80-120 2.00 16-W4940 2.84 4.76 96 75-125 4.76 4.71 94 20 1.1 < 0.10.40 115 80-120 2.00 16-W4941 0.69 2.62 97 75-125 2.62 2.60 95 0.8 20 < 0.10.40 120 80-120 0.400 16-W5155 0.60 1.03 108 75-125 1.03 1.02 105 1.0 20 < 0.10.400 16-W5160 0.63 1.00 92 75-125 1.00 1.03 100 3.0 20 < 0.1 < 0.1 Cadmium - Total mg/l 0.0160 100 80-120 0.400 16W4827q < 0.0005 0.4106 103 75-125 0.4106 0.4126 103 20 0.5 < 0.0005 0.400 16W4940a 0.0006 0.4226 106 75-125 0.4226 0.4060 101 4.0 20 0.400 16W4941q 0.0005 0.4122 103 75-125 0.4122 0.4072 20 102 1.2 Calcium - Total mg/l 20.0 95 80-120 2000 16W4923a 992 2720 86 75-125 2720 2720 86 0.0 20 < 1 20.0 106 80-120 500 16W4940Q 139 590 90 75-125 590 605 93 2.5 20 < 1 20.0 108 80-120 100 16D4413Q 13.4 108 95 75-125 108 108 95 0.0 20 < 1 2000 16-M3438 1200 3180 99 75-125 1140 1160 86 1.7 20 < 1 1000 16-M3468 1800 2700 90 75-125 955 975 92 2.1 20 < 1 500 16-M3471 82 730 1140 75-125 168 168 93 0.0 20 < 1 500 16W4941a 515 955 88 75-125 < 1 100 16W4962q 74.7 168 93 75-125

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**Quality Control Report** 

Page: 2 of 3

<b>Lab IDs:</b> 16-W4940 to 16-	·W4946	Pi	roject: O	P Coyot	e Slag Pond C		To-Simon management	Y	74			Wo	rk Ord	er: 201682	2-3451		
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Chloride mg/l	30.0	96	80-120	60.0	16-W4964	< 1	58.4	97	80-120	58.4	55.8	93	4.6	20	-	_	< 1
Chromium - Total mg/l	0.0160	96	80-120	0.400 0.400 0.400	16W4827q 16W4940q 16W4941q	0.0045 < 0.002 < 0.002	0.3960 0.4020 0.3928	98 100 98	75-125 75-125 75-125	0.3960 0.4020 0.3928	0.3938 0.3804 0.3950	97 95 99	0.6 5.5 0.6	20 20 20	-	-	< 0.002
Cobalt - Total mg/l	0.0160	97	80-120	0.400 0.400 0.400	16W4827q 16W4940q 16W4941q	< 0.002 0.0086 0.0048	0.3898 0.4184 0.3998	97 102 99	75-125 75-125 75-125	0.3898 0.4184 0.3998	0.3824 0.3990 0.4052	96 98 100	1.9 4.7 1.3	20 20 20	**	and and	< 0.002
Fluoride mg/l	0.50	106	90-110	0.500 0.500	16-W4912 16-W4945	< 0.1 0.28	0.53 0.75	106 94	80-120 80-120	0.53 0.75	0.54 0.76	108 96	1.9 1.3	20 20		-	< 0.1 < 0.1
Lead - Total mg/l	0.0160	98	80-120	0.400 0.400 0.400	16W4827q 16W4940q 16W4941q	0.0018 < 0.0005 0.0006	0.3972 0.3906 0.3846	99 98 96	75-125 75-125 75-125	0.3972 0.3906 0.3846	0.3832 0.3834 0.3854	95 96 96	3.6 1.9 0.2	20 20 20	-	-	< 0.000
Lithium - Total mg/l	0.40 0.40 0.40	100 105 110	80-120 80-120 80-120	2.00 0.400 0.800 0.400 2.00	16-D4370 16-W4823 16-W4827 16-W4940 16-W4941	0.96 0.10 0.10 0.06 < 0.5	2.83 0.51 0.92 0.49 2.39	93 102 102 108 120	75-125 75-125 75-125 75-125 75-125	2.83 0.51 0.92 0.49 2.39	2.83 0.52 1.00 0.50 2.30	93 105 112 110 115	0.0 1.9 8.3 2.0 3.8	20 20 20 20 20 20	-	-	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1
Mercury - Total mg/l	0.0020 0.0020	90 105	85-115 85-115	0.002 0.002 0.002 0.002	16-W4912 16-W4945 16-W5079 16-W5143	< 0.0002 < 0.0002 < 0.0002 < 0.0002	0.0017 0.0019	80 85 95 95	70-130 70-130 70-130 70-130	0.0016 0.0017 0.0019 0.0019	0.0015 0.0018 0.0020 0.0019	75 90 100 95	6.5 5.7 5.1 0.0	20 20 20 20 20	-	-	< 0.0000
Molybdenum - Total mg/l	0.1000	104	80-120	0.100 0.400 0.400 0.400 0.400 0.400	16-W4753Q 16-W4753Q 16-W4823Q 16-W4827Q 16-W4940Q 16-W4941Q	0.0038 0.0038 < 0.002 < 0.002 0.0058 0.0034	0.0933 0.3456 0.3960 0.3880 0.3934 0.3978	90 85 99 97 97 99	75-125 75-125 75-125 75-125 75-125 75-125	0.3456 0.3960 0.3880 0.3934 0.3978	0.3728 0.3980 0.3746 0.3900 0.3826	92 100 94 96 95	7.6 0.5 3.5 0.9 3.9	20 20 20 20 20 20	-	-	< 0.002

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**Quality Control Report Lab IDs:** 16-W4940 to 16-W4946

**MVTL** 

Project: OTP Coyote Slag Pond CCR

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Work Order: 201682-3451

COLORED SANDE AND COLORED COLO	SILES INVISOREMENT OF THE	es l'exercises de serviciones de la							Work Order: 201082-3431								
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
pH units	-	-	-	-	-	- -	-	-	-	6.8 5.9	6.8 5.9	-	0.0	20 20	-	-	-
Selenium - Total mg/l	0.1000	94	80-120	0.400 0.400 0.400 0.400 0.400	16-W4753 16-W4823 16-W4827 16-W4940 16-W4941	< 0.002 < 0.002 < 0.002 < 0.002 < 0.0530	0.3032 0.4550 0.4254 0.4386 0.5196	76 114 106 110 117	75-125 75-125 75-125 75-125 75-125	0.3032 0.4550 0.4254 0.4386 0.5196	0.3268 0.4228 0.4252 0.4192 0.5186	82 106 106 105 116	7.5 7.3 0.0 4.5 0.2	20 20 20 20 20 20	-	-	< 0.002
Sulfate mg/l	100	103	80-120	100	16-M3471	6.95	110	103	80-120	110	106	99	3.7	20	_	-	< 5
Thallium - Total mg/l	0.0160	97	80-120	0.400 0.400 0.400	16W4827q 16W4940q 16W4941q	< 0.0005 < 0.0005 < 0.0005	0.3930 0.3862 0.3866	98 97 97	75-125 75-125 75-125	0.3930 0.3862 0.3866	0.3812 0.3860 0.3842	95 96 96	3.0 0.1 0.6	20 20 20		-	< 0.0005
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	444	3090 39200	3100 38900	-	0.3	20 20	-	-	< 5

Approved by: Claudithe Can D

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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: Pond6

Event and Year: Oct 2016

1 of 1 Page:

Report Date: 4 Nov 16 Lab Number: 16-W4940 Work Order #:82-3451 Account #: 006106

Date Sampled: 19 Oct 16 14:40 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion			777	EPA 200.2	20 Oct 16	KMD
Lab, pH	* 7.5	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:00	KMD
Field pH	7.21	s.u.	0.1	SM 4500 H+ B	19 Oct 16 14:40	JSM
Field Appearance	Clear		NA	SM 2110	19 Oct 16 14:40	JSM
Field Temperature	11.6	Degrees C	0.1	SM 2550B	19 Oct 16 14:40	JSM
Field Conductivity	4190	umhos/cm	1	EPA 120.1	19 Oct 16 14:40	JSM
Fluoride	0.45	mg/l	0.10	SM4500-F-C	20 Oct 16 18:00	KMD
Sulfate	1720	mg/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	25.5	mg/l	1.0	SM4500-C1-E	28 Oct 16 12:30	KMD
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	1 Nov 16 12:17	EV
Total Dissolved Solids	3200	mg/l	5	I1750-85	21 Oct 16 18:12	CC
Calcium - Total	139	mg/l	1.0	6010	21 Oct 16 14:43	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	28 Oct 16 9:11	SZ
Boron - Total	2.84	mg/1	0.10	6010	28 Oct 16 15:15	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	26 Oct 16 11:07	CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0372	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC
Cadmium - Total	0.0006	mg/l	0,0005	6020	26 Oct 16 11:07	CC
Chromium - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Cobalt - Total	0.0086	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Lead - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Molybdenum - Total	0.0058	mg/l	0.0020	6020	26 Oct 16 15:06	CC
Selenium - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 18:46	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC
1 22 4 4 V or 1 Part 1 - 1 - 4 - 4 - 4						

\* Holding time exceeded

Approved by:

Clauditte K Cantep SNWIL

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix # = Due to complete the dilution of the diluti

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: PondN3

Event and Year: OCt 2016

1 of 1 Page:

Report Date: 4 Nov 16 Lab Number: 16-W4941 Work Order #:82-3451

Account #: 006106

Date Sampled: 18 Oct 16 13:42 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Oct 16	ML
Lab, pH	* 6.9	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:00	KMD
Field pH	6.66	s.u.	0.1	SM 4500 H+ B	18 Oct 16 13:42	JSM
Field Appearance	Clear		NA	SM 2110	18 Oct 16 13:42	JSM
Field Temperature	12.6	Degrees C	0.1	SM 2550B	18 Oct 16 13:42	JSM
Field Conductivity	5192	umhos/cm	1	EPA 120.1	18 Oct 16 13:42	JSM
Fluoride	0.28	mg/l	0.10	SM4500-F-C	20 Oct 16 18:00	KMD
Sulfate	3310	mg/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	37.5	mg/1	1.0	SM4500-C1-E	28 Oct 16 12:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1 Nov 16 12:17	EV
Total Dissolved Solids	5040	mg/l	5	I1750-85	21 Oct 16 18:12	CC
Calcium - Total	515	mg/l	1,0	6010	31 Oct 16 8:47	SZ
Lithium - Total	< 0.5 @	mg/l	0.10	6010	28 Oct 16 10:11	SZ
Boron - Total	0.69	mg/1	0.10	6010	28 Oct 16 15:15	SZ
Antimony - Total	< 0.001	mg/1	0.0010	6020	26 Oct 16 11:07	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0197	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC
Cadmium - Total	0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Cobalt - Total	0.0048	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Lead - Total	0.0006	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Molybdenum - Total	0.0034	mg/l	0.0020	6020	26 Oct 16 15:06	CC
Selenium - Total	0.0530	mg/1	0.0020	6020	26 Oct 16 18:46	CC
Thallium - Total	< 0.0005	mg/l	0:0005	6020	26 Oct 16 11:07	CC

\* Holding time exceeded

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\theta$  = Due to sample matrix  $\theta$  = Due to complete to sample quantity  $\theta$  = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: Pond10

Event and Year: Oct 2016

1 of 1 Page:

Report Date: 4 Nov 16 Lab Number: 16-W4942 Work Order #:82-3451 Account #: 006106

Date Sampled: 19 Oct 16 13:35 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	1100			EPA 200.2	21 Oct 16	ML
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:00	KMD
Field pH	7.42	s.u.	0.1	SM 4500 H+ B	19 Oct 16 13:35	JSM
Field Appearance	Clear		NA	SM 2110	19 Oct 16 13:35	JSM
Field Temperature	13.6	Degrees C	0.1	SM 2550B	19 Oct 16 13:35	JSM
Field Conductivity	3209	umhos/cm	1	EPA 120.1	19 Oct 16 13:35	JSM
Fluoride	0.69	mg/l	0.10	SM4500-F-C	20 Oct 16 18:00	KMD
Sulfate	1750	mg/1	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	26.8	mg/1	1.0	SM4500-C1-E	28 Oct 16 12:30	KMD
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	1 Nov 16 12:17	EV
Cotal Dissolved Solids	2660	mg/1	5	11750-85	21 Oct 16 18:12	CC
Calcium - Total	236	mg/l	1.0	6010	31 Oct 16 9:47	SZ
Lithium - Total	0.11	mg/l	0.10	6010	28 Oct 16 10:11	SZ
Boron - Total	2.40	mg/l	0.10	6010	28 Oct 16 15:15	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	26 Oct 16 11:07	CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0446	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC
Chromium - Total	0.0026	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Cobalt - Total	0.0043	mg/l	0.0020	6020	26 Oct 16 11:07	CC
ead - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
olybdenum - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 15:06	CC
Gelenium - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 18:46	CC
rhallium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC

\* Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to conduct to the conduction of the conduction of the conduction of the code in the code is the code of the code o

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

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Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: Pond12

Event and Year: Oct 2016

1 of 1 Page:

Report Date: 4 Nov 16 Lab Number: 16-W4943 Work Order #:82-3451 Account #: 006106

Date Sampled: 19 Oct 16 10:21 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	1.000			EPA 200.2	21 Oct 16	ML
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:00	KMD
Field pH	7.22	s.u.	0.1	SM 4500 H+ B	19 Oct 16 10:21	JSM
Field Appearance	Clear		NA	SM 2110	19 Oct 16 10:21	JSM
Field Temperature	9.51	Degrees C	0.1	SM 2550B	19 Oct 16 10:21	JSM
Field Conductivity	3678	umhos/cm	1	EPA 120.1	19 Oct 16 10:21	JSM
Fluoride	0.10	mg/1	0.10	SM4500-F-C	20 Oct 16 18:00	KMD
Sulfate	1950	mg/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	24.8	mg/1	1.0	SM4500-C1-E	28 Oct 16 12:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1 Nov 16 12:17	EV
Total Dissolved Solids	2830	mg/1	5	I1750-85	21 Oct 16 18:12	CC
Calcium - Total	158	mg/l	1.0	6010	31 Oct 16 9:50	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	28 Oct 16 10:11	SZ
Boron - Total	2.32	mg/1	0.10	6010	28 Oct 16 15:15	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	26 Oct 16 11:07	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0224	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC
Chromium - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Cobalt - Total	0.0075	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Lead - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 15:06	CC
Selenium - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 18:46	CC
Thallium - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
all and Admired actions to an alternation						

\* Holding time exceeded

Approved by:

Clauditte K. Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix  $\emptyset$  = Due to colling to sample quantity  $\emptyset$  = Due to int

# = Due to concentration of other analytes
+ = Due to internal standard response



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



Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: Pond16S

Event and Year: Oct 2016

1 of 1 Page:

Report Date: 4 Nov 16 Lab Number: 16-W4944 Work Order #:82-3451 Account #: 006106

Date Sampled: 19 Oct 16 12:43 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	- Yron in			EPA 200.2	21 Oct 16	ML
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:00	KMD
Field pH	6.94	s.u.	0.1	SM 4500 H+ B	19 Oct 16 12:43	JSM
Field Appearance	Clear	0.4.	NA	SM 2110	19 Oct 16 12:43	JSM
Field Temperature	11.0	Degrees C	0.1	SM 2550B	19 Oct 16 12:43	JSM
Field Conductivity	2941	umhos/cm	i	EPA 120.1	19 Oct 16 12:43	JSM
Fluoride	0.24	mg/1	0.10	SM4500-F-C	20 Oct 16 18:00	KMD
Sulfate	1480	mg/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	21.6	mg/1	1.0	SM4500-C1-E	28 Oct 16 12:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1 Nov 16 12:17	EV
Total Dissolved Solids	2340	mg/l	5	I1750-85	21 Oct 16 18:12	CC
Calcium - Total	192	mg/1	1.0	6010	31 Oct 16 9:50	SZ
Lithium - Total	< 0.1	mg/1	0.10	6010	28 Oct 16 10:11	SZ
Boron - Total	1.98	mg/l	0.10	6010	28 Oct 16 15:15	SZ
Antimony - Total	< 0.001	mg/1	0.0010	6020	26 Oct 16 11:07	CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0481	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Cadmium - Total	0.0017	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 11:07	CC
Cobalt - Total	0.0324	mg/1	0.0020	6020	26 Oct 16 11:07	CC
Lead - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:07	CC
Molybdenum - Total	0.0087	mg/l	0.0020	6020	26 Oct 16 15:06	CC
Selenium - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 18:46	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:07	cc

\* Holding time exceeded

Approved by:

Claudette K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to come to sample quantity # = Due to interpret the control of the

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: MW2S

Event and Year: Oct 2016

Page: 1 of 1

Report Date: 4 Nov 16 Lab Number: 16-W4945 Work Order #:82-3451 Account #: 006106

Date Sampled: 19 Oct 16 Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receive Result	ed	Method RL	Method Reference	Da An	te alyz	ed		Analyst	
Metal Digestion	15.474	1. 7 .		EPA 200.2	21	Oct	16	TA T	ML	-
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	20	Oct	16	18:00	KMD	
Field pH	6.94	s.u.	0.1	SM 4500 H+ B	19	Oct	16	8:40	JSM	
Field Appearance	Clear		NA	SM 2110	19	Oct	16	8:40	JSM	
Field Temperature	9.12	Degrees C	0.1	SM 2550B	19	Oct	16	8:40	JSM	
Field Conductivity	4671	umhos/cm	1	EPA 120.1	19	Oct	16	8:40	JSM	
Fluoride	0.28	mg/l	0.10	SM4500-F-C	20	Oct	16	18:00	KMD	
Sulfate	2940	mg/1	5.00	ASTM D516-07	2	Nov	16	13:07	KMD	
Chloride	25.8	mg/1	1.0	SM4500-C1-E	28	Oct	16	12:30	KMD	
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	1	Nov	16	12:17	EV	
Total Dissolved Solids	4800	mg/1	5	11750-85	21	Oct	16	18:12	CC	
Calcium - Total	560	mg/l	1.0	6010	31	Oct	16	9:50	SZ	
Lithium - Total	0.39	mg/1	0.10	6010	28	Oct	16	10:11	SZ	
Boron - Total	0.28	mg/l	0.10	6010	28	Oct	16	15:15	SZ	
Antimony - Total	< 0.001	mg/1	0.0010	6020	26	Oct	16	11:07	CC	
Arsenic - Total	< 0.002	mg/l	0.0020	6020	26	Oct	16	11:07	CC	
Barium - Total	0.0121	mg/1	0.0020	6020	26	Oct	16	11:07	CC	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	26	Oct	16	11:07	CC	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	26	Oct	16	11:07	CC	
Chromium - Total	< 0.002	mg/1	0.0020	6020	26	Oct	16	11:07	CC	
Cobalt - Total	< 0.002	mg/l	0.0020	6020	26	Oct	16	11:07	CC	
Lead - Total	< 0.0005	mg/1	0.0005	6020	26	Oct	16	11:07	CC	
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	26	Oct	16	15:06	CC	
Selenium - Total	0.0908	mg/1	0.0020	6020	26	Oct	16	18:46	CC	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	26	Oct	16	11:07	CC	
t Walding bins suggeded										

\* Holding time exceeded

Approved by:

Clauditte K. Cantlo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to conduct to sample quantity # = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond CCR

Sample Description: Field Blank

Event and Year: Oct 2016

1 of 1 Page:

Report Date: 4 Nov 16 Lab Number: 16-W4946 Work Order #:82-3451 Account #: 006106

Date Sampled: 19 Oct 16

Date Received: 20 Oct 16 7:57 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion			1979	EPA 200.2	21 Oct 16	ML
Lab, pH	* 6.0	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:0	KMD
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	20 Oct 16 18:0	KMD
Sulfate	< 5	mg/l	5.00	ASTM D516-07	2 Nov 16 13:0	7 KMD
Chloride	< 1	mg/1	1.0	SM4500-C1-E	28 Oct 16 12:3	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Nov 16 11:1	7 EV
Total Dissolved Solids	< 5	mg/1	5	I1750-85	21 Oct 16 18:1	2 CC
Calcium - Total	< 1	mg/1	1.0	6010	31 Oct 16 9:5	SZ
ithium - Total	< 0.1	mg/l	0.10	6010	28 Oct 16 10:1	l SZ
Boron - Total	< 0.1	mg/1	0.10	6010	28 Oct 16 15:1	5 SZ
Antimony - Total	< 0.001	mg/1	0.0010	6020	26 Oct 16 11:0	7 CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:0	7 CC
Barium - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:0	7 CC
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	26 Oct 16 11:0	7 CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:0	7 CC
Chromium - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:0	CC
Cobalt - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 11:0	7 CC
lead - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:0	7 CC
olybdenum - Total	< 0.002	mg/l	0.0020	6020	26 Oct 16 15:0	S CC
Gelenium - Total	< 0.002	mg/1	0.0020	6020	26 Oct 16 18:4	S CC
Challium - Total	< 0.0005	mg/l	0.0005	6020	26 Oct 16 11:0	7 CC

\* Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix ! = Due to sample quantity

# = Due to concentration of other analytes
+ = Due to internal standard response



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 6
Sampling Personal:	Jean thyn

Phone: (701) 258-9720

· · /							-						
Weather Conditions:		Temp:	45 °F		Wind:	NOS-	10		Precip	Suni	ny / Partily (	Loudy / Clo	udy
	Well Info	rmation						Sa	ampling I	nformatio	on		
Well Locked?	Yes	40	in monhole			Purgi	ng Method:	Blac	ider		Co	ontrol Setting	s
Well Labeled?	∠Yes	No				Sampli	ng Method:	Blad	dder		Purge:	3	sec.
Casing Straight?	Yes	No				Dedicat	ted Equip?:	Yes	<b>1</b> 100		Recover:	57	sec.
Grout Seal Intact?	Yes	No	Not Visi	ble		Duplicate	Sample?:	Yes	₫Ø		PSI:	20	
Repairs Necessary:			·			Duplicate	Sample ID:				Pumping F	Rate: 100	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:	16	5,96	ft		F	Purge Date:	in oct 16	,	Time Purg	ging Began:	1410	am/pm
Total V	Vell Depth:	•		ft		Well P	urged Dry?	Yes	(No)	Time F	Purged Dry:		am/pm
We	ell Volume:			liters		Sa	ample Date:	190ct16	2	Time o	f Sampling:	1440	am/pm
Depth to Top	p of Pump:		17.25	ft									
Water Level After	er Sample:	Bela	~ Pump	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremer	nt Method:	Electric	Water Level Inc	dicator		List:							
			<u> </u>		-				·				

#### Field Measurements

zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1415	13,02	3993	7.10	3,2 l	174.5	2.93	Below Pun BP	500	Clea
1420	12,51	4064	7.09	2.15	179.3	1,43	BP	500	Clean
1425	11.59	4123	7,13	1.73	180,6	0.68	BP	500	Clear
1830	11.46	4154	7.19	1.54	180,6	0,53	Βŕ	500	Clan
1435	11.67	4182	7,19	1.50	181.3	0.49	BP	Sed	Clear
1440	11,57	4190	7.21	1.44	181.7	0.54	BP	500	Clear
				·					
				ĺ					
	ecutive) Time 1415 1420 1425 1430 1435	ecutive) (°C) Time  1415 13.02 1420 12.51 1425 11.59 1430 11.46 1435 11.67	ecutive) (°C) Cond.  Time ±5%  1415 13.02 3993  1420 12.51 4064  1425 11.59 4123  1430 11.46 4154  1435 11.67 4182	ecutive) (°C) Cond. pH  Time ±5% ±0.1  1415 13.02 3993 7.10  1420 12.51 4064 7.09  1425 11.59 4123 7.13  1430 11.46 4154 7.19  1435 11.67 4182 7.19	ecutive) (°C) Cond. pH (mg/L)  Time	ecutive)         (°C)         Cond.         pH         (mg/L)         (mV)           Time $\pm 5\%$ $\pm 0.1$ $\pm 10\%$ $\pm 20 \text{ mV}$ $1415$ $13.0^2$ $3993$ $\mp .10$ $3.21$ $174.5$ $1420$ $12.51$ $4064$ $4.09$ $2.15$ $174.5$ $1425$ $11.59$ $4123$ $4.13$ $1.73$ $180.6$ $1435$ $11.67$ $4182$ $7.19$ $1.59$ $181.3$	ecutive)         (°C)         Cond.         pH         (mg/L)         (mV)         (NTU)           Time         ±5%         ±0.1         ±10%         ±20 mV         ±10%           J415         13.02         3993         7.10         3.21         174.5         2.93           1420         12.51         4064         7.09         2.15         174.3         1.43           1425         11.59         4123         7.13         1.73         180.6         0.68           1430         11.4b         4154         7.19         1.54         180.6         0.53           1435         11.67         4182         7.19         1.50         181.3         0.49	ecutive)         (°C)         Cond.         pH         (mg/L)         (mV)         (NTU)         Level (ft)           Time $\pm 5\%$ $\pm 0.1$ $\pm 10\%$ $\pm 20 \text{ mV}$ $\pm 10\%$ $0.25 \text{ ft}$ 1415 $13.0^2$ $3993$ $\mp .10$ $3.21$ $174.5$ $2.93$ $2.06$ 1420 $12.51$ $4064$ $7.09$ $2.15$ $174.3$ $1.43$ $8P$ 1425 $11.59$ $4123$ $7.13$ $1.54$ $180.6$ $0.68$ $8P$ 1435 $11.67$ $4182$ $7.19$ $1.54$ $180.6$ $0.53$ $8P$ 1435 $11.67$ $4182$ $7.19$ $1.50$ $181.3$ $0.49$ $8P$	ecutive)         (°C)         Cond.         pH         (mg/L)         (mV)         (NTU)         Level (ft)         Removed           Time $\pm 5\%$ $\pm 0.1$ $\pm 10\%$ $\pm 20 \text{ mV}$ $\pm 10\%$ $0.25 \text{ ft}$ 1415 $13.0^2$ $3993$ $\mp .10$ $3.21$ $174.5$ $2.93$ $80 \text{ cos} \text{ Properties}$ $80 \text{ cos}  Properti$

Stabilized:
Comments:

Total Volume Removed: 3000 mL

water level below pump during purging but purging rate Kept up at 100 ml/min.



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2016	
Sample ID:	Pond N3	
Sampling Personal:	Jeren oly	

Phone: (701) 258-9720

							_						
Weather Conditions:		Temp:	45	°F	Wind:	505-	10		Precip	: Sunr	ny / Partly C	loudy / Clo	udy
	Well Info	rmation						S	ampling	Informatio	on		
Well Locked?	Yes	No				Purgi	ng Method:	Bla	dder		Co	ntrol Setting	js
Well Labeled?	/Ves	No				Sampli	ng Method:	Bla	dder		Purge:	5	sec.
Casing Straight?	Ves	No				Dedicat	ted Equip?:	Yes	(OM)		Recover:	25/55	sec.
Grout Seal Intact?	Yes	/No)	Not V	isible		Duplicate	Sample?:	Yes	(No		PSI:	25	,
Repairs Necessary:						Duplicate	Sample ID:		<u> </u>		Pumping R	ate: 200/	∕omL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		11.6b	ft		F	Purge Date:	18 oct	16	Time Purg	ing Began:	1137	am/pm
Total V	Vell Depth:			ft		Well P	urged Dry?	Yes	No	Time F	Purged Dry:		am/pm
We	ell Volume:			liters		Sa	mple Date:	18 Oct	(6)	Time o	f Sampling:	1342	am/pm
Depth to To	p of Pump:			ft									
Water Level Aft	er Sample:		17.90	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1	L Nitric			
Measuremer	nt Method:	Electric '	Water Level	Indicator		List:		·					
		•											

#### **Field Measurements**

						measare				
Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1142	12.93	5201	6.67	4.81	134.2	546.0	13.79	1000	partly clashy
2	12029152	12.79	5191	6.66	5,30	1427	564.0	16.4B	7000	partly Cloudy
3	1212	3.22	5199	6,65	4.88	150,7	122.0	16.97	4000	Partly cloudy
4	1232	12.94	5197	6,63	4.69	155,5	66,7	12.05	4000	partly Cloudy
5	1252	12.84	5190	6,66	4.44	155.6	44.0	17.26	400D	path Clouds
6	1312	12.87	5204	6,66	5,19	158.2	32,7	17.44	4000	porthy Clouds
7	1332	12.82	5200	6166	5,77	159.1	25,5	17,73	4000	Clem
8	1337	12.74	2119	6,66	5.61	159.1	24,7	17.69	1 <del>000-</del> 500	Clear
9	1342	12.58	5192	6,66	6.02	159,2	25.4	12,75	+ <del>00</del> 050	Clea
10										

Stabilized: Yes No

Total Volume Removed: 24,000 mL

Comments:

water level not stabilizing
becomed purge vate to 100 ml/min @ 1152



Wind:

2016 Event: **Groundwater Assessment** Sample ID:

Company:

Shut 182 Pond 10 Sampling Personal:

**OTP Coyote** 

Phone: (701) 258-9720

Weather Conditions: Temp: °F **Well Information** No Well Locked? Yes Well Labeled? No XES> Casing Straight? Yes No **Grout Seal Intact?** Yes No Not Visible Repairs Necessary: Casing Diameter: 27.92 19.92 Water Level Before Purge: 22.05 Total Well Depth: ft 1.4 Well Volume: liters 20,40 Depth to Top of Pump: ft Below pry Water Level After Sample: Measurement Method: **Electric Water Level Indicator** 

		·
	Precip	Sunny / Partly Cloudy / Cloudy
	Sampling	Information
Purging Method:	Bladder	Control Settings
Sampling Method:	Bladder	Purge: 5 / 3 sec.
Dedicated Equip?:	Yes No	Recover: 55 /57 sec.
Duplicate Sample?:	Yes No	PSI: 20/10
Duplicate Sample ID:		Pumping Rate: 100/gmL/min
		,
Purge Date	18 Oct 16	Time Purging Began: 1114 am/pm
Well Purged Dry?	∕fes No	Time Purged Dry: 449 1121 @m/pm
Sample Date	19 Oct/16	Time of Sampling: /335 am/pm
Bottle CCR: 1L F	Raw, 500mL Nitric, 🚓	L-Nitric
List:		
•		

#### **Field Measurements**

Stabili	ization	Temp	Spec.	-	DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1119	12.87	3332	7,14	<b>છ</b> .૦1	103.2	25.2	Below Punp	500	Clea
2	1(21	13,11	335(	7.14	7.87	102.0	-	Below Py	200	Clea
3										
4										
5										
6										
7										
8										
9	1334							20,45		
10	ì335	13.64	3209	7.42	10.07	171.4	10.1	_	_	Clear

Stabilized:

Total Volume Removed: 700 mL

Comments:

Collected 11 Raw & Soome Nitre before well went dry @ 14024
Sampled well @ Samt/min
Left pump in well to try to complete Sampling at a laterdate



Phone: (701) 258-9720

### **Field Datasheet**

Grou	ndwater	Assessm	ent
Ol Oui	IMPULCI	73363311	

Company: OTP Coyote

Event: 2016

Sample ID: Pond IZ

Sampling Personal: Jerry My

	40 °F		Wind:	NOS-1			Precip:	Sunr	ny / Partly C	Cloudy / প্রতি	udy
nformation					1-1-20	Sa	mpling l	nformatio	on		
s (NØ				Purgir	ng Method:	Blad	der		Co	ntrol Setting	s
§∕ No				Samplin	ng Method:	Blad	der		Purge:	5	sec.
No No				Dedicate	ed Equip?:	Yes	No				sec.
\$∕ No	Not Visil	ble		Duplicate	Sample?:	Yes	(No		PSI:	40	
				Duplicate S	Sample ID:				Pumping R	ate: 200/1	ے mL/min
er:	2"							•		4	
ge: 30	690	ft		Р	urge Date:	19 Oct 16	•	Time Purg	ing Began:	0976	am/pm
th:		ft		Well Pu	urged Dry?	Yes	No.	Time F	Purged Dry:		am/pm
ne:		liters		Sai	mple Date:	19 Oct 16	>	Time of	f.Sampling:	1021	@m/pm
np:		ft									
ole:	37,48	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
d: Electric	Water Level Ind	licator		List:			· , · · · · ·				
	No N	No Not Visi  Type: 36.90  Type: 37.48	No Not Visible  Type: 36.70 ft  pth: ft  me: liters  mp: 746 ft	No Not Visible  Type: 36.70 ft  Type: 1 ters  Type: 37.46 ft	Purgir Samplir Dedicat Duplicate Duplicate Ster:  Tige: Tige	Purging Method: Sampling Method: Dedicated Equip?: Duplicate Sample?: Duplicate Sample ID:  Ster:  Tige: Tige: Tige: Tige: Tight: Tight	Purging Method: Blad Sampling Method: Blad Dedicated Equip?: Yes Duplicate Sample?: Yes Duplicate Sample ID:  Ster: 2"  Tge: 36,70 ft Purge Date: 1904 6 Well Purged Dry? Yes The Sample Date: 1904 6 Sample Date: 1904 16 The Sample Date: 1904 16 Th	Purging Method: Bladder  Sampling Method: Bladder  Dedicated Equip?: Yes No  Duplicate Sample?: Yes No  Duplicate Sample ID:  The ster: 2"  The ster: 2"  The ster: 56:90 ft  The ster: 1904 ft  Well Purged Dry? Yes No  Sample Date: 1904 ft  Well Purged Dry? Yes No  Sample Date: 1904 ft  Bottle CCR: 1L Raw, 500mL Nitric, 4-1L	Purging Method: Bladder  Sampling Method: Bladder  Dedicated Equip?: Yes (No)  Duplicate Sample ID:  Duplicate Sample ID:  Seter: 2"  Toge: 36,70 ft  pth: ft  me: liters  mp: ft  ple: 37.46 ft  Bottle CCR: 1L Raw, 500mL Nitric, 4-1L Nitric	Purging Method: Bladder  Sampling Method: Bladder  Purge:  Dedicated Equip?: Yes No  Populicate Sample?: Yes No  Populicate Sample ID:  Pumping Recover:  Pu	Purging Method: Bladder Sampling Method: Bladder Sampling Method: Bladder Purge: 5  No No Not Visible  Dedicated Equip?: Yes No Purping Rate: 20/16  Duplicate Sample ID:  Purge Date: 1904 6 Time Purging Began: 0726  Well Purged Dry: Yes No Time Purged Dry: Time

#### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0931	9,52	3724	7.14	1,19	208.1	30.1	37.41	1000	Clas
2	0991	9.71	3715	7.18	0.69	187,3	19.8	37.86	2000	Clea
3	0951	9,53	3688	7.19	0.82	184.0	10.4	37,43	1000	clea
4	0956	9,46	3682	7.20	1.21	175.5	6.96	37.47	500	Clear
5	1001	9,45	3682	7.21	1.51	156,8	4.65	37,42	500	Clea
6	1006	9,53	3673	7.21	1.59	152.3	3,56	37.48	200	clear.
7	1011	9.49	3680	7.21	1.68	144.7	2,85	37.42	500	clear .
8	1016	9,59	3673	7,22	1.69	139.2	2,55	37.47	500	Clear
9	1021	9.51	3678	7,22	1,69	135,7	2.49	37.41	500	Cles
10										

Stabilized: Yes No

Total Volume Removed: 7000 mL

Comments:

At ogth decreased purging vote to lowner /min due to conter lead not stabilizing



#### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2016	
Sample ID:	Pard 15s	
Sampling Personal:	Jern gly	

Dhone: (701) 259 0	700								Camping	r Croona.		FW.		
Phone: (701) 258-9	720							•						
Weather Conditions:		Temp:		°F		Wind:				Precip	Suni	ny / Partly C	Cloudy / Clou	ıdy
•	Well Info	rmation							S	ampling l	nformatio	on		
Well Locked?	Yèš	<b>MO</b>					Purgi	ng Method:	Bla	dder		Co	ntrol Settings	
Well Labeled?	Xes	No					Sampli	ng Method:	Bla	ıdder	1	Purge:	5 .	sec.
Casing Straight?	des)	No					Dedicat	ted Equip?:	Yes	(Mass)		Recover:	25/55	sec.
Grout Seal Intact?	Yes	No		ot Visib	æ		Duplicate	Sample?:	Yes	<b>6</b> 49		PSI:	45	
Repairs Necessary:							Duplicate	Sample ID:			1	Pumping R	ate: 200/10	nL/min
Casing	Diameter:		2"								-		WIA. 1.	·
Water Level Befo	ore Purge:	43	5.35	35,55	ft		F	Purge Date:	18 oct 1	6	Time Purg	ing Began:	1428	am/@fb
Total W	/ell Depth:			37.72	2 ft		Well P	urged Dry?	<b>₹</b>	No No	Time F	urged Dry:	1453	am/pm
We	ll Volume:	-		j.3	liters		Sa	mple Date:	19 Oct	16	Time o	Sampling:	<i>3</i> 821	am/pm
Depth to Top	of Pump:		35, 3	59	ft									
Water Level Afte	er Sample:				ft		Bottle	CCR: 1L R	aw, 500ml	Nitric, 4-1L	Nitric			
Measuremen	t Method:	Electric '	Water L	evel Indic	ator		List:							
					Field	Measure	mente							

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	рH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1433	10.35	4352	6,55	11,30	179.1	17.9	Below pory BP	1000	Clear
2	436	10.36	4351	6.59	11.36	179.4	15.3	Below Prof	-600-	Cles
3	1438	10.25	4353	6.54	10.49	1767	10.4	48i	1000	Clen
4	1443	10.32	4351	6.53	9.91	177.6	6,53	BP	/00O	Clear
5	1448	10.70	4339	6.52	8,93	174.7	4.59	BP	1000	clea
6	1453	10.85	4347	6.52	કિંદ્ધ	174.2	~	RP	500	cle
7										
8										
9	3819	puy-d a	ell for 2	min to	clear lim	@100~L/	min	BP	800	
10	0821	7.46	4327	6.51	7.53	276.4	2.89			cles
4 - 1- 11	V	40			•				<i>t</i>	<u> </u>

Stabilized:

Total Volume Removed: How mL

#### Comments:

TIO LET 10- AT 1848 reduced purging iste to 100ml/min Since well was not purging day this event ¥18 Oct 162 well erentally possed day at 1953 left pump in well while it rechanged Poor rechange, only able to collect Field reading will try to sample at a later date



#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 165
Sampling Personal:	Jerry May

Phone: (701) 258-9	9720									***			
Weather Conditions:		Temp:	40	°F	Wind:	N@S-	10		Precip	Suni	ny / Partly (	Cloudy	oudy
	Well Info	rmation						S	ampling l	nformatio	on		
Well Locked?	Ve <sub>9</sub>	No				Purgin	g Method:	Bla	dder		Co	ontrol Settin	gs
Well Labeled?	Ves	No				Samplin	g Method:	Bla	dder		Purge:	5	sec.
Casing Straight?	Yes	No				Dedicate	ed Equip?:	Yes	(No		Recover:	<b>3</b> 5	sec.
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate	Sample?:	Yes			PSI:	40	
Repairs Necessary:						Duplicate S	Sample ID:				Pumping F	late: <b>400</b>	mL/min
Casing	Diameter:		2"							_			
Water Level Bef	ore Purge:	[3	7.90	? ft		Pi	urge Date:	19 Oct 16	, _	Time Purg	ing Began:	100	am∕pm
Total V	Vell Depth:			ft		Well Pu	rged Dry?	Yes	No	Time F	Purged Dry:	~ <del></del>	am/pm
We	ell Volume:		_	liters		Sar	nple Date:	19 Oc+1.	6	Time o	f Sampling:	1243	am/pm
Depth to Top	of Pump:			ft									
Water Level After	er Sample:		40.04	<b>f</b> t		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremer	nt Method:	Electric V	Vater Leve	el Indicator		List:				ether "L			
				C: ala	Manager		•						

#### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	413	10,25	2842	6.93	0,90	181.5	43.7	39.43	5∞	partly closely
2	1123	10,65	2837	6.94	1,06	171.0	65.9	39.48	1000	party clevely
3	1143	10.60	2866	6.92	1.06	160.9	40.1	39,52	2000	partly claudes
4	1153	10.51	2886	6.91	1112	157.8	ZB12	39,61	1000	pathy cloudy
5	1213	iliol	2915	6.90	1.18	148,0	15.8	39,70	2000	Clea
6	1233	10.93	2936	6.93	1.06	139.8	10.4	39,90	2000	Clear
7	1238	10.75	2942	692	1.05	138.4	10.7	39,85	500	Cles
8	1243	11.02	2941	6.94	1007	137·B	10.1	39,93	<i>ড০</i> ৩	Cla
9										
10	_									59

Stabilized: Yes No

Total Volume Removed: 9500 mL

Comments:



#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2016
Sample ID:	MWZs
Sampling Personal:	Jerry Hy

Phone: (701) 258-9	720												
Weather Conditions:		Temp:	40 .	F	Wind:	NOS-	70		Precip	Sunr	ny / Partly (	Cloudy / Co	udy
,	Well Info	rmation						Sa	mpling l	nformatio	on		
Well Locked?	Tes	(No)				Purg	ing Method:	Blac	lder		Co	ontrol Setting	gs
Well Labeled?	Yes	No				Sampl	ing Method:	Blad	lder		Purge:	5 ,	sec.
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	(Vièro	1	Recover:	. / -	sec.
Grout Seal Intact?	Yes	No	Not Vi	sible		Duplicate	e Sample?:	Yes	Mo		PSI:	40	
Repairs Necessary:	****					Duplicate	Sample ID:			1	Pumping R	ate: 200/	്ര <sub>mL/min</sub>
Casing	Diameter:		2"							_	X	7	
Water Level Befo	ore Purge:	2	3, 25	ft			Purge Date:	18 Oct 1	6	Time Purg	ing Began:	1457	am/pm
Total W	/ell Depth:	-		ft		Well F	Purged Dry?	Yes	> No	Time F	urged Dry:	1607	am/pm
We	ll Volume:	-		liters		S	ample Date:	19 Octile	>	Time of	Sampling:	0646	(a͡m/pm
Depth to Top	of Pump:	3,	1.50	ft									
Water Level Afte	er Sample:	33	.56	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremen	t Method:	Electric V	Vater Level I	ndicator		List:					*****		
			9.	<b>-</b>		4	100						

#### Field Measurements

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1502	9.97	4849	6194	13.62	169.2	2.45	25,43	1000	Cles
2	1507	9.84	4806	6.95	14.02	169,0	4.10	26,98	1000	Clear
3	1527	9,76	4808	401	1417	170.4	5.42	29,95	4000	cleer
4	1547	9,57	4842	7.00	13,85	172.9	7.89	32,35	4000	Cles
5	1607	9.41	4442	6.95	13.05	173.6	7.89	Below Pag	4000	Clase
6						*.				
7										
8										
9	0837	purged a	141 Far 3	min to cle	or line 0	100 ml/min	:	31,15	300	
10	0840	9,12	4671	6.94	8,92	253, 8	0.86	<u> </u>	-	Cles

Stabilized:

Total Volume Removed: 14000

Comments:

Left pump in well while it recharged.

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

### **Chain of Custody Record**

Project	t Name:							Na	me of Sa	impler(s):	/		
	OTP Coyote	CCR	Slag I	Pond	Oct 2016				Jer	emy M	uzer		
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-I	0496	Carbon C Attn: Address:		OTP Josh Hollen			W	ork Order	Number:	451		
mail:	pvukonich@otpco.com		Email:		jhollen@otpco.d	com							
	Samp	le Informa	tion				Во	ttle	Туре	Fi	eld Para	ameters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type		500 ml HM.	1 liter			Field Temperature °C	Field Spec, Cond,	Field pH	Analysis Required
W494W	Pond6	1900+16	1440	GW	Clear	X	X			11.57	4190	721	
04941	PondN3	18 Oct 16	1342	GW	Clear	X	X			12.58	5192	6.66	
14942	Pond10	190ct16	1335	GW	Clear	X	X			13.64	3209	7.42	
24943	Pond12	19 Oct 16	1021	GW	Clear	X	X			9.51	3678	722	
-	Pond15S	19 Oct 16	0821	GW	Clear	X	×	-		7.46	4327	6.51	OTP CCR List.
24944	Pond16S	190c+16	1943	GW	Clear	X	X		21 1	11,02	2941	6.94	No RadChem.
24945	MW2S	19 Oct 16	0840	GW	Clear	X	х			9.12	4671	6.94	
طابا والا	Field Blank (FB)	19 Oct 16	NA	W	*Ch	Х	Х		15 [3]	NA	NA	NA	
Comments	* 15 Pc+16 ~												

only still to collect field readings on well found 15s due to insufficient rechange will try to sample at a loker date

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	Moh	log in	2000+16	Marke		0757	O.3'C ROI
2			1				TM588
3							



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



#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-3487
IML Lab Reference No/SDG: S1610450

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond

Event & Year Oct 2016

MVTL Laboratory Identifications: 16-W5012

IML Laboratory Identifications: S1610450-001

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #
Pond10	S1610450-001	16-W5012

#### I. RECEIPT

- All samples were received at the laboratory on 21 Oct 2016 at 1003.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 8.9°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 31 Oct 2016.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claubate auth DATE: 14 Dec 16

Claudette Carroll - MVTL Bismarck Laboratory Manager



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Pond 10

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W5012 Work Order #:82-3487

Account #: 006106

Date Sampled: 21 Oct 16 9:18 Date Received: 21 Oct 16 10:03 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 8.9C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed		Analyst
Field pH	7.14	s.u.	0.1	SM 4500 H+ B	21 Oct 16	9:18	DJN
Field Temperature	12.3	Degrees C	0.1	SM 2550B	21 Oct 16	9:18	DJN
Field Conductivity	3337	umhos/cm	1	EPA 120.1	21 Oct 16	9:18	DJN
Radium 226	Attached	700.22			12 Nov 16		OL
Radium 228	Attached				29 Nov 16		OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Cantel

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 12/1/2016

CLIENT: Project:

MVTL Laboratories, Inc.

201682-3487

Lab Order:

S1610450

**CASE NARRATIVE** 

Report ID: S1610450001

Sample 16-W5012 Pond 10 was received on October 31, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

MVTL Laboratories, Inc. Company:

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3487

Lab ID:

S1610450-001 ClientSample ID: 16-W5012 Pond 10

COC:

201682-3487

Date Reported

12/1/2016

Report ID

S1610450001

WorkOrder:

S1610450

CollectionDate: 10/21/2016 9:18:00 AM

DateReceived: 10/31/2016 11:49:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	11/21/2016 1114	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/21/2016 1114	MB
Radium 228	0.5	pCi/L		1	Ga-Tech	11/29/2016 125	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	11/29/2016 125	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 1



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### ANALYTICAL QC SUMMARY REPORT

CLIENT:

Project:

MVTL Laboratories, Inc.

Work Order:

S1610450

201682-3487

Date: 12/1/2016

Report ID: S1610450001

Radium 228 by Ga/Tech	Sample Type MBLK		Units	: pCi/L			
MB-400 (11/26/16 21:11)	RunNo: 141282	Prepl	Date: 11/0	9/16 0:00	Bato	hID: 12587	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1					
Radium 228 by Ga/Tech	Sample Type LCS		Units	: pCi/L			
LCS-400 (11/27/16 00:15)	RunNo: 141282	Prepl	Date: 11/0	9/16 0:00	Bato	:hID: 12587	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	37	1	39.1		95.0	61.3 - 120	
Radium 228 by Ga/Tech	Sample Type LCSD		Units	: pCi/L			
LCSD-400 (11/27/16 03:19)	RunNo: 141282	Prep[	Date: 11/0	9/16 0:00	Bato	hID: 12587	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	37	1	37	1.70	93.4	20	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MBLK		Units	: pCi/L			
MB-1690 (11/21/16 11:13)	RunNo: 141076	Prep[	Date: 11/1	4/16 0:00	Bato	hID: 12559	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCS		Units	: pCi/L			
LCS-1690 (11/21/16 11:13)	RunNo: 141076	Prep[	Date: 11/1	4/16 0:00	Batc	hID: 12559	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	6.3	0.2	5.99		105	67.1 - 122	
Radium 226 in Water - Total by SM7500RA_B	Sample Type LCSD		Units:	: pCi/L			
LCSD-1690 (11/21/16 11:13)	RunNo: 141076	Prep[	Date: 11/1	4/16 0:00	Batc	hID: 12559	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	7.0	0.2	6.3	10.7	117	20	
Radium 226 in Water - Total by SM7500RA_B	Sample Type MS		Units:	pCi/L			
S1610449-001AMS (11/21/16 11:14)	RunNo: 141076	6 PrepDate: 11/14/16 0:00			BatchID: 12559		
Analyte	Result	RL .	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	13.0	0.2	12	1.1	99.2	65 - 131	

Qualifiers:

- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- X Matrix Effect



Transferred by:

T.Olson

### LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

Time:

1700

Date:

27-Oct-16

### **Chain of Custody Record**

Received by:

Date:

11:49

10.31.16

Temp:

Page 1 of 1 .

		258-9720												
Toll Free: (8	MVTL  2616 E Broadway  Bismarck, ND 58501  Name of an address (indicate if different from above):  PO Box 249  Quote Nu										201682-3487			
Company Nam	ne and Address:			Account #	<del>/</del> :						Phone #:			
	h.n.	\									701-258-9720			
				Contact:							Fax #:	_		
				NI	Claud	lett	e				For faxed report check box			
Billing Address	s (indicate if differen	t from above).		Name of S	sampler:						E-mail: ccarroll@mvtl.com			
	,	- · · · · · · · · · · · · · · · · · · ·		Quote Nu	mher	<del></del>					For e-mail report check box  Date Submitted:			
				- Laure Ha							Date Submitted:			
	<u>New Ulm</u>	<u>. MN 56073</u>		Project Na	ame/Numb	er:			**		Purchase Order #:			
						,					BL5702			
	_	Sample Information		·	ļ · · · · ·		В	ottle	Ту	ре	Analysis			
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	1000 ml HNO3 VOC Vials Umpreserved Glass Jar Other		Other	Analysis Required			
00/	16-W5012	Pond 10	GW	21-Oct-16	918		2				Ra226 & Ra228			
			,											
Comments: All	results must be rone	orted as a numerical value												
	ingrine lehe	nteu as a numerical value												

Sample Condition:



#### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2016	
Sample ID:	Pond 10	Sheet 2 of 2
Sampling Personal:	Darren Wiesn	a 6 9

Phone: (701) 258-9	720						_		•				L-V-Allid
Weather Conditions:		Temp:	45°F		Wind:	.85			Precip:	Sunr	ny / Partly C	loudy / Clou	ıdy
	Well Info	rmation						Sa	mpling l	nformatio	on		
Well Locked?	Yes	No				Purgi	ng Method:	Blad	der		Co	ntrol Settings	3
Well Labeled?	Yes	No				Sampli	ng Method:	Blad	der		Purge:	<u>z</u> ,	sec.
Casing Straight?		No				Dedicat	ted Equip?:	Yes	No		Recover:	57	sec.
Grout Seal Intact?	Yes	No	Not Visi	ible		Duplicate	Sample?:	Yes	Ng		PSI:	10	
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: 50	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:	21	0,46	ft		F	Purge Date:	ــــــــــــــــــــــــــــــــــــــ		Time Purg	ing Began:		am/pm
Total V	Vell Depth:	22	2,18	ft		Well P	urged Dry?	Yes	-No		Purged Dry:		am/pm
We	ell Volume:		/.1	liters		Sa	ample Date:	2/06+	-16	Time of	f Sampling:	0918	@m/pm
Depth to To	p of Pump:	5	20.50	ft					2				
Water Level After	er Sample:	22	-, 01	ft		Bottle	CCR: &L_R	aw, 500mL	Nitrie, 4-1L	. Nitric			
Measuremer	nt Method:	Electric '	Water Level In	dicator		List:							
					-	·							

#### **Field Measurements**

Stabili (3 cons	zation ecutive)	Temp (°C)	Spec. Cond.	рН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	<b>Discription:</b> Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0918	12,29	3337	7.14	18,44	196,7	7,51	20.50	100	clew
2					8,82			101		
3						•		purp		
4										44444
5										
6										
7										
8										
9										
10										
Stabilized:	Yes	(No	-			Т	otal Volume	Removed:	100	mL

Comments:

weller purged dry on 18 Oct 19, partial sample collected on 190ct 16 of 11 Row & soome/nitric

Pand 158 1020Am 0210016 36,94 0,5 Insufficient recharge for Sampling,



# **Chain of Custody Record**

Projec	t Name:			Name of Sampler(s):	
	OTP Coyote RadC	Chem Slag Pond	Oct 2016	Parren Niesi	raag
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	OTP Josh Hollen	Work Order Number:	
Email:	pvukonich@otpco.com	Email:	jhollen@otpco.com		
	Sample Info	rmation	Bo	ttle Type Field Parameters	Analysis
Cab Number	Sample ID  Date	Time Sample Type	1000 ml HNIO <sub>3</sub>	Field Temperature °C. Field Spec. Cond.	Analysis Required
W5012	fond 10 210	CT() 0918 GW	* 42	12.29 3337 7,14	OTP CCR combined RadChem
Comments:	* ON 210ctl	76			

	Transferred by:	Sample Condition	Date/Time	/ Received by:	Sample Condition	Date/Time	°C
11	Janes Vin	Login	1003	w Xh		21042016	8,9°C ROI
2							TMS88
3	2 11						



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#### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201682-3818

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: CCR Pond Event & Year Nov 2016 MVTL Laboratory Identifications: 16-W5702

Page 1 of 1

Sample Identification	MVTL Laboratory #
Pond 10	16-W5702

#### I. RECEIPT

- All samples were received at the laboratory on 16 Nov 2016 at 0800.
- · Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 0.8°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.

#### IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - For some analytes, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
  - Recovery for one selenium matrix spike was outside of the acceptable limits. Recovery of the matrix spike duplicate was acceptable. RPD for the recoveries of the matrix spike/matrix spike duplicate was acceptable. No further action was taken.
  - One selenium matrix spike duplicate recovery was outside the acceptable limits. Recovery
    for the matrix spike was acceptable. RPD for the recoveries of the matrix spike duplicate and
    the matrix spike was within limits. No further action was taken.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: DATE: 14 Dec 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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MEMBER ACIL

Quality Control Report Lab ID: 16-W5702

Project: OTP Coyote Pond CCR

Work Order 201602 2010

Page: 1 of 3

Lab ID: 10-W3/U2	Work Order: 201682-3818																
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	100	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.001 < 0.001 < 0.001 < 0.001	0.4170 0.4306 0.4376 0.4392	104 108 109 110	75-125 75-125 75-125 75-125	0.4170 0.4306 0.4376 0.4392	0.3882 0.4172 0.4404 0.4498	97 104 110 112	7.2 3.2 0.6 2.4	20 20 20 20 20	- - -	-	< 0.001
Arsenic - Total mg/l	0.1000	107	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.002 < 0.002 < 0.002 < 0.002	0.4460 0.4484 0.4522 0.4342	112 112 113 109	75-125 75-125 75-125 75-125	0.4460 0.4484 0.4522 0.4342	0.4298 0.4378 0.4448 0.4730	107 109 111 118	3.7 2.4 1.6 8.6	20 20 20 20 20	-	-	< 0.002
Barium - Total mg/l	0.1000	97	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	0.0357 0.0355 0.0109 0.0200	0.4126 0.4316 0.4160 0.4302	94 99 101 103	75-125 75-125 75-125 75-125	0.4126 0.4316 0.4160 0.4302	0.4062 0.4306 0.4210 0.4348	93 99 103 104	1.6 0.2 1.2 1.1	20 20 20 20 20	-	-	< 0.002
Beryllium - Total mg/l	0.1000	102	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.4246	103 106 106 109	75-125 75-125 75-125 75-125	0.4130 0.4240 0.4246 0.4364	0.4032 0.4234 0.4260 0.4542	101 106 106 114	2.4 0.1 0.3 4.0	20 20 20 20 20	-	- - -	< 0.0005
Boron - Total mg/l	0.40 0.40	108 112	80-120 80-120	20.0 0.400	16-D4679 16-W5697	17.8 0.37	36.8 0.73	95 90	75-125 75-125	36.8 0.73	37.7 0.74	100 92	2.4	20 20	-	-	< 0.1 < 0.1 < 0.1
Cadmium - Total mg/l	0.1000	105	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.0005 0.0006 < 0.0005 < 0.0005	0.4296 0.4150	104 107 104 111	75-125 75-125 75-125 75-125	0.4174 0.4296 0.4150 0.4426	0.3956 0.4148 0.4148 0.4598	99 104 104 115	5.4 3.5 0.0 3.8	20 20 20 20 20	-		< 0.0005
Calcium - Total mg/l	20.0	106	80-120	500	16W5705q	182	630	90	75-125	630	620	88	1.6	20	-	-	<1 <1
Chloride mg/l	30.0	89	80-120	60.0	16-W5693	6.5	64.3	96	80-120	64.3	65.4	98	1.7	20	_		< 1

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**Quality Control Report** 

Project: OTP Coyote Pond CCR

Page: 2 of 3

Lab ID: 16-W5702 Work Order: 201682-3818 Matrix Matrix Matrix MSD/ MSD/ LCS LCS LCS Matrix Matrix Matrix Spike Spike Spike MSD/ MSD Dup MSD/ Dup Known Known Spike Rec % Rec % Rec Spike Spike Orig Spike Rec Orig Dup Rec Dup **RPD** Rec % Rec Method % Limits Amt Amt ID Result Result % Limits Result Result % Limit (<) (%) Analyte RPD Limits Blank Chromium - Total mg/l 0.1000 94 80-120 0.400 16W5697a < 0.002 0.3802 95 75-125 0.3802 0.3698 92 2.8 20 < 0.002 0.400 < 0.002 16W5739q 0.3928 98 75-125 0.3928 0.3736 93 5.0 20 0.400 16W5805q < 0.002 0.3948 99 75-125 0.3948 0.3992 100 1.1 20 0.400 16W5806q < 0.002 0.3842 96 75-125 0.3842 0.3990 100 3.8 20 Cobalt - Total mg/l 0.1000 94 80-120 0.400 16W5697q < 0.002 0.3862 97 75-125 0.3862 0.3726 93 3.6 20 < 0.002 0.400 16W5739a 0.0097 0.4000 98 75-125 0.4000 0.3960 97 20 1.0 0.400 16W5805a < 0.002 0.4036 101 75-125 0.4036 0.3958 99 2.0 20 0.400 16W5806q < 0.002 0.3916 98 75-125 0.3916 0.4136 103 5.5 20 Fluoride mg/I 0.50 110 90-110 0.500 16-W5693 0.18 0.72 108 80-120 < 0.1 < 0.1 110 0.0 20 < 0.1 0.500 16-W5697 0.19 0.72 106 80-120 0.72 0.74 110 2.7 20 < 0.1 Lead - Total mg/l 95 0.1000 0.400 80-120 16W5697q < 0.0005 0.3724 93 75-125 0.3724 0.3586 90 3.8 20 < 0.0005 0.400 16W5739q < 0.0005 0.3722 93 75-125 0.3722 92 0.3692 0.8 20 0.400 16W5805q < 0.0005 0.3732 93 75-125 0.3732 93 0.3720 0.3 20 0.400 16W5806q < 0.0005 | 0.3964 99 75-125 0.3964 0.4040 101 1.9 20 Lithium - Total mg/l 0.40 102 80-120 4.00 16-D4679 4.82 93 1.11 75-125 0.48 0.49 94 2.1 20 < 0.1 0.40 105 80-120 0.400 16-W5697 < 0.1 122 0.49 75-125 0.49 0.47 118 4.2 20 < 0.1< 0.1 Mercury - Total mg/l 0.0020 105 85-115 0.002 16-W5603 < 0.0002 0.0014 70 70-130 0.0014 0.0014 70 0.0 20 < 0.0002 0.002 16-W5702 < 0.0002 0.0019 95 70-130 0.0019 0.0020 100 5.1 20 Molybdenum - Total mg/l 0.1000 91 80-120 0.400 16W5697q < 0.002 0.3914 98 75-125 0.3914 0.3744 94 4.4 20 < 0.002 0.400 16W5739q 0.0063 0.4402 108 75-125 0.4402 0.4320 106 1.9 20 0.400 16W5805q 0.0128 0.4840 118 75-125 0.4840 0.4844 118 0.1 20 0.400 16W5806q 0.0063 0.4554 112 75-125 0.4554 0.4690 116 2.9 20 pH units -8.4 8.4 0.0 20 6.6 6.4 3.1 20

### MVTL

### MINNESOTA VALLEY TESTING LABORATORIES, INC.

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MEMBER ACIL

Quality Control Report Lab ID: 16-W5702

Project: OTP Coyote Pond CCR

And the second second

Page: 3 of 3

EMB ID TO TOTOL		-	roject. Or	1 Coyot	C I Ollu CCK				-			WC	rk Ord	er: 201682	2-3818		
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Selenium - Total mg/l	0.1000	114	80-120	0.400	16-W5697	< 0.01	0.4708	118	75-125	0.4708	0.4212	105	11.1	20	1-		< 0.002
				0.400	16-W5739	< 0.01	0.5016	125	75-125	0.5016	0.4852	121	3.3	20			
				0.400	16-W5805	< 0.01	0.5236	131	75-125	0.5236	0.4828	121	8.1	20	-		
				0.400	16-W5806	< 0.01	0.4796	120	75-125	0.4796	0.5096	127	6.1	20		-2	
Sulfate mg/I	100	102	80-120	1000	16-W5697	1070	1990	92	80-120	1990	2040	97	2.5	20	.45	-	< 5
Thallium - Total mg/l	0.1000	97	80-120	0.400	16W5697q	< 0.0005	0.3796	95	75-125	0.3796	0.3646	91	4.0	20	45	-	< 0.0005
			1100	0.400	16W5739q	< 0.0005	0.3756	94	75-125	0.3756	0.3750	94	0.2	20	15	-	0.0000
				0.400	16W5805q	< 0.0005	0.3724	93	75-125	0.3724	0.3718	93	0.2	20	4	4	
				0.400	16W5806q	< 0.0005	0.3966	99	75-125	0.3966	0.4014	100	1.2	20	4	54	
Total Dissolved Solids mg/l	1031	547.	-	-		( - I			Garage	1960	2010	-	2.5	20		0.0	< 5
		-	Ψ	8.1	-	-		-	-	2000	2010	1.4	0.5	20	(*)		1000

Approved by: \_\_\_\_\_\_\_ C. Gutto



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Pond CCR

Sample Description: Pond 10

Event and Year: Nov 2016

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W5702 Work Order #:82-3818 Account #: 006106

Date Sampled: 15 Nov 16 Date Received: 16 Nov 16 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.8C ROI

	As Receive Result	ed	Method RL	Method Reference	Da An	te alyz	ed		Analyst
Metal Digestion		17.6		EPA 200.2	16	Nov	16	1 . J . 20.	svs
Lab, pH	* 6.7	s.u.	0.1	SM4500 H+ B	16	Nov	16	17:00	svs
Field pH	7.08	s.u.	0.1	SM 4500 H+ B	15	Nov	16	7:28	DJN
Field Temperature	12.1	Degrees C	0.1	SM 2550B	15	Nov	16	7:28	DJN
Field Conductivity	3352	umhos/cm	1	EPA 120.1	15	Nov	16	7:28	DJN
Fluoride	0.71	mg/1	0.10	SM4500-F-C	16	Nov	16	17:00	svs
Sulfate	1660	mg/1	5.00	ASTM D516-07	9	Dec	16	13:30	KMD
Chloride	26.0	mg/1	1.0	SM4500-C1-E	29	Nov	16	13:00	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	17	Nov	16	11:18	EV
Total Dissolved Solids	2620	mg/l	5	I1750-85	16	Nov	16	13:50	CC
Calcium - Total	244	mg/l	1.0	6010	23	Nov	16	12:00	SZ
Lithium - Total	0,11	mg/l	0.10	6010	1	Dec	16	9:08	SZ
Boron - Total	1.93	mg/l	0.10	6010	30	Nov	16	11:15	SZ
Antimony - Total	< 0.001	mg/1	0.0010	6020	5	Dec	16	13:44	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	5	Dec	16	13:44	CC
Barium - Total	0.0376	mg/1	0.0020	6020	5	Dec	16	13:44	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	5	Dec	16	13:44	CC
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	5	Dec	16	13:44	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	5	Dec	16	13:44	CC
Cobalt - Total	0.0037	mg/l	0.0020	6020	5	Dec	16	13:44	CC
Lead - Total	< 0.001 *	mg/l	0.0005	6020	5	Dec	16	13:44	CC
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	5	Dec	16	13:44	CC
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7	Dec	16	11:33	CC
Thallium - Total	< 0.0005	mg/I	0.0005	6020	5	Dec	16	13:44	CC

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to complete to sample quantity + = Due to interpret to the sample quantity + =

# = Due to concentration of other analytes
+ = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



**Groundwater Assessment** 

Company:	OTP Coyote	*
Event:	2016	t .
Sample ID:	and 10	
_		

Phone: (7	701) 258-9	9720							Sampling F	ersonal:	1) arre	'n Nie	Swang	c.
Weather Conc	litions:		Temp	: 60	°F	Wind:	55							
		Well Inf	formation			vviitu.	23			Precip	: Sun	ny/l Partly	Cloudy / Cl	oudy
Well Lo		Yes	No	<u>.</u>		7					nformati	on		
Well La		Yes	No			-		ing Method:		dder		· Co	ontrol Settin	gs
Casing St		Kes	No			1		ling Method:		dder	_	Purge:	\$	sec.
Grout Seal		X eş	No	Not '	Visible	1		ated Equip?:		(No	_	Recover:	55	sec.
Repairs Neces		. 0				-		e Sample?: Sample ID:	Yes	No.		PSI:		
		Diameter		2"		1 .	Duplicate	Sample ID:	<u> </u>		_	Pumping F	≀ate:/᠔᠔	mL/min
		ore Purge:		20,78	ft			Purge Date:	11/1	411	T =		T	
		Vell Depth:		2216	ft	-		Purged Dry?	1 1 1 1 1			jing Began:		am/pm
		il Volume:		7,9	liters			ample Date:	Yes	No	I Ime F	ourged Dry:	0926	am/pm
		of Pump:		18.80	ft	-		ampic Date.			I Time of	f Sampling:	seebele	am/pm
		er Sample:			ft		Bottle	500 m	L Nitric	11:4-	- D-			
livieas	uremen	t Method:	Electric	Water Level	Indicator		List:		tric (filtered)		r Raw Sulfiric			
					Eiold	B#			ino (miorca)					
Stabilization		Temp	Spec.		DO	Measure ORP		1 150						
(3 consecutiv		(°C)	Cond.	pH ·	(mg/L)	(mV)	Turbidity (NTU)	Water Level (ft)	mL Domestic		Discription:			
1 1 1	ime,		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft	Removed	Clarity	, Color, Ode	or, Ect.		
	26	12.07	3352	7.08	A 7.54	1830	24.6	18.80	800	dr				
3	2)0							T91	600					
	72174	2 c+6	rted so	2,	115.00									
5 072		Starte		moling	14/00	16								
6	"	71-41-	Jampi	7 5 100	VIB		·							
7														a)
8														
9														
10											· · · · · · · · · · · · · · · · · · ·			
	es	No/				Tc	tal Volume	Removed:	500					
Comments:	1,						rai voiaiiio	rtemoved.¿	100	mL				
1	- <i>J</i> L													
-	- 500	N												



Comments:

# **Chain of Custody Record**

				Name of San	npler(s):			
CCR	Pond	Nov2016		1	)anne	mVI	Tesna	مر
	Carbon Copy: Attn: Address: Email:	OTP Josh Hollen ihollen@otpco.com	1	1			87-	
		1		ttle Type	Fi	eld Para	meters	Analysis
Date	Time Sample T.	Appearance (clear, partly cloudy, cloudy)			Field Temperature	Field Spec. Cond.	Field pH	Analysis Required
15-Nov-10	60728 61		XX		1207	3352	7.08	OTP CCR List. No RadChem.
	38-0496 <u>m</u> ample Informa	Carbon Copy: Attn: Address:  38-0496  m Email:  ample Information	Carbon Copy: OTP Attn: Josh Hollen Address:  38-0496  m Email: jhollen@otpco.con ample Information	Carbon Copy: OTP Attn: Josh Hollen  Address:  Sa-0496  m Email: ihollen@otpco.com  Both Copy of the part of the pa	CCR Pond Nov2016  Carbon Copy: OTP Attn: Josh Hollen Address:  Email: jhollen@otpco.com  Ample Information  Bottle Type  15-Nov-16 0 77% GW  X X	Carbon Copy: Attn: Josh Hollen Address:  Email: jhollen@otpco.com  ample Information  Bottle Type  Fi  15-Nov-16 0728 GW  Attn: Address:  Email: jhollen@otpco.com  South and Address:  Address: Address: Address:  Address: Address:  Address: Address: Address:  Address: Address: Address:  Address: Address: Address:  Address: Address: Address:  Address: Address: Address:  Address: Address: Address: Address:  Address: A	CCR Pond Nov2016  Carbon Copy: Attn: Josh Hollen Address:  Bemail: jhollen@otpco.com  South Field Para  Address:  Ample Information  Bottle Type  Field Para  Fiel	CCR Pond Nov2016  Carbon Copy: Attn: Josh Hollen Address:  Email: jhollen@otpco.com  Imple Information  Bottle Type  Field Parameters  Address:  The parameters  The parameter

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	Down Wing	walkin 2	19.05	C. Canto		500)	ROT DOS
2		,					-TM588
3					1		-15 Nouls



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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-3852

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: CCR Pond Event & Year Nov 2016

MVTL Laboratory Identifications: 16-W5738 through 16-W5743

Page 1 of 2

Sample Identification	MVTL Laboratory #
Field Blank P	16-W5738
Pond6	16-W5739
PondN3	16-W5740
Pond12	16-W5741
Pond16S	16-W5742
MW2S	16-W5743

#### RECEIPT

- All samples were received at the laboratory on 17 Nov 2016 at 1530.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 4.0°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201682-3852

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: CCR Pond Event & Year Nov 2016

MVTL Laboratory Identifications: 16-W5738 through 16-W5743

Page 2 of 2

#### IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - For some analytes, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
  - Recovery for one selenium matrix spike was outside of the acceptable limits. Recovery of the matrix spike duplicate was acceptable. RPD for the recoveries of the matrix spike/matrix spike duplicate was acceptable. No further action was taken.
  - One selenium matrix spike duplicate recovery was outside the acceptable limits. Recovery
    for the matrix spike was acceptable. RPD for the recoveries of the matrix spike duplicate and
    the matrix spike was within limits. No further action was taken.

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**Quality Control Report** 

Project: OTP CCR Pond

Page: 1 of 3

**Lab IDs:** 16-W5738 to 16-W5743 Work Order: 201682-3852

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	100	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.001 < 0.001 < 0.001 < 0.001	0.4170 0.4306 0.4376 0.4392	104 108 109 110	75-125 75-125 75-125 75-125	0.4170 0.4306 0.4376 0.4392	0.3882 0.4172 0.4404 0.4498	97 104 110 112	7.2 3.2 0.6 2.4	20 20 20 20 20	-	-	< 0.001
Arsenic - Total mg/l	0.1000	107	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.002 < 0.002 < 0.002 < 0.002	0.4460 0.4484 0.4522 0.4342	112 112 113 109	75-125 75-125 75-125 75-125	0.4460 0.4484 0.4522 0.4342	0.4298 0.4378 0.4448 0.4730	107 109 111 118	3.7 2.4 1.6 8.6	20 20 20 20 20	-	-	< 0.002
Barium - Total mg/l	0.1000	97	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	0.0357 0.0355 0.0109 0.0200	0.4126 0.4316 0.4160 0.4302	94 99 101 103	75-125 75-125 75-125 75-125	0.4126 0.4316 0.4160 0.4302	0.4062 0.4306 0.4210 0.4348	93 99 103 104	1.6 0.2 1.2 1.1	20 20 20 20 20	-	-	< 0.002
Beryllium - Total mg/l	0.1000	102	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.4130 0.4240 0.4246 0.4364	103 106 106 109	75-125 75-125 75-125 75-125	0.4130 0.4240 0.4246 0.4364	0.4032 0.4234 0.4260 0.4542	101 106 106 114	2.4 0.1 0.3 4.0	20 20 20 20 20	-	-	< 0.0005
Boron - Total mg/l	0.40	112	80-120	4.00 2.00 0.400	16-W5739 16-W5805 16-W5806	2.66 0.68 0.41	6.31 2.42 0.79	91 87 95	75-125 75-125 75-125	6.31 2.42 0.79	6.34 2.34 0.81	92 83 100	0.5 3.4 2.5	20 20 20	-	140	< 0.1 < 0.1
Cadmium - Total mg/l	0.1000	105	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.0005 0.0006 < 0.0005 < 0.0005	0.4174 0.4296 0.4150 0.4426	104 107 104 111	75-125 75-125 75-125 75-125	0.4174 0.4296 0.4150 0.4426	0.3956 0.4148 0.4148 0.4598	99 104 104 115	5.4 3.5 0.0 3.8	20 20 20 20 20	-	-	< 0.0005
Calcium - Total mg/l	20.0 20.0	101 106	80-120 80-120	500 500	16W5739q 16W5747q	140 146	580 615	88 94	75-125 75-125	580 615	590 585	90 88	1.7 5.0	20 20	-	-	< 1 < 1 < 1 < 1
Chloride mg/l	30.0	87	80-120	60.0	16-W5697	6.6	64.4	96	80-120	64.4	63.5	95	1.4	20	-	-	< 1

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**Quality Control Report** 

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Lab IDs: 16-W5738 to 16-W5743 Project: OTP CCR Pond Work Order: 201682-3852 Matrix Matrix Matrix MSD/ MSD/ LCS LCS LCS Matrix Matrix Spike Matrix Spike Spike MSD Dup MSD/ MSD/ Dup Known Known Spike Rec % Rec Spike Spike Orig Spike Rec % Rec Dup Orig Rec Dup **RPD** Rec % Rec Method Amt Limits Amt ID Result Result % Analyte Limits Result Result % RPD Limit (<) (%) Limits Blank Chromium - Total mg/l 0.1000 94 80-120 0.400 16W5697q < 0.002 0.3802 95 75-125 0.3802 0.3698 92 2.8 20 < 0.002 0.400 16W5739q < 0.002 0.3928 98 75-125 0.3928 0.3736 93 5.0 20 0.400 16W5805q < 0.002 0.3948 99 75-125 0.3948 0.3992 100 20 1.1 0.400 16W5806g < 0.002 0.3842 96 75-125 0.3842 0.3990 100 3.8 20 -\_ Cobalt - Total mg/l 0.1000 94 80-120 0.400 16W5697a < 0.002 75-125 0.3862 97 0.3862 0.3726 93 3.6 20 < 0.002 0.400 16W5739a 0.0097 0.4000 98 75-125 0.4000 0.3960 97 20 1.0 0.400 16W5805q < 0.002 0.4036 101 75-125 0.4036 99 0.3958 2.0 20 0.400 16W5806a < 0.002 0.3916 98 75-125 0.3916 0.4136 103 5.5 20 Fluoride mg/l 0.50 106 90-110 0.500 16-W5725 0.25 0.78 106 80-120 0.48 0.49 104 2.1 20 < 0.1 0.500 16-W5746 0.32 0.79 94 80-120 0.79 0.80 96 20 1.3 < 0.1 Lead - Total mg/l 95 0.1000 80-120 0.400 16W5697a < 0.0005 0.3724 93 75-125 0.3724 0.3586 90 3.8 20 < 0.0005 0.400 16W5739q < 0.0005 93 0.3722 75-125 0.3722 0.3692 92 0.8 20 0.400 16W5805a < 0.0005 0.3732 93 75-125 0.3732 0.3720 93 0.3 20 0.400 16W5806a < 0.0005 | 0.3964 99 75-125 0.3964 0.4040 101 1.9 20 Lithium - Total mg/l 0.40 102 80-120 4.00 16-D4679 1.11 4.82 93 75-125 0.48 0.49 94 2.1 20 < 0.1 0.40 105 80-120 0.400 16-W5697 < 0.1 0.49 122 75-125 0.49 0.47 118 4.2 20 < 0.1 0.40 100 80-120 0.400 16-W5739 < 0.1 0.48 120 75-125 0.48 0.44 110 8.7 20 < 0.1 2.00 16-W5805 < 0.5 2.04 102 75-125 2.04 2.04 102 0.0 20 < 0.1 0.400 16-W5806 < 0.1 0.47 118 75-125 0.47 0.46 115 2.2 2.0 < 0.1 Mercury - Total mg/l 0.0020 95 85-115 0.002 16-W5805 < 0.0002 0.0015 75 70-130 0.0015 0.0 0.0015 75 20 < 0.0002 0.002 16-W5806 < 0.0002 0.0019 95 70-130 0.0019 0.0019 95 0.0 20 Molybdenum - Total mg/l 0.1000 91 80-120 0.400 16W5697q < 0.002 0.3914 98 75-125 0.3914 0.3744 94 20 4.4 < 0.002 0.1000 92 80-120 0.400 16W5739q 0.0063 0.4402 108 75-125 0.4402 0.4320 106 1.9 20 < 0.002 0.400 16W5805q 0.0128 0.4840 118 75-125 0.4840 0.4844 118 0.1 20 0.400 16W5806q 0.0063 0.4554 112 75-125 0.4554 0.4690 116 2.9 20 0.400 16-W5805 0.0113 0.4344 106 75-125 0.4344 0.4340 106 0.1 20 0.400 16-W5806 0.0053 0.4108 101 75-125 0.4108 103 0.4188 20 1.9 \_

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Quality Control Report Lab IDs: 16-W5738 to 16-W5743

Project: OTP CCR Pond

Page: 3 of 3

Work Order: 201682-3852

EMD 113: 10- W 3 / 30 to 10-	113713	T-	roject. O	CCKI	Onu	Table 1		1				Wo	rk Ord	er: 201682	2-3852		
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
pH units	1	3	1	Ž.					4	8.0 7.1	8.0 7.2	į	0.0	20 20		:	2
Selenium - Total mg/l	0.1000	114	80-120	0.400 0.400 0.400 0.400	16-W5697 16-W5739 16-W5805 16-W5806	< 0.01 < 0.01 < 0.01 < 0.01	0.4708 0.5016 0.5236 0.4796	118 125 131 120	75-125 75-125 75-125 75-125	0.4708 0.5016 0.5236 0.4796	0.4212 0.4852 0.4828 0.5096	105 121 121 127	11.1 3.3 8.1 6.1	20 20 20 20 20			< 0.002
Sulfate mg/l	100	100	80-120	2000	16-W5739	1810	3620	90	80-120	3620	3740	96	3.3	20	1	-	< 5
Thallium - Total mg/l	0.1000	97	80-120	0.400 0.400 0.400 0.400	16W5697q 16W5739q 16W5805q 16W5806q	< 0.0005 < 0.0005 < 0.0005 < 0.0005	0.3796 0.3756 0.3724 0.3966	95 94 93 99	75-125 75-125 75-125 75-125	0.3796 0.3756 0.3724 0.3966	0.3646 0.3750 0.3718 0.4014	91 94 93 100	4.0 0.2 0.2 1.2	20 20 20 20 20		7	< 0.0005
Total Dissolved Solids mg/l	4						-		:	4480 1690 3860	4640 1640 3930	2	3.5 3.0 1.8	20 20 20	•		< 5 < 5

Approved by:	C- Cautes
13.00.00	14 Dec 16



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP CCR Pond

Sample Description: Field Blank P

Event and Year: November 2016

Page: 1 of 1

Report Date: 13 Dec 16 Lab Number: 16-W5738 Work Order #:82-3852 Account #: 006106

Date Sampled: 17 Nov 16

Date Received: 17 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 4.0C

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		7		EPA 200.2	17 Nov 16	svs
Lab, pH	* 5.6	s.u.	0.1	SM4500 H+ B	18 Nov 16 17:00	SVS
Fluoride	< 0.1	mg/1	0.10	SM4500-F-C	18 Nov 16 17:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	< 1	mg/l	1.0	SM4500-C1-E	29 Nov 16 13:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Nov 16 11:33	EV
Total Dissolved Solids	< 5	mg/1	5	I1750-85	21 Nov 16 13:59	CC
Calcium - Total	< 1	mg/l	1.0	6010	23 Nov 16 14:00	SZ
Lithium - Total	< 0.1	mg/1	0.10	6010	1 Dec 16 9:08	SZ
Boron - Total	< 0.1	mg/l	0.10	6010	30 Nov 16 12:15	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	5 Dec 16 13:44	CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	5 Dec 16 13:44	CC
Barium - Total	< 0.002	mg/1	0.0020	6020	5 Dec 16 13:44	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC
Chromium - Total	< 0.002	mg/1	0.0020	6020	5 Dec 16 13:44	CC
Cobalt - Total	< 0.002	mg/l	0.0020	6020	5 Dec 16 13:44	CC
Lead - Total	< 0.001 ^	mg/1	0.0005	6020	5 Dec 16 13:44	CC
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	5 Dec 16 13:44	CC
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7 Dec 16 11:33	CC
Thallium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

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56538-0496 Fergus Falls MN

Project Name: OTP CCR Pond

Sample Description: Pond6

Event and Year: November 2016

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Report Date: 13 Dec 16 Lab Number: 16-W5739 Work Order #:82-3852 Account #: 006106

Date Sampled: 17 Nov 16 8:32 Date Received: 17 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 4.0C

	As Receive Result	ed.	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	17 Nov 16	svs
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	18 Nov 16 17:00	svs
Field pH	7.15	s.u.	0.1	SM 4500 H+ B	17 Nov 16 8:32	DJN
Field Appearance	Clear		NA	SM 2110	17 Nov 16 8:32	DJN
rield Temperature	9.73	Degrees C	0.1	SM 2550B	17 Nov 16 8:32	DJN
ield Conductivity	4352	umhos/cm	1	EPA 120.1	17 Nov 16 8:32	DJN
luoride	0.48	mg/1	0.10	SM4500-F-C	18 Nov 16 17:00	svs
Sulfate	1810	mg/1	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	24.6	mg/l	1.0	SM4500-C1-E	29 Nov 16 13:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Nov 16 11:33	EV
otal Dissolved Solids	3360	mg/l	5	I1750-85	21 Nov 16 13:59	CC
Calcium - Total	140	mg/l	1.0	6010	23 Nov 16 14:00	SZ
ithium - Total	< 0.1	mg/l	0.10	6010	1 Dec 16 10:08	SZ
Boron - Total	2.66	mg/l	0.10	6010	30 Nov 16 12:15	SZ
intimony - Total	< 0.001	mg/l	0.0010	6020	5 Dec 16 13:44	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020	5 Dec 16 13:44	CC
Barium - Total	0.0355	mg/l	0.0020	6020	5 Dec 16 13:44	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC
admium - Total	0.0006	mg/l	0.0005	6020	5 Dec 16 13:44	CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	5 Dec 16 13:44	CC
Cobalt - Total	0.0097	mg/l	0.0020	6020	5 Dec 16 13:44	CC
ead - Total	< 0.001 ^	mg/l	0.0005	6020	5 Dec 16 13:44	CC
olybdenum - Total	0.0063	mg/l	0.0020	6020	5 Dec 16 13:44	CC
Gelenium - Total	< 0.01 ^	mg/1	0.0020	6020	7 Dec 16 11:33	CC
Challium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo 14 Dec 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

PO Box 496

56538-0496 Fergus Falls MN

Project Name: OTP CCR Pond

Sample Description: PondN3

Event and Year: November 2016

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W5740 Work Order #:82-3852 Account #: 006106

Date Sampled: 17 Nov 16 11:37 Date Received: 17 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 4.0C

	As Receive Result	d	Method RL	Method Reference	Date Analyze	đ	Analyst
Metal Digestion				EPA 200.2	17 Nov		svs
Lab, pH	* 6.6	s.u.	0.1	SM4500 H+ B		16 17:00	svs
Field pH	6.59	s.u.	0.1	SM 4500 H+ B	17 Nov	16 11:37	DJN
Field Appearance	Clear		NA	SM 2110	40.0	16 11:37	DJN
Field Temperature	9.61	Degrees C	0.1	SM 2550B	44 61 41 41	16 11:37	DJN
Field Conductivity	5220	umhos/cm	1	EPA 120.1		16 11:37	DJN
Fluoride	0.29	mg/l	0.10	SM4500-F-C		16 17:00	svs
Sulfate	3250	mg/l	5.00	ASTM D516-07		16 14:30	KMD
Chloride	34.9	mg/l	1.0	SM4500-C1-E		16 13:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	1 PE TO 1 PE T	16 11:33	EV
Total Dissolved Solids	4950	mg/1	5	I1750-85	21 Nov	16 13:59	CC
Calcium - Total	500	mg/l	1.0	6010		16 15:00	SZ
Lithium - Total	< 0.5 @	mg/1	0.10	6010	1 Dec	16 10:08	SZ
Boron - Total	0.56	mg/l	0.10	6010		16 12:15	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	A 12 (4) A	16 13:44	CC
Arsenic - Total	< 0.002	mg/l	0.0020	6020		16 13:44	CC
Barium - Total	0.0208	mg/l	0.0020	6020	5 Dec	16 13:44	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020		16 13:44	CC
Cadmium - Total	0.0006	mg/1	0.0005	6020	5 Dec	16 13:44	CC
Chromium - Total	0.0021	mg/l	0.0020	6020	5 Dec	16 13:44	CC
Cobalt - Total	0.0047	mg/l	0.0020	6020	5 Dec	16 13:44	CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	5 Dec	16 13:44	CC
Molybdenum - Total	0.0035	mg/l	0.0020	6020	8 Dec	16 9:15	CC
Selenium - Total	0.0640	mg/l	0.0020	6020	7 Dec	16 11:33	CC
Thallium - Total	< 0.0005	mg/1	0.0005	6020	5 Dec	16 13:44	CC

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

### = Due to sample matrix ## = Due to co

| = Due to sample quantity # = Due to in

# = Due to concentration of other analytes + = Due to internal standard response

<sup>^</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP CCR Pond

Sample Description: Pond12

Event and Year: November 2016

Page: 1 of 1

Report Date: 13 Dec 16 Lab Number: 16-W5741 Work Order #:82-3852 Account #: 006106

Date Sampled: 16 Nov 16 13:53 Date Received: 17 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 4.0C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	1 5 5 1	-0.1	7,77	EPA 200.2	17 Nov 16	svs
Lab, pH	* 6.7	s.u.	0.1	SM4500 H+ B	18 Nov 16 17	00 SVS
Field pH	7.02	s.u.	0.1	SM 4500 H+ B	16 Nov 16 13	53 DJN
Field Appearance	Clear		NA	SM 2110	16 Nov 16 13	53 DJN
Field Temperature	11.0	Degrees C	0.1	SM 2550B	16 Nov 16 13	53 DJN
Field Conductivity	3770	umhos/cm	1	EPA 120.1	16 Nov 16 13	53 DJN
Fluoride	0.10	mg/l	0.10	SM4500-F-C	18 Nov 16 17	00 SVS
Sulfate	1820	mg/1	5.00	ASTM D516-07	9 Dec 16 14	30 KMD
Chloride	23.0	mg/l	1.0	SM4500-C1-E	29 Nov 16 13	30 KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Nov 16 11	33 EV
Total Dissolved Solids	2820	mg/l	5	11750-85	21 Nov 16 13	59 CC
Calcium - Total	176	mg/1	1.0	6010	23 Nov 16 15	00 SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	1 Dec 16 10	08 SZ
Boron - Total	1.99	mg/l	0.10	6010	30 Nov 16 12	15 SZ
Antimony - Total	< 0.001	mg/1	0.0010	6020	5 Dec 16 13	44 CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	5 Dec 16 13	44 CC
Barium - Total	0.0216	mg/1	0.0020	6020	5 Dec 16 13	44 CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13	44 CC
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:	44 CC
Chromium - Total	< 0.002	mg/l	0.0020	6020	5 Dec 16 13	44 CC
Cobalt - Total	0.0076	mg/l	0.0020	6020	5 Dec 16 13	44 CC
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	5 Dec 16 13:	44 CC
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	8 Dec 16 9:	15 CC
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	7 Dec 16 11:	33 CC
Thallium - Total	< 0.0005	mg/1	0.0005	6020	5 Dec 16 13:	44 CC

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

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

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

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

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PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP CCR Pond

Sample Description: Pond16S

Event and Year: November 2016

Page: 1 of 1

Report Date: 13 Dec 16 Lab Number: 16-W5742 Work Order #:82-3852 Account #: 006106

Date Sampled: 16 Nov 16 16:46 Date Received: 17 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 4.0C

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		1.11		EPA 200.2	17 Nov 16	svs
Lab, pH	* 6.5	s.u.	0.1	SM4500 H+ B	18 Nov 16 17:00	svs
Field pH	6.85	s.u.	0.1	SM 4500 H+ B	16 Nov 16 16:46	DJN
Field Appearance	Clear		NA	SM 2110	16 Nov 16 16:46	DJN
Field Temperature	10.9	Degrees C	0.1	SM 2550B	16 Nov 16 16:46	DJN
Field Conductivity	3104	umhos/cm	1	EPA 120.1	16 Nov 16 16:46	DJN
Fluoride	0.24	mg/l	0.10	SM4500-F-C	18 Nov 16 17:00	svs
Sulfate	1570	mg/l	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	20.8	mg/l	1.0	SM4500-C1-E	29 Nov 16 13:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Nov 16 11:33	EV
Total Dissolved Solids	2350	mg/l	5	11750-85	21 Nov 16 13:59	CC
Calcium - Total	204	mg/1	1.0	6010	23 Nov 16 15:00	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	1 Dec 16 10:08	SZ
Boron - Total	1.65	mg/l	0.10	6010	30 Nov 16 12:15	SZ
Antimony - Total	< 0.001	mg/l	0.0010	6020	5 Dec 16 13:44	CC
Arsenic - Total	< 0.002	mg/1	0.0020	6020	5 Dec 16 13:44	CC
Barium - Total	0.0472	mg/1	0.0020	6020	5 Dec 16 13:44	CC
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC
Cadmium - Total	0.0020	mg/1	0.0005	6020	5 Dec 16 13:44	CC
Chromium - Total	0.0023	mg/l	0.0020	6020	5 Dec 16 13:44	CC
Cobalt - Total	0.0347	mg/l	0.0020	6020	5 Dec 16 13:44	CC
lead - Total	< 0.001 ^	mg/l	0.0005	6020	5 Dec 16 13:44	CC
Molybdenum - Total	0.0096	mg/l	0.0020	6020	B Dec 16 9:15	CC
Selenium - Total	< 0.01	mg/l	0.0020	6020	7 Dec 16 11:33	CC
Thallium - Total	< 0,0005	mg/l	0.0005	6020	5 Dec 16 13:44	CC

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K. Canteo 14 Dec 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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

! - Due to sample quantity

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP CCR Pond

Sample Description: MW2S

Event and Year: November 2016

1 of 1 Page:

Report Date: 13 Dec 16 Lab Number: 16-W5743 Work Order #:82-3852 Account #: 006106

Date Sampled: 16 Nov 16 12:15 Date Received: 17 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 4.0C

	As Receive Result	ed	Method RL	Method Reference	Da <sup>*</sup> An	te alyze	ed		Analyst	
Metal Digestion				EPA 200.2	17	Nov	16		svs	
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	18	Nov	16	17:00	SVS	
Field pH	6.78	s.u.	0.1	SM 4500 H+ B	16	Nov	16	12:15	DJN	
Field Appearance	Clear		NA	SM 2110	16	Nov	16	12:15	DJN	
Field Temperature	10.2	Degrees C	0.1	SM 2550B	16	Nov	16	12:15	DJN	
Field Conductivity	4935	umhos/cm	1	EPA 120.1	16	Nov	16	12:15	DJN	
Fluoride	0.30	mg/l	0.10	SM4500-F-C	18	Nov	16	17:00	SVS	
Sulfate	3260	mg/1	5.00	ASTM D516-07	9	Dec	16	14:30	KMD	
Chloride	24.7	mg/l	1.0	SM4500-C1-E	29	Nov	16	13:30	KMD	
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	23	Nov	16	11:33	EV	
Total Dissolved Solids	4710	mg/1	5	I1750-85	21	Nov	16	13:59	CC	
Calcium - Total	545	mg/1	1.0	6010	23	Nov	16	15:00	SZ	
Lithium - Total	0.37	mg/l	0.10	6010	1	Dec	16	10:08	SZ	
Boron - Total	0.23	mg/l	0.10	6010	30	Nov	16	12:15	SZ	
Antimony - Total	< 0.001	mg/l	0.0010	6020	5	Dec	16	13:44	CC	
Arsenic - Total	< 0.002	mg/1	0.0020	6020	5	Dec	16	13:44	CC	
Barium - Total	0.0121	mg/1	0.0020	6020	5	Dec	16	13:44	CC	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	5	Dec	16	13:44	CC	
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	5	Dec	16	13:44	CC	
Chromium - Total	< 0.002	mg/1	0.0020	6020	5	Dec	16	13:44	CC	
Cobalt - Total	< 0.002	mg/1	0.0020	6020	5	Dec	16	13:44	CC	
Lead - Total	< 0.001 ^	mg/1	0.0005	6020	5	Dec	16	13:44	CC	
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8	Dec	16	9:15	CC	
Selenium - Total	0.1146	mg/1	0.0020	6020	7	Dec	16	11:33	CC	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	5	Dec	16	13:44	CC	

Holding time exceeded

Approved by:

Clauditte K. Canto 14 Dec 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

© = Due to sample matrix # = Due to con

! = Due to sample quantity + = Due to int

# = Due to concentration of other analytes + = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2016	
Sample ID:	Pond 6	
Sampling Per	sonal Dacces Noccesa Co	

2616 E. Broadway Ave, Bis	marck, ND						_	Sampling F	Personal:	) AVEN	Niesu	10 CL /	-
Phone: (701) 258-9	720						-			121 6	<i>y</i> - 1 - 20		
Veather Conditions:		Temp:	35 °F	Ξ	Wind:	NW 60-	-15		Precip:	Sunr	ny / Partly C	loudy(/ Clo	udy
1	Well Info	rmation						S	ampling I				
Well Locked?	Yes	No	in many	50 Lp		Purgi	ng Method:	Bla	dder		Co	ntrol Setting	s
Well Labeled?	Yes-	No				Sampli	ng Method:	Bla	dder		Purge:	3	sec.
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	(NO)		Recover:	57	sec.
Grout Seal Intact?	Yes	No	Not-Vis	eldia		Duplicate	Sample?:	Yes	∠No		PSI:	20	***************************************
Repairs Necessary:						Duplicate	Sample ID:	_			Pumping Ra	ate: / ^ _	mL/min
Casing	Diameter:		2"						,	_		,	
Water Level Befo	ore Purge:	j	7,55	ft		F	Purge Date:	17/0	116	Time Purg	ing Began:	0802	(am/pm
Total W	Vell Depth:	ν	2	ft		Well P	urged Dry?	Yes	(NO)	Time F	ourged Dry:		am/pm
We	ell Volume:			liters		Sa	ample Date:	17No	16	Time o	f Sampling:	0872	am/pm
Depth to Top	of Pump:	16	.45	ft							<u> </u>	<del></del>	
Water Level Afte	er Sample:	17	270	ft		Bottle	2 - 500 m	L Nitric	2-1 Lite	er Raw	4-16 Dr	TS1' C	
Measuremen	nt Method:	Electric	Water Level Ir	ndicator		List:	500 mL Ni	tric (filtered	) 250 ml	L Sulfiric			
				Field	Measure	ments							

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		
1	0807	9,95	4168	6,48	1,52	195-3	4,03	TOY .	500	cle
2	0817	9.82	4267	P.7.08	0,49	153,7	0.84	Top	1000	Ch
3	0822	9,82	4305	7:12	0.41	177.2	0.57	TOP	500	di
4 /	1827	9,75	4337	7,15	B. 38	123,9	0.58	Top	500	U -
5	0832	9,73	4352	7.15	0,37	118.9	0.59	TOP	500	ch
6					,	,		, ,		
7	:									
8										
9										
10	1									
O 1 1 111 1	//2/	NI.							2000	

Stabilized: / Yes No

Total Volume Removed: 3000 mL

Comments:

water level below pump but kept up,



**Groundwater Assessment** 

Company:	OTP Coye	ote	
Event:	2016		
Sample ID:	Pond	N3	
Sampling Personal:	Darren	Niyswaas	

CARLO CONTRACTOR CONTR						campic ib.	ľ	OPLON ,	<i>, ,</i> ,		
2616 E. Broadway Ave, Bismarck, ND					-	Sampling P	. 7	arren	Nigsw	aan	
Phone: (701) 258-9720					-				<u> </u>		•
	Temp:	36 °F									
Neather Conditions:	Wind: /	Wind: NW 20			Precip: Sunny / Partly Cloudy / 🏟 loudy						
Well Info	ormation					Sa	mpling l	nformatio	on	_	-
Well Locked? Yes	No			Purgi	ng Method:	Blad	der		Со	ntrol Setting	s
Well Labeled? Yes	No			Sampli	ng Method:	Blad	der		Purge:	.5	sec.
Casing Straight? <b>Æes</b>	No			Dedica	ted Equip?:	Yes	(No)		Recover:	.5.5	sec.
Grout Seal Intact?	No	Not Visible		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:				Duplicate	Sample ID:	~			Pumping R	ate: / (%)	mL/min
Casing Diameter:		2"								7	
Water Level Before Purge:	j	1.66 ft		F	Purge Date:	17/0	V//	Time Purg	ing Began:	6952	/am/pm
Total Well Depth: ft			Well P	urged Dry?	ν Yes	ŊĎ.	Time F	urged Dry:		am/pm	
Well Volume:		liters		Sa	ample Date:	17Nou	M	Time of	f Sampling:	1137	a⁄nj/pm
Depth to Top of Pump:	5.2	1,50 ft					//		•		
Water Level After Sample:	Water Level After Sample: 170 47 ft			Bottle	2 - 500 m	L Nitric	2 − 1 Lite	r Raw			
Measurement Method: Electric Water Level Indicator			List:	500 mL Nit	ric (filtered)	250 ml	Sulfiric				
		Field	Measure	ments						-	

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		
1	1957	9.72	5250	2.73/	2,73	117.9	71000	13,13	500	Tursid
2	1017	10,10	5245.	6.64	6.30	107.8	471	15,39	Lesc &	· Turbid
3	1037	9,59	5251	6 LD	0.23	10409	171	16,43	2000	Partly clowly
4	1057	9,63	5244	6,60	0.21	103.8	100	16.68	2000	Partheclandi
5	Jij	9,56	5242	6, ta	oils	103.0	39,1	17/13	2000	elear
6	1127	9,46	5244	6,59	0,18	1026	24,3	17.24	\$1000	cli_
7	1132	9,49	5261	6.50	6,17	102.4	24,9	17,18	500	Clin
8	1137	-1 MAT	5220	6,59	0177	102,3	26,0	17.21	500	di
9		9,61								
10										
01 1 111 1	100	A.I							1 - 210	

Stabilized: Comments: Total Volume Removed: 10,500 mL



**Groundwater Assessment** 

Company:	OTP (	Coyote			
Event:	2016				
Sample ID:	Pond	12			
Sampling Pers	sonal: Par	Con 1	15-51	- na_	 

								310011an.	0011011	100000	- au	-	
Phone: (701) 258-9	720					_							
Weather Conditions:		Temp:	5 Ø °F	Wind:	WS			Precip:	Sunr	y Partly C	loudy / Clou	ıdy	
Well Information						Sampling Information							
Well Locked?	Yes	(No)			Purgi	ng Method:	Blad	der		Co	ntrol Settings	;	
Well Labeled?	Yes	No			Sampli	ng Method:	Blad	der		Purge:	5	sec.	
Casing Straight?	Yes	No			Dedica	ted Equip?:	Yes	(No)		Recover:	55	sec.	
Grout Seal Intact?	Yes	No	Not Visible	]	Duplicate	Sample?:	.Yes	No		PSI:			
Repairs Necessary:					Duplicate	Sample ID:				Pumping R	ate: <i>  0 0</i>	mL/min	
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		36.80 ff	:		⊃urge Date:	16NOU	16	Time Purg	ing Began:	1248	am/pm	
Total W	Vell Depth:	•	f	:	Well F	ourged Dry?	Yes	-No	Time F	urged Dry:		am/pm	
We	ell Volume:		liters	<u>.</u>	Sa	ample Date:	16Nov	16	Time of	Sampling:	1353	am/pm	
Depth to Top	o of Pump:	38	5,4 f										
Water Level After	er Sample:	N 3 }	7,26 37,26 f	<u>.</u>	Bottle	フ - 500 m	L Nitric	2~ 1 Lite	r Raw				
Measuremer	nt Method:	Electric '	Water Level Indicator		List:	500 mL Nit	ric (filtered)	250 mL	. Sulfiric	416	itric		
			Field	Measur	ements								

Stabiliz	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 conse	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		
1	1253	11,24	z 796	6,96	0,85	108,2	25.9	37,20	500	de
2	1308	11,07	3799	6,94	0,80	970	16,4	37,25	1500	de
3	1323.	11.08	3785	6,98	0.64	91.3	10,3	37,23	1500	an
4	132-8	11.04	3782	6.99	0.58	89.8	7.81	77,25	500	cl_
5	1338	10,99	3774	7.01	0,54	87.9	4,88	37,32	1000	ch
6	1343	10,91	3770	7,01	0.56	87,3	3.11	37,34	500	cu
7	1348	10.90	3769	7,02	0,57	87.0	3,37	37,36	500	Cly
8	1353	11,02	3770	7,02	0156	86,6	3017	37,26	500	ch_
9										
10										

Stabilized ( Yes Comments:

Total Volume Removed: 6500 mL



**Groundwater Assessment** 

Company:	OTP Co	pyote
Event:	2016	
Sample ID:	fond	165
Sampling Pers	onal: Dacce	n Maria

Phone: (701) 258-97	720						_						
Veather Conditions:		Temp:	50	°F	Wind:	W10		,	Precip:	Sunn	y / Partly C	Cloudy / Clou	udy
	Well Info	rmation						Sa	mpling l	nformatio	on <u> </u>		
Well Locked?	Yes)	No				Purgii	ng Method:	Blad	der		Со	ntrol Settings	s
Well Labeled?	Yes	No				Samplii	ng Method:	Blad	der		Purge:	5	sec.
Casing Straight?	Xes	No				Dedicat	ed Equip?:	Yes	(No		Recover:	55	sec.
Grout Seal Intact?	Yes	No	Not V	isible		Duplicate	Sample?:	Yes	No		PSI:	30	
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: / 0 0	mL/min
Casing	Diameter:		2"									*	
Water Level Befo	ore Purge:	3)	8,37	ft		F	Purge Date:	16NOV	16.	Time Purg	ing Began:	1506	am/pm
Total W	/ell Depth:			ft		Well P	urged Dry?	Yes	√No	Time P	urged Dry:		<del>am</del> /pm
We	ll Volume:			liters		Sa	mple Date:	16000	16	Time of	Sampling:	1646	am/pm
Depth to Top	of Pump:	46	.17	ft									
Water Level Afte	er Sample:	40	1,02	ft		Bottle	500 m	L Nitric	1 Lite	er Raw	4-16	V	
Measuremen	t Method:		Nater Level	Indicator		List:	500 mL Nit	tric (filtered)	<del>250 m</del> t	Sulfirie			
					1								

### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		
1	1511	11.65	3048	6.80	0.69	101.6	117	39,20	500	Slightly ledy
2	1531	11,28	3060	6,82	0,48	95.8	5626	39.53	2000	Slighthe clouds
3	1551	11.10	3085	6.82	0.58	93,7	43.6	39.55	2000	6 Clear 1
4	1506	11,07	3099	6.79	0,76	90.5	43,2	39,61	1500	cler
5	1611	11.08	3100	6,80	0,70	89.8	41,1	39.65	500	ch
6	1626	10.95	3109	6.82	0.61	170	23.1	39.78	1500	ch
7	1636	10,89	31/0	6.83	0,57	86.1	19.7	39.83	1000	de
8	1/641	10.88	3104	6.85	0.56	8517		39.84	500	cli
9	1/646	10.89	3104	6,85	0154	8515	19.8	39.86	500	de
10			- /	- 1						

Stabilized: No Comments:

Total Volume Removed: 1000 mL



## **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2016	
Sample ID:	MW 28	
Sampling Bo	roonal: Page 1	BC. LAA.

616 E. Broadway Ave, Bis	smarck, ND						•	Sampling Pe	ersonal: 2	Parren	Nies	waas	
Phone: (701) 258-9	720						•				300		
eather Conditions:		Temp:	.50 °F		Wind:	0 w 5		<del></del>	Precip:	Sunn	y / Partly C	loudy / Clo	udy
,	Well Info	rmation			(3	-		Sai	npling l	nformatio	n		
Well Locked?	Yes	(No				Purgii	ng Method:	Blade	der		Co	ntrol Setting	S
Well Labeled?	Yes	No				Samplii	ng Method:	Blade	der		Purge:	5	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	Yes	No		Recover:	25	sec.
Grout Seal Intact?	Yes	No	Not Visi	tole		Duplicate	Sample?:	Yes	No		PSI:		
pairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: 200	mL/min
Casing	Diameter:		2" _					-					
Water Level Bef	ore Purge:	7	2-3,68	ft		F	urge Date:	15Nov	16	Time Purg	ing Began:	1605	am/pm
Total W	Vell Depth:			ft		Well P	urged Dry?		No	Time P	urged Dry:	1720	am/om
We	ell Volume:			liters		Sa	mple Date:	16 Nov	16	Time of	Sampling:	1720	am/pm
Depth to Top	o of Pump:	3	4,02	ft							•		***
Water Level Afte	er Sample:	3	4101	ft		Bottle	500 m	nL Nitric	1 Lite	r Raw	4-121	/tric	
Measuremen	nt Method:	Electric \	Nater Level In	dicator		List:	500 mL Ni	tric (filtered)	250 mt	Sulfiric			

## **Field Measurements**

	1 ford mode di officia											
Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:		
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.		
SEQ#	Time		±5%	_±0.1	±10%	±20 mV	±10%	0.25 ft				
1	1610	9.78	4885	6.83	6186	592	4,99	24,74	22/000	de		
2	1625	9,69	4800	6,89	8110	8916	6.05	28,10	3000	de		
3	1640	9,63	4861	6,95	8,20	96,8	3,66	29.71	3000	cl-		
4	1655	9,45	4880	196	8,20	100,3	1.93	31,54	3000	en.		
5	17/0	9,33	4908	1.93	7,73	101.9	0,91	33,02	3000	ch		
6	1720	9,27	4734	6187	24,48	100,8	0,42	34,02	2000	de		
7	'		( , ,					Ì				
8												
9	1212	Started	topus	e line				31,29	_			
10	1215	10,25	4935	6.78	4,89	109,5	1.28	32,06	600	der		
Stabilized	· Yes	(No)	***	-		т.	otal Volume		15000	ml		

Stabilized: Comments:

Left pump in overnight



# **Chain of Custody Record**

Projec	ct Name:				Name of Sampler(s):
	OTP Coyote	CCR	Pond	Nov2016	Darren Nicsway
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-0496		Carbon Copy: Attn: Address:	OTP Josh Hollen	Work Order Number: 82-3852
Email:	pvukonich@otpco.com	N. of	Email:	jhollen@otpco.com	

	Sam	ple Informati	on			<b>Bottle Type</b>	Fi	eld Para	meters	Analysis	
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	500 ml HNO3		Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W5738	Field Blank P	17Nov16	NA	W		XX		NA	NA	NA	
W5739	Pond6	17Nouth	0832	GW	clear	XX		9,73	4352	7.15	
25740	PondN3	17North	1137	GW	clear	X X		9.61	5220	6.59	
W5741	Pond12	16Nov16	1353	GW	Clear	XX		11.02	3770	7.02	OTP CCR List.
WSTYZ	Pond16S	16 Nov16	1646	GW	clear	XX		10,89	3104	6.85	No RadChem.
W5743	MW2S	16 Novil	1215	GW	Clear	XX		10,25	4935	6.78	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Dare Many	Login	17Nov 16	walth		17/10/2016	4.0°C 7.15
2		7 . ,	,,,,,,				
3		8					



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#### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201682-3866
IML Lab Reference No/SDG: S1611405

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Pond CCR Radiochemistry

Event & Year Nov 2016

MVTL Laboratory Identifications: 16-W5769 through 16-W5775

IML Laboratory Identifications: S1611405-001 through S1611405-007

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #
Field Blank P	S1611405-001	16-W5769
Pond6	S1611405-002	16-W5770
PondN3	\$1611405-003	16-W5771
Pond10	S1611405-004	16-W5772
Pond12	\$1611405-005	16-W5773
Pond15S	n/a	Not sampled at this time
Pond16S	S1611405-006	16-W5774
MW2S	\$1611405-007	16-W5775

#### I. RECEIPT

- All samples were received at the laboratory on 17 Nov 2016 at 1530.
- · Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was ambient.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 23 Nov 2016.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudithe CAUTO DATE: 107An17

Claudette Carroll - MVTL Bismarck Laboratory Manager



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Page: 1 of 1

Report Date: 4 Jan 17 Lab Number: 16-W5769 Work Order #:82-3866 Account #: 006106 Date Sampled: 17 Nov 16

Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

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

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Field Blank P

Event and Year: November 2016

As Received Method Method Date Result RL Reference Analyzed Analyst Radium 226 9 Dec 16 OL See Attached Report 22 Dec 16 OL Radium 228 See Attached Report

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix
! = Due to sample quantity

# = Due to concentration of other analytes \* = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond6

Event and Year: November 2016

Page: 1 of 1

Report Date: 4 Jan 17 Lab Number: 16-W5770 Work Order #:82-3866 Account #: 006106

Date Sampled: 17 Nov 16 8:32 Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed		Analyst
Field pH	7.15	s.u.	0.1	SM 4500 H+ B	17 Nov 16	8:32	DJN
Field Appearance	Clear		NA	SM 2110	17 Nov 16	8:32	DJN
Field Temperature	9.73	Degrees C	0.1	SM 2550B	17 Nov 16	8:32	DJN
Field Conductivity	4352	umhos/cm	1	EPA 120.1	17 Nov 16	8:32	DJN
Radium 226	See Atta	ched Report			9 Dec 16		OL
Radium 228	See Atta	iched Report			22 Dec 16		OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to co : # = Due to sample quantity # = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Rad Chem Pond

Sample Description: PondN3

Event and Year: November 2016

Page: 1 of 1

Report Date: 4 Jan 17 Lab Number: 16-W5771 Work Order #:82-3866 Account #: 006106

Date Sampled: 17 Nov 16 11:37 Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
6.59	s.u.	0.1	SM 4500 H+ B	17 Nov 16 11:3	DJN
Clear		NA	SM 2110	17 Nov 16 11:3	DJN
9.61	Degrees C	0.1	SM 2550B	17 Nov 16 11:3	DJN
5220	umhos/cm	1	EPA 120.1	17 Nov 16 11:3	DJN
See Atta	ched Report			9 Dec 16	OL
				22 Dec 16	OL
	Result  6.59 Clear 9.61 5220 See Atta	6.59 s.u. Clear 9.61 Degrees C	Result RL  6.59 s.u. 0.1 Clear NA 9.61 Degrees C 0.1 5220 umhos/cm 1 See Attached Report	Result RL Reference  6.59 s.u. 0.1 SM 4500 H+ B Clear NA SM 2110  9.61 Degrees C 0.1 SM 2550B 5220 umhos/cm 1 EPA 120.1 See Attached Report	Result     RL     Reference     Analyzed       6.59     s.u.     0.1     SM 4500 H+ B     17 Nov 16 11:37       Clear     NA     SM 2110     17 Nov 16 11:37       9.61     Degrees C     0.1     SM 2550B     17 Nov 16 11:37       5220     umhos/cm     1     EPA 120.1     17 Nov 16 11:37       See Attached Report     9 Dec 16

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix : = Due to sample quantity

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond10

Event and Year: November 2016

1 of 1 Page:

Report Date: 4 Jan 17 Lab Number: 16-W5772 Work Order #:82-3866 Account #: 006106

Date Sampled: 17 Nov 16 12:30 Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.08	s.u.	0.1	SM 4500 H+ B	17 Nov 16 12:30	DJN
Field Appearance	Clear		NA	SM 2110	17 Nov 16 12:30	DJN
Field Temperature	12.1	Degrees C	0.1	SM 2550B	17 Nov 16 12:30	DJN
Field Conductivity	3352	umhos/cm	1	EPA 120.1	17 Nov 16 12:30	DJN
Radium 226		ched Report	7		9 Dec 16	OL
Radium 228		ched Report			22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudite K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

### Due to sample matrix ### = Due to complete the confidence of the

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond12

Event and Year: November 2016

Page: 1 of 1

Report Date: 4 Jan 17 Lab Number: 16-W5773 Work Order #:82-3866 Account #: 006106

Date Sampled: 16 Nov 16 13:53 Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.02	s.u.	0.1	SM 4500 H+ B	16 Nov 16 13:53	DJN
Field Appearance	Clear		NA	SM 2110	16 Nov 16 13:53	DJN
Field Temperature	11.0	Degrees C	0.1	SM 2550B	16 Nov 16 13:53	DJN
Field Conductivity	3770	umhos/cm	1	EPA 120.1	16 Nov 16 13:53	DJN
Radium 226	See Atta	ched Report			9 Dec 16	OL
Radium 228		ched Report			22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

© = Due to sample matrix # = Due to con
! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond16S

Event and Year: November 2016

1 of 1 Page:

Report Date: 4 Jan 17 Lab Number: 16-W5774 Work Order #:82-3866 Account #: 006106

Date Sampled: 16 Nov 16 16:46 Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.85	s.u.	0.1	SM 4500 H+ B	16 Nov 16 16:46	DJN
Field Appearance	Clear		NA	SM 2110	16 Nov 16 16:46	DJN
Field Temperature	10.9	Degrees C	0.1	SM 2550B	16 Nov 16 16:46	DJN
Field Conductivity	3104	umhos/cm	1	EPA 120.1	16 Nov 16 16:46	DJN
Radium 226		ched Report			9 Dec 16	OL
Radium 228		ched Report			22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudite K Cante

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

© = Due to sample matrix # = Due to co
! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond2S

Event and Year: November 2016

1 of 1 Page:

Report Date: 4 Jan 17 Lab Number: 16-W5775 Work Order #:82-3866 Account #: 006106

Date Sampled: 16 Nov 16 12:15 Date Received: 18 Nov 16 15:30 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.78	s.u.	0.1	SM 4500 H+ B	16 Nov 16 12:15	DJN
Field Appearance	Clear		NA	SM 2110	16 Nov 16 12:15	DJN
Field Temperature	10.2	Degrees C	0.1	SM 2550B	16 Nov 16 12:15	DJN
Field Conductivity	4935	umhos/cm	1	EPA 120.1	16 Nov 16 12:15	DJN
Radium 226		ched Report			9 Dec 16	OL
Radium 228		ched Report			23 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

0 = Due to sample matrix
! = Due to sample quantity

# = Due to concentration of other analytes
+ = Due to internal standard response



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 12/30/2016

CLIENT:

MVTL Laboratories, Inc.

Project:

201682-3866

Lab Order:

S1611405

**CASE NARRATIVE** 

Report ID: S1611405001

Samples 16-W5769 Field Blank P, 16-W5770 Pond6, 16-W5771 PondN3, 16-W5772 Pond10, 16-W5773 Pond12, 16-W5774Pond 16S, and 16-W5775 Pond 2S were received on November 23, 2016.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: all



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3866

Lab ID:

S1611405-001

ClientSample ID: 16-W5769 Field Blank P

COC:

201682-3866

Date Reported 12/30/2016

Report ID

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/17/2016

DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.16	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1150	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	12/09/2016 1150	MB
Radium 228	1.4	pCi/L		1	Ga-Tech	12/22/2016 738	WN
Radium 228 Precision (±)	3.0	pCi/L			Ga-Tech	12/22/2016 738	WN

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by: All

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3866

Lab ID:

S1611405-002 ClientSample ID: 16-W5770 Pond6

COC:

201682-3866

Date Reported

12/30/2016

Report ID

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/17/2016 10:30:00 AM

DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.15	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1150	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	12/09/2016 1150	MB
Radium 228	1.0	pCi/L		1	Ga-Tech	12/22/2016 1040	WN
Radium 228 Precision (±)	3.1	pCi/L			Ga-Tech	12/22/2016 1040	WN

### These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

0 Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3866

Lab ID:

S1611405-003 16-W5771 PondN3

ClientSample ID: COC:

201682-3866

Date Reported

12/30/2016

Report ID

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/17/2016 2:13:00 PM

DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1150	MB
Radium 226 Precision (±)	0.2	pCi/L			SM 7500 Ra-B	12/09/2016 1150	MB
Radium 228	0.6	pCi/L		1	Ga-Tech	12/22/2016 1342	WN
Radium 228 Precision (±)	3.0	pCi/L			Ga-Tech	12/22/2016 1342	WN

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Ε Value above quantitation range

Analyte detected below quantitation limits

М Value exceeds Monthly Ave or MCL or is less than LCL

0 Outside the Range of Dilutions

Matrix Effect

RL - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID:

201682-3866

ClientSample ID: 16-W5772 Pond10

S1611405-004

COC:

201682-3866

Report ID

Date Reported 12/30/2016

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/17/2016 11:33:00 AM

DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1151	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	12/09/2016 1151	MB
Radium 228	-0.1	pCi/L		1	Ga-Tech	12/22/2016 1644	WN
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	12/22/2016 1644	WN

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

Outside the Range of Dilutions 0

Χ Matrix Effect RL - Reporting Limit

С Calculated Value

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201682-3866

Lab ID:

S1611405-005 16-W5773 Pond12

ClientSample ID: COC:

201682-3866

Date Reported

12/30/2016

Report ID

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/16/2016 4:40:00 PM

DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

Commonto

Result	Units	Qual	RL	Method	Date Analyzed/Init	
0.2	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1151	MB
0.1	pCi/L			SM 7500 Ra-B	12/09/2016 1151	МВ
-4.5	pCi/L		1	Ga-Tech	12/22/2016 1946	WN
3.4	pCi/L			Ga-Tech	12/22/2016 1946	WN
	0.2 0.1 -4.5	0.2 pCi/L 0.1 pCi/L -4.5 pCi/L	0.2 pCi/L 0.1 pCi/L -4.5 pCi/L	0.2 pCi/L 0.2 0.1 pCi/L -4.5 pCi/L 1	0.2 pCi/L 0.2 SM 7500 Ra-B 0.1 pCi/L SM 7500 Ra-B -4.5 pCi/L 1 Ga-Tech	0.2       pCi/L       0.2       SM 7500 Ra-B       12/09/2016 1151         0.1       pCi/L       SM 7500 Ra-B       12/09/2016 1151         -4.5       pCi/L       1       Ga-Tech       12/22/2016 1946

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank В

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

Outside the Range of Dilutions 0

Matrix Effect

RL - Reporting Limit

С Calculated Value

Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID:

201682-3866

ClientSample ID:

\$1611405-006 16-W5774Pond 16S

COC:

201682-3866

Date Reported

12/30/2016

Report ID

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/16/2016 8:42:00 AM

DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

#### Commonte

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1151	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	12/09/2016 1151	MB
Radium 228	3.6	pCi/L		1	Ga-Tech	12/22/2016 2249	WN
Radium 228 Precision (±)	3.0	pCi/L			Ga-Tech	12/22/2016 2249	WN

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions 0

Х Matrix Effect **RL** - Reporting Limit

Calculated Value С

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID:

201682-3866

ClientSample ID: 16-W5775 Pond 2S

S1611405-007

COC:

201682-3866

Report ID

12/30/2016

Date Reported

S1611405001

WorkOrder:

S1611405

CollectionDate: 11/16/2016 10:05:00 AM DateReceived: 11/23/2016 12:33:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	12/09/2016 1151	МВ
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	12/09/2016 1151	МВ
Radium 228	-4.4	pCi/L		1	Ga-Tech	12/23/2016 152	WN
Radium 228 Precision (±)	3.5	pCi/L			Ga-Tech	12/23/2016 152	WN

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

0 Outside the Range of Dilutions

Matrix Effect

**RL** - Reporting Limit

Calculated Value

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 7 of 7



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

## ANALYTICAL QC SUMMARY REPORT

CLIENT:

MVTL Laboratories, Inc.

S1611405

Work Order: Project:

201682-3866

Date: 12/30/2016

Report ID: S1611405001

Radium 228 by Ga/Tech	Sample Type MBLK	Units: pCi/L		
MB-405 (12/20/16 10:04)	RunNo: 142088	PrepDate: 12/01/16 14:00	BatchID: 12688	
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual
Total Radium 228	ND	1		
Radium 228 by Ga/Tech	Sample Type LCS	Units: pCi/L		
LCS-405 (12/20/16 13:06)	RunNo: 142088	PrepDate: 12/01/16 14:00	BatchID: 12688	
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual
Total Radium 228	38	1 40.3	94.9 64.4 - 99.5	
Radium 228 by Ga/Tech	Sample Type LCSD	Units: pCi/L		
LCSD-405 (12/20/16 16:08)	RunNo: 142088	PrepDate: 12/01/16 14:00	BatchID: 12688	
Analyte	Result	RL Conc %RPD	%REC % RPD Limits	Qual
Total Radium 228	40	1 38 4.02	98.8 20	
Radium 228 by Ga/Tech	Sample Type MS	Units: pCi/L		
S1611336-003AMS (12/21/16 13:22)	RunNo: 142088	PrepDate: 12/01/16 14:00	BatchID: 12688	
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits (	Qual
Total Radium 228	63	1 80.6 2	76.2 55 - 113	
Radium 228 by Ga/Tech	Sample Type MSD	Units: pCi/L		
S1611336-003AMSD (12/21/16 16:24)	RunNo: 142088	PrepDate: 12/01/16 14:00	BatchID: 12688	
Analyte	Result	RL Conc %RPD	%REC % RPD Limits 0	Qual
Total Radium 228	76	1 63 18.6	92.4 30	
Radium 226 in Water -	Sample Type MBLK	Units: pCi/L		
MB-1698 (12/09/16 11:50)	RunNo: 141728	PrepDate: 12/05/16 0:00	BatchID: 12642	
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits 0	Qual
Radium 226	ND	0.2	*	
Radium 226 in Water -	Sample Type LCS	Units: pCi/L	· ·	
LCS-1698 (12/09/16 11:50)	RunNo: 141728	PrepDate: 12/05/16 0:00	BatchID: 12642	
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits (	Qual
Radium 226	5.9	0.2 5.89	100 67.1 - 122	
Radium 226 in Water -	Sample Type LCSD	Units: pCi/L		
LCSD-1698 (12/09/16 11:50)	RunNo: 141728	PrepDate: 12/05/16 0:00	BatchID: 12642	
Analyte	Result	RL Conc %RPD	%REC % RPD Limits 0	Qual
Radium 226	5.8	0.2 5.9 0.876	99.1 20	
Radium 226 in Water -	Sample Type MS	Units: pCi/L		
S1611363-001CMS (12/09/16 11:50)	RunNo: 141728	PrepDate: 12/05/16 0:00	BatchID: 12642	
Analyte	Result	RL Spike Ref Samp		Qual
Radium 226	14.6	0.2 11.8 4.9	82.3 65 - 131	

Qualifiers:

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits

E Value above quantitation range

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect



Transferred by:

T. Olson

## LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

Date:

18-Nov-16

Time:

1700

# **Chain of Custody Record**

Received by:

Date:

11/23/16

Temp:

9.8 12.8°

12133

Page	1	of	1	
5-	•	<b>U</b> 1	I.	

	Phone: (701) 2	258-9720												
Toll Free: (8	300) 279-6885	Fax: (701) 258-9724									2	201682-3866		
Company Nam	e and Address:			Account #:	<del></del>	******			······		Pho	one #:		
	T.VI	VTL		0								701-258-9720		
		Broadway		Contact: Claudette						Fax	Fax #:			
	Bismarck	ND 58501		Name of Sa		elle	:				┼ <sub>F</sub>	For faxed report check box  mail: ccarroll@mvtl.com		
Billing Address	s (indicate if differen	t from above):			•							For e-mail report check box		
	PO F	ox 249		Quote Number Date Submitted:										
		, MN 56073		Project Nar	no/Number						<b>D</b>	18-Nov-16		
	ne/(vullibe)	•					Pur	chase Order #: BL5730						
	I	Sample Information					В	ottle	Ту	pe	1	Analysis		
516114	5													
							03	eq						
IML Lab						fed	皇	ials	Jar					
Number	MVTL Lab Number	Client Sample ID	Sample	Date	Time	Untreated	00 m	VOC Vials Umpreserved	Glass ,	Other				
			Туре	Sampled	Sampled	늘	1 8	<u> </u>	Ö	₫	$\downarrow \downarrow \downarrow$	Analysis Required		
001	16-W5769	Field Blank P	GW	17-Nov-16			4	<u> </u>				Ra226 & Ra228		
002	16-W5770	Pond6	GW	17-Nov-16	1040		4					Ra226 & Ra228		
_ ರಿಂ3	16-W5771	PondN3	GW	17-Nov-16	1413		4					Ra226 & Ra228		
<u>004</u>	16-W5772	Pond10	GW	17-Nov-16	1133		4					Ra226 & Ra228		
_005	16-W5773	Pond12	GW	16-Nov-16	1640		4					Ra226 & Ra228		
006	16-W5774	Pond16S	GW	16-Nov-16	842		4					Ra226 & Ra228		
007	16-W5775	Pond2S	GW	16-Nov-16	1005							Ra226 & Ra228		
				,										
Comments: All	l results must be rep	orted as a numerical value	).			اا		L	<u> </u>		LL			
Trans	ferred by:	Datos Times	-									2 ccolers		

Sample Condition:



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2016	
Sample ID:	Pond 6	
Sampling Pers	sonal: Darren NEGLIA	10 C 1

Phone: (701) 258-9	9720						<del>-</del>	Sampling P	ersonal:	arren	Wiesu	a cy	_
Weather Conditions:		Temp:	35 "	°F	Wind:	NW 60.	-15		Precip:	Sun	ny / Partly C	loudy / Clo	udv )
	Well Info					/		Sa	ımpling lı			loudy(/ Clo	uuy
Well Locked?	Yes	(No)	n man.	60 Le		Purgi	ing Method:	Blac				ntrol Setting	
Weil Labeled?	.Yes-	No	, .			Sampli	ing Method:	Blac			Purge:	?	
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	No		Recover:	77	sec.
Grout Seal Intact?	Yes	No	Not-Vi	efdia			Sample?:	Yes	(No)		PSI:		sec.
Repairs Necessary:							Sample ID:				Pumping Ra	70	mL/min
Casing	Diameter:		2"								Li dilibilig N	ale. / ()(2)	MIL/MIN
Water Level Bef	ore Purge:	1	7,55	ft			Purge Date:	17/100	///	Time Puro	ing Began:	0800	
Total V	Vell Depth:	ν		ft			Purged Dry?	Yes	(NO)		ourged Dry:	<u> </u>	<u>Camipm</u>
We	ell Volume:			liters			ample Date:	17Nov			f Sampling:	0007	_am/pm
Depth to Top	p of Pump:	16	45	ft			ample bate.	CALOV	وامر ٢	Time o	Sampling.	0892	am/pm
Water Level After	er Sample:	19	, <del>7</del> 0	ft		Bottle	2 - 500 ml	N1:4=:_	0 4111		111		
Measuremer		Electric '	Water Level I	ndicator		List:	500 mL Nit		2-1 Lite	r Raw . Sulfiric	4-16 Dr	757' 2	
					Measure	ements	1000 ME Mil	no (micrea)		. Guillic			

Stahi	lization	Temp	Spec.			weasure		1 124		
			1		DO	ORP	Turbidity	Water	mL	Discription:
	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		
1	0807	9.95	4168	6,98	1,52	195,3	4.03	TOY.	500	ch e d
2	0817	9.82	4267	A 7.08	0.49	153,7	10,84	Top	1000	
3	0822	9,82	4305	7112	0.41	177.2	057	TO0	500	di
4	1827	9,75	4337	7,15	8,38	123.9	0.58	Top	500	
5	0832	9,73	4352	7,15	0137	118.9	0.59	TOP	500	Ch
6				, , , , , , , , , , , , , , , , , , ,		1 -1 -1 -1	<del></del>	1 / DF	750	
7										
8										
9										
10	1									
tabilized	: //Yes	No	·		1	<u></u>	tal Values	<u> </u>	700.0	

Total Volume Removed: 1000 mL

water level below pump but kept up,



## **Groundwater Assessment**

Company:	OTP Coy	ote	
Event:	2016		
Sample ID:	Pond	N3	
Sampling Personal:	Darcore	North Carlo	***************************************

2616 E. Broadway Ave, Bis	amorois ND							campic ib.		word,			
								Sampling Pe	ersonal: 🛭	arren	NEYSUV	aas	
Phone: (701) 258-9	1720												
<b>Neather Conditions:</b>		Temp:	36	°F	Wind:	VW ZE	D		Precip:	Sunr	ny / Partly C	Cloudy / Çloi	ıdı
	Well Info	rmation			<u>P</u>			Sa		nformatio		noddy i Gloi	uuy
Well Locked?	Yes	No				Purgi	ng Method:	Blad				ntrol Setting	c
Well Labeled?	(Yes)	No					ng Method:	Blad			Purge:		sec.
Casing Straight?	(Tes	No					ted Equip?:	Yes	No		Recover:	55	sec.
Grout Seal Intact?	Yes	No	Not V	'isible			Sample?:	Yes	No		PSI:		300.
Repairs Necessary:							Sample ID:				Pumping R	ate: ///	mL/min
Casing	Diameter:		2"			<u> </u>					Li diliping ix	ate. / (/)	111111111111111111111111111111111111111
Water Level Bef	ore Purge:		11:66	ft		F	ourge Date:	17/0	(11	Time Pura	ing Began:	69.52	/am/pm
Total V	Vell Depth:		Carried samples link	ft			urged Dry?	Yes	NB NB		ourged Dry:	() ()	am/pm
We	ell Volume:	•		liters			ample Date:	17Nou			f Sampling:	1137	am/pm
Depth to Top	of Pump:	5	2,50	ft				17000	<del>*/b</del>	1	· oampinig.	11//	αιιμητι
Water Level Afte	er Sample:	17	1047-	ft		Bottle	2 - 500 m	L Nitric	ァー1 Lite	r Raw			
Measuremer	nt Method:	Electric \	Water Level	Indicator		List:		tric (filtered)		Sulfiric			
							1	(	200 1112	- Canno	<u> </u>		
				<del></del>	Measure	ements							
Stabilization	Temp	Spec.	1	l DO I	ORP	Turbidity	Water	ml		Diametra		i	

· · · · · · · · · · · · · · · · · · ·						mododic				
Į.	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
<u> </u>	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		, , , , , , , , , , , , , , , , , , , ,
1	0957	9,72	5250	2734	2,73	117.9	71000	13.13	500	Turtid
2	1017	10.10	5245.	6.64	6.30	107.8	471	15,39	Zeec 4	· Turbid
3	1037	9,59	5251	6160	0.23	10409	171	16,43	2000	Partly cloudy
4	1057	9,63	5244	6,60	0.21	103,8	100	16.68	2000	Partlycloudis
5	1117	9,56	5242	6, ta	oils	103.0	39,1	17/13	2000	elear
6	1127	9.46	5244	6,59	0,18	107-6	24,3	17.24	\$1000	cli_
7	1132	9,49	5261	6.50	6,17	102.4	24,9	17.18	500	Clip
8	11137	9.00	5220	6,59	0117	102,3	26,0	17.21	500	cir
9		9,61				1 3/		, ,, ,	1	-
10					,					
04 - 1, 111   1	\n'			·	I	L	<u>t </u>	L	1	<u> </u>

Stabilized: No Comments:

Total Volume Removed: 10,500 mL



**Groundwater Assessment** 

Company:	OTP (	Covote
Company.	011 (	Joyote

Event: 2016

Sample ID:

2616 E. Broadway Ave, Bismarck, ND			Sampling Personal: /	acres Niel
Phone: (701) 258-9720			Camping reisonar.	Jarren Wies
Weather Conditions:	Temp: (-() °F	Mind:		

Weather Conditions:		Temp:	60	°F	Wind:	55			Precip:	(Supr	ny Partly C	Novdy / Cl	
	Well Info	ormation		**************************************					······			noudy / Cit	oudy
Well Locked?	Yes	(No				Dunni	5.6 - 11 1			nformatio			
Well Labeled?	Yes	No					ng Method:	Blad				ontrol Settin	gs
Casing Straight?	(Yes	No					ng Method:	Blad			Purge:	<u>\$</u>	sec.
Grout Seal Intact?	Yes	No	Not V	/isible			ed Equip?:		No.		Recover.	55	sec.
Repairs Necessary:	<del>(</del>		HOLV	isible			Sample?:	Yes	No _		PSI:		
	Diameter:		2"			Duplicate	Sample ID:				Pumping R	.ate:/ ථ <i>ට</i>	mL/min
Water Level Bef			20,78	£i.				1 (1 /					
	Vell Depth:		22/12	ft			ourge Date:	IYNOU			ing Began:	2918	am/pm
	ell Volume:		+9.	liters			urged Dry?	Yes	No		urged Dry:		∉am/pm
Depth to To			18.80	illeis		Sa	mple Date:			Time of	Sampling:	<u>seebelo</u>	owam/pm
Water Level Aft			10 000	<del>2</del> 4		D - 441 -							
Measuremen			Water Level	ft ft		Bottle List:		L Nitric		r Raw			
Measuremen	it Metriou.	Electric	water Level	indicator	l	LIST.	[500 mL Ni	tric (filtered)	250 mL	Sulfiric	<u> </u>		
				Field	Measure	ements							
Stabilization	Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:		}	
(3 consecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed		, Color, Ode		1	
SEQ# Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		•	·			
1 N 24-3	12.07	3352	7.08	A 7.51	1830	24.6	18.80	800	Ch			İ	
2 0926							T9					İ	
3	ia - 6.	4 1 6											
4 <del>3842</del> 17 5 0728				14/100	16								
5 0728 6 0819	Starte												**
7 1735	Starter Starter		<del></del>	Voulb									
8 0728			15 16 No	- P. D.		<u> </u>							
9 01230	Starre	Samo	11711	vovi6			<u> </u>						
10													
Stabilized: Yes	No	<u> </u>	1	<u> </u>	]	-4-137-1	<u> </u>	TO0				ĺ	
Comments. C()		- 			ı	otal Volume	Removed:	100	mL				
1 - 11		NS	CCR										
1-14	•	1-250											
1-50	ON	NA 1-250 1-500N 1-500N											
,		1-500 N	F										
		1 - 11 cas											



**Groundwater Assessment** 

Company:	OTP (	Coyote	
Event:	2016		
Sample ID:	Pood	12	
_	7		 

2010 L. Dioadway Ave, Dis	•					Sampling Personal:	Darren	N/ Excision	_
Phone: (701) 258-9	9720							y ve stang	
Veather Conditions:		Temp:	5 Ø °F	Wind:	WS	Precip	: Sunr	y Partly Cloudy / Clo	udv
	Well Info	rmation				Sampling I			
Well Locked?	Yes	(No)			Purging Method:			Control Setting	
Well Labeled?	Yes	No			Sampling Method:	<u> </u>		Purge: 5	sec.
Casing Straight?	Yes	No			Dedicated Equip?:		1	Recover: 55	sec.
Grout Seal Intact?	Yes	No	Not Visible		Duplicate Sample?:	Yes No	-	PSI:	300.
Repairs Necessary:					Duplicate Sample ID:		1	Pumping Rate: / O O	mL/min
Casing	Diameter:		2"					r uniping Nate. 700	11117/1/1111
Water Level Bef	ore Purge:	,	36.80 ft		Purge Date:	16Nov16	Time Pura	ing Began: 1248	am/pm
Total V	Vell Depth:		ft		Well Purged Dry?			Purged Dry:	am/pm
We	ell Volume:		liters		Sample Date:			Sampling: /353	am/pm
Depth to Top	o of Pump:	38	C. Y. ft			17.00000	1		aili/pii/
Water Level Afte	er Sample:	N 23	1-2637,26 ft		Bottle 7 - 500 n	nL Nitric 2- 11 it	er Raw		
Measuremer	nt Method:	Electric '	Water Level Indicator		1 ! - 1.		L Sulfiric	4 16 Mitric	
								1 1 7 7777	1

## **Field Measurements**

						modele				
	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	ecutive)	(°C)	Cond.	Нд	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		3,,,
1	1253	11,24	3796	6,96	0,85	108,2	25.9	37,20	500	de
2	1308	11,07	3799	6,94	0,80	97eD	16,4	37,25	1500	di
3	1323,	11,08	3785	6,98	0064	9/.3	10,3	37,23	1500	a
4	1328	11,04	3782	6.99	0.58	89.8	7.81	37,25	500	cl_
5	1338	10,99	3774	7.01	0,54	87,9	4,88	37,32	1000	
6	1343	10.91	3770	7,01	0.56	87.3	3,11	3734	100	Class
7	1348	10.90	3769	7,02	0.57	87.0	3,37	37,36	500	Cli
8	1353	11,02	3770	7.02	0156	8616	3017	37,26	500	Ch_
9								- × - × - 19	000	
10										
Stabilizadi	Voc	210		·		A		L	1	

No

Total Volume Removed: 6500 mL



**Groundwater Assessment** 

Company:	OTP C	Coyote	
Event:	2016		
Sample ID:	fond	165	***************************************
Sampling Pers	onal: Oacc	and Non-	

	omaron, mb						Sampling P	ersonal: 🅢	Sampling Personal: Damen Misman				
Phone: (701) 258-9	720												
Veather Conditions:		Temp:	57) °F	Wind:	W10			Precip:	Sunr	y / Partly C	loudy / Clou	ıdy	
	Well Info	rmation					Sa	mpling li	nformatio				
Well Locked?	Yes,	No			Purgii	ng Method:	Blad	der		Со	ntrol Settings	S	
Well Labeled?	Yes	No			Sampli	ng Method:	Blad	der		Purge:	5	sec.	
Casing Straight?	Xes	No			Dedicat	ed Equip?:	Yes	(No)		Recover:	55	sec.	
Grout Seal Intact?	Yes	No	Not Visible		Duplicate	Sample?:	Yes	No		PSI:	30		
Repairs Necessary:	<u> </u>				Duplicate	Sample ID:				Pumping R	ate: /(/) ()	mL/min	
Casing	Diameter:		2"					····			,,,,		
Water Level Bef	ore Purge:	37	7,77 ft		F	urge Date:	16NOV	7/6	Time Purg	ing Began:	1506	am/pm	
Total V	Vell Depth:		ft		Well P	urged Dry?		ζNο	Time F	urged Dry:		<del>am</del> /pm	
We	ell Volume:		liters		Sa	mple Date:	llorou	.7.7	Time of	Sampling:	1/4/6	am/pm	
Depth to Top	o of Pump:	46	.17 ft						<u> </u>			•	
Water Level Afte	er Sample:	40	),02 ft		Bottle	500 m	L Nitric	1 Lite	r Raw	4-1L0	V I		
Measuremer	nt Method:	Electric V	Vater Level Indicator		List:	500 mL Ni	tric (filtered)	<del>250 m</del> t	Sulfirie 3			-	
			Field	Measure	ements								

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		
1	1511	11,65	3048	6.80	0269	101.6	117	39,20	500	Slightly leady
2	1531	11,28	3060	6,82	0,48	958	56,6	39.53	2000	Slighthe Clouds
3	1551	11.10	30851	5,82	0.58	93,7	43.6	39.55	2000	& Clear
4	1506	16,07	3099	6.79	0,76	90,5	93,2	34,61	1500.	'Cler
5	1611	11.08	3100	6,80	0,70	89.8	41.1	39.65	500	ch-
6	1626	10,95	3109	6.82	0.61	870	23.1	39,78	1500	ch
7	1636	10,89	31 / oʻ	6.83	0,57	86.1	19.7	39.83	1000	Ch -
8	1641	10.88	3104	6.85	0.56	8517	1926	3989	500	Cli -
9	1646	10.89	3104	6,85	0154	85,5	19,8	39.86	500	de
10			<i>-</i> ,					· · · · · · · · · · · · · · · · · · ·		

Stabilized: Yes No

Total Volume Removed: 1000 mL



### **Groundwater Assessment**

Company: OTP Coyote

Event: 2016

Sample ID: M V 2-5

Sampling Personal: Parcount ACCESTANCE

2010 E. Bioadway Ave, bis	,						-	Sampling Pe	ersonal: 🔏	Varren	NIES	waas	
Phone: (701) 258-91	720						-					٠٠٠.	
Veather Conditions:		Temp:	50	°F	Wind:	0 W.5			Precip:	Sunn	y / Partly C	loudy / Clo	udy
1	Well Info	rmation			a	,		Sampling Information					
Well Locked?	Yes	(No)				Purgir	ng Method:	Blade	der		Co	ntrol Setting	s
Well Labeled?	Yes	No				Samplir	ng Method:	Blad	der		Purge:	5	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	Yes	No		Recover:	25	sec.
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate:	Sample ID:				Pumping R	late: 200	mL/min
Casing	Diameter:		2"							•			
Water Level Befo	ore Purge:	•	23,61	∫ ft		F	urge Date:	15Nov	16	Time Purg	ing Began:	1605	am/@m
Total W	Vell Depth:			ft		Well P	urged Dry?	Xes	No	Time P	urged Dry:	1720	am/@m
We	ell Volume:			liters		Sa	mple Date:	16 Nov	16	Time of	Sampling:	1720	am/pm
Depth to Top	of Pump:	3	4,02	ft									
Water Level Afte	er Sample:		34,01	ft		Bottle	500 m	L Nitric	1 Lite	er Raw	4-121	VITTIC	
Measuremen	nt Method:	Electric '	Water Leve	el Indicator		List:	500_mL_Ni	tri <del>c (filtered</del> )	250 ml	Sulfinic			

## **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	_±0.1	±10%	±20 mV	±10%	0.25 ft		
1	1610	9,78	4885	6.83	6186	59,2	4.99	24,74	22/000	de
2	1625	9,69	4800	6189	8210	8916	6.05	28,10	3000	de
3	1640	9,63	4861	6,95	8,20	96,8	3,66	29,71	3000	ch
4	1655	9,45	4880	196	8,20	100,3	1.93	31,54	3900	an.
5	1710	9,33	4908	1.93	7,73	101.9	0,91	33,02	3000	ch
6	1720	9,27	4734	6:87	4,48	100,8	0,42	34,02	2000	dz
7			1 . 9			[	·	,		
8										
9	1212	Starteo	to 149	e line				31,29		
10	1215	10,25	4935		4,89	109,5	1.28	32,06	1000	Cler
Ctobilizod	. Voc	(No)				<del></del>	-4-13/-1		2000	1

Stabilized: Yes (No)
Comments:

Total Volume Removed: 15,000 mL

Left primp in overnight



# **Chain of Custody Record**

Projec	t Name:			Name of Sampler(s):	
	OTP Coyote RadO	Chem Pond	Nov2016	Darren Nieswarg	
Report To:	Paul Vukonich	Carbon Copy:	OTP Josh Hollen	Work Order Number:	
Address: Email:	PO Box 496 Fergus Falls, MN 56538-0496 pvukonich@otpco.com	Address: Email:	jhollen@otpco.com	00°080V	

	Sam	ple Informati	on			Bott	е Туре	Fi	eld Para	ameters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	1000 ml HNO <sub>3</sub>		Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W5769	Field Blank P	17Nov16	NA	W		4		NA	NA	NA	
W5770	Pond6	Morte	0832	GW	clear	4		9.73	4352	7.15	
W5771	PondN3	17/00/16	1137	GW	Clear	4		9,61	5220	6,59	
25772	Pond10	17Nov16	1230	GW	clear	2		12,07	3352	7.08	
N5773	Pond12	16Nov16	1353	GW	clear	4		11,02	3770	7.02	OTP CCR combined
-	Pond15S	_		GW4	_	4		~	_	~	RadChem
W5774	Pond16S	16Nov16	1646	GW	clear	4		10,89	3/04	6,85	
W5775	MW2S	16Nov16	1215	GW	Clear	4		10.25	4935	6.78	

Comments: \*17/00/16/17

	Transferred by:	Sample Condition	Date/Time	/ Received by:	Sample Condition	Date/Time	°C
1	Dare Nien	Login	1530	Machin		1530	Ambjant
2	0						
3							



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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0233 IML Lab Reference No/SDG: S1702039

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Pond CCR Radiochemistry

Event & Year Jan 2017

MVTL Laboratory Identifications: 17-W228 through 17-W233

IML Laboratory Identifications: S1702039-001 through S1702039-006

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #
Field Blank (FB)	\$1702039-001	17-W228
Pond6	\$1702039-002	17-W229
PondN3	\$1702039-003	17-W230
Pond10	n/a	Not sampled
Pond12	S1702039-004	17-W231
Pond16S	S1702039-005	17-W232
MW2S	S1702039-006	17-W233

#### I. RECEIPT

- All samples were received at the laboratory on 1 Feb 2017 at 800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 1.8°C.
- · No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 3 Feb 2017.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

#### IV. ANALYSIS

SIGNED:

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

DATE:

All laboratory data has been approved by MVTL Laboratories.

Claudette Carroll - MVTL Bismarck Laboratory Manager



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Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: Field Blank (FB)

Event and Year: January 2017

1 of 1 Page:

Report Date: 20 Feb 17 Lab Number: 17-W228 Work Order #:82-0233 Account #: 006106

Date Sampled: 31 Jan 17

Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 49854

Temp at Receipt: 1.8C ROI

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			14 Feb 17	OL
Radium 228	See Attached Report			15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to co : = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: Pond6

Event and Year: January 2017

Page: 1 of 1

Report Date: 20 Feb 17 Lab Number: 17-W229 Work Order #:82-0233 Account #: 006106

Date Sampled: 31 Jan 17 10:21 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 49854

Temp at Receipt: 1.8C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.16	s.u.	0.1	SM 4500 H+ B	31 Jan 17 10:21	DJN
Field Appearance	Clear		NA	SM 2110	31 Jan 17 10:21	DJN
Field Temperature	5.97	Degrees C	0.1	SM 2550B	31 Jan 17 10:21	DJN
Field Conductivity	4840	umhos/cm	1	EPA 120.1	31 Jan 17 10:21	DJN
Radium 226	See Atta	ched Report			14 Feb 17	OL
Radium 228		ched Report			15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Cunto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

### Due to sample matrix ## = Due to co

! \*\* Due to sample quantity #\*\* Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: PondN3

Event and Year: January 2017

1 of 1 Page:

Report Date: 20 Feb 17 Lab Number: 17-W230 Work Order #:82-0233 Account #: 006106

Date Sampled: 31 Jan 17 16:20 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 49854

Temp at Receipt: 1.8C ROI

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.53	s.u.	0.1	SM 4500 H+ B	31 Jan 17 16:20	DJN
Field Appearance	Clear		NA	SM 2110	31 Jan 17 16:20	DJN
Field Temperature	7.09	Degrees C	0.1	SM 2550B	31 Jan 17 16:20	DJN
Field Conductivity	5306	umhos/cm	1	EPA 120.1	31 Jan 17 16:20	DJN
Radium 226	See Attached Report				14 Feb 17	OL
Radium 228	See Atta	ched Report			15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: @ = Due to sample matrix H = Due to co

: - Due to sample quantity

# = Due to concentration of other analytes
+ = Due to internal standard response



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PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: Pond12

Event and Year: January 2017

Page: 1 of 1

Report Date: 20 Feb 17 Lab Number: 17-W231 Work Order #:82-0233 Account #: 006106

Date Sampled: 31 Jan 17 12:09 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 49854

Temp at Receipt: 1.8C ROI

	As Recei Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.05	s.u.	0.1	SM 4500 H+ B	31 Jan 17 12:09	DJN
Field Appearance	Clear		NA	SM 2110	31 Jan 17 12:09	DJN
Field Temperature	8.06	Degrees C	0.1	SM 2550B	31 Jan 17 12:09	DJN
Field Conductivity	3698	umbos/cm	1	EPA 120.1	31 Jan 17 12:09	DJN
Radium 226	See Attached Report			mote in the co.	14 Feb 17	OL
Radium 228		ached Report			15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: # = Due to sample matrix # = Due to co

: . Due to sample quantity

# = Due to concentration of other analytes + = Due to internal standard response



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PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: Pond16S

Event and Year: January 2017

1 of 1 Page:

Report Date: 20 Feb 17 Lab Number: 17-W232 Work Order #:82-0233 Account #: 006106

Date Sampled: 31 Jan 17 16:30 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 49854

Temp at Receipt: 1.8C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.91	s.u.	0.1	SM 4500 H+ B	31 Jan 17 16:30	DJN
Field Appearance	Clear		NA	SM 2110	31 Jan 17 16:30	DJN
Field Temperature	8.90	Degrees C	0.1	SM 2550B	31 Jan 17 16:30	DJN
Field Conductivity	3176	umhos/cm	1	EPA 120.1	31 Jan 17 16:30	DJN
Radium 226	See Attached Report				14 Feb 17	OL
Radium 228		ched Report			15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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



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Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: MW2S

Event and Year: January 2017

1 of 1 Page:

Report Date: 20 Feb 17 Lab Number: 17-W233 Work Order #:82-0233 Account #: 006106

Date Sampled: 31 Jan 17 17:50 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 49854

Temp at Receipt: 1.8C ROI

	As Recei	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.87	s.u.	0.1	SM 4500 H+ B	31 Jan 17 17:50	DJN
Field Appearance	Clear		NA	SM 2110	31 Jan 17 17:50	DJN
Field Temperature	5.17	Degrees C	0.1	SM 2550B	31 Jan 17 17:50	DJN
Field Conductivity	4944	umhos/cm	i	EPA 120.1	31 Jan 17 17:50	DJN
Radium 226	See Atta	ached Report			14 Feb 17	OL
Radium 228	See Atta	ached Report			15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudite K. Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to co

! = Due to sample quantity

# = Due to concentration of other analytes + = Due to internal standard response



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 2/17/2017

**CLIENT:** 

MVTL Laboratories, Inc.

Project:

WO# 201782-0233

Lab Order:

S1702039

**CASE NARRATIVE** 

Report ID: S1702039001

Samples 17-W228 Field Blank, 17-W229 Pond6, 17-W230 PondN3, 17-W231 Pond12, 17-W232 Pond16S, and 17-W233 MW2S were received on February 3, 2017.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012

ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company: MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID: WO# 201782-0233 \$1702039-001

ClientSample ID: 17-W228 Field Blank

201782-0233

Date Reported

2/17/2017

Report ID

S1702039001

WorkOrder:

S1702039

CollectionDate: 1/31/2017 DateReceived: 2/3/2017 1

2/3/2017 11:08:00 AM

FieldSampler:

Matrix:

Water

Comments

COC:

Comments								
Analyses	Result	Result Units		RL	Method	Date Analyzed/Init		
Radionuclides - Total								
Radium 226	0.02	pCi/L		0.2	SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 226 Precision (±)	0.04	pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 228	-0.9	pCi/L		1	Ga-Tech	02/15/2017 154	WN	
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	02/15/2017 154	WN	

#### These results apply only to the samples tested.

Qualifiers:

B Analyte detected in the associated Method Blank

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

### RL - Reporting Limit

C Calculated Value

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

M Value exceeds Monthly Ave or MCL or is less than LCL

O Outside the Range of Dilutions

X Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

WO# 201782-0233 S1702039-002

ClientSample ID: 17-W229 Pond6 COC:

Lab ID:

201782-0233

Date Reported

2/17/2017

Report ID

S1702039001

WorkOrder:

S1702039

CollectionDate: 1/31/2017 10:21:00 AM

DateReceived: 2/3/2017 11:08:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result	ult Units Qua		RL	Method	Date Analyzed/Init		
						·		
Radionuclides - Total								
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 228	-3.4	pCi/L		1	Ga-Tech	02/15/2017 500	WN	
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	02/15/2017 500	WN	

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL** - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

О Outside the Range of Dilutions

Matrix Effect

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

WO# 201782-0233 S1702039-003

ClientSample ID: 17-W230 PondN3

COC:

Lab ID:

201782-0233

Date Reported 2/17/2017

Report ID

S1702039001

WorkOrder:

S1702039

CollectionDate: 1/31/2017 4:20:00 PM

DateReceived: 2/3/2017 11:08:00 AM

FieldSampler:

Matrix:

Water

#### Comments

sult Units Qual		RL	Method	Date Analyzed/I	nit
pCi/L		0.2	SM 7500 Ra-B	02/14/2017 1644	MB
pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB
pCi/L		1	Ga-Tech	02/15/2017 805	WN
pCi/L			Ga-Tech	02/15/2017 805	WN
	pCi/L pCi/L pCi/L	pCi/L pCi/L pCi/L	pCi/L 0.2 pCi/L pCi/L 1	pCi/L 0.2 SM 7500 Ra-B pCi/L SM 7500 Ra-B pCi/L 1 Ga-Tech	pCi/L 0.2 SM 7500 Ra-B 02/14/2017 1644 pCi/L SM 7500 Ra-B 02/14/2017 1644 pCi/L 1 Ga-Tech 02/15/2017 805

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Ε Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

RL - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

О Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

WO# 201782-0233 S1702039-004

Lab ID:

ClientSample ID: 17-W231 Pond12

COC:

201782-0233

Date Reported

2/17/2017

Report ID

S1702039001

WorkOrder:

S1702039

CollectionDate: 1/31/2017 12:09:00 PM

DateReceived: 2/3/2017 11:08:00 AM

FieldSampler:

Matrix:

Water

Commonte

Analyses	Result Units Qual I		Result Units Qual RI		RL	Method	Date Analyzed/l	nit
Radionuclides - Total								
Radium 226	0.16	pCi/L		0.2	SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 228	-0.6	pCi/L		1	Ga-Tech	02/15/2017 1108	WN	
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	02/15/2017 1108	WN	

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

RL - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by: \_\_\_\_\_\_\_\_\_

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

WO# 201782-0233

Lab ID:

S1702039-005 ClientSample ID: 17-W232 Pond16S

COC:

201782-0233

Date Reported

2/17/2017

Report ID

S1702039001

WorkOrder:

S1702039

CollectionDate: 1/31/2017 4:30:00 PM

DateReceived: 2/3/2017 11:08:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Comments									
Analyses	Result Units Qual		Result Units Qual R		RL	Method	Date Analyzed/Init		
Radionuclides - Total									
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	02/14/2017 1644	MB		
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB		
Radium 228	-1.2	pCi/L		1	Ga-Tech	02/15/2017 1412	WN		
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	02/15/2017 1412	WN		

### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range Е
- Holding times for preparation or analysis exceeded Н
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### RL - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

WO# 201782-0233

Lab ID:

S1702039-006 ClientSample ID: 17-W233 MW2S

COC:

201782-0233

Date Reported

2/17/2017

Report ID

S1702039001

WorkOrder:

S1702039

CollectionDate: 1/31/2017 5:50:00 PM

DateReceived:

2/3/2017 11:08:00 AM

FieldSampler:

Matrix:

Water

Commonte

Analyses	Result	esult Units Qual		RL	Method	Date Analyzed/Init		
Radionuclides - Total								
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB	
Radium 228	0.0	pCi/L		1	Ga-Tech	02/15/2017 1716	WN	
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	02/15/2017 1716	WN	

### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded Н
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### **RL** - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by: <u>A</u>

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 6



Work Order:

Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

CLIENT: MVTL Laboratories, Inc.

S1702039

**Project:** WO# 201782-0233

Date: 2/17/2017

Report ID: S1702039001

Radium 228 by Ga/Tech	Sample Type MBLK		Units	: pCi/L			
MB-416 (02/14/17 16:40)	RunNo: 143176	Prep	Date: 02/1	5/17 0:00	Bato	hID 12844	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1					
Radium 228 by Ga/Tech	Sample Type LCS		Units	: pCi/L			
LCS-416 (02/14/17 19:44)	RunNo: 143176	Prep	Date: 02/1	5/17 0:00	Bato	:hID 12844	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	38	1	40.3		95.3	64.4 - 99.5	
Radium 228 by Ga/Tech	Sample Type LCSD		Units	: pCi/L			
LCSD-416 (02/14/17 22:49)	RunNo: 143176	Prep	Date: 02/1	5/17 0:00	Bato		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	38	1	38	0.461	94.9	20	
Radium 228 by Ga/Tech	Sample Type MS		Units				
S1702064-003AMS (02/16/17 05:36)	RunNo: 143176	Prepl	Date: 02/1	5/17 0:00	Bato	hID 12844	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	28	1	40.3	1	66.8	55 - 113	
Radium 228 by Ga/Tech	Sample Type MSD		Units	: pCi/L			
S1702064-003AMSD (02/16/17 08:41)	RunNo: 143176	PrepDate: 02/15/17 0:00		BatchID 12844			
Analyte	Result	RL .	Conc			C % RPD Limits	nits Qual
Total Radium 228	28	1	28	2.34	65.2	30	

Qualifiers: B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

CLIENT:

MVTL Laboratories, Inc.

Work Order:

S1702039

Project:

WO# 201782-0233

Date: 2/17/2017

Report ID: S1702039001

Radium 226 in Water -	Sample Type MBLK	Units: pCi/L					
MB-1718 (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/	08/17 0:00	Bato	chID 12837		
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	ND	0.2					
Radium 226 in Water -	Sample Type LCS	Unit	s: pCi/L				
LCS-1718 (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/0	08/17 0:00	Bato	hID 12837		
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	6.1	0.2 5.89		103	67.1 - 122		
Radium 226 in Water -	Sample Type LCSD	Units	s: pCi/L				
LCSD-1718 (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/0	08/17 0:00	Bato			
Analyte	Result	RL Conc	%RPD	%REC	% RPD Limits	Qual	
Radium 226	6.5	0.2 6.1	7.38	111	20		
Radium 226 in Water -	Sample Type MS	Units	s: pCi/L				
S1702064-003AMS (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/0	08/17 0:00	Bato	:hID 12837		
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	5.9	0.2 5.89	0.3	94.0	65 - 131		
Radium 226 in Water -	Sample Type MSD	Units	s: pCi/L				
S1702064-003AMSD (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/0	08/17 0:00	Bato			
Analyte	Result	RL Conc	%RPD	%REC	% RPD Limits	Qual	
Radium 226	6.4	0.2 5.9	8.88	103	20		

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits



Transferred by:

T. Olson

## LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

Date:

1-Feb-17

Time:

1700

## Chain of Custody Record

Received by: 1

Date:

Temp:

e Ø

Page	1	of	1	
. ~ ~ ~ ~		- u		•

	00) 279-6885	Phone: (701) 258-9720  Toll Free: (800) 279-6885 Fax: (701) 258-9724							201782-0233							
Company Nam	e and Address:			Account #	:	·······					Phone #:					
	h.a	V.T.			****						701-258-9720					
		<u>VTL</u> Broadway		Contact: Claudette							Fax #:					
							•				For faxed report check box  E-mail: ccarroll@mvtl.com					
Billing Address	s (indicate if different		Name of S	ampier.						E-mail: ccarroll@mvtl.com  For e-mail report check box						
	·										Date Submitted:					
		<u>80x 249</u> , MN 56073									1-Feb-17					
		Project Na	me/Numbe	er:					Purchase Order #:							
		Comple Information				1	_				BL5775					
		Sample Information		1		ļ	B	ottle	Гу	oe_	Analysis					
1001 1 - 1						ated	1000 ml HNO3	VOC Vials Umpreserved	Jar							
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 r	VOC \ Umpr	Glass	Other	Analysis Required					
		Client Sample ID Field Blank				Untre	4 1000 r	VOC \ Umpr	Glass	Other	Analysis Required Ra226 & Ra228					
Number			Туре	Sampled		Untre		VOC \ Umpr	Glass	Other						
Number 51702639-0	17-W228	Field Blank	Type GW	Sampled 31-Jan-17	Sampled	Untre	4	VOCV	Glass	Other	Ra226 & Ra228					
Number 51702639-0	17-W228 17-W229 17-W230	Field Blank Pond6	Type GW GW	<b>Sampled</b> 31-Jan-17 31-Jan-17	Sampled 1021	Untre	4	VOCV	Glass	Other	Ra226 & Ra228 Ra226 & Ra228					
Number 5170,2639-0 -652 -633	17-W228 17-W229 17-W230 17-W231	Field Blank Pond6 PondN3	Type GW GW GW	Sampled 31-Jan-17 31-Jan-17 31-Jan-17	1021 1620	Untre	4 4	VOCV	Glass	Other	Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228					
Number 51702639-0 -058 -03 -059	17-W228 17-W229 17-W230 17-W231 17-W232	Field Blank Pond6 PondN3 Pond12	GW GW GW GW	Sampled 31-Jan-17 31-Jan-17 31-Jan-17 30-Jan-17	1021 1620 1209	Untre	4 4 4	VOCV	Glass	Other	Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228					
Number 5170269-0 -62 -63 -65	17-W228 17-W229 17-W230 17-W231 17-W232	Field Blank Pond6 PondN3 Pond12 Pond16S	GW GW GW GW GW	Sampled 31-Jan-17 31-Jan-17 31-Jan-17 30-Jan-17	1021 1620 1209 1630	Untrea	4 4 4 4	VOCV	Glass	Other	Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228					
Number 5170269-0 -62 -63 -65	17-W228 17-W229 17-W230 17-W231 17-W232	Field Blank Pond6 PondN3 Pond12 Pond16S	GW GW GW GW GW	Sampled 31-Jan-17 31-Jan-17 31-Jan-17 30-Jan-17	1021 1620 1209 1630	Untre	4 4 4 4	VOC	Glass	Other	Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228					
Number 5170269-0 -62 -63 -65	17-W228 17-W229 17-W230 17-W231 17-W232	Field Blank Pond6 PondN3 Pond12 Pond16S	GW GW GW GW GW	Sampled 31-Jan-17 31-Jan-17 31-Jan-17 30-Jan-17	1021 1620 1209 1630	Untre	4 4 4 4	VOCV	Glass	Other	Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228					
Number 51702639-0 -688 -635 -605 -606	17-W228 17-W229 17-W230 17-W231 17-W232 17-W233	Field Blank Pond6 PondN3 Pond12 Pond16S	GW GW GW GW GW	Sampled 31-Jan-17 31-Jan-17 31-Jan-17 30-Jan-17	1021 1620 1209 1630	Untre	4 4 4 4	VOC	Glass	Other	Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228 Ra226 & Ra228					

Sample Condition:



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond 6	
Sampling Per	sonal: Darren Niesw.	ads

Phone: (701) 258 0720

Phone: (701) 256-9	720												
Weather Conditions:		Temp:	31 °F	-	Wind:	w20	7-25		Precip	: Sun	ny-/ Partly C	loudy / Clo	udy
•	Well Info	rmation						Sa	mpling	Information	on		
Well Locked?	Yes	Mg				Purg	ing Method:	Blad	der		Coi	ntrol Settings	s
Well Labeled?	<b>∕es</b>	No				Sampl	ing Method:	Blad	der	1	Purge:	14	sec
Casing Straight?	<b>Yes</b>	No				Dedica	ted Equip?:	Yes	1860	1	Recover:	56	sec
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate	e Sample?:	Yes	Mô	1	PSI:	<u></u>	
Repairs Necessary:	_	~				Duplicate	Sample ID:	<del></del>			Pumping Ra	ate: 50	mL/mi
Casing	Diameter:		2"				·			<del></del>			
Water Level Befo	ore Purge:		18,33	ft			Purge Date:	3/Jan	17	Time Purg	ing Began: ,	0936	am/pr
Total W	ell Depth:		18,76	ft		Well F	Purged Dry?	Yes	NO	Time F	Purged Dry:		_am/pr
We	ll Volume:		0,3	liters		Sa	ample Date:	315an1	フ	Time o	f Sampling:	1021	am/pr
Depth to Top	of Pump:		17,20	ft					ı		U		
Water Level Afte	r Sample:		17,20	ft		Bottle	CCR: 1L Ra	w, 500mL	Nitric, 4-1l	_ Nitric			
Measuremen	t Method:	Electric	Water Level In	dicator		List:							
						_							

### Field Measurements

Stabili	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1941	5-60	4443	7,05	10,50	221.6	61,2	17,20	250	Slightly tubid
2	0756	5/71	4627	7,09	7.82	209,3	1/10	17,20	750	clei
3	1001	5.97	4785	7,13	7,72	20205	7.19	17,20	500	car
4	1006	6.18	4799	7,14	7.59	200.8	5.42	17,20	250	CG/
5	1011	5,58	4840	716	7.72	195,4	3,74	17.20	250	N.
6	1016	5.82	4830	7.16	7.63	194,5	3.44	17,20	250	d
7	1021	5.97	4840	7,16	7,45	1911.8	3.42	17,20	250	de
8					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
9										
10										

Stabilized: Yes No

Total Volume Removed: 2500 mL

Comments:



Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pan 1 1/3	

		G	roundwa	ater Assessr	ment	Sample ID: Pond N3							
2616 E. Broadway Ave, Bismarck, ND							Sampling Personal: Dacces Nitchara						
Phone: (701) 258-972	20												
Veather Conditions:		Temp:	U.	. °F	Wind:	w30	P	recip:	Sunny	/ Partly Clo	udy / Clouc	 dy	
Well Information						,	Sampli	ng Info	rmation	1			
Well Locked?	Æŝ	No				Purging Method	Bladder			Contr	ol Settings		
Well Labeled?	Yes	No				Sampling Method	Bladder			Purge:	7	sec.	

	rmation					
Well Locked?	Æŝ	No				
Well Labeled?	Yes	No				
Casing Straight?	Yes	No				
Grout Seal Intact?	Yes	No	Not Visible			
Repairs Necessary:						
Casing	Diameter:		2"			
Water Level Bet	fore Purge:	12.64				
Total V	Vell Depth:	37.05				
W	ell Volume:		15. liters			
Depth to To	p of Pump:	3 (	1.056 ft			
Water Level Aft	er Sample:		is . 0 6 ft			
Measuremer	nt Method:	Electric Water Level Indicator				

		Sa	mpling	Informatio	on					
Purgir	ng Method:	Blad	der		Co	ontrol Setting	ıs			
Samplir	ng Method:	Blad	der		Purge:	Y	sec.			
Dedicat	ed Equip?:	Yes	(No)		Recover:	5%	sec.			
Duplicate	Sample?:	Yes	No		PSI:					
Duplicate \$	Sample ID:				Pumping R	late: /ನರ	mL/min			
				_						
Р	urge Date:	315an17		Time Purg	ing Began:	1200	am)/pm			
Well Pu	urged Dry?	Yes	No	Time F	urged Dry:		am/pm			
Sa	mple Date:	31 Jan	v7	Time of	Sampling:	120	am/pm			
Bottle	CCR: 1L R	Raw, 500mL Nitric, 4-1L Nitric								
List:										

### Field Measurements

	Stabilization Temp Spec. DO ORP Turbidity Water mL Discription:												
Stabil	Stabilization		Spec.		DO	ORP	Turbidity	Water	mL	Discription:			
(3 cons	secutive)	(°C)	Cond.	pH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.			
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy			
1	1205	9.56	5300	6,56	341	113,9	373	13,72	500	Turbid			
2	1230	9,53	5282	6.54	1,59	107.4	641	15,31	2500	Tubil			
3	1300	9,20	5298	6,54	\$0.88	105.1	243	16.71	23000	Turbid			
4	(330	8.56	5317	6.52	0.86	1026	144	17.18	3000	アンガス.			
5	1400	8.84	5301	6,52	0,74	101.7	88.9	17.58	3000	3 lightly trylis			
6	1432	8.39	5302	653	0,73	101.11	80.4	17.63	3000	5			
7	1500	8,03	5308	6,53	0,87	10200	48.7	17.76	3000	37			
8	1530	6.39	5324	6,54	0.96	102,7	5410	18.02	3000				
9	1600	6,84	5326	657	0,67	99.1	-	18,00	3000	57			
10	1600	680	5315	6,53	0.68	99.3	45.88	18,04	1000	Cler			

Stabilized:

Total Volume Removed: \_\_\_\_\_mL

ments:

( outrind next page



### **Groundwater Assessment**

Company:	OTP Coyo	ote	
Event:	2017		
Sample ID:	Pond N3		
Sampling Pe	rsonal: Discours	Nocha 1	

Phone: (701) 258-9720

**Field Measurements** 

rieid weasurements												
Stabili		Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:		
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.		
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy		
11	1615	7,03	5313	6,53	0.67	99,1	43.0	18,00	500	of St der		
12	1620	7609	5306	6,53	0.16	99.1	45.7	18:05	500	cli		
13												
14												
15												
16												
17									-			
18										WANN, N.F. (1997)		
19												
20												
21						•						
22									`	-		
23												
24							:					
25												
26												
27									•			
28												
29												
30								:				

Sta	bil	lized:

No

Total Volume Removed: 26,000 mL

Date:

Comments:



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond10
Sampling Personal:	DKoren Nickwaag

	Phone: (701) 258 9720	

Phon	e: (701) 258-	9/20											<u> </u>	
Weather C	onditions:		Temp:	410	°F	Wind:	W 25			Precip:	Sunr	ıy / Partiy (	Cloudy / Clo	udy
		Well Info	rmation	( -0				Sampling Information						
We	II Locked?	Yes	(No)				Purgir	ng Method:	Blad	der		Control Settings		
Well	Labeled?		No	No			Sampli	ng Method:	Blad	der		Purge:	5	sec.
Casing	Straight?	Yes	No	No			Dedicat	ed Equip?:	Yes	No		Recover:	57	sec.
Grout S	eal Intact?	/Yes	No	No Not Visible			Duplicate	Sample?:	Yes	Nø		PSI:		
Repairs Ne	cessary:						Duplicate:	Sample ID:	<u> </u>			Pumping R	late: /0 0	mL/min
	Casing	g Diameter:		2"										
Wate	r Level Be	fore Purge:	2	-1.5	Î ft		F	urge Date:	30 yas	117	Time Purg		1004	am/pm
	Total V	Well Depth:	23	2-15	ft		Well P	urged Dry?	Yes	No		urged Dry:		am/pm
	W	ell Volume:		- D,	√ liters		Sa	mple Date:	36 Jan	: 17	Time of	Sampling:	1004	am/pm
D	epth to To	p of Pump:	12	8.80	' ft				• • • • • • • • •					
Wate	er Level Aft	er Sample:			ft		Bottle	CCR: 1L R	Raw, 500mL	Nitric, 4-1L	Nitric			
М	easureme	nt Method:	Electric \	Water Level	Indicator		List:							
Field Measurements														
Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:			
(3 conse	· · · · · · · · · · · · · · · · · · ·	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed		, Color, Odo			
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear,	partly cloudy,	cloudy		
	1009			<u></u>										
2							<u> </u>							
3							<u> </u>							
5				1										
6														
7						$\overline{}$								
8			-			-								
9														
10		[												
Stabilized:	Yes	No				To	otal Volume	Removed:		mL			ļ	
Comments	•	Due to low	volume in	well and sl	ow recharge				not able to	be collecte	d at time of	sample fiel	ld readings.	
		Date/Time			Date/Time		•	Date/Time			Date/Time	·		
			Collocto	d 500mL	22.07 1 1110	l Callagtar	I 11 Nitrica		] Collocted	11 Nitrico		<b>†</b>		
Collected 1	1L Raw at:	1		ic at:			l 1L Nitrics at:		Collected a					
		L	1 (314)	ut.		۱ ۲		L	J a		L	l		
			,				,	,						

Went back and got a water level of 21, 63.



Phone: (701) 258-9720

# **Field Datasheet**

**Groundwater Assessment** 

Company:	OTP Co	yote
Event:	2017	
Sample ID:	Pond 1.	2
Sampling Per	sonal: Dance	Alice a

							•				197		=
Weather Conditions:		Temp	:37 °F		Wind:	W 25	30	·	Precip	: Sunr	y / Partty (	Houdy / Clo	udy
	Well Info	rmation	า ์					S	ampling	nformatio			
Well Locked?	Yes	NO				Purg	ing Method:		dder d		<u></u>	ntrol Setting	s
Well Labeled?	Yes	No				Sampl	ing Method:	Bla	dder	1	Purge:	· 1:	se
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	NO		Recover:	56	se
Grout Seal Intact?	Yes	No	Not-Visi	ible		Duplicate	e Sample?:	Yes	No	1	PSI:	~	
Repairs Necessary:		*				Duplicate	Sample ID:			j	Pumping R	ate: / Ø o	mL/m
Casing	Diameter:		2"				· · · · · · · · · · · · · · · · · · ·				<u> </u>		
Water Level Bef	ore Purge:		37.23	ft		F	Purge Date:	30 TO	1017	Time Purg	ing Began:	1059	am⁄p
Total V	Vell Depth:		40,00	ft		Well F	urged Dry?	Yes	No		urged Dry:		am/p
We	ell Volume:		118	liters		Sa	ample Date:	30 Jan		Time of	Sampling:	1209	am/ø
Depth to Top	o of Pump:	3	7,70	. ft						······································		<i></i>	
Water Level After	er Sample:	ę	37,70	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremer	nt Method:	Electric	Water Level Inc	dicator		List:		<u> </u>	,				
										1			

### Field Measurements

						meacare				
Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1/04	7,46	3713	6.92	1,92	182.9	50.8	37.65	500	Slightly twoid
2	1119	7,79	3711	6,97	0,94	9412	21,2	37,70	1500	CT
3	1129	7.90	3705	7,02	1.73	62,4	15.7	37.70	1900	6(24
4	11139	7,94	3197	7.03	0164	65:4	10.1	37,78	1000	Cl
5	1149	7,91	3695	7,64	0,60	70,6	6.49	37.70	1000	r.Cen
6	1154	7,97	3,94	705	0,58	72.5	5,73	37.70	\$500	Co
7	1201159	801	3692	7,05	0.56	75.5	4.51	37,20	500	N
8	1204	8.02	3194	705	0157	76.0	4,27	37.70	500	Ch
9	1209	8,06	3698	7.05	0,55	77,8	4,12	37.74	50 x	V.
10		-		, ,						

Stabilized: No

Total Volume Removed: 7000 mL



### **Groundwater Assessment**

Company:	OTF	Coyote		
Event:	201	7		
Sample ID:	Pond	168		
Sampling Per	rsonal: 160	Con N	To PSeich ac	

Phone: (701) 258-9720

Phone: (701) 258-97	720							i	, , , , , , ,	, , ,	/	
Weather Conditions:		Temp:	44 °F	Wind:	4/30	)		Precip	: Suni	ny / Partly C	loudy / Ølou	ıdy
\	Well Info	rmation					S	ampling I	nformatio	on		
Well Locked?	Yes	No			Purgi	ng Method:	Bla	dder		Co	ntrol Settings	}
Well Labeled?	Yes	No			Sampli	ng Method:	Bla	dder		Purge:	"J	sec.
Casing Straight?	(Yes	No			Dedicat	ted Equip?:	Yes	<b>ANO</b>		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visible		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:					Duplicate	Sample ID:	***************************************			Pumping R	ate: / 0 0	mL/min
Casing	Diameter:		2"								•	
Water Level Befo	re Purge:	3	8,89 ft		F	Purge Date:	BOTAN	17	Time Purg	ing Began:	1305	am/හිණි
Total W	ell Depth:	48	1.85 ft		Well P	urged Dry?	Yes	No	Time F	urged Dry:		am/pm
Wel	Volume:		6.2 liters		Sa	ample Date:	305m	17	Time of	Sampling:	1630	am/pm
Depth to Top	of Pump:	46	.07 ft				J - J					-
Water Level Afte	r Sample:		ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measurement	Method:	Electric V	Vater Level Indicator		List:							
			Field	Measure	ements							

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1310	8,78	3219	6.76	0.66	76.6	109	39,55	500	Turbid
2	1330	8.97	3247	6,74	0192	19,2	79.3	39,79	2,000	ASlider tub. A
3	1350	9117	3262	6,74	0,38	729	53.9	40,06	2000	ST
4	1410	9.16	3251	6.76	0.35	74,0	40.2	40.29	2600	- T
5	1450			· ·			28.1	15	4,000	87
6	1530						19,2	40,54	400a	Cly
7	1610						11.2		4000	(Cen
8	1620	8195	3182	6.90	0,23	Slik	9.96	40.81	1000	cu
9	1625	8.86	3182	L, 90	0.24	51,4	9,59	40.76	500	ch
10	1,430	8,90	3176	6,91	0.23	50,7	9,96	Lt0.79	501	au .
C4-1-11:1.	(Van)	NI -	,-						00=	

Stabilized: Yes No

Total Volume Removed: 20,500 mL

Comments:



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	MW25	
Sampling Do	reanal: A a a a	

Phone: (701) 258-9720

Weather Conditions:		Temp:	25°F		Wind:	W	20		Precip	: Suni	ny / Partly (	Cloudy / Clou	ıdy
	Well Info	rmation						S	ampling	Informatio	on 🖳		
Well Locked?	Yes	No				Purgi	ng Method:	Blac	dder		Cc	ntrol Settings	3 .
Well Labeled?	Xes	No				Sampli	ng Method:	Bla	dder		Purge:	4	sec.
Casing Straight?	yes ·	No				Dedica	ted Equip?:	Yes	Mo		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visit	ble		Duplicate	Sample?:	Yes	ØØ	1	PSI:		
Repairs Necessary:						Duplicate	Sample ID:			7	Pumping R	ate: 100	mL/min
Casing	Diameter:		2"							_			
Water Level Bef	ore Purge:		23,88	ft		F	Purge Date:	3120	. [7	Time Purg	ing Began:	1720	am/pm
Total V	Vell Depth:		38,55	ft		Well F	urged Dry?	Yes	160	Time F	urged Dry:	-	am/pm
We	ell Volume:		9.1	liters		Sa	ample Date:	31 Ta.	167	Time of	Sampling:	1750	am/pm
Depth to Top	o of Pump:		34.38	ft									
Water Level Afte	er Sample:	2	-8,87	_ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremer	it Method:	Electric '	Water Level Ind	icator		List:							
				Fiold	Mossura	monte							

### rieid Weasurements

Stabi	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 con	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1725	5,98	4993	.6,81	7.12	11217	5.87	25.29	500	d_
2	143 17730	5,91	4992	6,81	7,06	112.1	5.00	25,82	500	CU
3	1135	5,97	49/6	6,83	7,23	11214	6.02	26,94	500	d
4	1740	5.89	4948	6,85	7.26	11216	7.38	27.67	500	CI_
5	1745	5006	4951	6.86	7,28	112,7	7.67	27,71	500	2
6	1750	5117	4944	6,87	7.30	112.3	7.88	27.86	500	CI_
7	[ '			0.0		,,,,				
8										,
9										
10										
04-1-11: /		BI -						·	2000	

Stabilized: No

Comments:

Total Volume Removed: 3000 mL



# **Chain of Custody Record**

Projec	ct Name:			Name of Sampler(s):
	OTP Coyote RadC	hem Pond	2017	Darren Nieswaas
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	OTP Josh Hollen	Work Order Number: 8a-0a33
Email:	pvukonich@otpco.com	Email:	jhollen@otpco.com	

	Samp	ole Informati	оп		В	ottle Type	Fi	eld Para	meters	Analysis	
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	1000 ml HNO <sub>3</sub>		Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
BEEM	Field Blank (FB)	3/Jan17	NA	W	Clear	4		NA	NA	NA	
PEEM	Pond6	3 Han 17	1021	GW	clear	4		5,97	4840	7.16	
waso.	PondN3	3/Jan 17	1620	GW	clew	4		7:09	5306	6,53	
-	Pond10	30Jan 17	1004	GW	( )—X	2 01	130Jen 17	-	) <u>—</u>	_	
Wa3I	Pond12	30Jan17	1209	GW	clear	4		8,06	3698	7.05	OTP CCR combined
Wasa	Pond16S	30Jan17	1630	GW	clear	4		8.90	3176	6,91	RadChem
Mass	MW2S	315an17	1750	GW	alear	4		5.17	4944	6,87	

Comments:

	Transferred by:	Sample Condition	Date/Time		Sample Condition	Date/Time	° C
1	Jan Ning	Walkin 2	31 Jan (7	anad Imme	an	01Feb 17 800	DAF 1.8
2			1.07	/		ROT 18°C	Tm 588
3							31Jan 17 Dr





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



February 3, 2017

Otter Tail Power Company Attn: Josh Hollen P.O. Box 496 Fergus Falls, MN 56538-0496

RE: Coyote Station Groundwater Sampling - January 2017

Dear Mr. Hollen,

From January 30 to February 2, 2017, MVTL Laboratories' Field Services division collected groundwater samples from wells with sufficient volume at the Coyote Station near Beulah, ND. The six wells from the Blue Pit, and six wells from the Slag Pond site were purged and sampled at a low rate with a bladder pump. The wells were found to be in good condition. Well POND10 had an insufficient volume to collect a sample. Samples collected were placed on ice and then transported back to the MVTL laboratory in Bismarck, ND for analysis.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer

MVTL Field Services



WO# 82-0260 82-0259

## **OTP Coyote Station**

Blue Pit

Attn: Josh Hollen

PO Box 496

Fergus Falls, MN 56538-0496

PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TE <b>M</b> P (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
1-Feb-17	9:37	2-Feb-17	12:30	66.11	79.10	74.16	8.0	5500.0	Bladder	6.13	2641	6.53	93.40	partly cloudy
1-Feb-17	14:45	1-Feb-17	16:35	83.60	97.74	83.63	8.7	11000.0	Bladder	7.42	2657	6.65	70.10	clear
1-Feb-17	10:24	2-Feb-17	13:39	105.05	116.18	111.33	6.9	7500.0	Bladder	4.64	6231	6.78	832.00	cloudy
2-Feb-17	9:35	2-Feb-17	11:15	80.09	87.00	83.34	4.3	10000.0	Bladder	7.70	5326	6.54	68.30	partly cloudy
2-Feb-17	17:00	2-Feb-17	17:45	79,61	87.90	80.68	5.1	4500.0	Bladder	8.47	3417	6.53	7.24	clear
2-Feb-17	14:43	2-Feb-17	16:03	79.87	97.58	79.95	10.9	8000.0	Bladder	8.68	2956	6.47	97.70	partly cloudy
	1-Feb-17 1-Feb-17 1-Feb-17 2-Feb-17	PURGE TIME  1-Feb-17 9:37  1-Feb-17 14:45  1-Feb-17 10:24  2-Feb-17 9:35  2-Feb-17 17:00	PURGE DATE         PURGE TIME         SAMPLE DATE           1-Feb-17         9:37         2-Feb-17           1-Feb-17         14:45         1-Feb-17           1-Feb-17         10:24         2-Feb-17           2-Feb-17         9:35         2-Feb-17           2-Feb-17         17:00         2-Feb-17	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE           1-Feb-17         9:37         2-Feb-17         12:30           1-Feb-17         14:45         1-Feb-17         16:35           1-Feb-17         10:24         2-Feb-17         13:39           2-Feb-17         9:35         2-Feb-17         11:15           2-Feb-17         17:00         2-Feb-17         17:45	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE         LEVEL START (FT)           1-Feb-17         9:37         2-Feb-17         12:30         66.11           1-Feb-17         14:45         1-Feb-17         16:35         83.60           1-Feb-17         10:24         2-Feb-17         13:39         105.05           2-Feb-17         9:35         2-Feb-17         11:15         80.09           2-Feb-17         17:00         2-Feb-17         17:45         79.61	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE START (FT)         LEVEL START (FT)         TOTAL DEPTH (FT)           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE START (FT)         LEVEL DEPTH (FT)         TOTAL DEPTH (FT)         LEVEL DEPTH (FT)           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE START (FT)         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL (Liters)           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE DATE         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL END (ET)         VOLUME IN WELL (Liters)         VOLUME REMOVED (mL)           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0         5500.0           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7         11000.0           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9         7500.0           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3         10000.0           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1         4500.0	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE DATE         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL END (FT)         VOLUME IN WELL (Liters)         VOLUME REMOVED (mL)         SAMPLE METHOD           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0         5500.0         Bladder           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7         11000.0         Bladder           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9         7500.0         Bladder           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3         10000.0         Bladder           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1         4500.0         Bladder	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE DATE         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL END (Liters)         VOLUME IN WELL (Liters)         VOLUME REMOVED (mL)         SAMPLE METHOD (°C)           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0         5500.0         Bladder         6.13           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7         11000.0         Bladder         7.42           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9         7500.0         Bladder         4.64           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3         10000.0         Bladder         7.70           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1         4500.0         Bladder         8.47	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE DATE         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL END (FT)         VOLUME IN WELL (Liters)         VOLUME REMOVED (mL)         SAMPLE METHOD (°C)         TEMP EC           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0         5500.0         Bladder         6.13         2641           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7         11000.0         Bladder         7.42         2657           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9         7500.0         Bladder         4.64         6231           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3         10000.0         Bladder         7.70         5326           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1         4500.0         Bladder         8.47         3417	PURGE DATE         PURGE DATE         SAMPLE DATE         OF SAMPLE DATE         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL END (Liters)         VOLUME IN WELL (Liters)         VOLUME REMOVED (mL)         SAMPLE METHOD TEMP (°C)         EC         pH           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0         5500.0         Bladder         6.13         2641         6.53           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7         11000.0         Bladder         7.42         2657         6.65           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9         7500.0         Bladder         4.64         6231         6.78           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3         10000.0         Bladder         7.70         5326         6.54           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1         4500.0         Bladder         8.47         3417         6.53	PURGE DATE         PURGE TIME         SAMPLE DATE         OF SAMPLE DATE         LEVEL START (FT)         TOTAL DEPTH (FT)         LEVEL END (Liters)         VOLUME IN WELL (Liters)         VOLUME REMOVED (mL)         SAMPLE METHOD TEMP (°C)         EC         pH         Turb. NTU           1-Feb-17         9:37         2-Feb-17         12:30         66.11         79.10         74.16         8.0         5500.0         Bladder         6.13         2641         6.53         93.40           1-Feb-17         14:45         1-Feb-17         16:35         83.60         97.74         83.63         8.7         11000.0         Bladder         7.42         2657         6.65         70.10           1-Feb-17         10:24         2-Feb-17         13:39         105.05         116.18         111.33         6.9         7500.0         Bladder         4.64         6231         6.78         832.00           2-Feb-17         9:35         2-Feb-17         11:15         80.09         87.00         83.34         4.3         10000.0         Bladder         7.70         5326         6.54         68.30           2-Feb-17         17:00         2-Feb-17         17:45         79.61         87.90         80.68         5.1         4500.0         B



WO# 82-0233 82-0234

## **OTP Coyote Station**

Slag Pond

Attn: Josh Hollen

PO Box 496

Fergus Falls, MN 56538-0496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TEMP (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Pond6	31-Jan-17	9:36	31-Jan-17	10:21	18.33	18.76	below pump	0.3	2500.0	Bladder	5.97	4840	7.16	3.42	clear
PondN3	31-Jan-17	12:00	31-Jan-17	16:20	12.64	37.05	18.06	15.0	26000.0	Bladder	7.09	5306	6.53	45.70	parly cloudy
Pond10	NA	NA	30-Jan-17	10:04	21.59	22.15	NA	0.3	NA	NA	NA	NA	NA	NA	insufficient volume for sampling
Pond12	30-Jan-17	10:59	30-Jan-17	12:09	37.23	40.10	37.70	1.8	7000.0	Bladder	8.06	3698	7.05	4.12	clear
Pond16S	30-Jan-17	13:05	30-Jan-17	16:30	38.89	48.85	NA	6.1	20500.0	Bladder	8.90	3176	6.91	9.96	clear
MW2S	31-Jan-17	17:20	31-Jan-17	17:50	23.88	38.55	28.87	9.0	3000.0	Bladder	5.17	4944	6.87	7.88	clear



### **Groundwater Assessment**

Company:	OTP Co	yote	
Event:	2017		
Sample ID:	Pond 6	2	
Sampling Pers	sonal: Darren	NIPOWARC	

Phone: (701) 258-9720

Weather Conditions:		Temp	· 31 °F		Wind:	1.120	7-25		Preci	n Sun	nv/Partiv C	Cloudy / Clou	dv
	Well Info		······································		· · · · · ·			Sa	·	Information			· •
Well Locked?	Yes	No				Purgi	ng Method:		dder		Control Settings		
Well Labeled?	<b>∀es</b>	No				Sampli	ng Method:	Blac	dder		Purge:	Щ	sec.
Casing Straight?	Υ <b>@</b> s	No				Dedica	ted Equip?:	Yes	150		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visi	ible		Duplicate	Sample?:	Yes	No		PSI:	<u>~</u>	
Repairs Necessary:	Repairs Necessary:					Duplicate	Sample ID:	-			Pumping R	ate: 50	mL/min
Casing	Diameter:		2"				,					_	
Water Level Befo	re Purge:		18,33	ft		F	Purge Date:	3/Jan	17	Time Purg	jing Began:	0936	am/pm
Total W	ell Depth:		18,76	ft		Well P	urged Dry?	Yes	NO	Time F	Purged Dry:		am/pm
Wel	ll Volume:		0,3	liters		Sa	ample Date:	315ani	7	Time o	f Sampling:	1021	am/pm
Depth to Top	of Pump:		17,20	ft									
Water Level After Sample: 17,20 ft		ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1	L Nitric					
Measurement Method: Electric Water Level Indicator			List:			·							
			(10.00)	Field	Maasura	monte							

### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0941	5.60	4443	7.05	10,10	221.6	6/2	17,20	250	Slightly twoid
2	0956	5,71	4627	7.09	7.82	209,3	1/10	17,20	750	clear
3	1001	5.97	4785	7,13	7,72	202.5	7.19	17,20	500	car
4	1006	6.18	4799	7,14	7.59	200.8	5.42	17,20	250	Car .
5	1011	5,58	4840	716	7.72	195,4	3,74	17.20	250	N
6	1016	5.82	4830	7.16	7,63	194,5	3.44	17,20	250	d
7	1021	5.97	4840	7,16	7.45	191.8	3.42	17,20	250	dr
8					, ,					
9										
10										

Stabilized: Yes No
Comments:

Total Volume Removed: 2500 mL



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID: Pon &	N3
Sampling Personal:	Parcer Nichwarz

Phone: (701) 258-9	720						_						
Weather Conditions:		Temp:	W °1	-	Wind:	Wind: ~30			Precip:	Sunn	y / Partly C	loudy / Clou	ıdy
	Well Info	rmation	1			Sampling Information							
Well Locked?	Æŝ	No				Purgir	ng Method:	Bla	dder		Со	ntrol Settings	3
Well Labeled?	Yes	No				Samplin	ng Method:	Bla	dder		Purge:	Y	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	Yes	No		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Vis	ibłė		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate:	Sample ID:				Pumping R	ate: /ුර	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		12.64	ft		F	urge Date:	315a	n17	Time Purgi	ng Began:	1200	am/pm
Total W	Vell Depth:	3	7,05	ft		Well P	urged Dry?	Yes	No	Time P	urged Dry:		am/pm
We	ell Volume:		15.1	liters		Sa	mple Date:	31 Jan	17	Time of	Sampling:	120	am/pm
Depth to Top	of Pump:	30	1.056	ft									
Water Level After	er Sample:	i	18.06	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			-
Measuremer	nt Method:	Electric	Water Level In	dicator		List:							
				T:-(-)	M								

### Field Measurements

Stabili	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1205	9.56	5300	6,56	341	113.9	373	13,72	500	Tubid
2	1230	9,53	5282	6.54	1,59	107.4	641	15,31	2500	Tubid
3	1300	9,20	5298	6,54	\$0.88	105.1	243	16,71	23000	Tursix
4	(330	8.56	5317	6.52	0.86	1026	144	17.18	3000	T-16.d
5	1400	8,84	5301	6,52	0,74	101.7	188,9	17.58	3000	3 lightly trylis
6	1430	8.39	5302	6,53	0,73	101.11	80.4	17.63	3000	5
7	1500	8,03	5308	6,53	0,87	10210	48.7	17.76	3000	57
8	1530	6.39	5324	6,54	0.96	102,7	54,0	118.02	3000	5T
9	1600	6,84	5326	657	0,67	99.1	3	18,00	3000	57
10	1710	680	5315	653	0.68	99,3	45.88	18,04	1000	Cles

Stabilized:

Total Volume Removed: \_\_\_\_\_mL

Comments:

ments:

( outrined Next page



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond N3	

Phone: (701) 258-9720

Sampling Personal: DKI/EN Niesway

Date:

### **Field Measurements**

Stabili (3 cons	zation ecutive)	Temp (°C)	Spec. Cond.	рН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
11	1615	7,03	5313	6,53	0.67	99,1	43.0	18,00	500	of I der
12	1620	7609	5306	6,53	0,16	99.1	45.7	18:05	500	du
13										
14										
15										
16		,						**************************************		
17										
18										
19										
20										
21		K				,				
22		<u></u>							·	
23	4-1441-4-									
24										
25										
26										
27					in-				`	
28										
29										
30	Yes								24 00 0	

Stabilized:

es/

No

Total Volume Removed: 16,000 mL

Comments:



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond10
Sampling Personal:	Darren Nieswaas

2616 E. Broadway Ave, Bismarck,	ΝE
Phone: (701) 259 0720	

													<del></del>	
Weather C	Conditions	*	Temp:	40	°F	Wind:	W 25			Precip:	Sunn	ıy / Partiy C	loudy / Clo	udy
		Well Info	ormation	( )			J		Sa	ımpling l	nformatio	on C		
We	ell Locked?	Yes	(No)				Purgi	ng Method:	Blac	lder		Со	ntrol Setting	s
We	II Labeled?	Yes	No				Sampli	ng Method:	Blac	lder	]	Purge:	·37	sec.
Casin	g Straight?	Yes	No				Dedicat	ed Equip?:	Yes	No		Recover:	57	sec.
Grout S	Seal Intact?	Yes	No	Not \	/isible		Duplicate	Sample?:	Yes	Nø		PSI:	-	
Repairs No	ecessary:						Duplicate	Sample ID:	<u> </u>			Pumping R	ate: / 0 6	mL/min
	Casing	g Diameter:		2"					/				$\overline{}$	
Wate	er Level Be	fore Purge:	2	-/,5	$\widehat{f}$ ft		F	urge Date:	30 ya	17	Time Purgi	ing Began:	1009	amupm
	Total \	Well Depth:	23	2-15	ft		Well P	urged Dry?	Yes	No	Time P	urged Dry:		am/pm
	W	ell Volume:		- O.	√ liters		Sa	mple Date:	30 Jan	1/7	Time of	Sampling:	1004	am/pm
Ī	Depth to To	p of Pump:	12	8.80	ft									
Wate	er Level Aft	ter Sample:	1.0	-	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
N	/leasureme	nt Method:	Electric V	Nater Level	Indicator		List:							
					Field	Measure	ements							
Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:			
	secutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	1	, Color, Odo			
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, p	partly cloudy,	cloudy		
1	1009													
2	,													
3														
4				`										
5														
6						$\overline{}$								
7 8							$\rightarrow$	<sup></sup>						
9														
10		<del>                                     </del>	<u> </u>											
Stabilized:	Yes	No	I			Т	otal Volume	Removed:	<u> </u>	mL				
Comments			volume in v	well and slo	ow recharge		ample set of			• · · · –	d at time of	sample field	d readings.	
		Date/Time			Date/Time			Date/Time			Date/Time			
Collected	1L Raw at:		Collecte Nitri	d 500mL c at:			d 1L Nitrics at:		Collected a					
	h	Sent.	back	and	90  a	i wati	kr le	vel of	21,	63.				



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond 12	
Sampling Per	rsonal: Darran Nicswan	

Phone: (701) 258-9720

Weather Conditions:	***************************************	Temp:	37 °F		Wind:	W25-	30		Precip	: Suni	ny / Partly	Houdy / Clou	udy
	Well Info	rmation						S	ampling l	nformatio	on		
Well Locked?	Yes	NO				Purging	Method:	Bla	dder		Co	ntrol Settings	s
Well Labeled?	Yes	No	-			Sampling	Method:	Bla	dder		Purge:	4	sec.
Casing Straight?	Yes	No		_		Dedicated	Equip?:	Yes	NO	1	Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not-Visit	ile		Duplicate Sa	mple?:	Yes	No		PSI:	~	
Repairs Necessary:						Duplicate Sar	nple ID:				Pumping R	ate: / 0 o	mL/min
Casing	Diameter:		2"						***************************************	_	-		
Water Level Bef	ore Purge:	(	37.23	ft		Purg	e Date:	30 J	m17	Time Purg	ing Began:	1059	∕am⁄pm
Total V	Vell Depth:	Ĺ	+0,00	ft		Well Purg	ed Dry?	Yes	∕No ̂	Time F	urged Dry:		am/pm
We	ell Volume:		1.8	liters		Samp	le Date:	30 Ja,	217	Time of	f Sampling:	1209	am/pm
Depth to To	o of Pump:	3-	7,70	ft				***************************************				-	
Water Level After	er Sample:	3	7,70	ft		Bottle CO	R: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremer	nt Method:	Electric	Water Level Indi	cator		List:							

### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	,±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1/04	7,46	3713	6.92	1,92	182.9	50.8	37.65	500	Slightly twoid
2	11119	7,79	3711	6,97	0,94	9412	21,2	37,70	1500	C.T.
3	1129	790	3705	7,02	0.73	62,4	15,7	37.70	1900	Class
4	11139	7,94	3197	7.03	0164	65:4	10.1	37,78	1000	Ch -
5	1149	7.91	3695	7,64	0,60	70,6	6.49	37.70	1000	r Cen
6	1154	7,97	3/94	7.05	0.58	72.5	5,73	37.70	\$500	Ca-
7	170/159	801	3692	7,05	0.56	75.5	4.51	37.20	500	N
8	1204	8.02	3194	7.05	0,57	76.0	4,27	37.70	500	Ch
9	1209	8.06	3698	7.05	0,55	77,8	4,12	37.71	50 x	1
10				• •						

Stabilized: Yes No

Total Volume Removed: 7000 mL



**Groundwater Assessment** 

Company:	OTP Co	yote	
Event:	2017		
Sample ID:	Pond 16	4.	
Sampling Pe	rsonal: Ac ((en	N TPSuchac	

Phone: (701) 258-9	9720					-	Sampling r	ersonar.	Jallen,	N J FS Wa	a s	
Weather Conditions:		Temp:	44 °F	Wind:	W 30	>		Precip	Suni	ny / Partly C	loudy / Ølou	ıdy
	Well Info	rmation				120000000000000000000000000000000000000	Sa	ampling I	nformatio	on		
Well Locked?	Yes	No			Purgi	ing Method:	Blac	dder		Co	ntrol Settings	3
Well Labeled?	Yes	No			Sampli	ing Method:	Blac	dder		Purge:	<u>"</u>	sec.
Casing Straight?	Yes	No			Dedica	ted Equip?:	Yes	<b>ANO</b>		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visible		Duplicate	e Sample?:	Yes	No		PSI:		
Repairs Necessary:					Duplicate	Sample ID:				Pumping Ra	ate: / 0 0	mL/min
Casing	Diameter:		2"						=		•	
Water Level Bef	ore Purge:	32	8,89 ft		I	Purge Date:	30TAn	17	Time Purg	ing Began:	1305	am/p͡m
Total W	Vell Depth:	48	ft 85		Well F	urged Dry?	Yes	No	Time F	urged Dry:	· ·	am/pm
We	ell Volume:		6.2 liters		Sa	ample Date:	305g	17	Time of	Sampling:	1630	am/pm
Depth to Top	o of Pump:	46	,07 ft									
Water Level Afte	er Sample:		ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			-
Measuremen	nt Method:	Electric W	Vater Level Indicator		List:							
			Field	Magazira								

### Field Measurements

Stabili	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1310	8,78	3219	6.76	0,6	76.6	109	39,55	500	Turbid
2	1330	8.97	3247	6,74	0142	19,2	79.3	39,79	2,000	+Slidstiv tub. A
3	1350	9117	3262	6.74	0,38	729	53.9	40,06	2000	ST
4	1410	9.16	3251	6.76	0.35	74.0	40.2	40.29	2000	S.T.
5	1450						-28.1		4,000	35
6	1530						19,2	40,54	4000	CG
7	1610						11.2		4000	(Cen
8	1620	8195	3182	6,90	0,23	51.6	9.96	40.81	1000	cu
9	1625	8,86	3182	6,90	0.24	51,4	9,59	40.76	500	ch
10	1430	8,90	3176	6,91	0.23	50,7	9,96	HO.79	501	d

Stabilized: Yes No Comments:

Total Volume Removed: 20,500 mL



### **Groundwater Assessment**

Company: OTP Coyote

Event: 2017

Sample ID: MW25

Sampling Personal: Dyvan Wicsward

Phone: (701) 258-9720

							_						
Weather Conditions:		Temp:	25°F		Wind:	W	20		Precip:	Sunr	ıy / Partly C	loudy / Clou	ıdy
V	Vell Info	rmation						Sa	mpling Ir	nformatio	on		
Well Locked?	Yes	(No)				Purgi	ing Method:	Blad	lder		Со	ntrol Settings	
Well Labeled?	Yes	No				Sampli	ing Method:	Blac	lder		Purge:	4	sec.
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	No		Recover:	56	sec.
Grout Seal Intact?	Yes	No	Not Visit	le		Duplicate	Sample?:	Yes	₩e		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: <i>100</i>	mL/min
	Diameter:		2"										
Water Level Befor			23,28	ft			Purge Date:	31700	17	Time Purg	ing Began:	1720	am/prfi
	ell Depth:		38,55	ft		Well F	urged Dry?	Yes	<b>1</b>	Time P	urged Dry:		am/pm
Well	Volume:		9.1	liters		Sa	ample Date:	315g,	117	Time of	Sampling:	1750	am/ഉതി
Depth to Top of	of Pump:	3	4.38	ft					7				
Water Level After			8,87	ft		Bottle	CCR: 1L Ra	w, 500mL	Nitric, 4-1L	Nitric			
Measurement		Electric V	Vater Level Indi	icator		List:							
		*****											

### Field Measurements

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1725	5,98	4993	.6.81	7.12	11217	587	25.29	500	dr-
2 /	43 1730	5,91	4992	6,81	7,06	112:1	5,00	25,82	500	cu/
3	1135	5,97	49/6	6,83	7,23	112,4	6.02	26,94	500	
4	1740	5,89	4948	6,85	7.26	11216	7.38	27,67	500	
5	1745	5.0%	4951	6.86	7,28	112,7	7.67	27.71	500	
6	1750	5117	4944	6,87	7.30	112 3	7,88	27.86	500	
7	1 7			-010			,,,			
8										:
9										
10									2000	

Stabilized: Yes No

Comments:

Total Volume Removed: 3000 mL



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### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201782-0234

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: CCR Pond Event & Year Jan 2017

MVTL Laboratory Identifications: 17-W234 through 17-W239

Page 1 of 2

Sample Identification	MVTL Laboratory #
Field Blank (FB)	17-W234
Pond6	17-W235
PondN3	17-W236
Pond 10	No sample
Pond12	17-W237
Pond16S	17-W238
MW2S	17-W239

#### I. RECEIPT

- All samples were received at the laboratory on 1 Feb 2017 at 800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 1.8°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

### III. METHODS

- · Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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### **CASE NARRATIVE**

MVTL Lab Reference No/SDG:

Client:

Location:

Project Identification: Event & Year

**MVTL Laboratory Identifications:** 

Page 2 of 2

201782-0234

Ottertail Power Company

**Coyote Station** 

**CCR Pond** 

Jan 2017

17-W234 through 17-W239

### IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - For some analytes, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
  - The recoveries for two lithium matrix spike/matrix spike duplicate were outside the acceptable limits. RPD for the recoveries was within limits. Poor recoveries were determined to be due to sample matrix. Data was accepted based on acceptable recovery of the LCS. No further action was taken.

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## **MVTL**

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**Quality Control Report** 

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	105	80-120	0.400 0.400	17W100q 17W239q	0.0011 < 0.001	0.4196 0.4298	105 107	75-125 75-125	0.4196 0.4298	0.4260 0.4364	106 109	1.5 1.5	20 20	-	-	< 0.001
Arsenic - Total mg/l	0.1000	101	80-120	0.400 0.400	17W100q 17W239q	0.0092 < 0.002	0.4488 0.4448	110 111	75-125 75-125	0.4488 0.4448	0.4534 0.4456	111 111	1.0 0.2	20 20	-	-	< 0.002
Barium - Total mg/l	0.1000	97	80-120	0.400 0.400	17W100q 17W239q	0.2272 0.0134	0.6248 0.4214	99 102	75-125 75-125	0.6248 0.4214	0.6270 0.4218	100 102	0.4 0.1	20 20		-	< 0.002
Beryllium - Total mg/l	0.1000	105	80-120	0.400 0.400	17W100q 17W239q	< 0.0005 < 0.0005	0.4358 0.4484	109 112	75-125 75-125	0.4358 0.4484	0.4452 0.4530	111 113	2.1	20 20	_	-	< 0.0005
Boron - Total mg/l	0.40 0.40	95 90	80-120 80-120	0.400	17-W239	0.21	0.56	88	75-125	0.56	0.57	90	1.8	20	- - -	-	< 0.1 < 0.1 < 0.1
Cadmium - Total mg/l	0.1000	112	80-120	0.400 0.400	17W100q 17W239q	< 0.0005 < 0.0005	0.4600 0.4396	115 110	75-125 75-125	0.4600 0.4396	0.4666 0.4406	117 110	1.4 0.2	20 20	-	-	< 0.0005
Calcium - Total mg/l	20.0	102	80-120	100 500 500 500 5000 100 500 500	17-M156 17-M165 17-M167 17-M169 17-M154 17-M171 17W237q 17W261q	47.4 332 755 11.0 2530 78.6 164 148	145 830 1240 555 7200 173 660 640	98 100 97 109 93 94 99 98	75-125 75-125 75-125 75-125 75-125 75-125 75-125 75-125	660 640	630 660	93 102	4.7 3.1	20 20	-		< 1 < 1 < 1
Chloride mg/l	30.0 30.0	86 86	80-120 80-120	30.0 30.0	17-D265 17-W240	35.5 43.5	65.6 73.9	100 101	80-120 80-120	65.6 73.9	64.9 72.6	98 97	1.1 1.8	20 20	-	- -	< 1 < 1
Chromium - Total mg/l	0.1000	92	80-120	0.400 0.400	17W100q 17W239q	0.0115 < 0.002	0.3884 0.3804	94 95	75-125 75-125	0.3884 0.3804	0.3972 0.3846	96 96	2.2 1.1	20 20		-	< 0.002
Cobalt - Total mg/l	0.1000	93	80-120	0.400 0.400	17W100q 17W239q	0.0046 < 0.002	0.3862 0.3830	95 96	75-125 75-125	0.3862 0.3830	0.3992 0.3886	99 97	3.3 1.5	20 20		-	< 0.002

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**Quality Control Report** 

Lab IDs: 17-W234 to 17-W239 Project: OTP Coyote CCR Pond 2017 Work Order: 201782-0234

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Fluoride mg/l	0.50	106	90-110	0.500 0.500	17-W237 17-W239	0.11 0.32	0.63 0.76	104 88	80-120 80-120	0.63 0.76	0.64 0.76	106 88	1.6 0.0	20 20	-	-	< 0.1 < 0.1
Lead - Total mg/l	0.1000	91	80-120	0.400 0.400	17W100q 17W239q	0.0066 < 0.0005	0.3560 0.3800	87 95	75-125 75-125	0.3560 0.3800	0.3560 0.3776	87 94	0.0	20 20	-	-	< 0.0005
Lithium - Total mg/l	0.40 0.40	100 100	80-120 80-120	0.400 0.200 0.400	17-W239 17-W239 17-W261	0.51 0.51 0.12	1.09 0.75 0.68	145 120 140	75-125 75-125 75-125	1.09 0.75 0.68	1.04 0.73 0.68	132 110 140	4.7 2.7 0.0	20 20 20	-	-	< 0.1 < 0.1 < 0.1
Mercury - Total mg/l	0.0020	95	85-115	0.002 0.002 0.002	A2179 17-W236 17-W261	< 0.0002 < 0.0002 < 0.0002	0.0017 0.0018 0.0018	85 90 90	70-130 70-130 70-130	0.0017 0.0018 0.0018	0.0019 0.0018 0.0018	95 90 90	11.1 0.0 0.0	20 20 20	-	-	< 0.0002
Molybdenum - Total mg/l	0.1000	97	80-120	0.400 0.400	17W100q 17W239q	0.0154 < 0.002	0.4192 0.4276	101 107	75-125 75-125	0.4192 0.4276	0.4188 0.4308	101 108	0.1	20 20	-	-	< 0.002
pH units	-	-	-	_	-	-	-	-	-	9.7 6.8	9.7 6.9	-	0.0	20 20	-	-	-
Selenium - Total mg/l	0.1000	112	80-120	0.400 0.400	17W100q 17W239q	< 0.002 0.1080	0.4884 0.6054	122 124	75-125 75-125	0.4884 0.6054	0.4928 0.6020	123 124	0.9	20 20	-	_	< 0.002
Sulfate mg/l	100 100	100 103	80-120 80-120	100 2000 200	17-W234 17-W239 17-W240	< 5 2820 235	93.4 4710 401	93 94 83	80-120 80-120 80-120	93.4 4710 401	98.0 4430 399	98 80 82	4.8 6.1 0.5	20 20 20	-	-	< 5 < 5
Thallium - Total mg/l	0.1000	98	80-120	0.400 0.400	17W100q 17W239q	< 0.0005 < 0.0005	0.3746 0.3932	94 98	75-125 75-125	0.3746 0.3932	0.3730 0.3840	93 96	0.4 2.4	20 20	-	-	< 0.0005
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	4590	4690	-	2.2	20	-	1	< 5

Approved by: C. CAMIT P

20 FEB 17



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Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Pond 2017

Sample Description: Field Blank (FB)

Event and Year: January 2017

Page: 1 of 1

Report Date: 16 Feb 17 Lab Number: 17-W234 Work Order #:82-0234 Account #: 006106

Date Sampled: 31 Jan 17

Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.8C ROI

	As Receive Result	d	Method RL	Method Reference	Da An	te alyze	ed		Analyst	
Metal Digestion		0.5-11		EPA 200.2	1	Feb	17	J. 73	SVS	-
Lab, pH	* 8.2	s.u.	0.1	SM4500 H+ B	1	Feb	17 1	17:00	svs	
Field Appearance	Clear		NA	SM 2110	31	Jan	17		DJN	
Fluoride	< 0.1	mg/1	0.10	SM4500-F-C	1	Feb	17 1	17:00	SVS	
Sulfate	< 5	mg/1	5.00	ASTM D516-07	3	Feb	17	8:23	EMS	
Chloride	< 1	mg/l	1.0	SM4500-C1-E	2	Feb	17	9:13	EMS	
Mercury - Total	< 0.0002	mg/l	0,0002	EPA 245.1	7	Feb	17 1	11:27	EV	
Total Dissolved Solids	< 5	mg/1	10	I1750-85	1	Feb	17 1	15:03	SVS	
Calcium - Total	< 1	mg/l	1.0	6010	9	Feb	17	9:44	KMD	
Lithium - Total	< 0.1	mg/1	0.10	6010	15	Feb	17 1	13:15	KMD	
Boron - Total	< 0.1	mg/1	0.10	6010	3	Feb	17 1	10:46	KMD	
Antimony - Total	< 0.001	mg/l	0,0010	6020	3	Feb	17	9:40	KMD	
Arsenic - Total	< 0.002	mg/l	0.0020	6020	3	Feb	17	9:40	KMD	
Barium - Total	< 0.002	mg/l	0,0020	6020	3	Feb	17	9:40	KMD	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	3	Feb	17	9:40	KMD	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	3	Feb	17	9:40	KMD	
Chromium - Total	< 0.002	mg/l	0.0020	6020	3	Feb	17	9:40	KMD	
Cobalt - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD	
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	3	Feb	17	9:40	KMD	
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD	
Selenium - Total	< 0.005 ^	mg/l	0,0020	6020	3	Feb	17	9:40	KMD	
Thallium - Total	< 0.0005	mg/1	0.0005	6020	3	Feb	17	9:40	KMD	

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

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

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

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Pond 2017

Sample Description: Pond6

Event and Year: January 2017

Page: 1 of 1

Report Date: 16 Feb 17 Lab Number: 17-W235 Work Order #:82-0234 Account #: 006106

Date Sampled: 31 Jan 17 10:21 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.8C ROI

	As Receive Result	ed	Method RL	Method Reference		te alyz	ed		Analyst	
Metal Digestion	4.0.4			EPA 200.2	1	Feb	17	et a r	SVS	_
Lab, pH	* 7.5	s.u.	0.1	SM4500 H+ B	1	Feb	17	17:00	SVS	
Field pH	7.16	s.u.	0.1	SM 4500 H+ B	31	Jan	17	10:21	DJN	
Field Appearance	Clear		NA	SM 2110	31	Jan	17	10:21	DJN	
Field Temperature	5.97	Degrees C	0.1	SM 2550B	31	Jan	17	10:21	DJN	
Field Conductivity	4840	umhos/cm	1	EPA 120.1	31	Jan	17	10:21	DJN	
Fluoride	0.51	mg/1	0.10	SM4500-F-C	1	Feb	17	17:00	SVS	
Sulfate	1850	mg/l	5.00	ASTM D516-07	3	Feb	17	8:23	EMS	
Chloride	23.5	mg/l	1.0	SM4500-C1-E	2	Feb	17	9:13	EMS	
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	7	Feb	17	11:27	EV	
Total Dissolved Solids	3600	mg/l	10	I1750-85	1	Feb	17	15:03	SVS	
Calcium - Total	146	mg/1	1.0	6010	9	Feb	17	9:44	KMD	
Lithium - Total	< 0.1	mg/1	0.10	6010	15	Feb	17	13:15	KMD	
Boron - Total	2.36	mg/1	0.10	6010	3	Feb	17	10:46	KMD	
Antimony - Total	< 0.001	mg/l	0.0010	6020	3	Feb	17	9:40	KMD	
Arsenic - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD	
Barium - Total	0.0360	mg/1	0.0020	6020	3	Feb	17	9:40	KMD	
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	3	Feb	17	9:40	KMD	
Cadmium - Total	0.0011	mg/1	0.0005	6020	3	Feb	17	9:40	KMD	
Chromium - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD	
Cobalt - Total	0.0193	mg/l	0.0020	6020	3	Feb	17	9:40	KMD	
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	3	Feb	17	9:40	KMD	
Molybdenum - Total	0.0082	mg/l	0.0020	6020	3	Feb	17	9:40	KMD	
Selenium - Total	< 0.005 ^	mg/1	0.0020	6020	3	Feb	17	9:40	KMD	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	3	Feb	17	9:40	KMD	

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Cantlo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to conduct to the sample quantity # = Due to interpret to the sample quantity

# = Due to concentration of other analytes + = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Pond 2017

Sample Description: PondN3

Event and Year: January 2017

Page: 1 of 1

Report Date: 16 Feb 17 Lab Number: 17-W236 Work Order #:82-0234 Account #: 006106

Date Sampled: 31 Jan 17 16:20 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.8C ROI

	As Receive Result	ed	Method RL	Method Reference	Da An	te alyze	ed		Analyst
Metal Digestion				EPA 200.2	1	Feb	17		svs
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	1	Feb	17	17:00	SVS
Field pH	6.53	s.u.	0.1	SM 4500 H+ B	31	Jan	17	16:20	DJN
Field Appearance	Clear		NA	SM 2110	31	Jan	17 :	16:20	NLG
Field Temperature	7.09	Degrees C	0.1	SM 2550B	31	Jan	17	16:20	DJN
Field Conductivity	5306	umbos/cm	1	EPA 120.1	31	Jan	17 :	16:20	DJN
Fluoride	0.31	mg/1	0.10	SM4500-F-C	1.	Feb	17 3	17:00	svs
Sulfate	2970	mg/l	5.00	ASTM D516-07	3	Feb	17	8:23	EMS
Chloride	35.0	mg/1	1.0	SM4500-C1-E	2	Feb	17	9:13	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	7	Feb	17	11:27	EV
Total Dissolved Solids	4860	mg/1	10	I1750-85	1.	Feb	17	15:03	SVS
Calcium - Total	500	mg/l	1.0	6010	9	Feb	17	9:44	KMD
Lithium - Total	0.57	mg/l	0.10	6010	15	Feb	17	13:15	KMD
Boron - Total	0.36	mg/l	0.10	6010	3	Feb	17	10:46	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	3	Feb	17	9:40	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
Barium - Total	0.0169	mg/l	0,0020	6020	3	Feb	17	9:40	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	3	Feb	17	9:40	KMD
Cadmium - Total	0.0006	mg/l	0.0005	6020	3	Feb	17	9:40	KMD
Chromium - Total	0.0026	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
Cobalt - Total	0.0052	mg/l	0.0020	6020	3	Feb	17	9:40	KMD
Lead - Total	< 0.001 ^	mg/1	0.0005	6020	3	Feb	17	9:40	KMD
Molybdenum - Total	0.0035	mg/l	0.0020	6020	3	Feb	17	9:40	KMD
Selenium - Total	0.0853	mg/l	0.0020	6020	3	Feb	17	9:40	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	3	Feb	17	9:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\theta$  = Due to sample matrix  $\theta$  = Due to continuous  $\theta$  = Due to sample quantity  $\theta$  = Due to int

# = Due to concentration of other analytes
+ = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Pond 2017

Sample Description: Pond12

Event and Year: January 2017

1 of 1 Page:

Report Date: 16 Feb 17 Lab Number: 17-W237 Work Order #:82-0234 Account #: 006106

Date Sampled: 31 Jan 17 12:09 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.8C ROI

	As Receive Result	ed	Method RL	Method Reference	Da An	te alyze	ed		Analyst
Metal Digestion				EPA 200.2	1	Feb	17	-	svs
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	1	Feb	17 1	17:00	SVS
Field pH	7.05	s.u.	0.1	SM 4500 H+ B	31	Jan	17 1	12:09	DJN
Field Appearance	Clear		NA	SM 2110	31	Jan	17 1	12:09	DJN
Field Temperature	8.06	Degrees C	0.1	SM 2550B	31	Jan	17 1	12:09	DJN
Field Conductivity	3698	umhos/cm	1	EPA 120.1	31	Jan	17 1	12:09	DJN
Fluoride	0.11	mg/1	0.10	SM4500-F-C	1	Feb	17 1	17:00	SVS
Sulfate	1610	mg/l	5.00	ASTM D516-07	3	Feb	17	8:23	EMS
Chloride	21.3	mg/l	1.0	SM4500-C1-E	2	Feb	17	9:13	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	7	Feb	17 1	1:27	EV
Total Dissolved Solids	2740	mg/1	10	I1750-85	1	Feb	17 1	15:03	SVS
Calcium - Total	164	mg/l	1.0	6010	9	Feb	17	9:44	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	1.5	Peb	17 1	13:15	KMD
Boron - Total	1.81	mg/l	0.10	6010	3	Feb	17 1	10:46	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	3	Feb	17	9:40	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
Barium - Total	0.0197	mg/l	0.0020	6020	3	Feb	17	9:40	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	3	Feb	17	9:40	KMD
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	3	Feb	17	9:40	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	3	Feb	17	9:40	KMD
Cobalt - Total	0.0079	mg/l	0.0020	6020	3	Feb	17	9:40	KMD
Lead - Total	< 0.001 ^	mg/1	0.0005	6020	3	Feb	17	9:40	KMD
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
Selenium - Total	< 0.005 ^	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
Thallium - Total	< 0.0005	mg/1	0.0005	6020	3	Feb	17	9:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudite K. Canto

2086617

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Pond 2017

Sample Description: Pond16S

Event and Year: January 2017

Page: 1 of 1

Report Date: 16 Feb 17 Lab Number: 17-W238 Work Order #:82-0234 Account #: 006106

Date Sampled: 31 Jan 17 16:30 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.8C ROI

	As Receive Result	eđ	Method RL	Method Reference	Date Analy	zed		Analyst
Metal Digestion				EPA 200.2	1 Fe	b 17	V. L.	SVS
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	1 Fe	b 17	17:00	SVS
Field pH	6.91	s.u.	0.1	SM 4500 H+ B	31 Ja	in 17	16:30	DJN
Field Appearance	Clear		NA	SM 2110	31 Ja	n 17	16:30	DJN
Field Temperature	8.90	Degrees C	0.1	SM 2550B	31 Ja	in 17	16:30	DJN
Field Conductivity	3176	umhos/cm	1	EPA 120.1	31 Ja	n 17	16:30	DJN
Fluoride	0.26	mg/1	0.10	SM4500-F-C	1 Fe	b 17	17:00	SVS
Sulfate	1430	mg/1	5.00	ASTM D516-07	3 Fe	b 17	8:23	EMS
Chloride	20.7	mg/1	1.0	SM4500-C1-E	2 Fe	b 17	9:13	EMS
Mercury - Total	< 0.0002	mg/l	0,0002	EPA 245.1	7 Fe	b 17	11:27	EV
Total Dissolved Solids	2400	mg/l	10	I1750-85	1 Fe	b 17	15:03	SVS
Calcium - Total	196	mg/l	1.0	6010	9 Fe	b 17	9:44	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	15 Fe	b 17	13:15	KMD
Boron - Total	1.79	mg/1	0.10	6010	3 Fe	b 17	10:46	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	3 Fe	b 17	9:40	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	3 Fe	b 17	9:40	KMD
Barium - Total	0.0308	mg/l	0.0020	6020	3 Fe	b 17	9:40	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	3 Fe	b 17	9:40	KMD
Cadmium - Total	0.0017	mg/l	0.0005	6020	3 Fe	b 17	9:40	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	3 Fe	b 17	9:40	KMD
Cobalt - Total	0.0293	mg/l	0.0020	6020	3 Fe	b 17	9:40	KMD
Lead - Total	< 0.001 ^	mg/1	0.0005	6020	3 Fe	b 17	9:40	KMD
Molybdenum - Total	0.0079	mg/l	0.0020	6020	3 Fe	b 17	9:40	KMD
Selenium - Total	< 0.005 ~	mg/l	0.0020	6020	3 Fe	b 17	9:40	KMD
Thallium - Total	< 0.0005	mg/1	0.0005	6020	3 Fe	b 17	9:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canto

ic 2066617

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\theta$  = Due to sample matrix  $\theta$  = Due to sample quantity  $\theta$  = Due to integrate the sample quantity

# = Due to concentration of other analytes + = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR Pond 2017

Sample Description: MW2S

Event and Year: January 2017

Page: 1 of 1

Report Date: 16 Feb 17 Lab Number: 17-W239 Work Order #:82-0234 Account #: 006106

Date Sampled: 31 Jan 17 17:50 Date Received: 1 Feb 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.8C ROI

Result	ed	Method RL	Method Reference	Da An	alyze	ed		Analyst
	-		EPA 200.2	1	Feb	17	II IT	svs
* 7.2	s.u.	0.1	SM4500 H+ B	1	Feb	17	17:00	SVS
6.87	s.u.	0.1	SM 4500 H+ B	31	Jan	17	17:50	DJN
Clear		NA	SM 2110	31	Jan	17	17:50	DJN
	Degrees C	0.1	SM 2550B	31	Jan	17	17:50	DJN
4944	umhos/cm	1	EPA 120.1	31	Jan	17	17:50	DJN
0.32	TANKS OF THE REAL PROPERTY OF THE PROPERTY OF	0.10	SM4500-F-C	1	Feb	17	17:00	SVS
2820		5.00	ASTM D516-07	3	Feb	17	8:44	EMS
23.0		1.0	SM4500-C1-E	2	Feb	17	9:13	EMS
		0.0002	EPA 245.1	7	Feb	17	11:27	EV
		10	I1750-85	1	Feb	17	15:03	svs
515		1.0	6010	9	Feb	17	9:44	KMD
0.51		0.10	6010	15	Feb	17	13:15	KMD
		0.10	6010	3	Feb	17	10:46	KMD
< 0.001		0.0010	6020	3	Feb	17	9:40	KMD
< 0.002		0.0020	6020	3	Feb	17	9:40	KMD
0.0134		0.0020	6020	3	Feb	17	9:40	KMD
< 0.0005		0.0005	6020	3	Feb	17	9:40	KMD
< 0.0005		0.0005	6020	3	Feb	17	9:40	KMD
< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
< 0.002	mg/1	0.0020	6020	3	Feb	17	9:40	KMD
< 0.001 *		0.0005	6020	3	Feb	17	9:40	KMD
< 0.002		0.0020	6020	3	Feb	17	9:40	KMD
0.1080		0.0020	6020	3	Feb	17	9:40	KMD
< 0.0005	mg/l	0.0005	6020	3	Feb	17	9:40	KMD
	* 7.2 6.87 Clear 5.17 4944 0.32 2820 23.0 < 0.0002 4590 515 0.51 0.21 < 0.001 < 0.002 0.0134 < 0.0005 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002 < 0.002	* 7.2 s.u. 6.87 s.u. Clear 5.17 Degrees C 4944 umhos/cm 0.32 mg/l 2820 mg/l 23.0 mg/l < 0.0002 mg/l 4590 mg/l 0.51 mg/l 0.51 mg/l 0.01 mg/l < 0.0002 mg/l < 0.0002 mg/l < 0.0003 mg/l < 0.0005 mg/l < 0.0005 mg/l < 0.0005 mg/l < 0.0005 mg/l < 0.0002 mg/l < 0.0005 mg/l < 0.0002 mg/l < 0.0001 mg/l < 0.0005 mg/l < 0.0002 mg/l < 0.0002 mg/l < 0.0003 mg/l < 0.0004 mg/l < 0.0005 mg/l < 0.0005 mg/l < 0.0006 mg/l < 0.0007 mg/l < 0.0008 mg/l < 0.0009 mg/l < 0.0009 mg/l < 0.00009 mg/l	* 7.2 s.u. 0.1 6.87 s.u. 0.1 Clear NA 5.17 Degrees C 0.1 4944 umhos/cm 1 0.32 mg/l 0.10 2820 mg/l 5.00 23.0 mg/l 1.0 < 0.0002 mg/l 0.0002 4590 mg/l 1.0 0.51 mg/l 0.10 0.51 mg/l 0.10 0.21 mg/l 0.10 < 0.001 mg/l 0.10 < 0.002 mg/l 0.0020 0.0134 mg/l 0.0020 0.0134 mg/l 0.0020 0.0134 mg/l 0.0020 < 0.0005 mg/l 0.0020 < 0.0005 mg/l 0.0020 < 0.0005 mg/l 0.0020 < 0.0007 mg/l 0.0020 < 0.0008 mg/l 0.0020 < 0.0009 mg/l 0.0020 < 0.0009 mg/l 0.0020 < 0.0009 mg/l 0.0020 < 0.0009 mg/l 0.0020 < 0.0000 mg/l 0.0020 < 0.0000 mg/l 0.0020 < 0.0001 mg/l 0.0020 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245.1 7 Feb 17 4590 mg/l 10 11750-85 1 Feb 17 515 mg/l 0.10 6010 9 Feb 17 0.51 mg/l 0.10 6010 9 Feb 17 0.51 mg/l 0.10 6010 3 Feb 17 < 0.0002 mg/l 0.0002 SM500-Cl-E 3 Feb 17 0.21 mg/l 0.10 6010 3 Feb 17 0.0134 mg/l 0.0010 6020 3 Feb 17 0.0134 mg/l 0.0020 6020 3 Feb 17 0.0005 mg/l 0.0020 6020 3 Feb 17 0.0005 mg/l 0.0005 6020 3 Feb 17 0.0002 mg/l 0.0005 6020 3 Feb 17 0.0002 mg/l 0.0005 6020 3 Feb 17 0.0002 mg/l 0.0005 6020 3 Feb 17 0.0002 mg/l 0.0005 6020 3 Feb 17 0.0002 mg/l 0.0005 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17 0.0002 mg/l 0.0020 6020 3 Feb 17	* 7.2

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



# **Chain of Custody Record**

Projec	ct Name:				Name of Sampler(s):
	OTP Coyote C	CCR	Pond	2017	Darren Nieswaag
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496		Carbon Copy: Attn: Address:	OTP Josh Hollen	Work Order Number:
Email:	Fergus Falls, MN 56538-0496 pvukonich@otpco.com		Email:	jhollen@otpco.com	89-0009

	Samp	le Information	on				Bot	tle Type	Fi	eld Para	meters	Analysis
cab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	500 ml HMG	1 liter		Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
Nazy	Field Blank (FB)	3/Jan 17	NA	W	Clear	Х	Х		NA	NA	NA	
N335	Pond6	31Jan17	1021	GW	clear	Х	X		5.97	4840	7.16	
N836	PondN3	3/5017	1620	GW	clear	Х	Х		7.09	5306	6,53	
~	Pond10	30 Jan 7	1004	GW	_	X	X D	2 305an7		_		
1837	Pond12	305an17	1209	GW	Clear	X	X		8.06	3698	7,05	OTP CCR List.
V238	Pond16S /	30Jan7	1630	GW	clear	Х	X		8.90	3176	6,91	No RadChem.
Waza	MW2S	3/Jan17	1750	GW	clear	Х	Х		5117	4944	6.87	
						5						

Comments:

	Transferred by:	Sample Condition	Date/Time	A Received by:	Sample Condition	Date/Time	° C
1	Dine Nin	Walkin 2	3/ Tan 17	Ungel Simonos	1	800 800	RO51.8
2		12 13					-TM 588
3				1			317m17 0N



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



March 23, 2017

Otter Tail Power Company Attn: Josh Hollen P.O. Box 496 Fergus Falls, MN 56538-0496

RE: Coyote Station Groundwater Sampling - March 2017

Dear Mr. Hollen,

From February 27 – March 2, 2017, MVTL Laboratories' Field Services division collected groundwater samples from wells with sufficient volume at the Coyote Station near Beulah, ND. The six wells from the Blue Pit, and six wells from the Slag Pond site were purged and sampled at a low rate with a bladder pump. The wells were found to be in good condition. Well POND10 had an insufficient volume to collect a sample. Samples collected were placed on ice and then transported back to the MVTL laboratory in Bismarck, ND for analysis.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer MVTL Field Services



WO# 82-0495 82-0496

# **OTP Coyote Station**

Slag Pond

Attn: Josh Hollen

PO Box 496

Fergus Falls, MN 56538-0496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TEMP (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Pond6	1-Mar-17	14:12	1-Mar-17	15:02	18.00	18.76	below pump	0.5	5000.0	Bladder	7.94	5123	7.26	2.00	clear
PondN3	1-Mar-17	9:10	1-Mar-17	11:10	12.00	37.05	16.71	15.4	12000.0	Bladder	7.60	5312	6.67	93.00	pariy cloudy
Pond10	NA	NA	27-Feb-17	9:23	21.63	22.10	NA	0.3	NA	NA	NA	NA	NA	NA	insufficient volume for sampling
Pond12	2-Mar-17	9:21	2-Mar-17	10:21	37.41	40.10	37.67	1.7	6000.0	Bladder	7.69	3628	7.20	7.46	clear
Pond16S	2-Mar-17	11:30	2-Mar-17	12:55	39.17	48.85	40.49	6.0	8500.0	Bladder	8.00	3205	6.89	30.60	clear
MW2S	1-Mar-17	12:06	1-Mar-17	13:06	23.94	38.55	30.51	9.0	6000.0	Bladder	8.16	5033	7.01	4.97	clear
						····									



WO# 82-0465 82-0466

# **OTP Coyote Station**

Blue Pit

Attn: Josh Hollen PO Box 496

Fergus Falls, MN 56538-0496

	ÆLL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TEMP (°C)	EC	pН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
В	lue6	27-Feb-17	9:45	27-Feb-17	17:20	65.85	79.10	74.08	8.2	8750.0	Bladder	8.20	2656	6.52	782.00	cloudy
В	lue7	27-Feb-17	12:10	27-Feb-17	13:35	82.84	97.74	82.86	9.2	8500.0	Bladder	7.30	2626	6.77	56.30	clear
BI	ue13	27-Feb-17	11:11	28-Feb-17	10:15	104.31	116.18	112.90	7.3	7500.0	Bladder	4.43	5574	6.80	102.00	partly cloudy
ВІ	ue14	28-Feb-17	11:23	28-Feb-17	12:23	79.83	87.00	81.36	4.4	6000.0	Bladder	7.07	5320	6.55	18.10	clear
BI	ue15	28-Feb-17	16:43	28-Feb-17	17:28	79.78	87.90	79.84	5.0	4500.0	Bladder	6.70	3488	6.62	4.42	clear
ВІ	ue16	28-Feb-17	13:45	28-Feb-17	15:35	78.79	97.58	78.82	11.6	11000.0	Bladder	5.87	2968	6.58	55.50	clear



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### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0495

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year March 2017

MVTL Laboratory Identifications: 17-W571 through 17-W576

Page 1 of 2

Sample Identification	MIVTL Laboratory #
Field Blank (FB)	17-W571
Pond6	17-W572
PondN3	17-W573
Pond 10	No sample
Pond12	17-W574
Pond16S	17-W575
MW2S	17-W576

#### I. RECEIPT

- All samples were received at the laboratory on 2 Mar 2017 at 1535.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 0.7°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - o Methods 6010D and Method 6020B were used to analyze the metals.



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#### CASE NARRATIVE

MVTL Lab Reference No/SDG:

Client:

Location:

Project Identification:

**Event & Year** 

MVTL Laboratory Identifications:

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201782-0495

Ottertail Power Company

**Coyote Station** 

**CCR Slag Pond** 

March 2017

17-W571 through 17-W576

#### IV. **ANALYSIS**

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - For some analytes, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).
  - For some analytes, the reported results were elevated due to additional dilutions required to minimize the effects of sample matrix.
  - One selenium matrix spike duplicate recovery was outside the acceptable limits. Recovery for the matrix spike was acceptable. RPD for the recoveries of the matrix spike duplicate and the matrix spike was within limits. No further action was taken.
  - One sulfate matrix spike duplicate recovery was outside the acceptable limits. Recovery for the matrix spike was acceptable. RPD for the recoveries of the matrix spike duplicate and the matrix spike was within limits. No further action was taken.

All laboratory data has been approved by MVTL Laboratories. DATE: ZZMarI7 SIGNED: Claudette Carroll - MVTL Bismarck Laboratory Manager

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Page: 1 of 2

**Quality Control Report** 

Lab IDs: 17-W571 to 17-W576 Project: OTP Coyote CCR-Slag Pond Work Order: 201782-0495

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	105	80-120	0.400 0.400	17W554q 17W573q	< 0.001 < 0.001	0.4142 0.4210	104 105	75-125 75-125	0.4142 0.4210	0.4166 0.4290	104 107	0.6 1.9	20 20	-	-	< 0.001
Arsenic - Total mg/l	0.1000	99	80-120	0.400 0.400	17W554q 17W573q	< 0.002 < 0.002	0.4162 0.4246	104 106	75-125 75-125	0.4162 0.4246	0.4238 0.4416	106 110	1.8 3.9	20 20	-	-	< 0.002
Barium - Total mg/l	0.1000	97	80-120	0.400 0.400	17W554q 17W573q	0.0395 0.0289	0.4274 0.4376	97 102	75-125 75-125	0.4274 0.4376	0.4360 0.4456	99 104	2.0	20 20	_	-	< 0.002
Beryllium - Total mg/l	0.1000	96	80-120	0.400 0.400	17W554q 17W573q	< 0.0005 < 0.0005	0.4158 0.4184	104 105	75-125 75-125	0.4158 0.4184	0.4096 0.4346	102 109	1.5	20 20	-	_	< 0.0005
Boron - Total mg/l	0.40 0.40 0.40 0.40 0.40	105 105 105 105 108	80-120 80-120 80-120 80-120 80-120	0.400 0.400 0.400 0.400	17-W554 17-W573 17-W597 17-D804	0.38 0.52 0.51 0.56	0.76 0.96 0.92 0.94	95 110 102 95	75-125 75-125 75-125 75-125	0.76 0.96 0.92 0.94	0.78 0.95 0.91 0.98	100 108 100 105	2.6 1.0 1.1 4.2	20 20 20 20 20			< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
Cadmium - Total mg/l	0.1000	108	80-120	0.400 0.400	17W554q 17W573q	< 0.0005 0.0006	0.4218 0.4182	105 104	75-125 75-125	0.4218 0.4182	0.4126 0.4386	103 110	2.2 4.8	20 20	-	-	< 0.0005
Calcium - Total mg/l	20.0	105	80-120	500	17W576q	520	1020	100	75-125	1020	1060	108	3.8	20	-	-	< 1 < 1
Chloride mg/l	30.0 30.0	91 89	80-120 80-120	30.0	17-D635	55.4	82.4	90	80-120	82.4	84.3	96	2.3	20	-	-	< 1 < 1
Chromium - Total mg/l	0.1000	93	80-120	0.400 0.400	17W554q 17W573q	< 0.002 0.0041	0.3700 0.3876	92 96	75-125 75-125	0.3700 0.3876	0.3760 0.3934	94 97	1.6 1.5	20 20	-	-	< 0.002
Cobalt - Total mg/l	0.1000	93	80-120	0.400 0.400	17W554q 17W573q	< 0.002 0.0055	0.3748 0.3894	94 96	75-125 75-125	0.3748 0.3894	0.3786 0.3976	95 98	1.0 2.1	20 20	<u>-</u>	-	< 0.002

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**Quality Control Report** 

Lab IDs: 17-W571 to 17-W576 Project: OTP Coyote CCR-Slag Pond Work Order: 201782-0495

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Fluoride mg/l	0.50	110	90-110	0.500	17-W573	0.29	0.72	86	80-120	0.72	0.77	96	6.7	20	-	-	< 0.1 < 0.1
Lead - Total mg/l	0.1000	97	80-120	0.400 0.400	17W554q 17W573q	< 0.0005 0.0011	0.3660 0.3640	92 91	75-125 75-125	0.3660 0.3640	0.3626 0.3734	91 93	0.9 2.5	20 20	-	_	< 0.0005
Lithium - Total mg/l	0.40 0.40 0.40	102 100 98	80-120 80-120 80-120	0.400 0.400 0.400	17-W554 17-W573 17-W597	0.10 0.53 0.07	0.58 1.00 0.55	120 118 120	75-125 75-125 75-125	0.58 0.55 1.00	0.57 0.53 0.93	118 115 100	1.7 3.7 7.3	20 20 20	- - - -	- - - -	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.002 0.002	17-W576 17-W617	< 0.0002 < 0.0002	0.0020 0.0020	100 100	70-130 70-130	0.0020 0.0020	0.0020 0.0020	100 100	0.0	20 20	-	-	< 0.0002
Molybdenum - Total mg/l	0.1000	87	80-120	0.400 0.400	17-W490 17-W573	0.0025 0.0030	0.3818 0.3966	95 98	75-125 75-125	0.3818 0.3966	0.3892 0.4024	97 100	1.9 1.5	20 20	-	-	< 0.002
pH units	-	-	-	-	-	-		-	-	8.2 6.4	8.3 5.9	-	1.2 8.1	20 20	-	-	-
Selenium - Total mg/l	0.1000	105	80-120	0.400 0.400	17W554q 17W573q	< 0.002 0.0641	0.4600 0.5422	115 120	75-125 75-125	0.4600 0.5422	0.4536 0.5662	113 126	1.4 4.3	20 20	-	-	< 0.002
Sulfate mg/l	100 100 100	103 99 96	80-120 80-120 80-120	1000 1000 200 1000	17-W554 17-W574 17-W568 17-D736	750 1380 409 984	1660 2280 606 1880	91 90 98 90	80-120 80-120 80-120 80-120	1660 2280 606 1880	1630 2290 556 1890	88 91 74 91	1.8 0.4 8.6 0.5	20 20 20 20 20	-	- - -	< 5 < 5 < 5
Thallium - Total mg/I	0.1000	97	80-120	0.400 0.400	17W554q 17W573q	< 0.0005 < 0.0005	0.3750 0.3708	94 93	75-125 75-125	0.3750 0.3708	0.3752 0.3808	94 95	0.1 2.7	20 20	-	-	< 0.0005
Total Dissolved Solids mg/l	-	-	-	-		_	-	-	-	5010	5020	-	0.2	20	-	-	< 10

Approved by: Cauth ZZ Mar 17



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Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: FB Slag

Event and Year: March 2017

Page: 1 of 1

Report Date: 22 Mar 17 Lab Number: 17-W571 Work Order #:82-0495 Account #: 006106

Date Sampled: 2 Mar 17

Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.7C ROI

	As Receiv Result	ed	Method RL	Method Reference	Da	te alyze	ed		Analyst
Metal Digestion		-		EPA 200.2	2	Mar	17		svs
Lab, pH	* 6.4	s.u.	0.1	SM4500 H+ B	2	Mar	17	17:00	SVS
Fluoride	< 0.1	mg/1	0.10	SM4500-F-C	2	Mar	17	17:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	3	Mar	17	14:20	EMS
Chloride	< 1	mg/l	1.0	SM4500-C1-E	9	Mar	17	8:48	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	14	Mar	17	12:12	EV
Total Dissolved Solids	< 10	mg/l	10	I1750-85	3	Mar	17	14:17	SVS
Calcium - Total	< 1	mg/l	1.0	6010	7	Mar	17	15:26	KMD
Lithium - Total	< 0.1	mg/1	0.10	6010	10	Mar	17	13:13	KMD
Boron - Total	< 0.1	mg/1	0.10	6010	22	Mar	17	9:44	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	8	Mar	17	9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Barium - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	8	Mar	17	14:20	KMD
Selenium - Total	< 0.01 ^	mg/1	0.0020	6020	8	Mar	17	9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canto 22 Nar17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to co

! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: Pond6

Event and Year: March 2017

Page: 1 of 1

Report Date: 22 Mar 17 Lab Number: 17-W572 Work Order #:82-0495 Account #: 006106

Date Sampled: 1 Mar 17 15:02 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.7C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		1 %		EPA 200.2	2 Mar 17	svs
Lab, pH	* 7.5	s.u.	0.1	SM4500 H+ B	2 Mar 17 17:00	svs
Field pH	7.26	s.u.	0.1	SM 4500 H+ B	1 Mar 17 15:02	DJN
Field Appearance	Clear		NA	SM 2110	1 Mar 17 15:02	DJN
Field Temperature	7.94	Degrees C	0.1	SM 2550B	1 Mar 17 15:02	DJN
Field Conductivity	5123	umhos/cm	1	EPA 120.1	1 Mar 17 15:02	DJN
Fluoride	0.52	mg/l	0.10	SM4500-F-C	2 Mar 17 17:00	svs
Sulfate	1790	mg/l	5.00	ASTM D516-07	17 Mar 17 8:46	EMS
Chloride	24.1	mg/l	1.0	SM4500-C1-E	9 Mar 17 8:48	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	14 Mar 17 12:12	EV
Total Dissolved Solids	3890	mg/1	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	152	mg/1	1.0	6010	7 Mar 17 15:26	KMD
Lithium - Total	< 0.2 @	mg/l	0.10	6010	10 Mar 17 13:13	KMD
Boron - Total	3.25	mg/l	0.10	6010	9 Mar 17 13:37	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0371	mg/1	0.0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	0.0013	mg/1	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	< 0.002	mg/1	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	0.0234	mg/1	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	< 0.0005	mg/1	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0074	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 *	mg/I	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix # = Due to co
! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: PondN3

Event and Year: March 2017

1 of 1 Page:

Report Date: 22 Mar 17 Lab Number: 17-W573 Work Order #:82-0495 Account #: 006106

Date Sampled: 1 Mar 17 11:10 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.7C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	19.50	7.1		EPA 200.2	2 Mar 17	SVS
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	2 Mar 17 17:00	SVS
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	1 Mar 17 11:10	DJN
Field Appearance	Partly Cl	oudy	NA	SM 2110	1 Mar 17 11:10	DJN
Field Temperature	7.60	Degrees C	0.1	SM 2550B	1 Mar 17 11:10	DJN
Field Conductivity	5312	umhos/cm	1	EPA 120.1	1 Mar 17 11:10	DJN
Fluoride	0.29	mg/l	0.10	SM4500-F-C	2 Mar 17 17:00	SVS
Sulfate	2740	mg/1	5.00	ASTM D516-07	3 Mar 17 14:20	EMS
Chloride	34.1	mg/l	1.0	SM4500-C1-E	9 Mar 17 8:48	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	14 Mar 17 12:12	EV
Total Dissolved Solids	5100	mg/l	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	498	mg/1	1.0	6010	7 Mar 17 15:26	KMD
Lithium - Total	0.53	mg/l	0.10	6010	10 Mar 17 14:13	KMD
Boron - Total	0.52	mg/1	0.10	6010	9 Mar 17 14:37	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	8 Mar 17 9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0289	mg/1	0,0020	6020	8 Mar 17 9:30	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	8 Mar 17 9:30	KMD
Cadmium - Total	0.0006	mg/1	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	0.0041	mg/1	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	0.0055	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	0.0011	mg/1	0,0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0030	mg/1	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	0.0641	mg/1	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
would be Vinget to the orbital						

\* Holding time exceeded

Approved by:

Claudette K Canto ZZ Mario

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

CERTIFICATION: ND # ND-00016

# = Due to concentration of other analytes
+ = Due to internal standard response



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: Pond12

Event and Year: March 2017

Page: 1 of 1

Report Date: 22 Mar 17 Lab Number: 17-W574 Work Order #:82-0495 Account #: 006106

Date Sampled: 2 Mar 17 12:21 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.7C ROI

	As Receiv Result	ed	Method RL	Method Reference	Dat Ana	e llyze	d		Analyst
Metal Digestion				EPA 200.2	2	Mar	17		svs
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	2	Mar	17 1	17:00	SVS
Field pH	7.20	s.u.	0.1	SM 4500 H+ B	2	Mar	17 1	10:21	DJN
Field Appearance	Clear		NA	SM 2110	2	Mar	17 1	10:21	DJN
Field Temperature	7.69	Degrees C	0.1	SM. 2550B	2	Mar	17 1	10:21	DJN
Field Conductivity	3628	umhos/cm	1	EPA 120.1	2	Mar	17 1	10:21	DJN
Fluoride	0.11	mg/l	0.10	SM4500-F-C	2	Mar	17 1	17:00	SVS
Sulfate	1380	mg/1	5.00	ASTM D516-07	3	Mar	17 1	15:31	EMS
Chloride	22.0	mg/l	1.0	SM4500-C1-E	9	Mar	17	8:48	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	14	Mar	17 1	12:12	EV
Total Dissolved Solids	2830	mg/1	10	I1750-85	3	Mar	17 1	14:17	SVS
Calcium - Total	173	mg/l	1.0	6010	7	Mar	17 1	15:26	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	10	Mar	17 1	14:13	KMD
Boron - Total	1.85	mg/l	0.10	6010	9	Mar	17 1	14:37	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	8	Mar	17	9:30	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Barium - Total	0.0209	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17	9:30	KMD
Cobalt - Total	0.0075	mg/1	0.0020	6020	8	Mar	17	9:30	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	8	Mar	17 1	14:20	KMD
Selenium - Total	< 0.01 ^	mg/1	0.0020	6020	8	Mar	17	9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17	9:30	KMD
A MINUSEL ESCU CUIDAGE									

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix # \* Due to co
! \* Due to sample quantity \* \* Due to in

# - Due to concentration of other analytes - - Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: Pond16S

Event and Year: March 2017

Page: 1 of 1

Report Date: 22 Mar 17 Lab Number: 17-W575 Work Order #:82-0495 Account #: 006106

Date Sampled: 2 Mar 17 12:55 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.7C ROI

	A second								
	As Receiv Result	ed	Method RL	Method Reference	Dat Ana	e lyzed		Analyst	
Metal Digestion				EPA 200.2	2	Mar 1		SVS	-
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	2	Mar 17	17:00	svs	
Field pH	6.89	s.u.	0.1	SM 4500 H+ B	2	Mar 17	12:55	DJN	
Field Appearance	Clear		NA	SM 2110	2	Mar 17	12:55	DJN	
Field Temperature	8.00	Degrees C	0.1	SM 2550B	2	Mar 17	12:55	DJN	
Field Conductivity	3205	umhos/cm	1	EPA 120.1	2	Mar 1	12:55	DJN	
Fluoride	0.22	mg/l	0.10	SM4500-F-C	2	Mar 17	17:00	SVS	
Sulfate	1320	mg/1	5.00	ASTM D516-07	3	Mar 17	15:31	EMS	
Chloride	21.3	mg/l	1.0	SM4500-C1-E	9	Mar 17	8:48	EMS	
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	14	Mar 17	12:12	EV	
Total Dissolved Solids	2570	mg/1	10	I1750-85	3 1	Mar 17	14:17	SVS	
Calcium - Total	211	mg/1	1.0	6010	7	Mar 17	15:26	KMD	
Lithium - Total	< 0.1	mg/l	0.10	6010	10	Mar 17	14:13	KMD	
Boron - Total	2.08	mg/1	0.10	6010	9 1	Mar 17	14:37	KMD	
Antimony - Total	< 0.001	mg/1	0.0010	6020	8	Mar 17	9:30	KMD	
Arsenic - Total	< 0.002	mg/1	0.0020	6020	8 1	Mar 17	9:30	KMD	
Barium - Total	0.0356	mg/1	0.0020	6020	8 1	Mar 17	9:30	KMD	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	8 1	Mar 17	9:30	KMD	
Cadmium - Total	0.0016	mg/l	0.0005	6020	8 1	Mar 17	9:30	KMD	
Chromium - Total	0.0027	mg/1	0.0020	6020	8 1	Mar 17	9:30	KMD	
Cobalt - Total	0.0274	mg/l	0.0020	6020	8 1	Mar 17	9:30	KMD	
Lead - Total	0.0007	mg/1	0.0005	6020	8 1	Mar 17	9:30	KMD	
Molybdenum - Total	0.0061	mg/1	0.0020	6020	8 1	Mar 17	14:20	KMD	
Selenium - Total	< 0,01 *	mg/l	0.0020	6020	8 1	Mar 17	9:30	KMD	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 1	Mar 17	9:30	KMD	

<sup>\*</sup> Holding time exceeded

Approved by:

Clauditte K Cantep 22 Mr. 17

Claudetle K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: MW2S

Event and Year: March 2017

Page: 1 of 1

Report Date: 22 Mar 17 Lab Number: 17-W576 Work Order #:82-0495 Account #: 006106

Date Sampled: 1 Mar 17 13:06 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.7C ROI

	As Receiv Result	ed	Method RL	Method Reference	Da t Ana	e lyze	d	Analyst	
Metal Digestion				EPA 200.2	2	Mar	17	svs	
Lab, pH	* 7.2	s.u.	0.1	SM4500 H+ B	2	Mar	17 17:00	SVS	
Field pH	7.01	s.u.	0.1	SM 4500 H+ B	1	Mar	17 13:06	DJN	
Field Appearance	Clear		NA	SM 2110	1	Mar	17 13:06	DJN	
Field Temperature	8.16	Degrees C	0.1	SM 2550B	1	Mar	17 13:06	DJN	
Field Conductivity	5033	umhos/cm	1	EPA 120.1	1	Mar	17 13:06	DJN	
Fluoride	0.31	mg/l	0.10	SM4500-F-C	2	Mar	17 17:00	SVS	
Sulfate	3000	mg/1	5.00	ASTM D516-07	17	Mar	17 8:46	EMS	
Chloride	23.3	mg/1	1.0	SM4500-C1-E	9	Mar	17 8:48	EMS	
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	14	Mar	17 12:12	EV	
Total Dissolved Solids	5010	mg/1	10	I1750-85	3	Mar	17 14:17	SVS	
Calcium - Total	520	mg/1	1.0	6010	7	Mar	17 15:26	KMD	
Lithium - Total	0.44	mg/1	0.10	6010	10	Mar	17 14:13	KMD	
Boron - Total	0.29	mg/l	0.10	6010	9	Mar	17 14:37	KMD	
Antimony - Total	< 0.001	mg/1	0.0010	6020	8	Mar	17 9:30	KMD	
Arsenic - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17 9:30	KMD	
Barium - Total	0.0134	mg/1	0.0020	6020	8	Mar	17 9:30	KMD	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	8	Mar	17 9:30	KMD	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	8	Mar	17 9:30	KMD	
Chromium - Total	< 0.002	mg/1	0.0020	6020	8	Mar	17 9:30	KMD	
Cobalt - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17 9:30	KMD	
Lead - Total	< 0.0005	mg/1	0.0005	6020	8	Mar	17 9:30	KMD	
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	8	Mar	17 14:20	KMD	
Selenium - Total	0.1193	mg/1	0.0020	6020	8	Mar	17 9:30	KMD	
Thallium - Total	< 0.0005	mg/1	0,0005	6020	8	Mar	17 9:30	KMD	
A Start Start of the Start of the Control of the Co									

\* Holding time exceeded

Approved by:

Clauditte K Canteo 22 MA117

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: 0 = Due to sample matrix# = Due to co

! = Due to sample quantity

# = Due to in

# - Due to concentration of other analytes
+ = Due to internal standard response



# **Field Datasheet**

**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	#-Pondo Po	and 6
<u> </u>		

2616 E. Broadway Ave, Bi	ismarck ND				, 100000	mont		Sample ID.	Q -T	DAG	- rond	<u> </u>	
Phone: (701) 258-9								Sampling P	ersonal: 🕖	arren 1	Vieswaa.	2	
Weather Conditions:		Temp:	25°F		Wind:	Ligh	<del>/-</del>		Precip:	Sun	ny / Partly C	loudy //Cla	
	Well Info	rmation				C1911,	/	Sa	mpling l			loudy / Cio	uuy
Well Locked?	Yes	<b>(60)</b>				Pura	ing Method:	Blad		Homman		atrol Cottino	
Well Labeled?	Yes)	No					ing Method:	Blad			T	ntrol Setting	
Casing Straight?	Ves	No					ited Equip?:		No		Purge:	<u> </u>	se
Grout Seal Intact?	Xes)	No	Not Visit	ole			e Sample?:	Yes	No		Recover:		se
Repairs Necessary:							Sample ID:	100			PSI:		
Casing	Diameter:		2"				oumple ib.				Pumping Ra	ate: 100	mL/m
Water Level Bef	ore Purge:		18.00	ft			Purge Date:	Imare	1-17	Time Purc	ing Began:	1412	
Total V	Vell Depth:		18,76	ft			orged Dry?		NO		ourged Dry:	1712	am/gi
We	ell Volume:		7,5	liters			ample Date:				f Sampling:	1502	am/pi
Depth to Top	o of Pump:		17.20	ft			ampie Date.	March		Time 0	i Samping.	1502	_ am/စုပ်
Water Level After Sample:		1-7	20 Top.	ft		Bottle	CCR: 11 R	aw, 500mL i	Vitric 4 11	Nitrio		· · · · · · · · · · · · · · · · · · ·	
Measuremen	nt Method:	Electric V	Nater Level Indi	cator		List:	JOIN. ILIN	avv, Journa 1	VILLIC, 4-IL	INITIO			

**Field Measurements** 

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	10/-4		
	ecutive)	(°C)	Cond.	.pH					_ mL	Discription:
SEQ#	Time				(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
4		0 2.0	±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1417	8051	4424	7.04	1,78	1747	6,99	17.20	500	clear
2	1432	8 = 61	4912	7,20	0,53	183.2	3,86	17.20	1500	0
3	1442	7,87	5064	7.20	0.40	1944	2,32	17,20	1000	ch
4	1452	7,78	5098	7,26	0.36	101 17	2.18		1000	cler
5	1457	7.83	5129	7.26	0,34	200,3		17,20	<del></del>	clir
6	1502	7,94	5123	7,26	0,34	20%, 3	2111	17,20	500	Ch _
7	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1,20	Urji	201,3	2,00	11,20	500	de
8										
9										
10										

Comments:

\* ON IMarch 17

Total Volume Removed: 5000 mL



# **Field Datasheet**

**Groundwater Assessment** 

2616 E. Broadway Ave, Bismarck, ND

Company: **OTP Coyote** 

Event: 2017

Sample ID:

Phone: (701) 258-	9720						-	oampling r	ersonal.	CALTO	on NI	roan	
Weather Conditions:		Temp	: 17°F		Wind:	NW9	_						
	Well Info	rmation				/			Precip			Cloudy / Clo	udy
Well Locked?		No						Sa	ampling I	nformation	on 🖳		
Well Labeled?		No					ging Method:	Blac	lder		Со	ontrol Setting	ıs
Casing Straight?	Charles and the Charles and th	No					ling Method:	Blac	lder		Purge:		sec
Grout Seal Intact?		No		>			ated Equip?:	Yes	(No)	]	Recover:	57	sec
Repairs Necessary:	103	NO	Not Visi	ble			e Sample?:	Yes	₹No		PSI:		
	Diameter:	······································	2"			Duplicate	Sample ID:		<u> </u>		Pumping R	ate: [ <b>②</b> Ø	mL/mir
Water Level Bef			12,00.										
	Vell Depth:		$\frac{1-10c}{2}$	TI F4			Purge Date:	Mara	ch 17	Time Purg	ing Began:	0910	(am/pn
	ell Volume:			liters			Purged Dry?	Yes	(Ng)	Time P	urged Dry:		am/pn
Depth to Top		*	34,52	nters		Sa	ample Date:	March	17	Time of	Sampling:	1110	(am/pm
Water Level Afte			16171	- 11			T						
Measuremen		Electric \	<i>V</i>	icator		Bottle List:	CCR: 1L Ra	w, 500mL 1	Vitric, 4-1L	Nitric			
			Lover ma	Cator	_			-		***************************************			

C4-1-11		T -			Field	Measure	ments			
(3 cons	ization secutive)	Temp (°C)	Spec. Cond.	На	DO (mg/L)	ORP (mV)	Turbidity (NTU)		mL	Discription:
SEQ#	Time		±5%	±0.1	±10%	±20 mV		Level (ft)	Removed	31 , 0 001, 201.
1	0915	10,00	5330	1100			±10%	0.25 ft		clear, partly cloudy, cloudy
2	1935	8 70	5714	6.67	3,05	2051	010	13.08	500	closad
3	1005	970	1001	6.00	0.73	198.4	581	14,62	2000	cloudy
4	1230	7,64	5296	6,69	0,70	2011	390	15,26	3000	clock
5	1055		0	6,69	0,62	206.8	195	15.49	3000	Cloudy
6		_// 9 1	5300	6.67	0.45	217,3	90.5	15.60	2000	Fartly Moch
7	1100	7.60	531X	6,67	0,42	218.9	92,1	15.58	500	De fel 1 1
8	1105	7,66	5315	6,67	0,38	221,3	91.5	15.60		Partly Clarks
	1110	7.60	5312	6.67	0,38	224,9	93.0	10/2	500	
9					(2		10.0	15,48	300	Tait, clehding
10										
Stabilized:	/Yes /	No								

Comments:

Total Volume Removed: /2,00ァ mL



# **Field Datasheet**

### **Groundwater Assessment**

mpany:	OTP	Coyot

/ent·	2017

Sample ID:

Pond10

Victorian

Sampling Personal: Day	· er

Pho	ne: (701) 25	8-9720							Carripining i	Craonal.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		- (brother	<del>}</del>
Weather C	Condition	s:	Temp	: 17	۰F	Wind:	NES	······································		Precip	Sun	nv / Partiv (	Cloudy /∕Ćlo	andy)
		Well Inf	ormation					·	S	ampling I			Sloudy /Cit	duy
We	ell Locked	? Yes	-No				Pura	ing Method:		dder	Inormatic	f		
We	ll Labeled	? Xes	No			1		ing Method:		dder			ontrol Setting	
Casin	g Straight	? Xes	No			1		ted Equip?:		(No)		Purge:		sec.
Grout S	eal Intact	? Xes	No	Not \	Visible	1		Sample?:	Yes	No ∠No	,	Recover:	\$_\$_	sec.
Repairs No	ecessary:					1		Sample ID:	163	<u> </u>		PSI:		
	Casir	ng Diameter:		2"			Duplicate	· ·				Pumping R	ate:	- mL/min
Wate	er Level Be	efore Purge:	: 7	2463	fi		F	Purge Date:	27 Fel	/_/	Time Purg	ing Pogen:	Ó 0 - 77	
		Well Depth:		2.10	fi	4		urged Dry?	Yes				<u>0923</u>	/am/pm
	V	veli Volume:		0.3	liters	-			27Fcb	No No		urged Dry:	a (20)	am/pm
	epth to Te	op of Pump:	20	(رسعی (	ft	┥ .		imple Date.	12 1500	1 1	Time of	Sampling:	0930	@m/pm
		fter Sample:			fi		Bottle	CCB: 41 F	) F00(	NCC 4 41				
N	leasureme	ent Method:	Electric 1	Water Level	Indicator	1	List:	CCK. IL F	Raw, 500mL	Nitric, 4-1L	Nitric			
					maicator	J		<u> </u>	<u>.</u>					
					Field	Measure	ments							
Stabili		Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:			
(3 cons	ecutive) Time	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed		Color, Odo			
1	riine		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, p	artly cloudy,	cloudy		
2														
3	<del></del>		7.6	0 19971	<i>I</i>									
4		<del>                                     </del>	Su (f	1000		000								
5		1 ×5 P	500		1 5 a	mre								
6		<del>                                     </del>	lum		<del>                                     </del>									
7		./	La la la											
8		<del>                                     </del>	U											
9	· · · · · · · · · · · · · · · · · · ·													
10				····					,					
Stabilized:	Yes	No	<u> </u>			Τ_	4-1-17-1			<u> </u>				
Comments:			Volume in v	well and slo	)w recharge	l O the full cor	iai volume	Removed:		mL				
		Dete (Ti		. on and ord		ine iun sai	tible set of	bottles was	not able to	be collected	at time of	sample field	l readings.	
		Date/Time			Date/Time			Date/Time			Date/Time			
Collected 1	L Raw at:		Collected			Collected	1L Nitrics		Collected :	1L Nitrics 「	-			
			Nitri	c at:		at	t:		at					
پ-	Cz., ID.	id 6.0	· _		3 -			. #	1 5	_	Δ .			

to fill line up. There wasn't enough volume of water to get a sample or readings.



# Fiel

Gro

ld Datasheet	Company:	OTP Coyote	
_	Event:	2017	
oundwater Assessment	Sample ID:	Pond 12	
	Compling Deser	- N M-	

Phone: (701) 258-								Sampling Personal:	Dagrey	2 April	Sur	- The second second second second second second second second second second second second second second second
Weather Conditions:		Temp:	20°F		Wind:	Ligh	+	Preci	. 6			
·	Well Info	rmation				<u> </u>	/	Sampling			Cloudy / Clo	udy
Well Locked?	Yes	(No)				Pura	ing Method:		morniano			
Well Labeled?	«Yes)	No					ing Method:				ntrol Setting	<u>js</u>
Casing Straight?	Yes>	No					ited Equip?:			Purge:		sec
Grout Seal Intact?	Yes	No	Not Visib	de			Sample?:	77000	-	Recover:	57	sec
Repairs Necessary:		- And Annual Association of the Control of the Cont					Sample ID:	Yes KNo	-	PSI:	·	
Casing	Diameter:		2"			Duplicate	Sample ID:	Control of the second s		Pumping R	<u>ate:                                    </u>	🦩 mL/mir
Water Level Bef	ore Purge:		37.41	ft		<u> </u>	71.mm = D-4		T = · · · · ·			
Total W	Vell Depth:		ADSTRUCTOR .	ft			Ourge Date:	23110/30 1	Time Purgi		0921	(am/pm
	ell Volume:			liters			urged Dry?			urged Dry:	~	am/pn
Depth to Top		7,3	7,67	fileisi		<u>Sa</u>	ample Date:	2 March 17	lime of	Sampling:	1201	(am)pm
Water Level Afte		2.	7,67			Dettie	000 11 0			***************************************	·	
Measuremen			Vater Level Indi	Safor II		Bottle List:	CCR: 1L R	aw, 500mL Nitric, 4-1L	Nitric Nitric			
		<u> </u>	vater Level IIIul	Cator		Liot.						
				Field I	Measure	ments						
A	-											

Stabil	lization	Temp	Spec.							
			1 -		DO	ORP	Turbidity	Water	mL	Discription:
	secutive)	(°C)	Cond.	pH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0426	7.30	34.57	7.11	501	152,5	1-7		بسير بها المسادر	
2	0941	723	3/35		20		22,4	37.67	500	ent production
3	0956	7/31		7.19	1148	146.0	- a	37.67	1500	
			3632	7.20	1,20	145.2	13,8	37,67	1500	cli-
4	1001	7,25	3629	7,20	1,19	145.6	12,3	37.67	500.	Cla -
5	1006	_7.55	3623	7,20	1.20	1458		37.67	500	- cler
6	1011	7,39	3629	7.20	1,21	1457	2 60			C C
7	1016		3620		1,0		3,02	37,67	500	dear
8		756	2065	7,20	1016	1459	7,63	37,69	500	ce_
	1021	1161	36.28	7,20	1.15	146,0	746	37.14	502	cez-
9				,			a			
10	A STATE OF THE PARTY OF THE PAR									
tabilized:		No							1 000	

Comments:

Total Volume Removed: ( ) M M mL



Phone: (701) 258-9720

# **Field Datasheet**

**Groundwater Assessment** 

Company: **OTP Coyote** Event: 2017

Sample ID:

Sampling Personal:

												-	- Andrews
Weather Conditions:		Temp:			Wind:	1,90	クナ		Precip:	Sun	ny / Partly (	Cloudy / Clo	uds
	Well Info	rmation	<i>V</i>			- /		9	ampling Ir	1 - 2		Floudy / Glo	uuy
Well Locked?	(Yes≥	No				Pura	ing Method:			HOMIALI			
Well Labeled?	(Yes	No							dder		Cc	ntrol Setting	S
Casing Straight?	(Yes)	No					ing Method:		dder		Purge:	4	sec
Grout Seal Intact?	Yes		16			Dedica	ted Equip?:	Yes	No		Recover:	_56	sec
	res	No	Not Vis	ble		Duplicate	e Sample?:	Yes	(Na		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: //\(\big(\)	mL/mir
	Diameter:		2"								i amping it	<u> </u>	11111/11111
Water Level Befo	ore Purge:	•	39.17	ft			Purge Date:	2 Mar	ch 147	Time Dura	: D F	11/30	
Total W	ell Depth:		<del></del>	ft							ing Began:	1000	_@m/pm
	ll Volume:		· ·	11.1		vveire	ourged Dry?	Yes	(Na)		urged Dry:		-am/pm
Depth to Top		11	2 " (5)	liters		Sa	ample Date:	1 Moral	17	Time of	Sampling:	1255	am/pm
			5010	ft					,				
Water Level Afte		<u> </u>	0.49	ft		Bottle	CCR: 1L R	aw. 500mL	Nitric, 4-1L N	Vitric			
Measurement	t Method:	Electric V	Nater Level Inc	licator		List:				11010			
							<u> </u>	· · · · · · · · · · · · · · · · · · ·					
				Field I	Measurei	ments							

	ricid measurements									
1	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1135	1.91	2191	6.87	4,13	162,4	200	39.72	500	
2	1150	7.86	3225	6.81	1,30	142 7	98.8	39.96		Carry Cloudy
3	17-10	849	32.2.7	1 62	1.37	99.5	1000		1500	Sarthelande
4	1230	8,07	3214	Ky 05	11/	99.5	62.8	40.24	2000	Clear
5	1240	8,02		6,81	1.17	811	39.6	40,34	2000	den
6		100	3214	6.87	1.23	77.1	40,2	40,46	\$000	du
7	1245	X (1)	3204	6.89	1.09	73'9	33.6	40,49	500	clu
	7250	0,02	3201	6088	1,06	73.1	30,9	40,49	500	d
8	1255	8,00	3205	6,89	1,09	5/10	30.6	40,49	500	
9					V ( V )		5040	C 4 C C	700	a
10										
Stabilized:	Yes	No					ntai Volume	Pomovodi	9500	

Comments: \* DN 2 March 17

Total Volume Removed: 8500 mL



# **Groundwater Assessment**

Phone: (701) 258-9720

LIAIA INAL	
Field Data	3C N A A T
i iciu Dala	1511661

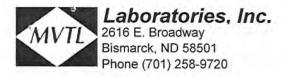
Company: **OTP Coyote** Event: 2017 Sample ID: Sampling Personal: Darren Niesway

	3120												
						_	-						
Weather Conditions:		Temp:	: 24 °F		Wind:	1 jah	<i></i>		Drooin			, ),	
	Well Info	rmation				J1911	/		Precip			Cloudy / Clou	nda
Moll Looks do					r			Sa	ampling I	Informatio	on 🖳		
Well Locked?	//>	(No∕				Purg	ing Method:	Blac	dder		Co	ntrol Setting	
Well Labeled?	( 72	No				Sampl	ling Method:		dder			on Setting:	
Casing Straight?	<b>√es</b>	No		\			ated Equip?:			-	Purge:		sec
Grout Seal Intact?	Yes	No	Not Vis	iblo				Yes	NO	4	Recover:	57	sec
Repairs Necessary:				) c			e Sample?:	Yes	_(NO)	_	PSI:		
	Diameter:					Duplicate	Sample ID:				Pumping R	ate:/ <i>()((</i> )	mL/mir
			2"							_			
Water Level Bef			23,94	ft			Purge Date:	Marc	617	Time Purg	ing Began:	1206	
Total V	Vell Depth:			ft			Purged Dry?	Yes	<u> </u>		urged Dry:	1000	am/p@
W6	ell Volume:			liters			ample Date:		A				-am/pm
Depth to To	o of Pump	.2.	4.15	41		30	ample Date.	Mard	21-1	I Time of	Sampling:	1306	am/pm
Water Level After			0,5	- 10								·	
			<u> </u>	ft		Bottle	CCR: 1L Ra	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremer	it ivietnod:	Electric '	Water Level Inc	licator		List:							
				Field	Measure	mente							

C4-bit		T				Micasure	ments			
	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10% ·	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1211	7,91	5058	6.95	5.55	20917	21.9		-00	
2	1226	8019	5025	696				24,73	500	Clear
3	1236	0.41			5.33	194.6	14,2	26.76	1500	cls_
<u> </u>		1/4		6.97	0///	190.5	8,53	27.36	1,000	(1-
4	1246	8141	5001	15-7,00	6.82	182,8	10.6	27.98	1000	de
5	1251	8,30	5014	7.01	6.84	181,0	810	28107	500	Clark
6	1256	8.48	5026	7.00	6.89		75.49			- Ch
7	1201	8.79	5031				<del>6                                    </del>	28,27	500	de
8	1306	010		7,00	6,92	179.0	5,14	28,38	500	de
9	1006	8116	5033	7,01	6,95	176.9	4.97	28:42	500	cl
						· [				
10										
Stabilized:	//Yes/	No					tol \/ali		(000	
Comments	10tal volume Removed. (2 (2 /2 /2 m)									

Comments:

\* DON IMOROWIT



# **Chain of Custody Record**

Project Nam	e: DTP Coyote - Slag Pond	Event:	Mar - Feb 2017	CC B 21MAFIT	Work Order Number:	
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	OTP Josh Hollen		Name of Sampler(s):  Darren Nieswaag	
phone:	nyukonich@otoco.com		ihollen@otno	co com		

	Sam	ple Informatio	n				Bot	tle T	ype		Fi	eld Para	meters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partiy Cloudy, Cloudy)	1 liter	500mL Nitric				Temp (°C)	Spec. Cond.	Ha /	Analysis Required
W571	FB Slag	2 March (1	NA	W	class	Х	х	m		0 :	NA	NA	NA	
W572	Pond6	1March17	1502	GW	clear	Х	х				7.94	5123	7.26	
W573	PondN3	March 17	1110	GW	Partly cloudy	X	х			9	7.60	5312	6,67	
_	Pond10	27Fe617	0930	GW		×	XZ	Fc51	10m		10	Samo	le	
W574	Pond12	2 March 17	2021	GW	clear	х	Х				7.69	3628	7,20	OTP List 1
W575	Pond16S	2 March 17	1255	GW	Chear	Х	х				8.00	3205	6.89	OTP LIST I
W576	MW2S	March 7	1306	GW	Clear	Х	Х				8:16	5033	7.01	

Comments:

	Relinquished By:	Sample Condition:					
	Name:	Date/Time	Location:	Temp (°C)			
1	Dan Nie	2 Nasch 17	Log In Walk In #2	M562) TM588			
2							

Received by:								
/ Name:	Date/Time							
Ingel Smowson	2March 17 1535							
0., 9	TM562							



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



#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0496 IML Lab Reference No/SDG: 51703062

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Pond CCR Radiochemistry

Event & Year Feb/Mar 2017

MVTL Laboratory Identifications: 17-W577 through 17-W582

IML Laboratory Identifications: \$1703062-001 through \$1703062-006

Page 1 of 2

Sample Identification	IML Laboratory #	MVTL Laboratory #
FB Slag	S1703062-001	17-W577
Pond6	S1703062-002	17-W578
PondN3	S1703062-003	17-W579
Pond10	n/a	No sample
Pond12	\$1703062-004	17-W580
Pond16S	\$1703062-005	17-W581
MW2S	S1703062-006	17-W582

#### I. RECEIPT

- All samples were received at the laboratory on 2 Mar 2017 at 1535.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - o Temperature of samples upon receipt was 16.9°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 7 Mar 2017.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.



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### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0496

IML Lab Reference No/SDG: S1703062
Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Pond CCR Radiochemistry

Event & Year Feb/Mar 2017

MVTL Laboratory Identifications: 17-W577 through 17-W582

IML Laboratory Identifications: S1703062-001 through S1703062-006

Page 2 of 2

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: \_\_\_\_\_ DATE:\_\_

Claudette Carroll - MVTL Bismarck Laboratory Manager



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1 of 6 Page:

CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: Feb/Mar 2017

Report Date: 18 May 17 Lab Number: 17-W577 Work Order #:82-0496 Account #: 006106 Date Sampled: 2 Mar 17

Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 16.9C

Date As Received Method Method Analyst Reference Analyzed RL Result 27 Mar 17 OL Radium 226 See Attached Report OL See Attached Report 26 Mar 17 Radium 228

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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



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Page: 2 of 6

CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: Feb/Mar 2017

Report Date: 18 May 17 Lab Number: 17-W578 Work Order #:82-0496 Account #: 006106

Date Sampled: 1 Mar 17 15:02 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 16.9C

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.26	s.u.	0.1	SM 4500 H+ B	1 Mar 17 15:02	DJN
Field Appearance	Clear		NA	SM 2110	1 Mar 17 15:02	DJN
Field Temperature	7.94	Degrees C	0.1	SM 2550B	1 Mar 17 15:02	DJN
Field Conductivity	5123	umhos/cm	1	EPA 120.1	1 Mar 17 15:02	DJN
Radium 226	See Atta	ched Report			27 Mar 17	OL
Radium 228		ched Report			27 Mar 17	OL

Approved by:

Clauditte Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

# = Due to concentration of other analytes
+ = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: Feb/Mar 2017

Report Date: 18 May 17 Lab Number: 17-W579 Work Order #:82-0496 Account #: 006106

Date Sampled: 1 Mar 17 11:10 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 16.9C

	As Recei Result	ved	Method RL	Method Reference	Date Ana	e lyzed		Analyst
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	1 1	Mar 17	11:10	DJN
Field Appearance	Partly C	loudy	NA	SM 2110	1 1	Mar 17	11:10	DJN
Field Temperature	7.60	Degrees C	0.1	SM 2550B	1 1	Mar 17	11:10	DJN
Field Conductivity	5312	umhos/cm	1	EPA 120.1	1 1	Mar 17	11:10	DJN
Radium 226		ched Report			27 1	Mar 17		OL
Radium 228		ched Report			27 1	Mar 17		OL

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to concentration of other analytes

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



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: Feb/Mar 2017

Report Date: 18 May 17 Lab Number: 17-W580 Work Order #:82-0496 Account #: 006106

Date Sampled: 2 Mar 17 10:21 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 16.9C

	As Recei Result	ved	Method RL	Method Reference	Da An	te alyz	ed		Analyst
Field pH	7.20	s.u.	0.1	SM 4500 H+ B	2	Mar	17	10:21	DJN
Field Appearance	Clear		NA	SM 2110	2	Mar	17	10:21	DJN
Field Temperature	7.69	Degrees C	0.1	SM 2550B	2	Mar	17	10:21	DJN
Field Conductivity	3628	umhos/cm	1	EPA 120-1	2	Mar	17	10:21	DJN
Radium 226		ched Report			5	Apr	17		OL
Radium 228		ched Report			27	Mar	17		OL

Approved by:

Claudette K Cantep

Claudette K Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: a = Due to sample matrix a = Due to sample quantity a = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: Feb/Mar 2017

Report Date: 18 May 17 Lab Number: 17-W581 Work Order #:82-0496

Account #: 006106 Date Sampled: 2 Mar 17 12:55 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 16.9C

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.89	s.u.	0.1	SM 4500 H+ B	2 Mar 17 12:55	DJN
Field Appearance	Clear		NA	SM 2110	2 Mar 17 12:55	DJN
Field Temperature	8.00	Degrees C	0.1	SM 2550B	2 Mar 17 12:55	DJN
Field Conductivity	3205	umhos/cm	1	EPA 120.1	2 Mar 17 12:55	DJN
Radium 226		ched Report			5 Apr 17	OL
Radium 228		ched Report			27 Mar 17	OL

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

### Due to sample matrix ### = Due to compare the property for the prope

H = Due to concentration of other analytes
+ = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: Feb/Mar 2017

6 of 6 Page:

Report Date: 18 May 17 Lab Number: 17-W582 Work Order #:82-0496 Account #: 006106

Date Sampled: 1 Mar 17 13:06 Date Received: 2 Mar 17 15:35 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 16.9C

	As Rece Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.01	s.u.	0.1	SM 4500 H+ B	1 Mar 17 13:06	DJN
Field Appearance	Clear		NA	SM 2110	1 Mar 17 13:06	DJN
Field Temperature	8.16	Degrees C	0.1	SM 2550B	1 Mar 17 13:06	DJN
Field Conductivity	5033	umhos/cm	1	EPA 120.1	1 Mar 17 13:06	DJN
Radium 226	See Atta	ached Report			5 Apr 17	OL
Radium 228	See Atta	ached Report			27 Mar 17	OL

Approved by:

Claudette

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to con

! = Due to sample quantity + = Due to int

# = Due to concentration of other analytes
+ = Due to internal standard response



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 4/7/2017

**CLIENT:** 

MVTL Laboratories, Inc.

Project:

201782-0496

Lab Order:

S1703062

**CASE NARRATIVE** 

Report ID: S1703062001

Samples 17-W577 FB Slag, 17-W578 Pond6, 17-W579 PondN3, 17-W580 Pond12, 17-W581 Pond16S, and 17-W582 MW2S were received on March 7, 2017.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 1



#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0496

Lab ID:

S1703062-001 ClientSample ID: 17-W577 FB Slag

COC:

201782-0496

Date Reported 4/7/2017

Report ID

S1703062001

WorkOrder:

S1703062

CollectionDate: 3/2/2017

DateReceived: 3/7/2017 11:33:00 AM

FieldSampler:

Matrix:

Water

Commonte

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	03/27/2017 1428	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/27/2017 1428	MB
Radium 228	0.0	pCi/L		1	Ga-Tech	03/26/2017 2249	MB
Radium 228 Precision (±)	1.7	pCi/L			Ga-Tech	03/26/2017 2249	MB
	1.7	POWE			Sa 70011	00/20/2011 22-10	

#### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- F Value above quantitation range
- Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

#### **RL** - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL М
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by: \_A)

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 6



#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave. Bismarck, ND 58501

ProjectName:

201782-0496

Lab ID:

S1703062-002 ClientSample ID: 17-W578 Pond6

COC:

201782-0496

Date Reported

4/7/2017

Report ID

S1703062001

WorkOrder:

S1703062

CollectionDate: 3/1/2017 3:02:00 PM

DateReceived: 3/7/2017 11:33:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Result	Units	Qual	RL	Method	Date Analyzed/I	nit
0.1	pCi/L		0.2	SM 7500 Ra-B	03/27/2017 1428	MB
0.05	pCi/L			SM 7500 Ra-B	03/27/2017 1428	MB
0.8	pCi/L		1	Ga-Tech	03/27/2017 153	MB
1.6	pCi/L			Ga-Tech	03/27/2017 153	MB
	0.1 0.05 0.8	0.1 pCi/L 0.05 pCi/L 0.8 pCi/L	0.1 pCi/L 0.05 pCi/L 0.8 pCi/L	0.1 pCi/L 0.2 0.05 pCi/L 0.8 pCi/L 1	0.1 pCi/L 0.2 SM 7500 Ra-B 0.05 pCi/L SM 7500 Ra-B 0.8 pCi/L 1 Ga-Tech	0.1     pCi/L     0.2     SM 7500 Ra-B     03/27/2017 1428       0.05     pCi/L     SM 7500 Ra-B     03/27/2017 1428       0.8     pCi/L     1     Ga-Tech     03/27/2017 153

#### These results apply only to the samples tested.

### Qualifiers:

- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Н Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

#### **RL - Reporting Limit**

- С Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions 0
- Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 6



Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0496

Lab ID:

S1703062-003 ClientSample ID: 17-W579 PondN3

COC:

201782-0496

Date Reported 4/7/2017

Report ID

S1703062001

WorkOrder:

S1703062

CollectionDate: 3/1/2017 11:10:00 AM

FieldSampler:

DateReceived: 3/7/2017 11:33:00 AM

Matrix:

Water

Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total		, , , , , , , , , , , , , , , , , , , ,					
Radium 226	0.6	pCi/L		0.2	SM 7500 Ra-B	03/27/2017 1428	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	03/27/2017 1428	MB
Radium 228	0.3	pCi/L		1	Ga-Tech	03/27/2017 457	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/27/2017 457	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL** - Reporting Limit

С Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

0 Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 6



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0496 S1703062-004

Lab ID:

ClientSample ID: 17-W580 Pond12

COC:

201782-0496

Date Reported 4/7/2017

Report ID

S1703062001

WorkOrder:

S1703062

CollectionDate: 3/2/2017 10:21:00 AM

DateReceived: 3/7/2017 11:33:00 AM

FieldSampler:

Matrix:

Water

Commonte

Result	Units	Qual	RL	Method	Date Analyzed/Init	
0.8	pCi/L		0.2	SM 7500 Ra-B	04/05/2017 932	МВ
0.1	pCi/L			SM 7500 Ra-B	04/05/2017 932	MB
-2.2	pCi/L		1	Ga-Tech	03/27/2017 801	MB
1.6	pCi/L			Ga-Tech	03/27/2017 801	MB
	0.8 0.1 -2.2	0.8 pCi/L 0.1 pCi/L -2.2 pCi/L	0.8 pCi/L 0.1 pCi/L -2.2 pCi/L	0.8 pCi/L 0.2 0.1 pCi/L -2.2 pCi/L 1	0.8 pCi/L 0.2 SM 7500 Ra-B 0.1 pCi/L SM 7500 Ra-B -2.2 pCi/L 1 Ga-Tech	0.8 pCi/L 0.2 SM 7500 Ra-B 04/05/2017 932 0.1 pCi/L SM 7500 Ra-B 04/05/2017 932 -2.2 pCi/L 1 Ga-Tech 03/27/2017 801

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank В

Value above quantitation range

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL** - Reporting Limit

С Calculated Value

Analyzed at IML Gillette laboratory G

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by: \_\_\_\_\_\_\_

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 6



#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0496

Lab ID:

S1703062-005 ClientSample ID: 17-W581 Pond16S

COC:

201782-0496

Date Reported 4/7/2017

Report ID

S1703062001

WorkOrder:

S1703062

CollectionDate: 3/2/2017 12:55:00 PM

DateReceived: 3/7/2017 11:33:00 AM FieldSampler:

Matrix:

Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	04/05/2017 932	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	04/05/2017 932	MB
Radium 228	0.1	pCi/L		1	Ga-Tech	03/27/2017 1105	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	03/27/2017 1105	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank В

Value above quantitation range

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL** - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 6



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company: MVTL Laboratories, Inc.

> 2616 E Broadway Ave. Bismarck, ND 58501

ProjectName: Lab ID:

201782-0496 S1703062-006

COC:

ClientSample ID: 17-W582 MW2S 201782-0496

Date Reported 4/7/2017

Report ID

S1703062001

WorkOrder:

S1703062

CollectionDate: 3/1/2017 12:55:00 PM

DateReceived: 3/7/2017 11:33:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.2	pCi/L		0.2	SM 7500 Ra-B	04/05/2017 932	МВ
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	04/05/2017 932	MB
Radium 228	1.8	pCi/L		1	Ga-Tech	03/27/2017 1408	МВ
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	03/27/2017 1408	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank В

Value above quantitation range

Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL - Reporting Limit** 

С Calculated Value

Analyzed at IML Gillette laboratory G

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

## **ANALYTICAL QC SUMMARY REPORT**

**CLIENT:** 

MVTL Laboratories, Inc.

S1703062

Work Order: Project:

201782-0496

Date: 4/7/2017

Report ID: S1703062001

Radiun	n 228 by Ga/Tech	Sample Type MBLK		Units				
	MB-424 (03/25/17 13:08)	RunNo: 144300	Prep[	Date: 03/1	5/17 12:00	Bato	:hID 12988	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
_	Total Radium 228	ND	1					
Radiun	ı 228 by Ga/Tech	Sample Type LCS		Units	: pCi/L			
	LCS-424 (03/25/17 16:11)	RunNo: 144300	PrepDate: 03/15/17 12:00			Bato	hID 12988	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Total Radium 228	37	1	40.1		91.6	65.9 - 132	
Radiun	ո 228 by Ga/Tech	Sample Type MS	Units: pCi/L					
	MS-424 (03/25/17 22:19)	RunNo: 144300	Prep	Date: 03/1	5/17 12:00	Bato	:hID 12988	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
_	Total Radium 228	42	1	40.1	2	102	65.9 - 132	
ĺ	S1703036-003AMS (03/28/17 02:24)	RunNo: 144300	PrepD	Date: 03/1	5/17 12:00	Bato	:hID 12988	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
_	Total Radium 228	26	1	40.1	1	62.6	50 - 139	
Radiun	n 228 by Ga/Tech	Sample Type MSD		Units	: pCi/L			
	MSD-424 (03/26/17 01:23)	RunNo: 144300	PrepD	Date: 03/1	5/17 12:00	BatchID 12988		
	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
_	Total Radium 228	44	1	42	3.27	105	20	

Qualifiers:

В Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

Matrix Effect Χ

Е Value above quantitation range

Н Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

0 Outside the Range of Dilutions

Spike Recovery outside accepted recovery limits



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

**CLIENT:** 

MVTL Laboratories, Inc.

Date: 4/7/2017

Work Order:

S1703062

Report ID: S1703062001

iect:	201782-0496		Report ID: \$1703062001
- Radiu	ım 226 in Water -	Sample Type MBLK	Units: pCi/L
	MB-1728 (03/27/17 11:19)	RunNo: 144273	PrepDate: 03/20/17 0:00 BatchID 12974
	Analyte	Result	RL Spike Ref Samp %REC % Rec Limits Qua
	Radium 226	ND	0.2
	MB-1730 (04/05/17 09:32)	RunNo: 144493	PrepDate: 03/28/17 0:00 BatchID 13007
	Analyte	Result	RL Spike Ref Samp %REC % Rec Limits Qua
	Radium 226	ND	0.2
Radiu	ım 226 in Water -	Sample Type LCS	Units: pCi/L
	LCS-1728 (03/27/17 11:19)	RunNo: 144273	PrepDate: 03/20/17 0:00 BatchID 12974
	Analyte	Result	RL Spike Ref Samp %REC % Rec Limits Qua
	Radium 226	5.8	0.2 5.89 99.0 67.1 - 122
	LCS-1730 (04/05/17 09:32)	RunNo: 144493	PrepDate: 03/28/17 0:00 BatchID 13007
	Analyte	Result	RL Spike Ref Samp %REC % Rec Limits Qua
	Radium 226	6.1	0.2 5.89 103 67.1 - 122
Radiu	ım 226 in Water -	Sample Type LCSD	Units: pCi/L
	LCSD-1728 (03/27/17 11:19)	RunNo: 144273	PrepDate: 03/20/17 0:00 BatchID 12974
	Analyte	Result	RL Conc %RPD %REC % RPD Limits Qua
	Radium 226	5.4	0.2 5.8 8.50 90.9 20
Radiu	ım 226 in Water -	Sample Type MS	Units: pCi/L
	S1703036-003AMS (03/27/17 11:19)	RunNo: 144273	PrepDate: 03/20/17 0:00 BatchID 12974
	Analyte	Result	RL Spike Ref Samp %REC % Rec Limits Qua
	Radium 226	6.1	0.2 5.89 0.2 99.9 65 - 131
Radiu	m 226 in Water -	Sample Type MSD	Units: pCi/L
	S1703036-003AMSD (03/27/17 14:28)	RunNo: 144273	PrepDate: 03/20/17 0:00 BatchID 12974
	Analyte	Result	RL Conc %RPD %REC % RPD Limits Qua
	Radium 226	5.3	0.2 6.1 13.7 86.5 20
	MS-1730 (04/05/17 09:32)	RunNo: 144493	PrepDate: 03/28/17 0:00 BatchID 13007
	Analyte	Result	RL Conc %RPD %REC % RPD Limits Qua
	Radium 226	6.2	0.2 ND 105
	MSD-1730 (04/05/17 09:32)	RunNo: 144493	PrepDate: 03/28/17 0:00 BatchID 13007

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

Analyte

Radium 226

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

Result

6.1

H Holding times for preparation or analysis exceeded

RL

0.2

Conc

6.2

%RPD

2.20

%REC

103

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits

% RPD Limits

20

Qual



# LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

# **Chain of Custody Record**

Page	1	of	1	
age		O I		

	Phone: (701) 258-9720  Toll Free: (800) 279-6885 Fax: (701) 258-9724  Ompany Name and Address: Account #:										201782-0496			
Company Nam	e and Address:			Account #	·:				•		Phone #:			
	ħσ	VTL		0 1 1							701-258-9720			
		<u>v i L</u> Broadway		Contact: Fa						Fax #:				
		. ND 58501		Name of S		iette	2				For faxed report check box  E-mail: ccarroll@mvtl.com			
Billing Address	s (indicate if different				umpier.						For e-mail report check box			
				Quote Nu	mber						Date Submitted:			
		ox 249									3-Mar-17			
	New Ulm	<u>, MN 56073</u>		Project Na	ame/Numbe	er:					Purchase Order #:			
		Sample Information		<u> </u>		Γ		111	_		BL5805			
		Sample information	<u> </u>	1	1		B	ottle	i y	pe	Analysis			
\$170300	6Z-		Sample	Date	Time	Untreated	1000 ml HNO3	VOC Vials Umpreserved	s Jar	<u></u>				
Number	MVTL Lab Number	Client Sample ID	Туре	Sampled	Sampled	Untr	1000	VOC	Glass	Other	Analysis Required			
001	17-W577	FB Slag	GW	2-Mar-17	NA		4				Ra226 & Ra228			
20Z	17-W578	Pond6	GW	1-Mar-17	1502		4				Ra226 & Ra228			
203	17-W579	PondN3	GW	1-Mar-17	1110		4				Ra226 & Ra228			
204	17-W580	Pond12	GW	2-Mar-17	1021		4				Ra226 & Ra228			
<i>2</i> 05	17-W581	Pond16S	GW	2-Mar-17	1255		4				Ra226 & Ra228			
000	17-W582	MW2S	GW	1-Mar-17	1255		4				Ra226 & Ra228			
								ļ	1	<u> </u>				
		orted as a numerical value												

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
A. Simonson	3-Mar-17	1700		Kathy Bons	3.7.17	11:33	6.8
2.							8.2



### **Groundwater Assessment**

Company:	OTP Coyot	e		
Event:	2017	_		
Sample ID:	*-Ponto	Pond	6	
Sampling Do	reapal: Dacco	Faciliana		

Phone: (701) 258-9720

, ,													
Weather Conditions:		Temp:	7.5 °F		Wind:	Ligh	<u>-</u>		Precip	: Sunn	y / Partly C	loudy / Clou	ıdy
•	Well Info	rmation	<del>.</del>			9, 17,	•	Sa	ampling I	nformatio	n		
Well Locked?	Yes	<b>(%)</b>				Purg	ing Method:	Blac	lder		Cor	ntrol Settings	;
Well Labeled?	Yes	No				Sampl	ing Method:	Blac	lder		Purge:	?	sec.
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	No.		Recover:	57	sec.
Grout Seal Intact?	Xes	No	Not Visi	ble		Duplicate	e Sample?:	Yes	No	] [	PSI:		
Repairs Necessary:						Duplicate	Sample ID:			] [	Pumping Ra	ate: /00	mL/min
Casing	Diameter:		2"										
Water Level Befo	ore Purge:		18,00	ft			Purge Date:	Mere	617	Time Purgi	ng Began:	1412	am/pm
Total W	/ell Depth:		18,76	ft		Well F	Purged Dry?	Yes	NO	Time Pu	urged Dry:		am/pm
We	II Volume:		n.5	liters		Sa	ample Date:	March	17	Time of	Sampling:	1502	- am/pm
Depth to Top	of Pump:		17.20	ft					7				
Water Level Afte	er Sample:	1-	7.20 Top.	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremen	t Method:	Electric '	Water Level Inc	licator		List:							

### Field Measurements

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1417	8.37	4424	7.04	1,78	1747	6,99	17,20	500	()ear
2	1432	8:61	4912	7,20	0,53	183,2	3,86	17.20	1500	de
3	1442	7,87	5064	7,25	0.40	194.4	2,32	17,20	1000	der
4	1452	7.18	5098	7,26	0,36	196,8	2.18	17.20	1000	cler
5	1457	7.83	5129	7,26	0,34	200,3	2,11	17,20	500	Ch -
6	1502	7.94	5123	7,26	0,34	203, 3	2,00	17,20	500	ds
7						,				
8										
9			·							
10										

Stabilized: Yes No

Total Volume Removed: 5000 mL

Comments:

\* DN IMarch 17



**Groundwater Assessment** 

Company:	OTP Coyote	;
Event:	2017	
Sample ID:	Pond N3	
Sampling Bor	conol: O c c d	1/-

Phone: (701) 258-9720

							_						
Weather Conditions:		Temp:	17	°F	Wind:	NW9			Precip	: Sunr	y / Partly (	Cloudy / Clo	udy
1	Well Info	rmation				,		Sampling Information					
Well Locked?	Yes	No				Purg	ging Method:	Blac	der		Co	ontrol Setting	s
Well Labeled?	Yes	No				Samp	ling Method:	Method: Bladder		] [	Purge:	3	sec.
Casing Straight?	¥ <b>6</b> \$	No				Dedica	ated Equip?:	Yes	(No)	] [	Recover:	57	sec.
Grout Seal Intact?	Yes	No	Not \	/isible		Duplicat	e Sample?:	Yes	AVO	] [	PSI:		
Repairs Necessary:		<				Duplicate	e Sample ID:	_	<u> </u>		Pumping R	ate: (🔑 🕖	mL/min
Casing	Diameter:		2"									,	
Water Level Befo	ore Purge:		12,00	ft			Purge Date:	Mar	chil	Time Purg	ing Began:	0910	(am/pm
Total W	ell Depth:			ft		Well I	Purged Dry?	Yes	(Ng)	Time P	urged Dry:		_a <del>m/pm</del>
We	ll Volume:			liters		S	ample Date:	March	117	Time of	Sampling:	1110	(am/pm
Depth to Top	of Pump:		34,52	· ft				•	,				
Water Level Afte	r Sample:		16/7/	ft		Bottle	CCR: 1L Ra	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremen	t Method:	Electric	Water Level	Indicator		List:							
				Field	Measure	ements							

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time	_	±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1915	10,00	5330	6,67	3,05	2051	870	13.08	500	closedy
2	0935	8.79	5314	6.68	0.73	198.4	581	14,62	2300	cloudy
3	1005	8.78	5305	6,69	0,70	201,1	390	15,26	3000	cloudy
4	1035	7,64	5296	6,69	0,62	206.8	195	15.49	3000	Cloudy
5	1055	7,49	5300	6.67	0,45	217,3	90,5	15.60	2000	fartly loady
6	1100	7.60	5318	6,67	0,42	7/8,9	92,1	15.58	500	Payty close
7	1105	7,66	5315	6,67	0,38	221,3	91.5	15.68	500	Partly Clarify
8	1110	7.60	5312	6,67	0,38	224,9	93.0	15.68	500	saits cleddy
9										′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′ ′
10										

No Stabilized:

Comments

Total Volume Removed: /2,002 mL



**Groundwater Assessment** 

Company:	OTP Coyote		
Event:	2017		
Sample ID:		Pond10	
Sampling Personal:	Davera	Victoria	and the same

Phone: (701) 258-9720

Weather Cond	ditions:		Temp:	17	°F	Wind:	NE5			Precip	: Sunny / Par	tly C	loudy / <sub>⟨</sub> Ćloι	ady)
		Well Info	rmation						Sa	mpling l	nformation			
Well Lo	ocked?	Yes	No.				Purgi	ng Method:	Blac			Cor	ntrol Settings	 S
Well La	beled?	Yes	No					ng Method:	Blac	lder	Pu	rge:	3	sec
Casing St	raight?	Xes	No					ed Equip?:	Yes	(No	Reco	ver:	5-5	sec
Grout Seal	Intact?	Yes	No	Not V	isible		Duplicate	Sample?:	Yes	_(No		PSI:	-,48	
Repairs Neces	sary:						Duplicate	Sample ID:	۷		Pumpi	ng Ra	ate:	mL/mir
	Casing	Diameter:		2"										
Water Le	evel Bef	ore Purge:	2	1.63	ft		F	urge Date:	27 Feb	917	Time Purging Beg		0923	@m/pm
	Total V	Vell Depth:	2	2.10	ft		Well P	urged Dry?	Yes	No	Time Purged I	Dry:		am/pm
	We	ell Volume:		0,3	liters		Sa	mple Date:	27F0b	17	Time of Sampl	ing:	<u>0930</u>	am/pm
Dept	th to To	o of Pump:	20	150	ft			·						
		er Sample:			ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Meas	suremer	nt Method:	Electric \	Nater Level	Indicator		List:							
					Field	Measur	ements							
Stabilizatio	on	Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:			
(3 consecut		(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)		Removed		, Color, Odor, Ect.			
	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear,	partly cloudy, cloudy			
1														
2			. (	O MP/N	$\mathcal{F}$	,								
3 4			(1) (F	ecer		m 0 6								
5		$- \langle \rangle \rho$	Su.	0.1	<del>- &gt; 1</del>	rige		*						
6			- lum	erl	, ,			<u> </u>						
7			a lum											
8		<b></b> ∀	<u> </u>											
9														
10									,					
Stabilized:	Yes	No				Т	otal Volume	Removed:	•	mL				
Comments:		Due to low	volume in	well and slo	w recharge	the full sa	ample set of	bottles was	not able to	be collecte	ed at time of sample	e field	readings.	
		Date/Time			Date/Time			Date/Time			Date/Time			
Collected 1L F	Raw at:		Collecte	d 500mL c at:		ł	d 1L Nitrics at:		Collected					
_	, A	ا د / اد:		/**	3./	1			- 4.					

to fill line up. There wasn't enough volume of water to get a sample or readings.



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 12
Sampling Personal:	Dacco Micano

Phone: (701) 258-9	720												
Weather Conditions:		Temp:	20°F		Wind:	Light	<del>-</del>		Precip:	Suni	Partly C	loudy / Clo	oudy
	Well Info	rmation						Sa	ampling l	nformatio	on		
Well Locked?	Yes	(No				Purgi	ng Method:	Bla	dder		Со	ntrol Setting	gs
Well Labeled?	<yes)< td=""><td>No</td><td></td><td></td><td></td><td>Sampli</td><td>ng Method:</td><td>Bla</td><td>dder</td><td></td><td>Purge:</td><td>3</td><td>sec.</td></yes)<>	No				Sampli	ng Method:	Bla	dder		Purge:	3	sec.
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	(No)		Recover:	5 7	sec.
Grout Seal Intact?	Yes	No	(Not Visi	ble		Duplicate	Sample?:	Yes	~NO		PSI:		
Repairs Necessary:		- ALCOHOLOGICA CONTRACTOR CONTRAC	Contract of the Contract of th			Duplicate	Sample ID:	The same same	ALTO MAN LOCAL DESCRIPTION OF THE PARTY OF T		Pumping R	ate:	) mL/min
Casing	Diameter:		2"									*	
Water Level Bef	ore Purge:		37.41	ft		F	Purge Date:	21001	1017	Time Purg	ing Began:	0921	(m)/pm
Total W	Vell Depth:		Amptitotics,	ft		Well P	urged Dry?	Yes	No	Time F	urged Dry:	<u>~</u>	am/pm
We	il Volume:		-MARATINE	liters		Sa	ample Date:	2 Mar	417	Time of	f Sampling:	1021	(am)pm
Depth to Top	of Pump:	3	7,67	ft			•					,	
Water Level Afte	er Sample:	3	7.67	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremen	t Method:		Water Level Ind	icator		List:							
				Field	Mossura	monte							

#### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0926	7.30	3632	7./1	5.81	152,5	17,3	37.67	500	clean
2	0941	7.23	3635	7.19	1,48	146.0	22,4	37.67	1500	cl.
3	0956	7/31	3632	7.20	1,20	145.2	13.8	37,67	1500	du
4	boi	7,25	3429	7,20	1,19	145.6	12,3	37.67	500.	Cler
5	1006	7.65	3623	7,20	1.20	1452	10.1	37.67	500	6ª-
6	1011	7,39	3629	7.20	1,21	14507	8.02	37,67	500	da
7	1016	7.56	3624	7,20	1,17	145.9	7,63	37,69	500	cl.
8	1021	7.69	3628	7,20	1,15	146,0	746	37,67	500	dr
9			7 - 0				1	- 6 /		
10									/	
01 1 11	(Van)	NI.			<u></u>	<b>T</b> .	-4-13/-1/	D	1 000	1

Stabilized: Yes No

Comments:

Total Volume Removed: ( ) ( ) ( ) mL



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pa 1 1/6	

Sampling Personal:

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9	720									- 8 2	• • •	-	and the same of th
Weather Conditions:		Temp:	/ 6 °F	=	Wind:	Ligh	<u>っナー</u>		Precip:	Sun	ny / Partly C	loudy / Clo	udy
	Well Info	rmation	V		. "			S	ampling I	nformatio	on		
Well Locked?	(Yes)	No				Purg	ing Method:	Bla	dder		Coi	ntrol Setting	S
Well Labeled?	Yes	No				Sampl	ing Method:	Bla	dder		Purge:	4	sec.
Casing Straight?	(Yes	No				Dedica	ted Equip?:	Yes	No		Recover:	56	sec.
Grout Seal Intact?	Yes	No	<u>Not Vis</u>	ible		Duplicate	e Sample?:	Yes	(N)		PSI:	,	
Repairs Necessary:						Duplicate	Sample ID:				Pumping Ra	ate: //\(/)	mL/min
Casing	Diameter:		2"									v 1130	
Water Level Befo	ore Purge:		39,17	ft			Purge Date:	2-Mar	ch 17	Time Purg	ing Began:	719-30	<b>-</b> € m/pm
Total W	/ell Depth:			ft			urged Dry?	Yes	Na	Time F	Purged Dry:		-am/pm
We	ell Volume:			liters		Sa	ample Date:	2 Moral	217	Time of	f Sampling:	1255	am/pm
Depth to Top	of Pump:	H	6.10	ft					, ,				
Water Level Afte	er Sample:	4	0.49	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	Nitric			
Measuremen	t Method:	Electric \	Nater Level In	dicator		List:							

## **Field Measurements**

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1135	7.91	2191	687	4,13	162,4	208	39,72	500	Bath double
2	1150	7.86	3225	6,81	130	143, 6	97.8	39.96	1500	Partlectonic
3	1210	8,49	3227	6,83	1.32	99,5	17.8	40.24	2000	Class
4	1230	8.07	3214	6,87	1.17	811	39.6	40,34	2000	clay
5	1240	8,02	3214	6.87	1,23	77.1	40,2	40,46	\$000	du
6	1245	8,13	3204	6,89	1.09	73'9	33.6	40.49	500	Clu
7	1250	8,02	3201	6088	1,06	73,1	30,9	40,49	500	dy -
8	1255	8.00	3205	6.89	1.09	7115	30.6	40,49	500	di-
9										
10									OF CENT	

Stabilized:

Total Volume Removed: 8500 mL

Comments: \* DN 2 March 17



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2017	
Sample ID:	MW 25	
Sampling Pers	onal: Darren Niesway	

Phone: (701) 258-9	9720						_						
Weather Conditions:		Temp:	24	°F	Wind:	Light	_		Precip	Sunr	ny / Partly C	loudy / Clou	ıdy
	Well Info	rmation	1					Sa	ımpling l	nformatio	on 🖳		
Well Locked?	* <del>Les</del>	No				Purgi	ng Method:	Blac	lder		С	ntrol Settings	3
Well Labeled?	(Fe)s	No				Sampli	ng Method:	Blac	lder		Purge:	3	sec
Casing Straight?	√es	No				Dedica	ted Equip?:	Yes	NO		Recover:	57	sec
Grout Seal Intact?	Yes	No	Not	Visible		Duplicate	Sample?:	Yes	(NO)		PSI:	Č	
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate:/ <i>()()</i>	mL/mir
Casing	Diameter:		2"										
Water Level Bef	ore Purge:	•	23,94	ft ft		Ţ.	Purge Date:	Marc	617	Time Purg	ing Began:	1206	am/po
Total V	Vell Depth:			ft		Well F	urged Dry?	Yes	6	Time P	urged Dry:		-am/pn
We	ell Volume:			liters		Sa	ample Date:	Mard	117	Time of	Sampling:	1306	am/pm
Depth to Top	p of Pump:	73	4.15	ft								(	
Water Level After	er Sample:		0,5	ft		Bottle	CCR: 1L R	aw, 500mL	Nitric, 4-1L	. Nitric			
Measuremer	nt Method:	Electric	Water Leve	l Indicator		List:							
				Field	Massura	amonte							

### Field Measurements

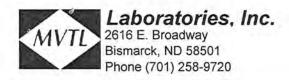
Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1211	7,91	5058	6.95	5.55	20917	21.9	24,73	500	Clear
2	1226,	8.19	5025	6196	5.33	194.6	14.2	26.76	1500	cis-
3	1236	8,46	5005	6.97	6,37	190.5	8,53	27.36	1000	de
4	1246	8147	5001	7,00	6.82	182,8	10.6	27,98	1000	dea
5	1251	8,30	5014	7,01	6,84	181.0	8,68	28107	500	ch
6	1256	8.48	5026	7,00	6.89	179.8	15. 44	28,27	500	dr
7	1201	8,29	5031	7,00	6,92	179.0	5,14	28.38	500	d
8	1306	8,16	5033	7,01	6.95	176.9	4.97	28:42	500	dr
9									)	
10										

Stabilized: / Yes/

Total Volume Removed: 6000 mL

Comments:

\* DOV IMOJOH 17



# **Chain of Custody Record**

Project Nam	e: DTP Coyote - Slag Pond	Event:	Feb 2017 @ 2017	Work Order Number:	
Report To: Attn: Address:	Otter Tail Power Paul Vukonich PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	OTP Josh Hollen	Name of Sampler(s): Davren Nieswaag	
phone: email:	pvukonich@otpco.com		jhollen@otpco.com		

	Sam	ple Informatio	n ,				Bottle Typ	oe ,	, Fi	eld Para	meters	Analysis
Lab Number	Sample ID	Date	Time	Sample Tung	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric			Temp (°C)	Spec. Cond.	Hd	Analysis Required
W577	FB Slag	2 March 17	NA	W	clear	4	THEY !		NA	NA	NA	
W578	Pond6	1 March 17	1502	GW	dear	4			794	5123	7.26	
W519	PondN3	March 17	1110	GW	Partly cloudy	4			7.60	5312	6.67	
~	Pond10	27Fe517	0930	GW		2-2	TEGINDA		100	ampi	e-	
W580	Pond12	2 March 17	1021	GW	clear	4			7.69	3628	7,20	Rad 226 & Rad 228
W581	Pond16S	2 March 17	1255	GW	Olean	4			8,00	3205	6.89	Nau 220 & Nau 220
W589	MW2S	March 17	1306	GW	Clear	4	1117117		8.16	5033	7.01	

Comments:

Relinquished By:		Sa	ample Condition:
Name:	Date/Time	Location:	Temp (°C)
1 gan News	2 March 17	Walk In #2	Ambien+ 16.9 (M562)/TM588
2			

Receive	ed by:
Name:	Date/Time
Mal Lines	Od March 17
MUJULAMONOON	1535
·	16.1 0

TMS62





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April 21, 2017

Otter Tail Power Company Attn: Josh Hollen P.O. Box 496 Fergus Falls, MN 56538-0496

RE: Coyote Station Groundwater Sampling - April 2017

Dear Mr. Hollen,

From March 29 – April 5, 2017, MVTL Laboratories' Field Services division collected groundwater samples from wells with sufficient volume at the Coyote Station near Beulah, ND. The six wells from the Blue Pit, and six wells from the Slag Pond site were purged and sampled at a low rate with a bladder pump. The wells were found to be in good condition. Well POND10 had an insufficient volume to collect a sample. Samples collected were placed on ice and then transported back to the MVTL laboratory in Bismarck, ND for analysis.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer

MVTL Field Services



WO# 82-0805 82-0801

# **OTP Coyote Station**

Blue Pit

Attn: Josh Hollen

PO Box 496

Fergus Falls, MN 56538-0496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TE <b>M</b> P (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Blue6	3-Apr-17	11:13	4-Apr-17	12:49	62.49	79.12	70.22	10.2	9500.0	Bladder	8.88	2631	6.64	285.00	partly cloudy
Blue7	3-Apr-17	12:12	3-Apr-17	13:12	79.80	NA	79.85	NA	6000.0	Bladder	9.95	2659	6.57	35.70	clear
Blue13	3-Apr-17	10:02	4-Apr-17	11:53	103.85	116.70	111.25	7.9	10500.0	Bladder	8.79	5243	6.61	33.70	clear
Blue14	4-Apr-17	13:30	4-Apr-17	14:45	78.79	NA	79.88	NA	7500.0	Bladder	8.62	5178	6.66	4.95	clear
Blue15	5-Apr-17	12:52	5-Apr-17	13:37	76.45	NA	76.58	NA	4500.0	Bladder	9.26	3740	6.66	2.00	clear
Blue16	5-Apr-17	10:35	5-Apr-17	12:00	75.22	NA	75.29	NA	8500.0	Bladder	9.02	2803	6.62	18.50	clear
the state of the s															
													<u> </u>		



**OTP Coyote Station** 

Slag Pond

Attn: Josh Hollen

PO Box 496

Fergus Falls, MN 56538-0496

WO# 82-0783 82-0743

82-0742

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TEMP (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Pond6	29-Mar-17	8:25	29-Mar-17	8:50	17.62	18.81	below pump	0.7	2500.0	Bladder	9.23	4643	7.02	0.72	clear
PondN3	29-Mar-17	13:18	29-Mar-17	15:08	11.78	37.07	15.62	15.6	11000.0	Bladder	12.78	5121	6.67	122.00	parly cloudy
Pond10	NA	NA	29-Mar-17	8:14	21.64	22,11	NA	0.3	NA	NA	NA	NA	NA	NA	insufficient volume for sampling
Pond12	30-Mar-17	9:37	30-Mar-17	10:27	37.50	40.10	38.49	1.6	5000.0	Bladder	9.65	3487	7.15	1.61	clear
Pond16S	30-Mar-17	11:25	30-Mar-17	12:25	39.28	48.85	40.25	5.9	6000.0	Bladder	10.04	3112	6.87	42.60	clear
MW2S	29-Mar-17	11:27	29-Mar-17	12:17	23.20	36.60	28.55	8.3	5000.0	Bladder	10.36	4816	6.97	1.57	clear
							;								
					***************************************										





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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0742

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year April 2017

MVTL Laboratory Identifications: 17-W737 through 17-W741

Page 1 of 2

Sample Identification	MVTL Laboratory #
FB Slag	No sample (sampling preservation error)
Pond6	17-W737
PondN3	17-W738
Pond10	Insufficient volume – no sample
Pond12	17-W739
Pond16S	17-W740
MW2S	17-W741

#### I. RECEIPT

- All samples were received at the laboratory on 30 Mar 17 at 1445.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - o Temperature of samples upon receipt was 3.9°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0742

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year April 2017

MVTL Laboratory Identifications: 17-W737 through 17-W741

Page 2 of 2

### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.

o For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Canto DATE: 13Apr 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

**MVTL** 

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Page: 1 of 3

Quality Control Report
Lab IDs: 17-W737 to 17-W741

Lab IDs: 17-W737 to 17-W741 Project: OTP Coyote-Slag Pond - CCR Work Order: 201782-0742

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	101	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.001 < 0.001 < 0.001	0.4092 0.4042 0.4404	102 101 110	75-125 75-125 75-125	0.4092 0.4042 0.4404	0.4116 0.4424 0.4264	103 111 107	0.6 9.0 3.2	20 20 20	- 	- -	< 0.001
Arsenic - Total mg/l	0.1000	99	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.002 < 0.002 0.0164	0.4188 0.4212 0.4538	105 105 109	75-125 75-125 75-125	0.4188 0.4212 0.4538	0.4048 0.4722 0.4530	101 118 109	3.4 11.4 0.2	20 20 20	-	-	< 0.002
Barium - Total mg/l	0.1000	101	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	0.0199 0.0606 0.1073	0.4204 0.4546 0.5440	100 98 109	75-125 75-125 75-125	0.4204 0.4546 0.5440	0.4156 0.5236 0.5750	99 116 117	1.1 14.1 5.5	20 20 20	- -	-	< 0.002
Beryllium - Total mg/l	0.1000	101	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.0005 < 0.0005 < 0.0005	0.3966 0.3994 0.4338	99 100 108	75-125 75-125 75-125	0.3966 0.3994 0.4338	0.3936 0.4650 0.4558	98 116 114	0.8 15.2 4.9	20 20 20	-	-	< 0.0005
Boron - Total mg/l	0.40	105	80-120	0.400 0.400	17-W740 17-W748	2.33 0.26	2.80 0.66	118 100	75-125 75-125	2.80 0.66	2.77 0.64	110 95	1.1 3.1	20 20		-	< 0.1 < 0.1
Cadmium - Total mg/l	0.1000	102	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.0005 0.0017 < 0.0005	0.4080 0.3990 0.4270	102 99 107	75-125 75-125 75-125	0.4080 0.3990 0.4270	0.4142 0.4348 0.4228	104 108 106	1.5 8.6 1.0	20 20 20	-	-	< 0.0005
Calcium - Total mg/l	20.0 20.0	104 102	80-120 80-120	100 100	17W730q 17W740q	18.5 191	280	100	75-125 75-125	119 280	115 283	96 92	3.4	20 20	- - -	-	< 1 < 1 < 1 < 1
Chloride mg/l	30.0 30.0	82 83	80-120 80-120	30.0	17-W730	9.4	37.5	94	80-120	37.5	35.9	88	4.4	20	-	-	< 1 < 1
Chromium - Total mg/l	0.1000	97	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.002 0.0090 < 0.002	0.3748 0.3854 0.4036	94 94 101	75-125 75-125 75-125	0.3748 0.3854 0.4036	0.3750 0.4192 0.4020	94 103 100	0.1 8.4 0.4	20 20 20	-	-	< 0.002

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Quality Control Report
Lab IDs: 17-W737 to 17-W741

Project: OTP Covote-Slag Pond CCP

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Cobalt - Total mg/l	0.1000	98	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.002 0.0311 < 0.002	0.3846 0.4178 0.4118	96 97 103	75-125 75-125 75-125	0.3846 0.4178 0.4118	0.3794 0.4542 0.4082	95 106 102	1.4 8.3 0.9	20 20 20	-	-	< 0.002
Fluoride mg/l	0.50 0.50	110 110	90-110 90-110	0.500	17-W741	0.29	0.77	96	80-120	0.77	0.78	98	1.3	20		-	< 0.1 < 0.1
Lead - Total mg/l	0.1000	98	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.0005 0.0012 0.0023	0.3892 0.3788 0.4158	97 94 103	75-125 75-125 75-125	0.3892 0.3788 0.4158	0.3790 0.4342 0.4368	95 108 109	2.7 13.6 4.9	20 20 20	-		< 0.0005
Lithium - Total mg/l	0.40	110	80-120	0.200	17-W731	0.09	0.33	120	75-125	0.33	0.33	120	0.0	20	-		< 0.1 < 0.1
Mercury - Total mg/l	0.0020 0.0020	100 95	85-115 85-115	0.002 0.002 0.002 0.002	17-W728 17-w730 17-W730 17-W760	< 0.0002 < 0.0002 < 0.0002 < 0.0002	0.0020 0.0020 0.0020 0.0018	100 100 100 90	70-130 70-130 70-130 70-130	0.0020 0.0020 0.0018	0.0020 0.0020 0.0019	100 95	0.0 0.0 5.4	20 20 20	- - -		< 0.0002 < 0.0002
Molybdenum - Total mg/l	0.1000	99	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	0.0054 0.0075 0.0329	0.4018 0.4048 0.4728	99 99 110	75-125 75-125 75-125	0.4018 0.4048 0.4728	0.4122 0.4800 0.4920	102 118 115	2.6 17.0 4.0	20 20 20		1 1 1	< 0.002
pH units	-	-	-	-	-	-	-	-	-	6.1	6.0	-	1.7	20	-	-	-
Selenium - Total mg/l	0.1000	102	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.01 < 0.01 < 0.01	0.4112 0.4196 0.4616	103 105 115	75-125 75-125 75-125	0.4112 0.4196 0.4616	0.4220 0.4814 0.4590	106 120 115	2.6 13.7 0.6	20 20 20		1 1 1	< 0.002
Sulfate mg/l	100 100	91 93	80-120 80-120	100	17-W732	< 5	83.2	83	80-120	83.2	82.1	82	1.3	20	-		< 5 < 5
Thallium - Total mg/l	0.1000	99	80-120	0.400 0.400 0.400	17W730q 17W740q 17W758q	< 0.0005 < 0.0005 < 0.0005	0.3936 0.3814 0.4154	98 95 104	75-125 75-125 75-125	0.3936 0.3814 0.4154	0.3820 0.4400 0.4398	96 110 110	3.0 14.3 5.7	20 20 20	-	-	< 0.0005

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**Quality Control Report** 

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	A STATE OF THE PARTY OF THE PAR	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Rec	Known % Rec Limits	Method Blank
Total Dissolved Solids mg/l	1		i i	1	1		4		: -	2720 1060	2750 1080		1.1 1.9	20 20	7	7	<10 <10

C. CANOLD 13Ay (17 Approved by:



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: April 2017

1 of 5 Page:

Report Date: 12 Apr 17 Lab Number: 17-W737 Work Order #:82-0742 Account #: 006106

Date Sampled: 29 Mar 17 8:50 Date Received: 30 Mar 17 14:45

Sampled By: Client

PO #: 48895

Temp at Receipt: 3.9C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed		Analyst	
Metal Digestion		100		EPA 200.2	30 Mar 1	,	svs	_
Field pH	7.02	s.u.	0.1	SM 4500 H+ B	29 Mar 1		JSM	
Lab, pH	* 7.4	s.u.	0.1	SM4500 H+ B	30 Mar 1	18:00	SVS	
Field Appearance	Clear		NA	SM 2110	29 Mar 1		JSM	
Field Temperature	9.23	Degrees C	0.1	SM 2550B	29 Mar 1'	8:50	JSM	
Field Conductivity	4643	umhos/cm	1	EPA 120.1	29 Mar 1		JSM	
Fluoride	0.40	mg/l	0.10	SM4500-F-C	30 Mar 1	18:00	SVS	
Sulfate	1720	mg/l	5.00	ASTM D516-07	31 Mar 1	11:44	EMS	
Chloride	23.8	mg/1	1.0	SM4500-C1-E	4 Apr 1	9:41	EMS	
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	31 Mar 1	11:51	EV	
Total Dissolved Solids	3660	mg/1	10	I1750-85	31 Mar 1		svs	
Calcium - Total	166	mg/1	1.0	6010	4 Apr 1	12:29	SZ	
Lithium - Total	< 0.1	mg/l	0.10	6010	3 Apr 1		KMD	
Boron - Total	3.41	mg/l	0.10	6010	4 Apr 1		KMD	
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Apr 1	7 16:00	KMD	
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Apr 1		KMD	
Barium - Total	0.0425	mg/1	0.0020	6020	6 Apr 1	7 16:00	KMD	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 1	7 16:00	KMD	
Cadmium - Total	0.0013	mg/l	0.0005	6020	6 Apr 1	7 16:00	KMD	
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Apr 1		KMD	
Cobalt - Total	0.0303	mg/l	0.0020	6020	6 Apr 1	7 16:00	KMD	
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 1	7 16:00	KMD	
Molybdenum - Total	0.0075	mg/1	0.0020	6020	6 Apr 1	7 16:00	KMD	
Selenium - Total	< 0.01 *	mg/l	0.0020	6020	6 Apr 1	7 16:00	KMD	
Thallium - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 1	7 16:00	KMD	

<sup>\*</sup> Holding time exceeded

Approved by:

Claudite K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to con

! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes + = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: April 2017

Report Date: 12 Apr 17 Lab Number: 17-W738 Work Order #:82-0742 Account #: 006106

Date Sampled: 29 Mar 17 15:08 Date Received: 30 Mar 17 14:45

Sampled By: Client

PO #: 48895

Temp at Receipt: 3.9C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Mar 17	svs
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	29 Mar 17 15:08	JSM
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	30 Mar 17 18:00	SVS
Field Appearance	Partly Cl	oudy	NA	SM 2110	29 Mar 17 15:08	JSM
Field Temperature	12.8	Degrees C	0.1	SM 2550B	29 Mar 17 15:08	JSM
Field Conductivity	5121	umhos/cm	1	EPA 120.1	29 Mar 17 15:08	JSM
Fluoride	0.29	mg/l	0.10	SM4500-F-C	30 Mar 17 18:00	SVS
Sulfate	2890	mg/l	5.00	ASTM D516-07	31 Mar 17 11:44	EMS
Chloride	37.2	mg/1	1.0	SM4500-C1-E	4 Apr 17 9:41	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	31 Mar 17 11:51	EV
Total Dissolved Solids	5030	mg/1	10	11750-85	31 Mar 17 15:43	SVS
Calcium - Total	505	mg/l	1.0	6010	4 Apr 17 12:29	SZ
Lithium - Total	0.61	mg/l	0.10	6010	3 Apr 17 12:35	KMD
Boron - Total	0.53	mg/l	0.10	6010	4 Apr 17 16:53	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	6 Apr 17 16:00	KMD
Arsenic - Total	0.0028	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Barium - Total	0.0496	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	KMD
Cadmium - Total	0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	KMD
Chromium - Total	0.0071	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Cobalt - Total	0.0064	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Lead - Total	0.0020	mg/1	0.0005	6020	6 Apr 17 16:00	
Molybdenum - Total	0.0035	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Selenium - Total	0.0638	mg/l	0.0020	6020	6 Apr 17 16:00	
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	

\* Holding time exceeded

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

### Oue to sample matrix

### Due to continue to sample quantity

#### Due to in:

# = Due to concentration of other analytes
+ = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: April 2017

Report Date: 12 Apr 17 Lab Number: 17-W739 Work Order #:82-0742 Account #: 006106

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Date Sampled: 30 Mar 17 10:27 Date Received: 30 Mar 17 14:45

Sampled By: Client

PO #: 48895

Temp at Receipt: 3.9C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		7.07		EPA 200.2	30 Mar 17	SVS
Field pH	7.15	s.u.	0.1	SM 4500 H+ B	30 Mar 17 10:27	JSM
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	30 Mar 17 18:00	SVS
Field Appearance	Clear		NA	SM 2110	30 Mar 17 10:27	JSM
Field Temperature	9.65	Degrees C	0.1	SM 2550B	30 Mar 17 10:27	JSM
Field Conductivity	3487	umhos/cm	1	EPA 120.1	30 Mar 17 10:27	JSM
Fluoride	0.11	mg/l	0.10	SM4500-F-C	30 Mar 17 18:00	SVS
Sulfate	1470	mg/l	5.00	ASTM D516-07	31 Mar 17 11:44	EMS
Chloride	21.9	mg/l	1.0	SM4500-C1-E	4 Apr 17 9:41	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	31 Mar 17 11:51	EV
Total Dissolved Solids	2720	mg/l	10	I1750-85	31 Mar 17 15:43	SVS
Calcium - Total	167	mg/l	1.0	6010	4 Apr 17 12:29	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	3 Apr 17 12:35	KMD
Boron - Total	1.95	mg/l	0.10	6010	4 Apr 17 16:53	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Apr 17 16:00	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Barium - Total	0.0210	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Beryllium - Total	< 0.0005	mg/l	0,0005	6020	6 Apr 17 16:00	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	KMD
Chromium - Total	0.0065	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Cobalt - Total	0.0075	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	KMD
Molybdenum - Total	0.0047	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: April 2017

Report Date: 12 Apr 17 Lab Number: 17-W740 Work Order #:82-0742 Account #: 006106

Date Sampled: 30 Mar 17 12:25 Date Received: 30 Mar 17 14:45

Sampled By: Client

PO #: 48895

Temp at Receipt: 3.9C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	777			EPA 200.2	30 Mar 17	svs
Field pH	6.87	s.u.	0.1	SM 4500 H+ B	30 Mar 17 12:25	JSM
Lab, pH	* 6.B	s.u.	0.1	SM4500 H+ B	30 Mar 17 18:00	SVS
Field Appearance	Clear		NA	SM 2110	30 Mar 17 12:25	JSM
Field Temperature	10.0	Degrees C	0.1	SM 2550B	30 Mar 17 12:25	JSM
Field Conductivity	3112	umhos/cm	1	EPA 120.1	30 Mar 17 12:25	JSM
Fluoride	0.21	mg/1	0.10	SM4500-F-C	30 Mar 17 18:00	SVS
Sulfate	1270	mg/1	5.00	ASTM D516-07	31 Mar 17 11:44	EMS
Chloride	22.2	mg/1	1.0	SM4500-C1-E	4 Apr 17 9:41	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	5 Apr 17 12:09	EV
Total Dissolved Solids	2430	mg/l	10	I1750-85	31 Mar 17 15:43	SVS
Calcium - Total	191	mg/1	1.0	6010	4 Apr 17 12:29	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	3 Apr 17 12:35	KMD
Boron - Total	2.33	mg/l	0.10	6010	4 Apr 17 16:53	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Apr 17 16:00	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Barium - Total	0.0606	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 17 16:00	KMD
Cadmium - Total	0.0017	mg/1	0.0005	6020	6 Apr 17 16:00	KMD
Chromium - Total	0.0090	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Cobalt - Total	0.0311	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Lead - Total	0.0012	mg/1	0.0005	6020	6 Apr 17 16:00	KMD
Molybdenum - Total	0.0075	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Selenium - Total	< 0.01 ^	mg/1	0.0020	6020	6 Apr 17 16:00	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Apr 17 16:00	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset = Due$  to sample matrix  $\emptyset = Due$  to co  $\emptyset = Due$  to sample quantity  $\emptyset = Due$  to in

# = Due to concentration of other analytes
+ = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ) .



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: April 2017

Page: 5 of 5

Report Date: 12 Apr 17 Lab Number: 17-W741 Work Order #:82-0742 Account #: 006106

Date Sampled: 29 Mar 17 12:17 Date Received: 30 Mar 17 14:45

Sampled By: Client

PO #: 48895

Temp at Receipt: 3.9C ROI

	As Receiv Result	ed	Method RL	Method Reference	Date Analyzed	Analyst	
Metal Digestion	10.11.7			EPA 200.2	30 Mar 17	SVS	
Field pH	6.97	s.u.	0.1	SM 4500 H+ B	29 Mar 17 12:17	JSM	
Lab, pH	* 7.4	s.u.	0.1	SM4500 H+ B	30 Mar 17 18:00	svs	
Field Appearance	Clear		NA	SM 2110	29 Mar 17 12:17	JSM	
Field Temperature	10.4	Degrees C	0.1	SM 2550B	29 Mar 17 12:17	JSM	
Field Conductivity	4816	umhos/cm	1	EPA 120.1	29 Mar 17 12:17	JSM	
Fluoride	0,29	mg/l	0.10	SM4500-F-C	30 Mar 17 18:00	svs	
Sulfate	2520	mg/1	5.00	ASTM D516-07	31 Mar 17 11:44	EMS	
Chloride	24.7	mg/1	1.0	SM4500-C1-E	4 Apr 17 9:41	EMS	
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	5 Apr 17 12:09	EV	
Total Dissolved Solids	4760	mg/1	10	I1750-85	31 Mar 17 15:43	svs	
Calcium - Total	535	mg/1	1.0	6010	4 Apr 17 12:29	SZ	
Lithium - Total	0.51	mg/l	0.10	6010	3 Apr 17 12:35	KMD	
Boron - Total	0.30	mg/1	0.10	6010	4 Apr 17 16:53	KMD	
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Apr 17 16:00	KMD	
Arsenic - Total	< 0.002	mg/1	0.0020	6020	6 Apr 17 16:00	KMD	
Barium - Total	0.0146	mg/1	0.0020	6020	6 Apr 17 16:00	KMD	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 17 16:00	KMD	
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 17 16:00	KMD	
Chromium - Total	< 0.002	mg/1	0.0020	6020	6 Apr 17 16:00	KMD	
Cobalt - Total	< 0.002	mg/1	0.0020	6020	6 Apr 17 16:00	KMD	
Lead - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 17 16:00	KMD	
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	6 Apr 17 16:00	KMD	
Selenium - Total	0.1216	mg/l	0.0020	6020	6 Apr 17 16:00	KMD	
Thallium - Total	< 0.0005	mg/1	0.0005	6020	6 Apr 17 16:00	KMD	

\* Holding time exceeded

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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



Water Level Before Purge:

Total Well Depth:

Depth to Top of Pump: Water Level After Sample:

Measurement Method:

Well Volume:

# **Field Datasheet**

liters

17.62

8,81

0.7

17.28

Below Puny

**Electric Water Level Indicator** 

**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond 6	
Sampling Personal:	Jerry fley-	

Phone: (701) 258-9720 W@5-10 Sunny / Partly Cloudy / Cloudy 40 °F Wind: Precip: **Weather Conditions:** Temp: Sampling Information **Well Information Control Settings** Purging Method: Bladder Well Locked? Yes NO 5 Bladder Purge: sec. Sampling Method: Well Labeled? Yes No 2.2 No Dedicated Equip?: Yes Recover: sec. Casing Straight? Yes No NO) 5 Not Visible Duplicate Sample?: PSI: Yes **Grout Seal Intact?** Yes No Pumping Rate: /© Duplicate Sample ID: mL/min Repairs Necessary: Casing Diameter: 2"

Purge Date: 29 Harl7	Time Purging Began:	2580	am/pm
Well Purged Dry? Yes (No	Time Purged Dry:	• I succession	am/pm
Sample Date: 29 May 17	Time of Sampling:	0820	am/pm
Bottle 1L Raw, 500mL Nitric, 4-1L Nitri	ic		

List:

### Field Measurements

					1 1014	Micasuic	11101110			
	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL Demoved	<b>Discription:</b> Clarity, Color, Odor, Ect.
(3 cons	secutive)	(°C)	Cond.	рH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	Œ 690	8.67	4453	7.01	5.61	236.6		Sclaw Pry (8)	200.0	Cles
2	0835	8,89	4547	7.00	1.32	2351	1,75	BP .	SOOLO	Clear
3	0840	9,21	4619	7.01	0.96	223,0	3,55	96	500.0	Cler
4	0845	9.20	4617	7.01	0.84	226,0	1,49	BP	500,0	Clear
5	0850	9,23	4643	7.02	0.82	225.4	0,72	BF	500.0	Clear
6										
7										
8										
9										
10										

Yes Stabilized:

Total Volume Removed: 2500,0 mL

Comments:

Meintained 100 ml/min purgerate



**Groundwater Assessment** 

Company:	OTP Coyote							
Event:	2017							
Sample ID:	Pond N3							
Sampling Personal:	Jerry Horran							

Phone: (701) 258-9720

Phone: (701) 258-9	3720												
Weather Conditions:		Temp:	45 °1	F	Wind:	W@≤	-10		Precip:	Sunr	ny / Partly C	loudy (Clou	ıdy
Well Information								Sampling Information					
Well Locked?	Yeş	No				Purg	Purging Method: Bladder			Co	ntrol Settings	ettings	
Well Labeled?	Yes	No				Sampl	ing Method:	Blac	der		Purge:	Cath-	sec.
Casing Straight?	Yes	No				Dedica	Dedicated Equip?: Yes (No		(No)		Recover:	35	sec.
Grout Seal Intact?	Yes	(No)	Not Vis	sible		Duplicate Sample?:		Yes	(No)		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: / <i>00</i>	mL/min
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		11,78	ft			Purge Date:	29 Mar 1	7	Time Purg	ing Began:	1318	am/pm
Total W	Vell Depth:		37.07	ft		Well F	Purged Dry?	Yes	Mo	Time F	Purged Dry:		am/pm
We	ell Volume:		15.6	liters		S	ample Date:	29 Mar	17	Time of	Sampling:	1508	am/pm
Depth to Top	o of Pump:	3	1.36	ft									
Water Level Afte	er Sample:		15.62	ft		Bottle 1L Raw, 500mL			4-1L Nitric				
Measurement Method: Electric Water Level Indicator List:													

### **Field Measurements**

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1323	12.68	5154	6.90	4.65	174.1	71000	12,24	500,0	Cloudy
2	1343	12,64	5140	6.83	4,40	172.4	941.0	14.06	2000,0	Clouding
3	1403	12,70	5133	6.74	1,77	180,0	556,0	14.83	2000.0	Cloudy
4	1423	12.82	5117	6.70	1, 13	183.3	288.0	15,12	2000,0	Partly Clouds
5	1443	12.84	5126	6.69	0,66	187,3	172.0	15.27	2000,0	Partly Chucky
6	1453	13.04	5122	6.68	0.73	190.3	148.0	15,35	1000.0	Partly Clovely
7	1458	12,82	5119	6,68	0.74	191.3	134.0	15,36	500.0	Partly Clordy
8	1503	12.92	5 120	6.67	0,70	192,4	136.0	15.37	500,0	Partly Clardy
9	150%	12,78	5 121	6.67	0.70	192,9	122,0	15.42	C.002	Parth Clarch
10										

Stabilized: Yes No

Total Volume Removed: 11,000.0 mL



### **Groundwater Assessment**

OTP Coyote	
2017	
Pond 10	
Jeren stern	

2616 E. Broadway Ave, Bismarck, ND								Sampling Personal:					
Phone: (701) 258-9	9720										,		
Weather Conditions: Temp: °F Wind:									Precip	: Sun	ny / Partly C	loudy / Cl	oudy
	Well Info	rmation						Sa	mpling	Informati	on		
Well Locked?	Yes	No>				Purg	ing Method:	Blad	lder		Со	ntrol Settin	gs
Well Labeled?	¥es⊃	No				Sampl	ing Method:	Blad	lder		Purge:		sec.
Casing Straight?	Yes	No `				Dedica	edicated Equip?: Yes No		No		Recover:		sec.
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate	e Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate Sample ID					Pumping R	ate:	mL/min
Casing	Diameter:		2"				"						
Water Level Bef	ore Purge:	21	164	ft			Purge Date:	The Address of the Control of the Co		Time Purging Began:		-	am/pm
Total V	Vell Depth:	23	2.11	ft		Well F	urged Dry?	Yes	No	Time F	ourged Dry:		am/pm
We	ell Volume:		0,29	liters		Sa	ample Date:	29 M21	7	Time o	f Sampling:	0814	am/pm
Depth to To	p of Pump:			ft									
Water Level After	er Sample:			ft		Bottle	1L Raw, 50	00mL Nitric,	4-1L Nitrio				
Measurement Method: Electric Water Level Indicator					List:							·	
				Field	Measure	ements							
	<del>-</del>	0	T T	50.0		Tours alie	18/-4	1	T	<u> </u>			

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL.	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1				, and the second						
2										
3										
4										
5				$\nearrow$	~					
6										
7					,					
8										
9							\.			
10										

Stabilized:	Yes	No

Total Volume Removed: \_\_\_\_\_mL

Comments:

Ensufficient volume No Somple



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond 12	
Sampling Personal:	Son plan	

Phone: (701) 258-9	720										1			
Weather Conditions:		Temp: 45 °F		Wind:	505-1	D		Precip	p: Sunny / Partly Cloudy / Cloudy					
	Well Info	ormation						Sa	mpling	Informatio	on			
Well Locked?	Yes	/No				Purgi	ng Method:	Blad	der		Со	ntrol Setting	s	
Well Labeled?	Yeş	No				Sampli	ng Method:	Blad	der	1	Purge:	5	sec	
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	(No		Recover:	SS	sec	
Grout Seal Intact?	Yes	No	Not Visil	ole		Duplicate	Sample?:	Yes	No		PSI:	20		
Repairs Necessary:	Contraction of the Contraction o					Duplicate	Sample ID:	•			Pumping R	ate: /০০	mL/mii	
Casing	Diameter:		2"							<del></del>				
Water Level Befo	ore Purge:	3	7.80	ft		F	Purge Date:	30 Mar 1:	7	Time Purg	ing Began:	0937	am/pn	
Total W	/ell Depth:	40	,10	ft		Well P	urged Dry?	Yes	No>	Time F	urged Dry:		am/pn	
We	ell Volume:		1.6	liters		Sample Date:		30 Mm1=	7	Time of	f Sampling:	1027	am/pn	
Depth to Top of Pump:		3077217	7,59-38,5	5 / ft							-			
Water Level Afte	er Sample:		38.49	ft		Bottle	1L Raw, 50	0mL Nitric,	4-1L Nitric					
Measuremen	t Method:	Electric V	Vater Level Ind	icator		List:								

## **Field Measurements**

Stabi	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	0942	9.27	3493	7.08	0, 69	219.4	43,3	38,47	<i>ς</i> ω,0	Clear
2	0947	9,29	3466	4,07	1.08	208.6	24.5	38.48	500.D	Clea
3	0952	9.46	3481	7,11	0,68	176,2	15.0	38,49	500.0	Clear
4	0957	9.54	3482	7.15	0.57	146.9	6.58	38.49	500.0	Cliar
5	1002	9,56	3483	7.16	0,50	118.7	4.22	38.49	500,0	Clear
6	1007	9.54	3481	7.16	0,56	100.3	4.04	38.49	500.0	Cltor
7	1012	9.61	3481	7.16	0,52	81.2	2.90	38.49	50.0	Clear
8	1017	9.61	3484	7.16	0,60	66.1	2.74	38,49	500.0	Clear
9	1022	9.61	3467	7,15	0.66	57.3	1.66	38,49	500.0	Clean
10	1027	9.65	3487	7.15	0.54	49.9	1.61	38.49	500.0	Clas

Yes Stabilized: No Total Volume Removed: 500.0 mL



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond 165	
Sampling Personal:	Jerry Hugar	

	Well Info	ormation	1	
Well Locked?	<b>Yes</b>	No		
Well Labeled?	<b>Ves</b>	No		
Casing Straight?	Yes	No		
Grout Seal Intact?	Yes	No	Not Visil	ole elc
Repairs Necessary:				
Casing	Diameter:		2"	
Water Level Bef	ore Purge:		39,28	ft
Total V	Vell Depth:		48,85	ft
We	ell Volume:	·	5,9	liters
Depth to To	o of Pump:			ft
Water Level Aft	er Sample:		40,25	ft
Measuremer	nt Method:	Electric	Water Level Ind	icator

	Sampling I	nformatio	on		
Purging Method:	Bladder		Co	ontrol Settin	gs
Sampling Method:	Bladder		Purge:	\$	sec.
Dedicated Equip?:	Yes ∕Ño		Recover:	SS	sec.
Duplicate Sample?:	Yes No		PSI:	25	
Duplicate Sample ID:	299		Pumping R	late: (♂⊃	mL/min
,					
Purge Date:	30 Marit	Time Purg	ing Began:	1125	am/pm
Well Purged Dry?	Yes No	Time F	urged Dry:		am/pm
Sample Date:	30 Hari7	Time of	f Sampling:	1225	am/pm
Bottle 1L Raw, 50	00mL Nitric, 4-1L Nitric	*			
List:					

### **Field Measurements**

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1130	9.53	3280	6,91	2,06	162.6	90.4	39.55	\$00.0	Clear
2	1195	<u> </u>	3102	6.89	0.65	159.5	85.7	39.78	1500.0	Clear
3	1150	9.97	3102	6,88	0,78	159.3	91.2	39.82	500.0	Clear
4	1155	7.97	3108	6.88	0.75	158.9	84.1	39,94	SOULO	Clear
5	1700	10,13	3116	6.88	0,61	156.2	70,5	39.91	500.0	Clear
6	1205	10.22	3115	6,88	0,86	151.5	61.5	39.92	500.0	Cler
7	1210	10.09	3118	6.87	0.87	147,3	57.7	39,95	Soulo	Clear
8	1215	10,07	3116	6.87	0,94	142.7	46.7	40.15	500.0	Clear
9	1220	10.11	3113	6.87	0.93	138.4	44.4	40.17	\$00.D	Clear
10	1225	10,04	3/12	6.87	0.93	137.2	42.6	40.15	500,0	Clear

Yes Stabilized: No Total Volume Removed: ものの mL



### **Groundwater Assessment**

Company: OTP Coyote

Event: 2017

Sample ID: Mw 2 S

Sampling Personal: Jumy Menor

Phone: (701) 258-9720

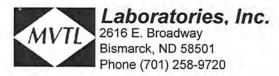
Phone. (701) 256-8	9720												
Weather Conditions:		Temp:	45 .		Wind:	W@\$	~10		Precip	Suni	ny / Cartly (	Cloudy / Clo	oudy
	Well Info	ormation						Sa	ampling I	nformatio	on		
Well Locked?	Yes	(No)				Purgi	ing Method:	Blac	der		Co	ontrol Setting	 gs
Well Labeled?	<b>E</b>	No				Sampli	ing Method:	Blac	ider	]	Purge:	5	sec.
Casing Straight?	Yes	No		- Control of the space		Dedica	ted Equip?:	Yes	NO)		Recover:	55	sec.
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate	e Sample?:	Yes	No		PSI:	20	
Repairs Necessary:						Duplicate	Sample ID:		_		Pumping R	late: 100	mL/min
Casing	Diameter:	·	2"							_			
Water Level Bef	ore Purge:	23	. 20	ft		[	Purge Date:	29 Mar 1	7	Time Purg	ing Began:	1127	am∕pm
Total V	Vell Depth:	36,	60	ft		Well F	urged Dry?	Yes	(Ño)	Time F	Purged Dry:		am/pm
We	ell Volume:		8.23	liters		Sa	ample Date:	29 Har 1	7-	Time of	f Sampling:	1217	am/pm
Depth to To	p of Pump:		52	ft									
Water Level After	er Sample:	2	£,55	ft		Bottle	1L Raw, 50	00mL Nitric,	4-1L Nitric				
Measuremer	nt Method:	Electric \	Water Level Ir	dicator		List:							
· · · · · · · · · · · · · · · · · · ·							•				•		

### **Field Measurements**

Stabil	lization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1132	10.05	4879	6.95	3,73	151.4	9.81	23,53	500.0	Clear
2	1137	9,78	4870	6.94	3,33	154.6	2.13	24.10	500.0	Cles
3	1142	9.76	4663	6,94	3,54	155.3	1.27	24.78	500,0	Clear
4	1147	10,15	4854	6.94	3,71	156.7	0.99	25.22	500,0	Clex
5	1152	10.06	4844	6.95	3,92	157,2	1.00	25,57	500,0	Clea
6	1157	10,01	4836	6,97	18.54	157,6	1.03	26.11	500.0	cla
7	1202	10,43	4821	6,96	5.11	159.6	1,49	26.64	500.0	clear
8	1207	10.46	4827	6.97	5,31	160.3	1.49	27.11	500.0	den
9	1212	10,95	4817	6,98	5,63	160.5	1.47	27.24	కలు, ఎ	Clear
10	1217	10.36	4816	6.97	5,69	162.1	1,57	27.35	500.0	Clar

Stabilized: Yes No

Total Volume Removed: 5000.0 mL



# **Chain of Custody Record**

Project Nam	e:	Event:	Work Order Number:
(	OTP Coyote - Slag Pond	April 2017	82-0742
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):
phone: email:	jhollen@otpco.com		

	Sam	ple Information	n	-			Bot	tle Ty	ре	F	ield Para	ameters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partiy Cloudy, Cloudy)	1 liter	500mL Nitric			Temp (°C)	Spec. Cond	i Ha	Analysis Required
WIST	FB Slag	30 Mar 17	NA	W			х	E		NA	NA	NA	
W737	Pond6	29 Har 17	0850	GW	Clear	Х	Х			9,23	4643	7.02	
W738	PondN3	29 Har17	1508	GW	Partly Clardy	Х	х	(d)k		12.78	5121	6.67	
-	Pond10	29 Mar 17	0814	GW	30 Har 17	X	X			insufficient	+ volum	Ne l	
W739	Pond12	30Ha17	1027	GW	Clear	Х	X		Indi	9.65	3487	7.15	OTD Caveta List 1
W740	Pond16S	30Mar 17	1225	GW	Clear	Х	Х			10.04	3112	6.87	OTP Coyote List 1
W741	MW2S	29Mar 17	1217	GW	Clear	Х	х			10.36	4816	6.97	
						$\vdash$							

Comments: \* not analyzed due to preservation error during sampling. Resampled AApril.
7April ac

Relinquished By:	Sample Condition:		
Namej	Date/Time	Location:	Temp (°C)
1 Mayor	30 Mar 17 1445	Log In Walk In #2	3,9 Rai TM562/TM588
2			

Name:	Date/Time
nol Limman	30mar 17



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



#### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201782-0743
IML Lab Reference No/SDG: 51704027

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Slag Pond CCR Radiochemistry

Event & Year Mar 2017

MVTL Laboratory Identifications: 17-W742 through 17-W747

IML Laboratory Identifications: S1704027-001 through S1704027-006

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #	
Field Blank (FB)	\$1704027-001	17-W742	
Pond6	S1704027-002	17-W743	
PondN3	S1704027-003	17-W744	
Pond10	n/a	Not sampled	
Pond12	S1704027-004	17-W745	
Pond16S	S1704027-005	17-W746	
MW2S	S1704027-006	17-W747	

#### I. RECEIPT

- All samples were received at the laboratory on 30 Mar 2017 at 1445.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 10.0°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 4 Apr 2017.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

	The second secon	proved by MVTL Labor	atories.		
SIGNED:	Claudate	antel	DATE:	4Hay17	
Cla	udette Carroll - MVTI	Bismarck Laboratory	Manager		



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



1 of 6 Page:

CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: Mar 2017

Report Date: 4 May 17 Lab Number: 17-W742 Work Order #:82-0743 Account #: 006106 Date Sampled: 30 Mar 17

Date Received: 30 Mar 17 14:45 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 10.0C

As Received Method Method Date Result RL Reference Analyst Analyzed Radium 226 See Attached Report 20 Apr 17 OL Radium 228 See Attached Report 20 Apr 17 OL

Approved by:

Clauditte K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

a = Due to sample matrix
! = Due to sample quantity

# = Due to concentration of other analytes + = Due to internal standard response



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



CERTIFICATE of ANALYSIS - CCR

Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: Mar 2017

2 of 6 Page:

Report Date: 4 May 17 Lab Number: 17-W743 Work Order #:82-0743 Account #: 006106

Date Sampled: 30 Mar 17 8:50 Date Received: 30 Mar 17 14:45 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 10.0C

	As Rece: Result	ved	Method RL	Method Reference	Date Analyzed		Analyst
Field pH	7.02	s.u.	0.1	SM 4500 H+ B	29 Mar 17	8:50	JSM
Field Appearance	Clear		NA	SM 2110	29 Mar 17	8:50	JSM
Field Temperature	9.23	Degrees C	0.1	SM 2550B	29 Mar 17	8:50	JSM
Field Conductivity	4643	umhos/cm	1	EPA 120.1	29 Mar 17	8:50	JSM
Radium 226	See Atta	ched Report			20 Apr 17		OL
Radium 228		ched Report			20 Apr 17		OL

Approved by

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to conduct the pure to sample quantity # = Due to in

# - Due to concentration of other analytes + - Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: Mar 2017

3 of 6 Page:

Report Date: 4 May 17 Lab Number: 17-W744 Work Order #:82-0743 Account #: 006106

Date Sampled: 29 Mar 17 15:08 Date Received: 30 Mar 17 14:45 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 10.0C

	As Rece: Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	29 Mar 17 15:08	JSM
Field Appearance	Partly Cloudy		NA	SM 2110	29 Mar 17 15:08	JSM
Field Temperature	12.8	Degrees C	0.1	SM 2550B	29 Mar 17 15:08	JSM
Field Conductivity	5121	umhos/cm	1	EPA 120.1	29 Mar 17 15:08	JSM
Radium 226	See Atta	ached Report			20 Apr 17	OL
Radium 228		ached Report			20 Apr 17	OL

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to co : = Due to sample quantity # = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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



CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: Mar 2017

4 of 6 Page:

Report Date: 4 May 17 Lab Number: 17-W745 Work Order #:82-0743 Account #: 006106

Date Sampled: 30 Mar 17 10:27 Date Received: 30 Mar 17 14:45 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 10.0C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.15	s.u.	0.1	SM 4500 H+ B	30 Mar 17 10:27	JSM
Field Appearance	Clear		NA	SM 2110	30 Mar 17 10:27	JSM
Field Temperature	9.65	Degrees C	0.1	SM 2550B	30 Mar 17 10:27	JSM
Field Conductivity	3487	umhos/cm	1	EPA 120,1	30 Mar 17 10:27	JSM
Radium 226	See Atta	ched Report			20 Apr 17	OL
Radium 228	See Atta	ched Report			20 Apr 17	OL

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\theta$  = Due to sample matrix  $\theta$  = Due to cot : = Due to sample quantity  $\theta$  = Due to int

publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

# = Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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



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5 of 6 Page:

CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: Mar 2017

Report Date: 4 May 17

Lab Number: 17-W746 Work Order #:82-0743 Account #: 006106

Date Sampled: 30 Mar 17 12:25 Date Received: 30 Mar 17 14:45 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 10.0C

	As Recei Result	.ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.87	s.u.	0.1	SM 4500 H+ B	30 Mar 17 12:25	JSM
Field Appearance	Clear		NA	SM 2110	30 Mar 17 12:25	JSM
Field Temperature	10.0	Degrees C	0.1	SM 2550B	30 Mar 17 12:25	JSM
Field Conductivity	3112	umhos/cm	1	EPA 120.1	30 Mar 17 12:25	JSM
Radium 226	See Atta	ched Report			20 Apr 17	OL
Radium 228	See Atta	ched Report			22 Apr 17	OL

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to con
! = Due to sample quantity + = Due to int

# = Due to concentration of other analytes + = Due to internal standard response

CERTIFICATION: ND # ND-00016



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: Mar 2017

6 of 6 Page:

Report Date: 4 May 17 Lab Number: 17-W747 Work Order #:82-0743 Account #: 006106

Date Sampled: 29 Mar 17 12:17 Date Received: 30 Mar 17 14:45 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 10.0C

	As Rece: Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.97	s.u.	0.1	SM 4500 H+ B	29 Mar 17 12:17	JSM
Field Appearance	Clear		NA	SM 2110	29 Mar 17 12:17	JSM
Field Temperature	10.4	Degrees C	0.1	SM 2550B	29 Mar 17 12:17	JSM
Field Conductivity	4816	umhos/cm	1	EPA 120.1	29 Mar 17 12:17	JSM
Radium 226		ached Report			20 Apr 17	OL
Radium 228		ached Report			22 Apr 17	OL

Approved by:

Claudette

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix # = Due to co : Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 5/1/2017

CLIENT:

MVTL Laboratories, Inc.

Project:

201782-0743

Lab Order:

S1704027

**CASE NARRATIVE** 

Report ID: S1704027001

Samples 17-W742 FB Slag, 17-W743 Pond6, 17-W744 PondN3, 17-W745 Pond12, 17-W746 Pond 16S, and 17-W747 MW2S were received on April 4, 2017.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 1



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID:

COC:

201782-0743 S1704027-001

ClientSample ID: 17-W742 FB Slag 201782-0743

Date Reported Report ID

5/1/2017

S1704027001

WorkOrder:

S1704027

CollectionDate: 3/30/2017 DateReceived:

4/4/2017 10:49:00 AM

FieldSampler:

Matrix: Water

Commante

Comments							
Analyses	Result Units Qual R		RL	Method	Date Analyzed/I	nit	
Radionuclides - Total							
Radium 226	0.03	pCi/L		0.2	SM 7500 Ra-B	04/20/2017 1404	MB
Radium 226 Precision (±)	0.03	pCi/L			SM 7500 Ra-B	04/20/2017 1404	MB
Radium 228	-2.2	pCi/L		1	Ga-Tech	04/20/2017 505	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	04/20/2017 505	MB

#### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Holding times for preparation or analysis exceeded Н
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

#### **RL** - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0743

Lab ID:

S1704027-002 ClientSample ID: 17-W743 Pond6

COC:

201782-0743

Date Reported 5/1/2017

Report ID

S1704027001

WorkOrder:

S1704027

CollectionDate: 3/29/2017 8:50:00 AM

DateReceived:

4/4/2017 10:49:00 AM

FieldSampler:

Matrix:

Water

#### Comments

					<del></del>		
Result Units		Qual RL		Method	Date Analyzed/Init		
0.1	pCi/L		0.2	SM 7500 Ra-B	04/20/2017 1404	MB	
0.05	pCi/L			SM 7500 Ra-B	04/20/2017 1404	MB	
-1.8	pCi/L		1	Ga-Tech	04/20/2017 809	MB	
1.6	pCi/L			Ga-Tech	04/20/2017 809	MB	
	0.1 0.05 -1.8	0.1 pCi/L 0.05 pCi/L -1.8 pCi/L	0.1 pCi/L 0.05 pCi/L -1.8 pCi/L	0.1 pCi/L 0.2 0.05 pCi/L -1.8 pCi/L 1	0.1 pCi/L 0.2 SM 7500 Ra-B 0.05 pCi/L SM 7500 Ra-B -1.8 pCi/L 1 Ga-Tech	0.1     pCi/L     0.2     SM 7500 Ra-B     04/20/2017 1404       0.05     pCi/L     SM 7500 Ra-B     04/20/2017 1404       -1.8     pCi/L     1     Ga-Tech     04/20/2017 809	

#### These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank Ε

Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

#### **RL - Reporting Limit**

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0743

COC:

Lab ID:

ClientSample ID: 17-W744 PondN3

S1704027-003

201782-0743

Date Reported 5/1/2017

Report ID

S1704027001

WorkOrder:

S1704027

CollectionDate: 3/29/2017 3:08:00 PM

DateReceived: 4/4/2017 10:49:00 AM

FieldSampler:

Matrix: Water

#### Comments

Analyses	Result Units Qual RL		RL	Method	Date Analyzed/l	nit	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	04/20/2017 1404	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	04/20/2017 1404	MB
Radium 228	-0.7	pCi/L		1	Ga-Tech	04/20/2017 1114	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	04/20/2017 1114	MB

#### These results apply only to the samples tested.

#### Qualifiers:

- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded Н
- Analyzed by another laboratory
- Not Detected at the Reporting Limit ND
- Spike Recovery outside accepted recovery limits

#### RL - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by: All

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

ProjectName:

Bismarck, ND 58501

Lab ID:

201782-0743 S1704027-004 ClientSample ID: 17-W745 Pond12

COC:

201782-0743

Date Reported 5/1/2017

Report ID

S1704027001

WorkOrder:

S1704027

CollectionDate: 3/30/2017 10:27:00 AM

DateReceived: 4/4/2017 10:49:00 AM

FieldSampler:

Water

Matrix:

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/l	nit
					moniou		
Radionuclides - Total			•				
Radium 226	0.1	pCi/L		0.2	SM 7500 Ra-B	04/20/2017 1404	MB
Radium 226 Precision (±)	0.05	pCi/L			SM 7500 Ra-B	04/20/2017 1404	MB
Radium 228	-3.9	pCi/L		1	Ga-Tech	04/20/2017 1418	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	04/20/2017 1418	MB

#### These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

#### RL - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by: \_AJL

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-0743

Lab ID:

S1704027-005 ClientSample ID: 17-W746 Pond 16S

COC:

201782-0743

Date Reported 5/1/2017

Report ID

S1704027001

WorkOrder:

S1704027

CollectionDate: 3/30/2017 12:25:00 PM

DateReceived: 4/4/2017 10:49:00 AM

FieldSampler:

Matrix: Water

Comments							
Analyses	Result	Result Units Qual RL Meth		Method	Date Analyzed/I	nit	
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	04/20/2017 1404	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	04/20/2017 1404	MB
Radium 228	1.2	pCi/L		2	Ga-Tech	04/22/2017 701	МВ
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	04/22/2017 701	MB

#### These results apply only to the samples tested.

#### Qualifiers:

- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded Н
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

#### RL - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

Company: MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: 201782-0743

Lab ID: S1704027-006 ClientSample ID: 17-W747 MW2S 201782-0743 COC:

Date Reported 5/1/2017

Report ID

S1704027001

WorkOrder:

S1704027

CollectionDate: 3/29/2017 12:17:00 PM

DateReceived: 4/4/2017 10:49:00 AM

FieldSampler:

Matrix:

Water

Comments			 			
Analyses	Result Units Qual RL Me		Method	Date Analyzed/Init		
Radionuclides - Total						
Radium 226	0.2	pCi/L	0.2	SM 7500 Ra-B	04/20/2017 1404	MB
Radium 226 Precision (±)	0.1	pCi/L		SM 7500 Ra-B	04/20/2017 1404	MB
Radium 228	-0.1	pCi/L	2	Ga-Tech	04/22/2017 1005	MB
Radium 228 Precision (±)	1.5	pCi/L		Ga-Tech	04/22/2017 1005	MB

#### These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL - Reporting Limit** 

С Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by: *All* 

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### **ANALYTICAL QC SUMMARY REPORT**

CLIENT: Work Order:

Project:

MVTL Laboratories, Inc.

S1704027

201782-0743

Date: 5/1/2017

Report ID: S1704027001

Radium 228 by Ga/Tech	Sample Type MBLK		Units	: pCi/L			
MB-428 (04/17/17 15:54)	RunNo: 145016	PrepD	ate: 04/1	0/17 12:00	Bato	hID 13075	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qua
Total Radium 228	ND	1					
MB-429 (04/21/17 15:43)	RunNo: 145273	PrepD	ate: 04/1	2/17 12:00	Bato	hID 13101	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qua
Total Radium 228	ND	1					
Radium 228 by Ga/Tech	Sample Type LCS		Units	: pCi/L			
LCS-428 (04/17/17 18:57)	RunNo: 145016	PrepD	ate: 04/1	0/17 12:00	Bato	hID 13075	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qua
Total Radium 228	39	1	40.1		98.0	65.9 - 132	
LCS-429 (04/21/17 18:45)	RunNo: 145273	PrepD	ate: 04/1	2/17 12:00	Bato	hID 13101	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qua
Total Radium 228	40	1	40.1		99.4	65.9 - 132	
Radium 228 by Ga/Tech	Sample Type LCSD		Units:	: pCi/L			
LCSD-428 (04/17/17 22:01)	RunNo: 145016	PrepD	ate: 04/1	0/17 12:00	Bato	hID 13075	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qua
Total Radium 228	40	1	39	1.47	99.5	20	
Radium 228 by Ga/Tech	Sample Type MS		Units:	pCi/L			
S1704025-003AMS (04/18/17 22:29)	RunNo: 145016	PrepDa	ate: 04/10	0/17 12:00	Bato		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qua
Total Radium 228	74	2	80.1	ND	92.6	50 - 139	
MS-429 (04/22/17 00:54)	RunNo: 145273	PrepDa	ate: 04/12	2/17 12:00	Bato	:hID 13101	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qua
Total Radium 228	41	1	40.1	ND	101	50 - 139	
Radium 228 by Ga/Tech	Sample Type MSD		Units:	pCi/L			
S1704025-003AMSD (04/19/17 01:32)	RunNo: 145016	PrepDa	ate: 04/10	0/17 12:00	Bato	hID 13075	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qua
Total Radium 228	82	2	74	9.64	102	20	
MSD-429 (04/22/17 03:57)	RunNo: 145273	PrepDa	ate: 04/12	2/17 12:00	Bato	hID 13101	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qua
Total Radium 228	43	1	41	5.19	107	20	

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

Spike Recovery outside accepted recovery limits



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### ANALYTICAL QC SUMMARY REPORT

CLIENT:

MVTL Laboratories, Inc.

Date: 5/1/2017

Work Order:

S1704027

Report ID: S1704027001

**Project:** 201782-0743

Radiu	m 226 in Water -	Sample Type MBLK		Units	: pCi/L			
	MB-1738 (04/20/17 14:04)	RunNo: 145012	PrepD	Date: 04/1	2/17 0:00	Bato	hID 13074	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Radium 226	ND	0.2					
Radiu	m 226 in Water -	Sample Type LCS		Units	: pCi/L			
	LCS-1738 (04/20/17 14:04)	RunNo: 145012	Prep[	Date: 04/1	2/17 0:00	Bato	hID 13074	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Radium 226	6.5	0.2	5.89		110	67.1 - 122	
Radiu	m 226 in Water -	Sample Type L <b>CSD</b>		Units	: pCi/L			
	LCSD-1738 (04/20/17 14:04)	RunNo: 145012	Prep[	Date: 04/1	2/17 0:00	Bato		
	Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
	Radium 226	6.2	0.2	6.5	4.82	105	20	
Radiu	m 226 in Water -	Sample Type MS		Units	: pCi/L			
	S1704026-003AMS (04/20/17 14:04)	RunNo: 145012	Prep[	Date: 04/1	2/17 0:00	Bato	hiD 13074	
	Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Radium 226	11.0	0.4	11.8	ND	93.3	65 - 131	

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits



### LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501 Phone: (701) 258-9720

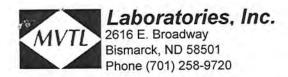
## **Chain of Custody Record**

Page	1	of	1	
. ~ ~ ~ ~		<b>-</b> .	*	

		Fax: (701) 258-9724									201782-0743	
Company Nam	e and Address:			Account #	:						Phone #:	
											701-258-9	9720
		<u>VTL</u>		Contact:							Fax #:	
		Broadway			Claud	ette	<u> </u>				For faxed report che	
Pilling Address		c, ND 58501		Name of S	ampler:							ll@mvtl.com
Dining Address	s (indicate if different	trom above):							····		For e-mail report che	ck box
	DO D	ox 249		Quote Nui	nber						Date Submitted:	
		<u>, MN 56073</u>		Droiset Ma	/N1 I						31-Mar-	·17
	New Olli	, WIN 30073		Projectiva	ıme/Numbe	er:					Purchase Order #: BL582	4
	· · · · · · · · · · · · · · · · · · ·	Sample Information		<u> </u>				ottle	Tv		·	
		Cample information		<u> </u>				ome	<u>  y  </u>	pe	Analy	ysis
SIFO40	27		Samula	Dete	<b>T</b> :	Untreated	ml HNO3	VOC Vials Umpreserved	Jar			
Number	MVTL Lab Number	Client Connelle ID	Sample	Date	Time	tre	8	00 m	Glass	Other	Analysis F	
	I INIA LE EOD MOUIDEI :	Cilent Samble ID	1 11/110		Sampled	_						20auirod
		Client Sample ID	Type	Sampled	Sampled	5		> >	10	0		Required
100	17-W742	FB Slag	GW	30-Mar-17	NA NA	<u>.</u> 5	4	> =	0	0	Ra226 &	
	17-W742			1	NA	'n		> 0	9	0		Ra228
	17-W742 17-W743 17-W744	FB Slag	GW	30-Mar-17	NA	In n	4	<u> </u>	9	0	Ra226 &	Ra228 Ra228
100 500	17-W742 17-W743 17-W744	FB Slag Pond6	GW GW	30-Mar-17 29-Mar-17	NA 850	'n	4	Λ	0	0	Ra226 & Ra226 &	Ra228 Ra228 Ra228
	17-W742 17-W743 17-W744 17-W745	FB Slag Pond6 PondN3	GW GW	30-Mar-17 29-Mar-17 29-Mar-17	NA 850 1508	'n	4 4	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	0	0	Ra226 & Ra226 & Ra226 &	Ra228 Ra228 Ra228 Ra228
001 002 003 004	17-W742 17-W743 17-W744 17-W745	FB Slag Pond6 PondN3 Pond12	GW GW GW	30-Mar-17 29-Mar-17 29-Mar-17 30-Mar-17	NA 850 1508 1027	'n	4 4 4	> n		0	Ra226 & Ra226 & Ra226 & Ra226 &	Ra228 Ra228 Ra228 Ra228 Ra228
001 002 003 004 005	17-W742 17-W743 17-W744 17-W745 17-W746	FB Slag Pond6 PondN3 Pond12 Pond16S	GW GW GW GW	30-Mar-17 29-Mar-17 29-Mar-17 30-Mar-17	NA 850 1508 1027 1225	'n	4 4 4	Λ Π	0	0	Ra226 & Ra226 & Ra226 & Ra226 & Ra226 &	Ra228 Ra228 Ra228 Ra228 Ra228
001 002 003 004 005	17-W742 17-W743 17-W744 17-W745 17-W746	FB Slag Pond6 PondN3 Pond12 Pond16S	GW GW GW GW	30-Mar-17 29-Mar-17 29-Mar-17 30-Mar-17	NA 850 1508 1027 1225	'n	4 4 4	A 10	0	0	Ra226 & Ra226 & Ra226 & Ra226 & Ra226 &	Ra228 Ra228 Ra228 Ra228 Ra228
001 002 003 004 005	17-W742 17-W743 17-W744 17-W745 17-W746	FB Slag Pond6 PondN3 Pond12 Pond16S	GW GW GW GW	30-Mar-17 29-Mar-17 29-Mar-17 30-Mar-17	NA 850 1508 1027 1225	'n	4 4 4	A 10	9	0	Ra226 & Ra226 & Ra226 & Ra226 & Ra226 &	Ra228 Ra228 Ra228 Ra228 Ra228

Comments: All results must be reported as a numerical value.

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	31-Mar-17	1700	Intect	Kothy Boys	4.4.17	10:49	10.Z
2.							10.%



# **Chain of Custody Record**

Project Name:		Event:	Work Order Number: 30mai	77,50
C	TP Coyote - Slag Pond	April 2017	90 OT	ta (a-0743
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):  Levery Men er	
phone: email:	ihollen@otpco.com			

	Sam	В	ottle Type	Fi	eld Para	meters	Analysis				
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric		Temp (°C)	Spec. Cond.	Hd	Analysis Required
W736	FB Slag	30Har17	NA	W	_	4		NA	NA	NA	
12737	Pond6	29Mar17	0850	GW	Clear	4		9.23	4643	7.02	
W738	PondN3	29 Mar 17	1508	GW	Partly Cloudy	4		12.78	5121	6.67	
7	Pond10	29 M217	0814	GW	30 Har 17	2		insofficie	nt vole	me	
10739	Pond12	30 Mar 17	1027	GW	Clear	4		9.65	3487	7.15	Rad 226 & Rad 228
10740	Pond16S	30 Mar 17	1225	GW	Clear	4		10.04	3112	6.67	1100 220 0 1100 220
W741	MW2S	29 Mar 17	1217	GW	Clear	4		10,36	4816	6.97	
										-	

Comments: 3 3 Juan 17

Relinquished By:	Sample Condition:					
Name:	Date/Time	Location:	Temp (°C)			
1 - Layer	30 Mar 17	Log In Walk In #2	Ansient 10,0 TM562/TM588)			
2						

Received b	by:
Name:	Date/Time
Urail Simmeon	30 Nar 17
7-9/2	1710





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April 21, 2017

Otter Tail Power Company Attn: Josh Hollen P.O. Box 496 Fergus Falls, MN 56538-0496

RE: Coyote Station Groundwater Sampling - April 2017

Dear Mr. Hollen,

From March 29 – April 5, 2017, MVTL Laboratories' Field Services division collected groundwater samples from wells with sufficient volume at the Coyote Station near Beulah, ND. The six wells from the Blue Pit, and six wells from the Slag Pond site were purged and sampled at a low rate with a bladder pump. The wells were found to be in good condition. Well POND10 had an insufficient volume to collect a sample. Samples collected were placed on ice and then transported back to the MVTL laboratory in Bismarck, ND for analysis.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer

MVTL Field Services



WO# 82-0805 82-0801

## **OTP Coyote Station**

Blue Pit

Attn: Josh Hollen

PO Box 496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TE <b>M</b> P (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Blue6	3-Apr-17	11:13	4-Apr-17	12:49	62.49	79.12	70.22	10.2	9500.0	Bladder	8.88	2631	6.64	285.00	partly cloudy
Blue7	3-Apr-17	12:12	3-Apr-17	13:12	79.80	NA	79.85	NA	6000.0	Bladder	9.95	2659	6.57	35.70	clear
Blue13	3-Apr-17	10:02	4-Apr-17	11:53	103.85	116.70	111.25	7.9	10500.0	Bladder	8.79	5243	6.61	33.70	clear
Blue14	4-Apr-17	13:30	4-Apr-17	14:45	78.79	NA	79.88	NA	7500.0	Bladder	8.62	5178	6.66	4.95	clear
Blue15	5-Apr-17	12:52	5-Apr-17	13:37	76.45	NA	76.58	NA	4500.0	Bladder	9.26	3740	6.66	2.00	clear
Blue16	5-Apr-17	10:35	5-Apr-17	12:00	75.22	NA	75.29	NA	8500.0	Bladder	9.02	2803	6.62	18.50	clear
the state of the s															
													<u> </u>		



**OTP Coyote Station** 

Slag Pond

Attn: Josh Hollen

PO Box 496

Fergus Falls, MN 56538-0496

WO# 82-0783 82-0743

82-0742

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TEMP (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Pond6	29-Mar-17	8:25	29-Mar-17	8:50	17.62	18.81	below pump	0.7	2500.0	Bladder	9.23	4643	7.02	0.72	clear
PondN3	29-Mar-17	13:18	29-Mar-17	15:08	11.78	37.07	15.62	15.6	11000.0	Bladder	12.78	5121	6.67	122.00	parly cloudy
Pond10	NA	NA	29-Mar-17	8:14	21.64	22,11	NA	0.3	NA	NA	NA	NA	NA	NA	insufficient volume for sampling
Pond12	30-Mar-17	9:37	30-Mar-17	10:27	37.50	40.10	38.49	1.6	5000.0	Bladder	9.65	3487	7.15	1.61	clear
Pond16S	30-Mar-17	11:25	30-Mar-17	12:25	39.28	48.85	40.25	5.9	6000.0	Bladder	10.04	3112	6.87	42.60	clear
MW2S	29-Mar-17	11:27	29-Mar-17	12:17	23.20	36.60	28.55	8.3	5000.0	Bladder	10.36	4816	6.97	1.57	clear
							;								
					***************************************										



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#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0783

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond

Event & Year Apr 2017
MVTL Laboratory Identifications: 17-W775

Page 1 of 1

Sample Identification	MVTL Laboratory #
Field Blank (FB)	17-W775

#### I. RECEIPT

- All samples were received at the laboratory on 5 Apr 2017 at 0805.
  - Sample was recollected due to a preservation error during initial sampling event.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 1.4°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - o Methods 6010D and Method 6020B were used to analyze the metals.

#### IV. ANALYSIS

- All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.
  - For some metals, the reported results were elevated due to additional dilutions required to minimize the effects of sample matrix.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: DATE: 17Apr 17

### **MVTL**

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Page: 1 of 2

Quality Control Report

Lab ID: 17-W775		Pr	oject: OT	P Coyote	-Slag Pond -	CCR Y	Work Or	der: 201	782-0783	3							
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	103	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.001 < 0.001 < 0.001	0.3938 0.4078 0.3954	98 102 99	75-125 75-125 75-125	0.3938 0.4078 0.3954	0.4062 0.4226 0.4168	102 106 104	3.1 3.6 5.3	20 20 20	-	-	< 0.001
Arsenic - Total mg/l	0.1000	106	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.002 < 0.002 < 0.002	0.4124 0.4266 0.4158	103 107 104	75-125 75-125 75-125	0.4124 0.4266 0.4158	0.4222 0.4326 0.4292	106 108 107	2.3 1.4 3.2	20 20 20	-	-	< 0.002
Barium - Total mg/l	0.1000	103	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.002 0.0440 0.0290	0.3762 0.4290 0.4074	94 96 95	75-125 75-125 75-125	0.3762 0.4290 0.4074	0.3824 0.4384 0.4252	96 99 99	1.6 2.2 4.3	20 20 20	-	- - -	< 0.002
Beryllium - Total mg/l	0.1000	108	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.0005 < 0.0005 < 0.0005	0.4294	103 107 106	75-125 75-125 75-125	0.4118 0.4294 0.4258	0.4052 0.4398 0.4460	101 110 112	1.6 2.4 4.6	20 20 20	-	-	< 0.000
Boron - Total mg/l	0.40	110	80-120	0.400	17-W775	< 0.1	0.43	108	75-125	0.43	0.43	108	0.0	20	-	-	< 0.1 < 0.1
Cadmium - Total mg/l	0.1000	104	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.0005 < 0.0005 0.0006	0.3984 0.4090 0.3892	100 102 97	75-125 75-125 75-125	0.3984 0.4090 0.3892	0.4040 0.4226 0.4090	101 106 102	1.4 3.3 5.0	20 20 20	-	-	< 0.000
Calcium - Total mg/l	20.0	106	80-120	1000 100 100 100 100	17M537q 17M539q 17M541q 17W769q 17W791q	2010 23.9 50.3 3.6 192	2900 121 139 98.5 272	89 97 89 95 80	75-125 75-125 75-125 75-125 75-125	121 98.5 272	119 97.5 269	95 94 77	1.7 1.0 1.1	20 20 20		-	<1 <1
Chloride mg/l	30.0 30.0 30.0	80 80 80	80-120 80-120 80-120	30.0	17-W791	8.1	34.3	87	80-120	34.3	36.7	95	6.8	20	-	-	< 1 < 1 < 1
Chromium - Total mg/l	0.1000	99	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.002 < 0.002 < 0.002	0.3762 0.3808 0.3676	94 95 92	75-125 75-125 75-125	0.3762 0.3808 0.3676	0.3810 0.3884 0.3852	95 97 96	1.3 2.0 4.7	20 20 20	-	- - -	< 0.002



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Page: 2 of 2

**Quality Control Report** 

Lab ID: 17-W775 Project: OTP Coyote-Slag Pond - CCR Work Order: 201782-0783

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Cobalt - Total mg/l	0.1000	99	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.002 < 0.002 < 0.002	0.3766 0.3778 0.3718	94 94 93	75-125 75-125 75-125	0.3766 0.3778 0.3718	0.3802 0.3900 0.3800	95 98 95	1.0 3.2 2.2	20 20 20	9	100	< 0.002
Fluoride mg/l	0.50	110	90-110	0.500 0.500	17-M510 17-W775	0.98 < 0.1	1.44 0.55	92 110	80-120 80-120	1.44 0.55	1.44 0.55	92 110	0.0	20 20	6	61	< 0.1 < 0.1
Lead - Total mg/l	0.1000	105	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.0005 < 0.0005 < 0.0005	0.4050 0.3992 0.3938	101 100 98	75-125 75-125 75-125	17.27 E-071	0.4016 0.4070 0.4178	100 102 104	0.8 1.9 5.9	20 20 20			< 0.0005
Lithium - Total mg/l	0.40	112	80-120	0.400 0.400	17-W775 17-W791	< 0.1 0.10	0.45 0.56	112 115	75-125 75-125	0.45 0.56	0.45 0.55	112 112	0.0 1.8	20 20	2	3	< 0.1 < 0.1 < 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.100 0.002	17-M541 17-W791	< 0.01 < 0.0002	0.1048 0.0019	105 95	70-130 70-130	0.1048 0.0019	0.1038 0.0020	104 100	1.0 5.1	20 20	\$ L	Ė	< 0.0002
Molybdenum - Total mg/l	0.1000	102	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.002 < 0.002 0.0035	0.3900 0.4174 0.4068	98 104 101	75-125 75-125 75-125	0.3900 0.4174 0.4068	0.4026 0.4304 0.4334	101 108 107	3.2 3.1 6.3	20 20 20			< 0.002
pH units		1	5.7	-	2	1	(4)	74		9.6 6.9	7.9 6.8	8"	19.4 1.5	20 20	Č.		-
Selenium - Total mg/l	0.1000	111	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.002 < 0.002 0.0032	0,4650 0,4572 0,4510	116 114 112	75-125 75-125 75-125	0.4650 0.4572 0.4510	0.4420 0.4448 0.4656	110 111 116	5.1 2.7 3.2	20 20 20		•	< 0.002
Sulfate mg/l	100	89	80-120	500	17-W791	932	1360	86	80-120	1360	1370	88	0.7	20			< 5
Thallium - Total mg/l	0.1000	109	80-120	0.400 0.400 0.400	17W775q 17W791q 17W801q	< 0.0005 < 0.0005 < 0.0005	0.4210 0.4172 0.4070	105 104 102	75-125 75-125 75-125	0.4210 0.4172 0.4070	0.4170 0.4238 0.4330	104 106 108	1.0 1.6 6.2	20 20 20			< 0.0005
Total Dissolved Solids mg/l		-	200		(A)		-2	- 60	12.	1540	1460	B	5.3	20	-		< 10

Approved by: [7 April 7



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: April 2017

1 of 1 Page:

Report Date: 13 Apr 17 Lab Number: 17-W775 Work Order #:82-0783 Account #: 006106

Date Sampled: 4 Apr 17

Date Received: 5 Apr 17 8:05 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.4C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst	
Metal Digestion		7.77		EPA 200.2	5 Apr 17	svs	-
Lab, pH	* 5.9	s.u.	0.1	SM4500 H+ B	5 Apr 17 17:00	SVS	
Fluoride	< 0.1	mg/1	0.10	SM4500-F-C	6 Apr 17 17:00	SVS	
Sulfate	< 5	mg/1	5.00	ASTM D516-07	7 Apr 17 9:50	EMS	
Chloride	< 1	mg/1	1.0	SM4500-C1-E	13 Apr 17 11:35	EMS	
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	10 Apr 17 12:09	EV	
Total Dissolved Solids	< 10	mg/l	10	11750-85	5 Apr 17 14:58	SVS	
Calcium - Total	< 1	mg/1	1.0	6010	11 Apr 17 12:01	SZ	
Lithium - Total	< 0.1	mg/1	0.10	6010	10 Apr 17 14:30	KMD	
Boron - Total	< 0.1	mg/1	0.10	6010	12 Apr 17 15:29	KMD	
Antimony - Total	< 0.001	mg/l	0.0010	6020	11 Apr 17 11:00	KMD	
Arsenic - Total	< 0.002	mg/1	0.0020	6020	11 Apr 17 11:00	KMD	
Barium - Total	< 0.002	mg/1	0.0020	6020	11 Apr 17 11:00	KMD	
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	11 Apr 17 11:00	KMD	
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	11 Apr 17 11:00	KMD	
Chromium - Total	< 0.002	mg/1	0.0020	6020	11 Apr 17 11:00	KMD	
Cobalt - Total	< 0.002	mg/1	0.0020	6020	11 Apr 17 11:00	KMD	
Lead - Total	< 0.0005	mg/1	0.0005	6020	11 Apr 17 11:00	KMD	
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	11 Apr 17 11:00	KMD	
Selenium - Total	< 0.005 ^	mg/l	0.0020	6020	11 Apr 17 11:00	KMD	
Thallium - Total	< 0.0005	mg/1	0.0005	6020	11 Apr 17 11:00	KMD	

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

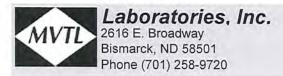
The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix ! = Due to sample quantity

# = Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

<sup>^</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



# **Chain of Custody Record**

Project Name:		Event:	Work Order Number:	
(	OTP Coyote - Slag Pond	April 2017	82-0183	
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):	
phone: email:	jhollen@otpco.com			

	Sam	ple Informatio	n			Bottl	е Туре	Fiel	ld Parai	neters	Analysis
Lab Number	Sample ID	Date	Time .	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	500ml, Nitric		Temp (°C)	Spec. Cond.	Hd	Analysis Required
W775	FB Slag	4 17	NA	W	Х	X		NA	NA	NA	
											OTP Coyote List 1

Comments: recollected Field blank due to presservation error

The state of the second st		Sample Condition:			
Date/Time	Location:	Temp (°C)			
5 Apr 17	Login	RO1 1.4			
0805	Walk In #2	TM562 / TM588			
	S Apr 17 OBOS	SALLIT LOGID			

Name:	Date/Time
1100 1 C	SApril7
Wad Jimmoon	805



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



#### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0784
IML Lab Reference No/SDG: S1704139

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Pond CCR Radiochemistry

Event & Year Apr 2017

MVTL Laboratory Identifications: 17-W776

IML Laboratory Identifications: 51704139-001

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #
FB Slag	S1704139-001	17-W776

#### I. RECEIPT

- All samples were received at the laboratory on 5 Apr 2017 at 805.
  - Sample was recollected at this time due to an earlier preservation error on the previously submitted sample.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 1.4°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 11 Apr 2017.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.



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



Page: 1 of 1

CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: April 2017

Report Date: 18 May 17 Lab Number: 17-W776 Work Order #:82-0784 Account #: 006106 Date Sampled: 4 Apr 17

Date Received: 5 Apr 17 8:05 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 1.4C ROI

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			2 May 17	OL
Radium 228	See Attached Report			28 Apr 17	OL

Approved by

Clauditte K Cunto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

CERTIFICATION: ND # ND-00016



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 5/5/2017

CLIENT:

MVTL Laboratories, Inc.

Project:

201782-0783

Lab Order:

S1704139

**CASE NARRATIVE** 

Report ID: S1704139001

Sample 17-W776 FB Slag was received on April 11, 2017.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Qualifiers by sample

S1704140-003 - Radium 228 by Ga/Tech/Total Radium 228 - RPD outside accepted recovery limits

Reviewed by: All

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 1



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName: Lab ID:

201782-0783 S1704139-001

ClientSample ID: 17-W776 FB Slag

COC:

201782-0783

Date Reported 5/5/2017

Report ID

S1704139001

WorkOrder:

S1704139

CollectionDate: 4/4/2017

DateReceived: 4/11/2017 11:29:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	05/02/2017 1502	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	05/02/2017 1502	MB
Radium 228	-0.1	pCi/L		1	Ga-Tech	04/28/2017 344	MB
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	04/28/2017 344	MB

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL - Reporting Limit** 

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

Outside the Range of Dilutions 0

Matrix Effect

Reviewed by: *all* 

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 1



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

#### **ANALYTICAL QC SUMMARY REPORT**

CLIENT: MVTL

MVTL Laboratories, Inc.

Date: 5/5/2017

Work Order:

S1704139

Report ID: S1704139001

**Project:** 201782-0783

Radiu	m 228 by Ga/Tech	Sample Type 🛚 N	IBLK		Units	: pCi/L			
	MB-430 (04/26/17 11:52)	Rur	No: 145297	PrepD	ate: 04/1	7/17 14:00	Bato	hID 13102	
	Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Total Radium 228		ND	1					
Radiu	m 228 by Ga/Tech	Sample Type L	cs		Units	: pCi/L			
	LCS-430 (04/26/17 14:57)	Rur	No: 145297	PrepD	ate: 04/1	7/17 14:00	Bato	hID 13102	
	Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Total Radium 228		39	1	40.1		98.1	65.9 - 132	
Radium 228 by Ga/Tech		Sample Type L	CSD		Units	: pCi/L			
	LCSD-430 (04/26/17 18:01)	Rur	No: 145297	PrepDate: 04/17/17 14:00			Bato	hID 13102	
	Analyte		Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
	Total Radium 228		41	1	39	3.17	101	20	
Radiu	m 228 by Ga/Tech	Sample Type N	IS		Units	: pCi/L			
	S1704140-003AMS (04/28/17 15:59)	Rur	No: 145297	PrepD	ate: 04/1	7/17 14:00	Bato	hID 13102	
	Analyte		Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
	Total Radium 228		25	1	40.1	ND	62.8	50 - 139	
Radiu	m 228 by Ga/Tech	Sample Type M	ISD		Units	: pCi/L			
	S1704140-003AMSD (04/28/17 19:04)	Rur	No: 145297	PrepD	ate: 04/1	7/17 14:00	Batc	hID 13102	
	Analyte		Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
	Total Radium 228	<del></del>	35	1	25	31.3	86.1	20	 R

Qualifiers: B

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

CLIENT: MVTL Laboratories, Inc.

S1704139

/ IL Laboratories, Inc.

**Project:** 201782-0783

Work Order:

Date: 5/5/2017

Report ID: S1704139001

Radium 226 in Water -	Sample Type MBLK	Units	s: pCi/L				
MB-1743 (05/02/17 12:23)	RunNo: 145424	PrepDate: 04/2	25/17 0:00	Bato	hID 13112		
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	ND	0.2					
Radium 226 in Water -	Sample Type LCS	Units	s: pCi/L				
LCS-1743 (05/02/17 12:23)	RunNo: 145424	PrepDate: 04/25/17 0:00 BatchID 13112					
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	6.6	0.2 5.89		112	67.1 - 122		
Radium 226 in Water -	Sample Type MS	Units: pCi/L					
MS-1743 (05/02/17 12:23)	RunNo: 145424	PrepDate: 04/2	25/17 0:00	Bato	hID 13112		
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	6.3	0.2 5.89	ND	106	65 - 131		
S1704140-003AMS (05/02/17 15:02)	RunNo: 145424	PrepDate: 04/25/17 0:00 BatchID 1:			hID 13112		
Analyte	Result	RL Spike	Ref Samp	%REC	% Rec Limits	Qual	
Radium 226	6.6	0.2 5.89	ND	111	65 - 131		
Radium 226 in Water -	Sample Type MSD	Units	: pCi/L				
MSD-1743 (05/02/17 12:23)	RunNo: 145424	PrepDate: 04/2	25/17 0:00	Bato	hID 13112		
Analyte	Result	RL Conc	%RPD	%REC	% RPD Limits	Qual	
Radium 226	6.5	0.2 6.3	3.70	110	20		
S1704140-003AMSD (05/02/17 15:02)	RunNo: 145424	PrepDate: 04/2	5/17 0:00	Bato	hID 13112		
Analyte	Result	RL Conc	%RPD	%REC	% RPD Limits	Qual	
Radium 226	6.0	0.2 6.6	8.48	102	20		

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

Spike Recovery outside accepted recovery limits



Transferred by:

T. Olson

### LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

Date:

7-Apr-17

Time:

1700

## **Chain of Custody Record**

Received by:

Date:

Temp:

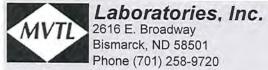
11.40

4:29

Page	1	of	1	
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Toll Free: (800) 279-6885 Fax: (701) 258-9724											201782-0783		
Company Nam	e and Address:			Account #	<del></del>						Phone #:		
											701-258-9720		
		<u>VTL</u>		Contact:	-					Fax #:			
		Broadway			Claud	ette	€				For faxed report check box		
Billing Addrose	Bismarch indicate if different (	K, ND 58501		Name of Sampler:							E-mail: ccarroll@mvtl.com		
Diffing Address	(mulcate il dillereni	trom above):									For e-mail report check box		
	PO P	Sox 249		Quote Nui	mber								
		, MN 56073		Dunia at Na	/B 1 I -								
	INCH OIII	, 18114 3007 3		Project Na	ame/Numbe	er:					1		
		Sample Information						- 441 -			701-258-9720  (#: For faxed report check box mail:		
		Cample information	<del></del>	T	T		<u> </u>	ottle	ı yı	pe	Analysis		
SIFO4139 IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Umpreserved	Glass Jar	Other	Analysis Required		
<u> </u>	17-W776	FB Slag	GW	4-Apr-17	NA		4				Ra226 & Ra228		
											10000010000		
								-					
		- Market											
		***************************************											
							-						
Commente: All	reculte must be re-												
Comments. All	resure must be tebo	orted as a numerical value	) <u>.</u>										

Sample Condition:



# **Chain of Custody Record**

Project Name: OTP Coyote - Slag Pond			Event:	Event: April 2017				Work Order Number: 82-0784  Name of Sampler(s): CC 5Apr17					
Report To: Attn: Address: phone: email:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538 jhollen@otpco.com	-0496	Carbon Co Attn: Address:	Address:			Name of Sampler(s): CC 54					CL SAPr17	
Sample Information						В	ottle	Туре	Fi	eld Para	meters	Analysis	
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric			Temp (°C)	Spec. Cond.	Ha .	Analysis Required	
WTG	FB Slag	4A17	NA	W		4			NA	NA	NA		
								_ 1 _ 1 _ 1		70.00			

Comments: recollected field blank due to pressention error

Relinquished By:	Sample Condition:				
Name:	Date/Time	Location:	Temp (°C)		
101 Jely	5Apr17	Walk In #2	TM562 /7M588		
2					

Received by	ţ
Name:	Date/Time
11000	5tpril 17
Unal Jimonan	805
MUJO SINOMAN	800

Rad 226 & Rad 228



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



June 1, 2017

Otter Tail Power Company Josh Hollen P.O. Box 496 Fergus Falls, MN 56538-0496

RE: Coyote Station Groundwater Sampling - May 2017

Dear Mr. Hollen,

From May 16-18, 2016, MVTL Laboratories' Field Services division collected groundwater samples from wells with sufficient volume at the Coyote Station near Beulah, ND. The wells in the green and black pit were purged and sampled using bailers. Six wells from the Blue Pit were purged and sampled at a low rate with a bladder pump. Thirteen wells and one surface water was sampled from the Slag Pond area. The wells were found to be in good condition. There were insufficient volumes on wells Black 810, Black 1713, Black 1718, Black BP-2A and Black BP-4U to collect samples. Collected samples were placed on ice and then transported back to the MVTL laboratory for analysis.

Thank you for your trust and support of our services. If you have any questions, please call me at (800) 279-6885.

Sincerely,

Jeremy Meyer

MVTL Field Services



WO# 82-1311

### **OTP Coyote Station**

Slag Pond

Attn: Josh Hollen

PO Box 496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WELL CASING ELEVATION	STATIC WATER LEVEL (ft)	WATER LEVEL START	TOTAL DEPTH	WATER LEVEL END	VOLUME IN WELL (L)	VOLUME REMOVED (L)	SAMPLE METHOD	TEMP (°C)	EC	pН	SAMPLE APPEARANCE
Black 810	na	na	17-May-17	13:27	1969.20	1878.25	90.95	91.48	na	0.3	па	na	па	na	na	insufficient volume
Black 1463	17-May-17	13:42	18-May-17	9:34	1969.10	1895.90	73.20	83.60	82.42	6.4	6.8	Bailer	9.78	1518	7.48	clear
Black 1713	na	na	17-May-17	13:24	1969.10	1936.00	33.10	33.68	na	0.4	na	na	na	na	na	insufficient volume
Black 1715	17-May-17	13:04	18-May-17	8:33	1926.51	1894.84	31.67	33.60	33.20	1.2	1.4	Bailer	10.67	2703	7.23	partly cloudy
Black 1718	na	na	17-May-17	13:11	1954.35	1923.65	30.70	31.75	na	0.6	na	na	na	na	na	insufficient volume
Black 1726	17-May-17	13:16	18-May-17	9:05	1976.15	1917.09	59.06	64.21	60.98	3.2	4.1	Bailer	10.61	4189	5.54	clear
Black BP2-A	17-May-17	13:32	18-May-17	9:21	1990.85	1920.49	70.36	73.75	73.30	2.1	2.7	Bailer	12.51	4048	5.92	partly cloudy
Black BP4-U	na	na	17-May-17	13:40	1970.02	1930.88	39.14	40.30	na	0.7	na	na	na	na	na	insufficient volume
Black SW	na	na	18-May-17	8:47	na	na	na	na	na	na	na	grab	13.93	2924	8.38	clear



WO# 82-1312

### **OTP Coyote Station**

Slag Pond

Attn: Josh Hollen

PO Box 496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WELL CASING ELEVATION (FT)	STATIC WATER LEVEL (FT)	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (Liters)	SAMPLE METHOD	TEMP (°C)	EC	рН	SAMPLE APPEARANCE
Green 7	17-May-17	13:54	18-May-17	9:50	2016.02	1935.64	80.38	85.42	80.45	3.1	4.1	Bailer	9.98	5731	6.25	clear
Green 5-1	17-May-17	14:13	18-May-17	10:18	2013.09	1939.05	74.04	81.45	76.12	4.6	5.4	Bailer	9.16	5433	6.26	clear
Green 6	17-May-17	14:02	18-May-17	10:01	2013.87	1937.60	76.27	85.36	79.48	5.6	6.8	Bailer	11.03	4839	6.35	clear
						***************************************					***************************************					
						***************************************							-			
							,							······································		



WO# 82-1313

## **OTP Coyote Station**

Slag Pond

Attn: Josh Hollen

PO Box 496

<b>W</b> ELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (Liters)	SAMPLE METHOD	TEMP (°C)	EC	рН	SAMPLE APPEARANCE OR COMMENT
PondA1	17-May-17	15:53	18-May-17	10:39	17.10	28.85	20.93	7.2	8.1	Bailer	11.02	3122	7.18	clear
PondA6	17-May-17	15:40	18-May-17	11:28	12.34	37.64	16.88	15.6	16.0	Bailer	10.55	4918	6.76	clear
PondN1	17-May-17	15:21	18-May-17	11:38	37.68	53.28	44.40	9.6	13.5	Bailer	9.73	6040	6.48	clear
Pond11	17-May-17	14:35	18-May-17	12:05	63.39	72.85	63.89	5.8	20.4	Bailer	9.98	6287	6.73	partly cloudy
Pond14	17-May-17	15:00	18-May-17	11:53	40.71	57.85	51.94	10.6	25.7	Bailer	9.53	4699	6.43	clear
Pond15S	17-May-17	16:02	18-May-17	10:51	32.77	37.72	35.00	3.0	4.1	Bailer	9.65	4418	6.68	clear
Pond15d	17-May-17	16:07	18-May-17	11:03	38.00	58.30	51.32	12.5	17.6	Bailer	9.77	4186	6.45	clear
PondSW	na	na	18-May-17	11:17	na	na	na	na	na	Grab	16.14	2826	8.44	clear
												***************************************		



WO# 82-1316 82-1296

### **OTP Coyote Station**

Slag Pond

Attn: Josh Hollen

PO Box 496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	ТЕ <b>М</b> Р (°С)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Pond6	16-May-17	9:39	16-May-17	9:59	17.89	18.81	below pump	0.6	4000.0	Bladder	10.57	4764	7.04	1.83	clear
PondN3	16-May-17	11:12	16-May-17	12:32	11.86	37.07	15.25	15.5	8000.0	Bladder	12.74	5146	6.66	79.60	parly cloudy
Pond10	NA	NA	16-May-17	11:05	21.83	22.10	NA NA	0.2	NA	NA	NA	NA	NA	NA	insufficient volume for sampling
Pond12	16-May-17	16:50	16-May-17	17:25	37.70	40.10	38.42	1.5	3500.0	Bladder	11.24	3507	7.10	1.18	clear
Pond16S	16-May-17	15:10	16-May-17	15:50	39.49	48.85	40.72	5.8	4000.0	Bladder	11.44	3161	6.73	75.60	clear
MW2S	16-May-17	13:37	16-May-17	14:02	22.18	36.60	28.83	8.9	2500.0	Bladder	10.57	4952	6.94	1.60	clear
								***************************************			****				
									The control of the			i			
														····	
													4-14	~~~	



WO# 82-1314 82-1297

### **OTP Coyote Station**

Blue Pit

Attn: Josh Hollen

PO Box 496

WELL ID	PURGE DATE	START PURGE TIME	SAMPLE DATE	TIME OF SAMPLE	WATER LEVEL START (FT)	TOTAL DEPTH (FT)	WATER LEVEL END (FT)	VOLUME IN WELL (Liters)	VOLUME REMOVED (mL)	SAMPLE METHOD	TEMP (°C)	EC	рН	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Blue6	16-May-17	7:25	17-May-17	7:10	62.84	79.12	71.52	10.0	13500.0	Bladder	9.27	2572	6.65	26.70	clear
Blue7	16-May-17	18:20	16-May-17	19:25	80.07	NA	80.22	NA	6500.0	Bladder	9.53	2566	6.50	12.30	clear
Blue13	16-May-17	8:40	17-May-17	6:20	103.20	116.70	112.25	8.3	8500.0	Bladder	9.12	6225	7.01	14.60	clear
Blue14	17-May-17	11:15	17-May-17	12:20	79.08	NA	below pump	NA	6500.0	Bladder	9.15	5179	6.61	6.43	clear
Blue15	17-May-17	10:01	17-May-17	10:26	76.96	NA	80.71	NA	2500.0	Bladder	9.36	3285	6.62	5.23	clear
Blue16	17-May-17	8:05	17-May-17	9:10	75.82	NA	76.05	NA	6500.0	Bladder	9.75	2677	6.56	22.30	clear
		***************************************													
									· · · · · · · · · · · · · · · · · · ·						



# **Field Datasheet**

#### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	Pandb
Sampling Personal:	Jerry Mayor

Phone: (701) 258-9720

Phone: (701) 258-9	0720						_						
Weather Conditions:		Temp:	<b>5</b> 0 °F		Wind:	NOS-1	0		Precip	Sunr	ny / Partly (	Cloudy /Clo	udy.
	Well Info	rmation						Sa	ampling I	nformatio	on		
Well Locked?	Yes	No.	in manhole			Purgin	g Method:	Blac	der		Co	ontrol Setting	s
Well Labeled?	(Yes)	No	-			Samplin	g Method:	Blac	dder		Purge:	5	sec
Casing Straight?	(Es)	No				Dedicate	ed Equip?:	Yes	No		Recover:	55	sec
Grout Seal Intact?	Yes	No	Not Visi	bie		Duplicate	Sample?:	Yes	<b>₫</b> 0		PSI:	20	
Repairs Necessary:						Duplicate S	Sample ID:	<u> </u>	-		Pumping R	Rate: 106	mL/mir
Casing	Diameter:		2"										
Water Level Bef	ore Purge:		17.89	ft		Pi	urge Date:	16 May 1	7	Time Purg	ing Began:	0939	am/pr
Total W	Vell Depth:	-		ft		Well Pu	rged Dry?	Yes	MB	Time F	urged Dry:	20	am/pn
· We	ell Volume:			liters		Sar	nple Date:	16 May 1	17	Time of	Sampling:	0959	(am)/pn
Depth to Top	of Pump:	1	7,22	ft									
Water Level After	er Sample:	Be	low Pump	ft		Bottle	1L Raw, 50	0mL Nitric,	500mL Niti	ric (filtered),	250mL Sul	firic	
Measuremen	nt Method:	Electric '	Water Level Inc	licator		List:	4 - 1L Nitric	;					

#### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	०९५५	10,82	4332	6.88	6.82	227.9	6.78	Below Pury (BP)	5,00,0	Clean
2	0949	10.41	4606	6.97	6.44	20914	5,04	BP	500.0	Clear
3	0954	10.48	4661	7.02	6.55	206.4	4.14	BP	580,0	Clien
4	0959	10.57	4764	7,04	6.41	203,3	1,83	RP	ر معر	Clear
5										
6										
7										
8										
9										
10										

Stabilized: No

Total Volume Removed: <u>4000.</u> mL

Comments:

water level belowpung. mointained 100ml/min durning purging & Soupling



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	Pard N3
Sampling Personal:	Jerry play a

Phone: (701) 258-9	9720					•			•			
Weather Conditions:		Temp:	50 °F	=	Wind:	Nesto		Precip	: Sunn	y / Partly C	Cloudy /Clo	oudy
	Well Info	rmation					Sa	ampling l	nformatio	n		
Well Locked?	Yes)	No				Purging Method:	Blac	lder		Co	ntrol Setting	gs
Well Labeled?	Yes	No				Sampling Method:	Blac	lder	] [	Purge:	5	sec.
Casing Straight?		No				Dedicated Equip?:	Yes	<b>(No</b> )	] [	Recover:	55	sec.
Grout Seal Intact?	Yes	No	Not Vis	ible		Duplicate Sample?:	Yes	<b>4</b>	] [	PSI:	20	
Repairs Necessary:						Duplicate Sample ID:	_	-		Pumping R	ate: /00	mL/min
Casing	Diameter:		2"									
Water Level Bef	ore Purge:	1	1.86	ft		Purge Date:	16 Ma	17	Time Purgi	ing Began:	2111	<u>aπ</u> /pm
Total V	Vell Depth:			ft		Well Purged Dry?	Yes	(ND)	Time P	urged Dry:		am/pm
We	ell Volume:			liters		Sample Date:	16 Ma	17	Time of	Sampling:	1232	am/pm
Depth to Top	p of Pump:	-		ft				•				
Water Level After	er Sample:		15.25	ft		Bottle 1L Raw, 50	00mL Nitric,	500mL Nit	ric (filtered),	250mL Sul	firic	
Measuremer	nt Method:	Electric V	Nater Level In	dicator		List: 4 - 1L Nitrio	3					
							1					

### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1117	12.61	5183	6.88	8.32	258.9	351.0	15.60	500,0	Portly Clock (PC)
2	1137	12.52	5176	6.82	7.50	274.5	342.0	13.85	2000,0	PC
3	1157	12.74	5167	6.72	7.09	276.6	180,0	14.59	2000.0	PC
4	1217	12.86	5162	6,60	7.96	252,7	117.0	14.75	200,0	PC
5	1222	17.75	5160	6.67	6.40	256.4	108,0	14.95	500,0	PC
6	1227	12.78	5152	6,67	6.31	256.9	୫୨,୫	14.64	500,0	PC
7	1232	12.74	5146	6.66	6.16	256.5	79.6	15.01	500.0	PC
8										
9										
10										

No Stabilized:

Total Volume Removed: 8000.0 mL



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 10
Sampling Personal:	Jan plan

Phone: (701) 258-97	720												
Weather Conditions:		Temp:	°F	=	Wind:				Preci	o: <b>Sunr</b>	ny / Partly Cl	oudy / Cl	oudy
	Well Info	rmation						Sa	mpling	Informatio	on		
Well Locked?	Yes	No				Purg	ing Method:	Blad	der		Con	trol Settin	ngs
Well Labeled?	Yes	No				Sampl	ing Method:	Blad	der		Purge:		sec
Casing Straight?	(es	No				Dedica	ated Equip?:	Yes	No		Recover:		sec
Grout Seal Intact?	(es	No	Not Vis	ible		Duplicate	e Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping Ra	te:	mL/mir
Casing	Diameter:		2"										
Water Level Befo	re Purge:	7	21.63	ft			Purge Date:			Time Purg	ing Began:		am/pm
Total W	ell Depth:		22.10	ft		Well F	Purged Dry?	Yes	No	Time P	urged Dry:		am/pm
Wel	ll Volume:		0.2	liters		Sa	ample Date:	16 May 17	L	Time of	Sampling:	1605	(am/pm
Depth to Top	of Pump:			ft									
Water Level Afte	r Sample:			ft		Bottle	1L Raw, 50	0mL Nitric,	500mL <b>N</b> i	itric (filtered),	250mL Sulfi	ric	
Measurement	t Method:	Electric \	<b>W</b> ater Level In	dicator		List:	4 - 1L Nitric						
				Field	Measure	ements							2

Stabiliz		Temp (°C)	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1							and the second s			
2										
3										
4					$\times$					
5										
6										
7								/		
8										
9			7							
10										

Stabilized:

Total Volume Removed: mL

Comments:

insufficient volume No Sayle



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 12
Sampling Personal:	len slan

Phone: (701) 258-97	720						_						
Weather Conditions:		Temp:	60	°F	Wind:	NOS-10	)		Precip	Sunr	y / Partly C	loudy / Clo	udy
7	Well Info	rmation						Sa	ampling I	nformatio	on		
Well Locked?	Yes	No				Purgin	g Method:	Blac	dder		Co	ntrol Setting	s
Well Labeled?	YES	No				Samplin	g Method:	Blac	dder		Purge:	5	sec
Casing Straight?	XES	No				Dedicate	ed Equip?:	Yes	(No.		Recover:	55	sec
Grout Seal Intact?	Yes	No	Not V	/isible		Duplicate \$	Sample?:	Yes	(No		PSI:	35	
Repairs Necessary:						Duplicate S	ample ID:				Pumping R	ate: 100	mL/mir
Casing	Diameter:		2"							_			
Water Level Befo	ore Purge:	37	7,70	ft		Pt	urge Date:	16 May	17	Time Purg	ing Began:	1650	am/pm
Total W	ell Depth:		<u> </u>	ft		Well Pu	rged Dry?	Yes	(No	Time F	urged Dry:		am/pm
We	ll Volume:	•		liters		San	nple Date:	16 May	17	Time of	Sampling:	1725	am/or
Depth to Top	of Pump:	کر	At 38.	52 ft									
Water Level Afte	r Sample:	3	8,42	ft		Bottle	1L Raw, 50	0mL Nitric,	500mL Niti	ric (filtered),	250mL Sul	firic	
Measurement	t Method:	Electric V	Nater Level	Indicator		List:	4 - 1L Nitric	;					
						4							

#### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1655	11.46	3505	7.0S	4.78	273 4	64.1	38,16	50.0	Clea
2	[H200	11.23	3491	7.04	4,79	27-0.9	20,1	38,40	500,0	Cles
3	1703	11,12	3504	7,09	4.44	241,7	12.1	38.42	5000	Clea
4	1710	11.01	3507	7.07	4.26	209.8	2.73	38,43	50.0	Clear
5	1715	11.04	3507	7,08	4.16	189,3	2,80	38,43	500,0	Clea
6	1770	(1.06	3502	7.09	4,12	177,5	3.14	38,43	500,0	i len
7	1725	11,24	7507	7,10	4,18	170,3	1.18	38,43	₹00.0	Clea
8										
9										
10										

Stabilized: (Yes) No Total Volume Removed: 35めつ mL



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pond 165	
Sampling Personal:	Jerry May	

Phone: (701) 258-9	720											····
Weather Conditions:		Temp:	60	°F	Wind:	NOS-10			Preci	p: Sunny / Partly	Cloudy / Clo	oudy
1	Well Info	rmation						Sa	ampling	Information		
Well Locked?	/Yes	No				Purging Me	ethod:	Blac	dder		Control Setting	gs
Well Labeled?	(G)	No				Sampling Me	ethod:	Blac	dder	Purge	: 5	se
Casing Straight?	(Yes	No				Dedicated Eq	quip?:	Yes	<b>M</b> 0	Recove		se
Grout Seal Intact?	Yes	No	Not \	/isible		Duplicate Samp	ple?:	Yes	M	PS	: <b>3</b> 5	
Repairs Necessary:						Duplicate Sample	le ID:			Pumping	Rate: 100	mL/m
Casing	Diameter:		2"						•			
Water Level Befo	ore Purge:	3	9,49	ft		Purge l	Date:	16 May	17	Time Purging Begar	: 1510	am/g
Total W	/ell Depth:			ft		Well Purged	Dry?	Yes	NO	Time Purged Dry	<u>":                                      </u>	am/p
We	ll Volume:	_		liters		Sample	Date:	16 Hm 1	7	Time of Sampling	1550	am/p
Depth to Top	of Pump:			ft				,				
Water Level After	er Sample:	4	0.72	ft		Bottle 1L Ra	aw, 50	0mL Nitric,	500mL N	itric (filtered), 250mL S	ulfiric	
Measuremen	t Method:	Electric V	Vater Leve	I Indicator		List: 4 - 1L	L Nitric					
	-											

### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1515	12.07	3143	6.70	5,60	280.1	64.4	39,95	580'0	Cles
2	1525	11.69	3144	6.68	5,13	264.8	95.4	40.02	(C.000)	Clan
3	1535	11.84	3163	6,69	4,99	241.4	107.0	40.20	1000()	Partly Cloudy
4	1540	11.68	3159	6,71	4.83	229.5	94.1	40.28	500.0	Clea
5	1545	11.61	3160	6,72	4.84	219.3	82,9	40,32	500.0	Cles
6	1550	11.44	3161	6,73	4.84	210,7	75.6	40.44	500.0	clear
7										
8										
9										
10										

Stabilized: No Total Volume Removed: 4000.0 mL



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	MWZg
Sampling Personal:	Jan sley
Sampling Personal:	Jany Playor

Phone: (701) 258-9	9720										<b>G</b>		
Weather Conditions:		Temp:	50	°F	Wind:	N @ S	-10		Precip	: Sunr	ny / Partly C	loudy / Clou	ùdy)
	Well Info	rmation						Sa	mpling l	nformatio	on		
Well Locked?	Yes	No				Purgi	ing Method:	Blad	der		Co	ntrol Setting:	s
Well Labeled?		No				Sampli	ing Method:	Blad	der		Purge:	5	sec
Casing Straight?		No				Dedica	ted Equip?:	Yes	<b>₫</b>		Recover:	22	sec
Grout Seal Intact?		No	Not V	isible		Duplicate	e Sample?:	Yes	(₹)		PSI:	25	
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: / 00	mL/mir
	Diameter:		2"										
Water Level Bet		2	2.18	ft		F	Purge Date:	16 May	17	Time Purg	ing Began:	1337	am/pn
Total V	Well Depth:			ft		Well F	urged Dry?	Yes	(No	Time P	urged Dry:		am/pn
W	ell Volume:			liters		Sa	ample Date:	16 Mer	17	Time of	Sampling:	1402	am/pti
Depth to To	p of Pump:			ft									
Water Level Aft	·	ZI	B,83	ft		Bottle	1L Raw, 50	0mL Nitric,	500mL Nit	ric (filtered),	250mL Sul	firic	
Measureme			Water Level	Indicator		List:	4 - 1L Nitric						
	1					<u> </u>	-						

### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1342	10.95	5009	6,91	7,24	26.2	2.43	22,71	500,0	Cles
2	1347	10.51	4994	6.91	6,37	262.6	1.45	23,45	500,0	Clear
3	1352	10.49	4990	6.91	6,20	2871	1.53	24.10	500,0	Cles
4	1357	10,73	4982	6.92	6,25	291,9	1,42	24,58	500,0	Cles
5	1402	10.57	4952	6,94	6,45	298.2	1.60	25,08	500,0	clea
6										
7										
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 25లు ఎ mL



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



#### CASE NARRATIVE

MVTL Lab Reference No/SDG:

201782-1296

Client:

Ottertail Power Company

Location:

**Coyote Station** 

**Project Identification:** 

**CCR Slag Pond** 

Event & Year

May 2017

MVTL Laboratory Identifications:

17-W1829 through 17-W1834

Page 1 of 2

Sample Identification	MVTL Laboratory #
FB Slag	17-W1829
Pond6	17-W1830
PondN3	17-W1831
Pond10	Insufficient volume – no sample
Pond12	17-W1832
Pond16S	17-W1833
MW2S	17-W1834

#### I. RECEIPT

- All samples were received at the laboratory on 18 May 17 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 3.5°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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



### CASE NARRATIVE

MVTL Lab Reference No/SDG:

201782-1296

Client:

Ottertail Power Company

Location:

**Covote Station** 

**Project Identification:** 

CCR Slag Pond

**Event & Year** 

May 2017

MVTL Laboratory Identifications:

17-W1829 through 17-W1834

Page 2 of 2

### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.

o For some metals, the reported results were elevated due to instrument performance at the

lower limit of quantitation (LLOQ).

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudite

DATE:

9 Jun 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

**MVTL** 

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

MEMBER ACIL

Page: 1 of 2

Quality Control Report

Lab IDs: 17-W1829 to 17-W1834 Project: OTP Coyote - Slag Pond - CCR Work Order: 201782-1296

Lab IDs: 17-W1829 to 17 Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	100	80-120	0.400	17W1834q	< 0.001	0.4276	107	75-125	0.4276	0.4200	105	1.8	20	_	-	< 0.001
Arsenic - Total mg/l	0.1000	98	80-120	0.400	17W1834q	< 0.002	0.4238	106	75-125	0.4238	0.4298	107	1.4	20	-	-	< 0.002
Barium - Total mg/l	0.1000	93	80-120	0.400	17W1834q	0.0137	0.3956	95	75-125	0.3956	0.3860	93	2.5	20	-	-	< 0.002
Beryllium - Total mg/l	0.1000	108	80-120	0.400	17W1834q	< 0.0005	0.4322	108	75-125	0.4322	0.4248	106	1.7	20	-	-	< 0.0005
Boron - Total mg/l	0.40	105	80-120	0.400	17-W1834	0.28	0.66	95	75-125	0.66	0.66	95	0.0	20	-	-	< 0.1 < 0.1
Cadmium - Total mg/l	0.1000	106	80-120	0.400	17W1834q	< 0.0005	0.4368	109	75-125	0.4368	0.4296	107	1.7	20	-	-	< 0.0003
Calcium - Total mg/l	20.0	114	80-120	500	17W1834q	605	1130	105	75-125	1130	1100	99	2.7	20	- -	- - -	< 1 < 1 < 1
Chloride mg/l	30.0 30.0 30.0	91 91 88	80-120 80-120 80-120	30.0	17-W1824	6.7	36.2	98	80-120	36.2	35.0	94	3.4	20	-	-	< 1 < 1
Chromium - Total mg/l	0.1000	94	80-120	0.400	17W1834q	< 0.002	0.3798	95	75-125	0.3798	0.3774	94	0.6	20	-	-	< 0.002
Cobalt - Total mg/l	0.1000	93	80-120	0.400	17W1834q	< 0.002	0.3810	95	75-125	0.3810	0.3778	94	0.8	20	-	_	< 0.002
Fluoride mg/l	0.50 0.50 0.50	98 100 96	90-110 90-110 90-110	1	17-W1824 17-W1832 17-W1844	0.17 0.10 < 0.1	0.67 0.53 0.54	100 86 108	80-120 80-120 80-120	0.67 0.53 0.54	0.67 0.58 0.54	100 96 108	0.0 9.0 0.0	20 20 20	-	-	< 0.1 < 0.1 < 0.1 < 0.1
Lead - Total mg/l	0.1000	94	80-120	0.400	17W1834q	< 0.0005	0.3756	94	75-125	0.3756	0.3704	93	1.4	20	-	-	< 0.0005
Lithium - Total mg/l	0.40	110	80-120	0.400	17-W1834	0.44	0.91	118	75-125	0.91	0.92	120	1.1	20	-	-	< 0.1 < 0.1

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Page: 2 of 2

**Quality Control Report** 

**MVTL** 

Lab IDs: 17-W1829 to 17-W1834 Project: OTP Coyote - Slag Pond - CCR Work Order: 201782-1296

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Mercury - Total mg/l	0.0020	100	85-115	0.002 0.002	17-W1824 17-W1936	< 0.0002 < 0.0002	ł	100 100	70-130 70-130	0.0020 0.0020	0.0020 0.0019	100 95	0.0 5.1	20 20	-	-	< 0.0002
Molybdenum - Total mg/l	0.1000	101	80-120	0.400	17W1834q	< 0.002	0.4300	108	75-125	0.4300	0.4118	103	4.3	20	-	-	< 0.002
pH units	-	- - -	-	-	-	-	- - -		- - -	7.8 9.4 7.4 8.4	8.0 9.4 7.5 8.4	-	2.5 0.0 1.3 0.0	20 20 20 20 20	-	- - -	
Selenium - Total mg/l	0.1000	113	80-120	0.400	17W1834q	0.1302	0.5928	116	75-125	0.5928	0.5764	112	2.8	20	_	-	< 0.002
Sulfate mg/l	100 100	96 90	80-120 80-120	1000 1000	17-W1824 17-D1818	1050 929	1940 1780	89 85	80-120 80-120	1940 1780	1950 1770	90 84	0.5 0.6	20 20	-	-	< 5 < 5
Thallium - Total mg/l	0.1000	95	80-120	0.400	17W1834q	< 0.0005	0.3776	94	75-125	0.3776	0.3744	94	0.9	20	_	-	< 0.0005
Total Dissolved Solids mg/l		- - - -	-	- - - -	- - - -		-	-	-	2300 1980 4870 4660 2370	2250 1960 5000 4640 2250	-	2.2 1.0 2.6 0.4 5.2	20 20 20 20 20 20	- - -	-	< 10 < 10 < 10 < 10 < 10

Approved by:	C. Canil
	9 JUL 17



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



CERTIFICATE of ANALYSIS - CCR

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

Project Name: OTP Coyote - Slag Pond

Sample Description: FB Slag

Page: 1 of 6

Report Date: 7 Jun 17 Lab Number: 17-W1829 Work Order #:82-1296 Account #: 006106 Date Sampled: 17 May 17

Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	18 May 17	svs
Lab, pH	* 6.2	s.u.	0.1	SM4500 H+ B	18 May 17 18:00	svs
Fluoride	< 0.1	mg/1	0.10	SM4500-F-C	18 May 17 18:00	SVS
Sulfate	< 5	mg/1	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	< 1	mg/1	1.0	SM4500-C1-E	1 Jun 17 13:22	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	25 May 17 11:34	EV
Total Dissolved Solids	< 10	mg/1	1.0	I1750-85	19 May 17 14:18	SVS
Calcium - Total	< 1	mg/l	1.0	6010	30 May 17 15:09	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	19 May 17 14:05	KMD
Boron - Total	< 0.1	mg/l	0.10	6010	20 May 17 9:15	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	6 Jun 17 12:00	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Barium - Total	< 0.005 ^	mg/1	0.0020	6020	6 Jun 17 12:00	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Chromium - Total	< 0.002	mg/1	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	< 0.002	mg/1	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	0.0007	mg/1	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	< 0.002	mg/1	0.0020	6020	6 Jun 17 12:00	KMD
Selenium - Total	< 0.005 ^	mg/1	0.0020	6020	6 Jun 17 12:00	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

# = Due to concentration of other analytes + = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: OTP Coyote - Slag Pond

Sample Description: Pond6

Page: 2 of 6

Report Date: 7 Jun 17 Lab Number: 17-W1830 Work Order #:82-1296 Account #: 006106

Date Sampled: 16 May 17 9:59 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion Field pH Lab, pH Field Appearance Field Temperature Field Conductivity Fluoride Sulfate Chloride Mercury - Total Total Dissolved Solids Calcium - Total Lithium - Total Boron - Total Antimony - Total Arsenic - Total Barium - Total Barium - Total Cadmium - Total Cadmium - Total Chromium - Total Lead - Total Molybdenum - Total Selenium - Total Thallium - Total	* 7.4 S Clear 10.6 De 4764 Un 0.34 me 1730 me 26.1 me < 0.0002 m 3780 me 184 me < 0.1 me 3.39 me < 0.001 me < 0.002 me 0.0420 me < 0.002 me 0.0420 me < 0.002 me 0.0420 me < 0.002 me < 0.0005 me < 0.002 me < 0.0016 me < 0.002 me < 0.0016 me < 0.002 me < 0.0016 me < 0.002 me < 0.0016 me < 0.002 me < 0.0016 me < 0.0016 me < 0.002 me < 0.0016 me < 0.00193 me < 0.00193 me < 0.00193 me < 0.00193 me < 0.00193 me < 0.0005 me < 0.00193 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.0005 me < 0.	.uu. egrees C mhos/cm g/l g/l g/l g/l ig/l ig/l ig/l ig/l ig/	0.1 0.1 NA 0.1 1 0.10 5.00 1.0 0.0002 10 1.0 0.10 0.10 0.010 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020	EPA 200.2 SM 4500 H+ B SM4500 H+ B SM 2110 SM 2550B EPA 120.1 SM4500-F-C ASTM D516-07 SM4500-C1-E EPA 245.1 11750-85 6010 6010 6010 6020	18 May 17 16 May 17 9:59 19 May 17 17:00 16 May 17 9:59 16 May 17 9:59 16 May 17 9:59 16 May 17 17:00 25 May 17 16:55 1 Jun 17 13:22 25 May 17 14:18 30 May 17 14:18 30 May 17 14:05 20 May 17 14:05 20 May 17 12:00 6 Jun 17 12:00	KMD EMS EV SVS SZ KMD KMD KMD KMD KMD KMD KMD KMD KMD KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudithe K Cantep

9 JUNIT

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

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

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote - Slag Pond

Sample Description: PondN3

3 of 6 Page:

Report Date: 7 Jun 17 Lab Number: 17-W1831 Work Order #:82-1296 Account #: 006106

Date Sampled: 16 May 17 12:32 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion Field pH Lab, pH Field Appearance Field Temperature Field Conductivity Fluoride Sulfate Chloride Mercury - Total Total Dissolved Solids Calcium - Total Lithium - Total Boron - Total Antimony - Total Barium - Total Barium - Total Baryllium - Total Cadmium - Total Chromium - Total Chead - Total Lead - Total Molybdenum - Total Selenium - Total Total Total Selenium - Total	6.66 s. 7.0 s. Partly Cloudy 12.7 De 5146 un 0.26 mg 3050 mg 58.2 mg < 0.0002 mg 5000 mg 560 mg 0.48 mg 0.50 mg < 0.001 mg < 0.002 mg < 0.005 mg < 0.005 mg < 0.005 mg < 0.0045 mg	u.  /egrees C  mhos/cm  g/l  g/l  g/l  g/l  g/l  g/l  g/l  g/	0.1 0.1 NA 0.1 1 0.10 5.00 1.0 0.0002 10 1.0 0.10 0.10 0.0010 0.0020	EPA 200.2 SM 4500 H+ B SM4500 H+ B SM 2110 SM 2550B EPA 120.1 SM4500-F-C ASTM D516-07 SM4500-C1-E EPA 245.1 11750-85 6010 6010 6010 6020 6020 6020 6020 6020 6020 6020 6020 6020 6020 6020 6020 6020 6020 6020	18 May 17 16 May 17 12:32 19 May 17 12:32 16 May 17 12:32 16 May 17 12:32 16 May 17 12:32 19 May 17 17:00 25 May 17 16:55 1 Jun 17 13:22 25 May 17 11:34 19 May 17 14:18 30 May 17 14:18 30 May 17 14:05 20 May 17 9:15 6 Jun 17 12:00	KMD KMD KMD KMD KMD KMD KMD KMD KMD KMD

\* Holding time exceeded

Approved by:

Claudette K Canto 9 Jun 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

@ = Due to sample matrix # = Due to come to sample quantity # = Due to interpret the control of the

# = Due to concentration of other analytes + = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: OTP Coyote - Slag Pond

Sample Description: Pond12

4 of 6 Page:

Report Date: 7 Jun 17 Lab Number: 17-W1832 Work Order #:82-1296 Account #: 006106

Date Sampled: 16 May 17 17:25 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Received Result	1	Method RL	Method Reference	Date Analyz	ed		Analyst
Metal Digestion Field pH Lab, pH Field Appearance Field Temperature Field Conductivity Fluoride Sulfate Chloride Mercury - Total Total Dissolved Solids Calcium - Total Lithium - Total Boron - Total Antimony - Total Arsenic - Total Barium - Total Beryllium - Total Cadmium - Total Cadmium - Total Chromium - Total Lead - Total Molybdenum - Total Selenium - Total	7.10 * 7.3 Clear 11.2 3507 0.10 1560 23.1 < 0.0002 2660 177 < 0.1 1.87 < 0.001 < 0.002 0.0178 < 0.0005 < 0.0005 0.0089 0.0075 < 0.0005 0.0046 < 0.005 < 0.0005	s.u. s.u.  Degrees C umhos/cm mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.1 0.1 NA 0.1 1 0.10 5.00 1.0 0.0002 10 0.10 0.10 0.010 0.0010 0.0020 0.0020 0.0005 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020	EPA 200.2 SM 4500 H+ B SM4500 H+ B SM 2110 SM 2550B EPA 120.1 SM4500-F-C ASTM D516-07 SM4500-C1-E EPA 245.1 11750-85 6010 6010 6010 6020	16 May 19 May 25 May 1 Jun 25 May 30 May 19 May 20 May 6 Jun	17 17 17 17 17 17 17 17 17 17 17 17 17 1	17:00 17:25 17:25 17:25 17:00 16:55 13:22 11:34 14:18 15:09 14:05	SVS JSM SVS JSM JSM JSM SVS KMD EMS EV SVS KMD KMD KMD KMD KMD KMD KMD KMD KMD KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

<sup>^</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote - Slag Pond

Sample Description: Pond16S

Report Date: 7 Jun 17 Lab Number: 17-W1833 Work Order #:82-1296 Account #: 006106

Date Sampled: 16 May 17 15:50 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.50

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion	Turk to	1.0.1		EPA 200.2	18 May 17	SVS
Field pH	6.73	s.u.	0.1	SM 4500 H+ B	16 May 17 15:50	JSM
Lab, pH	* 6.9	s.u.	0.1	SM4500 H+ B	19 May 17 17:00	SVS
Field Appearance	Clear		NA	SM 2110	16 May 17 15:50	JSM
Field Temperature	11.4	Degrees C	0.1	SM 2550B	16 May 17 15:50	JSM
Field Conductivity	3161	umhos/cm	1	EPA 120.1	16 May 17 15:50	JSM
Fluoride	0.17	mg/1	0.10	SM4500-F-C	19 May 17 17:00	SVS
Sulfate	1440	mg/1	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	24.2	mg/1	1.0	SM4500-C1-E	1 Jun 17 13:22	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	25 May 17 11:34	EV
Total Dissolved Solids	2450	mg/1	10	I1750-85	19 May 17 14:18	svs
Calcium - Total	219	mg/l	1.0	6010	30 May 17 15:09	SZ
Lithium - Total	< 0.1	mg/1	0.10	6010	19 May 17 14:05	KMD
Boron - Total	2.46	mg/l	0.10	6010	20 May 17 9:15	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	6 Jun 17 12:00	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Barium - Total	0.0502	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Cadmium - Total	0.0016	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Chromium - Total	0.0071	mg/1	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	0.0295	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	0.0017	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	0.0077	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Selenium - Total	< 0.005 ^	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

## Que to sample matrix ## = Due to co

! = Due to sample quantity += Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ) .



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Page:

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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote - Slag Pond

Sample Description: MW2S

7 Jun 17 Report Date: Lab Number: 17-W1834 Work Order #:82-1296 Account #: 006106

Date Sampled: 16 May 17 14:02 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion Field pH Lab, pH Field Appearance Field Temperature Field Conductivity Fluoride Sulfate Chloride Mercury - Total Total Dissolved Solids Calcium - Total Lithium - Total Boron - Total Antimony - Total Antimony - Total Barium - Total Barium - Total Cadmium - Total Cobalt - Total Lead - Total Molybdenum - Total Total Total Selenium - Total Total Thallium - Total	6.94 s 7.3 clear 10.6 4 4952 0.26 2810 24.8 c 0.0002 4 4870 605 0.44 0.28 c 0.001 c 0.002 c 0.0137 c 0.0005 c 0.0005 c 0.0005 c 0.0005 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.0002 c 0.1302	s.u. Degrees C umhos/cm mg/1 mg/1 mg/1 mg/1 mg/1 mg/1 mg/1 mg/	0.1 0.1 NA 0.1 1 0.10 5.00 1.0 0.0002 1.0 0.10 0.10 0.10 0.010 0.020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020	EPA 200.2 SM 4500 H+ B SM4500 H+ B SM 2110 SM 2550B EPA 120.1 SM4500-F-C ASTM D516-07 SM4500-C1-E EPA 245.1 I1750-85 6010 6010 6010 6020 6020 6020 6020 6020	18 May 17 16 May 17 14:00 19 May 17 14:00 16 May 17 14:00 16 May 17 14:00 16 May 17 14:00 19 May 17 17:00 2 Jun 17 9:1 1 Jun 17 13:2 25 May 17 11:3 19 May 17 14:1 30 May 17 14:0 20 May 17 14:0 40 Jun 17 12:0 6 Jun 17 12:0	0 SVS 2 JSM 2 JSM 2 JSM 2 JSM 2 SVS 5 EMS 2 EMS 4 EV 8 SVS 9 SZ 5 KMD 6

\* Holding time exceeded

Approved by:

Claudette K Canteo

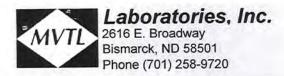
Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

### Bue to sample matrix ### Bue to complete the control of the contr

# = Due to concentration of other analytes + = Due to internal standard response



# **Chain of Custody Record**

Project Nam	e:	Event:	Work Order Number:	
	OTP Coyote - Slag Pond	May 2017	80-1296	
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):	
phone: email:	jhollen@otpco.com			

on to the second	Sam	ple Information	on				E	ott	е Тур	e	, Fi	eld Para	meters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partiy Cloudy, Cloudy)	1 liter	1 -1	Nitrice N	250mL Suffric		Temp (°C,	Spec. Cond.	Ha	Analysis Required
W1829	FB Slag	168/017	NA	W		Х		Х	Х		NA	NA	NA	
W1230	Pond6	16 May 17	0959	GW	Clear	Х	Х	Х	Х		10.57	4764	7.04	
12831	PondN3	16 My 17	1232	GW	Partly Clardy	X	Х	Х	X		12.74	5146	6.66	
-1001	Pond10	16 May 17	1105	GW		X	Х	х	X		insufficie	nt volum	ne	
01730	Pond12	16 May 17	1725	GW	Clear	Х	Х	Х	Х		11.24	3507	7.10	OTP Coyote List 1 + OTP
121233	Pond16S	16 May 17	1550	GW	Clean	Х	Х	Х	Х		11.44	3161	6,73	Coyote List A
01834	MW2S	16 May 17	1402	GW	Clear	Х	Х	Х	Х		10.57	4952	6,94	

Relinquished By		Sam	ple Condition:
Name:	Date/Time	Location:	Temp (°C)
1 Jely	18 May 17	tog in Walk In #2	TM562 TM588
2			

Receive	ed by:
Name:	Date/Time
1.0/( 8/1	18May 2017
MW TUW	0800
200	



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### CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-1316
IML Lab Reference No/SDG: S1705436

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Slag Pond CCR Radiochemistry

Event & Year May 2017

MVTL Laboratory Identifications: 17-W1862 through 17-W1867

IML Laboratory Identifications: S1705436-001 through S1705436-006

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #
FB Slag	S1705436-001	17-W1862
Pond6	\$1705436-002	17-W1863
PondN3	S1705436-003	17-W1864
Pond10	n/a	Not sampled
Pond12	S1705436-004	17-W1865
Pond16S	S1705436-005	17-W1866
MW2S	S1705436-006	17-W1867

### I. RECEIPT

- All samples were received at the laboratory on 18 May 2017 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- · Samples were received on ice and evidence of cooling had begun.
  - Temperature of samples upon receipt was 3.5°C.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 23 May 2017.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

### IV. ANALYSIS

SIGNED:

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laboratory data has been approved by MVTL Laboratories.

DATE: 11 JUL 17

Claudette Carroll - MVTL Bismarck Laboratory Manager



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



Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: May 2017

1 of 1 Page:

Report Date: 5 Jul 17 Lab Number: 17-W1862

Work Order #:82-1316 Account #: 006106

Date Sampled: 16 May 17

Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

Result	RL	Reference	Analyzed	Analyst
See Attached Report			13 Jun 17	OL
See Attached Report			11 Jun 17	OL
	See Attached Report	See Attached Report	See Attached Report	See Attached Report 13 Jun 17

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K. Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond 6

Event and Year: May 2017

Page: 1 of 1

Report Date: 5 Jul 17 Lab Number: 17-W1863 Work Order #:82-1316 Account #: 006106

Date Sampled: 16 May 17 9:59 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Rece Result	ived	Method RL	Method Reference	Date Analyzed		Analyst
Field pH	7.04	s.u.	0.1	SM 4500 H+ B	16 May 17	9:59	JSM
Field Temperature	10.6	Degrees C	0.1	SM 2550B	16 May 17	9:59	JSM
Field Conductivity	4764	umhos/cm	1	EPA 120.1	16 May 17	9:59	JSM
Radium 226	See Att	ached Report			13 Jun 17		OL
Radium 228	See Att	ached Report			11 Jun 17		OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudite K Canto

11JUL17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond N3

Event and Year: May 2017

1 of 1 Page:

Report Date: 5 Jul 17 Lab Number: 17-W1864 Work Order #:82-1316 Account #: 006106

Date Sampled: 16 May 17 12:32 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Rece: Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.66	s.u.	0.1	SM 4500 H+ B	16 May 17 12:32	JSM
Field Appearance	Partly (	Cloudy	NA	SM 2110	16 May 17 12:32	JSM
Field Temperature	12.7	Degrees C	0.1	SM 2550B	16 May 17 12:32	JSM
Field Conductivity	5146	umhos/cm	1	EPA 120.1	16 May 17 12:32	JSM
Radium 226	See Atta	ached Report			12 Jun 17	OL
Radium 228		sched Report			12 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to co

! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond 12

Event and Year: May 2017

1 of 1 Page:

Report Date: 5 Jul 17 Lab Number: 17-W1865 Work Order #:82-1316 Account #: 006106

Date Sampled: 16 May 17 17:25 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Recei	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.10	s.u.	0.1	SM 4500 H+ B	16 May 17 17:25	JSM
Field Appearance	Clear		NA	SM 2110	16 May 17 17:25	JSM
Field Temperature	11.2	Degrees C	0.1	SM 2550B	16 May 17 17:25	JSM
Field Conductivity	3507	umhos/cm	1	EPA 120.1	16 May 17 17:25	JSM
Radium 226	See Atta	ched Report			12 Jun 17	OL
Radium 228	See Atta	ached Report			12 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudite K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

0 = Due to sample matrix # = Due to co

1 = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond 16S

Event and Year: May 2017

1 of 1 Page:

Report Date: 5 Jul 17 Lab Number: 17-W1866 Work Order #:82-1316 Account #: 006106

Date Sampled: 16 May 17 15:50 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Recei Result	.ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.73	s.u.	0.1	SM 4500 H+ B	16 May 17 15:50	JSM
Field Appearance	Clear		NA	SM 2110	16 May 17 15:50	JSM
Field Temperature	11.4	Degrees C	0.1	SM 2550B	16 May 17 15:50	JSM
Field Conductivity	3161	umhos/cm	1	EPA 120.1	16 May 17 15:50	JSM
Radium 226		ched Report			12 Jun 17	OL
Radium 228		ched Report			12 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Claudette K Canteo 11 JULIT

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to con

! = Due to sample quantity # = Due to in

# = Due to concentration of other analytes + = Due to internal standard response



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Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: May 2017

Page: 1 of 1

Report Date: 5 Jul 17 Lab Number: 17-W1867 Work Order #:82-1316 Account #: 006106

Date Sampled: 16 May 17 14:02 Date Received: 18 May 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 3.5C

	As Rece: Result	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.94	s.u.	0.1	SM 4500 H+ B	16 May 17 14:02	JSM
Field Appearance	Clear		NA	SM 2110	16 May 17 14:02	JSM
Field Temperature	10.6	Degrees C	0.1	SM 2550B	16 May 17 14:02	JSM
Field Conductivity	4952	umhos/cm	1	EPA 120.1	16 May 17 14:02	JSM
Radium 226	See Atta	ched Report		Control of the Control	12 Jun 17	OL
Radium 228	See Atta	ched Report			28 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by:

Clauditte K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix  $\emptyset$  = Due to continuous  $\emptyset$  = Due to sample quantity  $\emptyset$  + = Due to integrate  $\emptyset$ 

CERTIFICATION: ND # ND-00016

# = Due to concentration of other analytes
+ = Due to internal standard response



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 7/3/2017

**CLIENT:** 

MVTL Laboratories, Inc.

Project:

Lab Order:

201782-1316

S1705436

**CASE NARRATIVE** 

Report ID: S1705436001

Samples 17-W1862 FB Slag, 17-W1863 Pond6, 17-W1864 PondN3, 17-W1865 Pond12, 17-W1866 Pond16S, and 17-W1867 MW2S were received on May 23, 2017.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by:



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company: MVTL Laboratories, Inc.

2616 E Broadway Ave. Bismarck, ND 58501

ProjectName: 201782-1316 Lab ID: S1705436-001

ClientSample ID: 17-W1862 FB Slag COC:

201782-1316

Date Reported 7/3/2017

Report ID S1705436001

WorkOrder: S1705436 CollectionDate: 5/16/2017

DateReceived: 5/23/2017 12:17:00 PM

FieldSampler:

Matrix: Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.02	pCi/L		0.2	SM 7500 Ra-B	06/13/2017 1503	MB
Radium 226 Precision (±)	0.03	pCi/L			SM 7500 Ra-B	06/13/2017 1503	MB
Radium 228	-0.6	pCi/L		1	Ga-Tech	06/11/2017 2008	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	06/11/2017 2008	MB

### These results apply only to the samples tested.

Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded Н
- Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### **RL** - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by: A

Wade Nieuwsma, Assistant Laboratory Manager

Page 1 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1316

Lab ID:

S1705436-002 ClientSample ID: 17-W1863 Pond6

201782-1316

Date Reported 7/3/2017

Report ID

S1705436001

WorkOrder:

S1705436

CollectionDate: 5/16/2017 9:59:00 AM

DateReceived:

5/23/2017 12:17:00 PM

FieldSampler:

Water Matrix:

#### Comments

COC:

Analyses	Result Units Qual RL Met		Method	Date Analyzed/I	nit	
Radionuclides - Total						
Radium 226	0.19	pCi/L	0.2	SM 7500 Ra-B	06/13/2017 1503	MB
Radium 226 Precision (±)	0.1	pCi/L		SM 7500 Ra-B	06/13/2017 1503	MB
Radium 228	0.2	pCi/L	1	Ga-Tech	06/11/2017 2311	МВ
Radium 228 Precision (±)	1.5	pCi/L		Ga-Tech	06/11/2017 2311	MB

### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### **RL** - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 2 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1316 S1705436-003

ClientSample ID: 17-W1864 PondN3

COC:

Lab ID:

201782-1316

Date Reported

7/3/2017

Report ID

S1705436001

WorkOrder:

S1705436

CollectionDate: 5/16/2017 12:32:00 PM

DateReceived: 5/23/2017 12:17:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/l	nit
· · · · · · · · · · · · · · · · · · ·					Metrica	Date Analyzeu/i	11116
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	06/12/2017 1100	МВ
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	06/12/2017 1100	МВ
Radium 228	0.2	pCi/L		1	Ga-Tech	06/12/2017 214	MB
Radium 228 Precision (±)	1.4	pCi/L			Ga-Tech	06/12/2017 214	МВ

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

RL - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 3 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1316

Lab ID: ClientSample ID: 17-W1865 Pond12

S1705436-004

COC:

201782-1316

Date Reported

7/3/2017

Report ID

S1705436001

WorkOrder:

S1705436

CollectionDate: 5/16/2017 5:25:00 PM

DateReceived: 5/23/2017 12:17:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result Units Qual		RL	Method	Date Analyzed/Init		
Radionuclides - Total							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	06/12/2017 1100	МВ
Radium 226 Precision (±)	0.2	pCi/L			SM 7500 Ra-B	06/12/2017 1100	МВ
Radium 228	-1.9	pCi/L		1	Ga-Tech	06/12/2017 517	MB
Radium 228 Precision (±)	2.9	pCi/L			Ga-Tech	06/12/2017 517	MB

These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery limits

**RL** - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 4 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1316

Lab ID:

S1705436-005 ClientSample ID: 17-W1866 Pond16S

COC:

201782-1316

Date Reported 7/3/2017

Report ID

S1705436001

WorkOrder:

S1705436

CollectionDate: 5/16/2017 3:50:00 PM

DateReceived: 5/23/2017 12:17:00 PM

FieldSampler:

Matrix: Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/l	nit
Radionuclides - Total							
Radium 226	0.6	pCi/L		0.2	SM 7500 Ra-B	06/12/2017 1100	МВ
Radium 226 Precision (±)	0.2	pCi/L			SM 7500 Ra-B	06/12/2017 1100	MB
Radium 228	-0.6	pCi/L		1	Ga-Tech	06/12/2017 1126	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	06/12/2017 1126	MB

### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Η Holding times for preparation or analysis exceeded
- Analyzed by another laboratory Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### RL - Reporting Limit

- С Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 5 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801

ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave. Bismarck, ND 58501

ProjectName:

201782-1316

Lab ID:

S1705436-006

COC:

ClientSample ID: 17-W1867 MW2S 201782-1316

Date Reported 7/3/2017

Report ID

S1705436001

WorkOrder:

S1705436

CollectionDate: 5/16/2017 2:02:00 PM

DateReceived:

5/23/2017 12:17:00 PM

FieldSampler:

Matrix:

Water

#### Comments

Analyses	Result Units Qual RL		RL	Method	Date Analyzed/Init		
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	06/12/2017 1100	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	06/12/2017 1100	MB
Radium 228	-2.3	pCi/L		1	Ga-Tech	06/28/2017 051	МВ
Radium 228 Precision (±)	3.0	pCi/L			Ga-Tech	06/28/2017 051	MB

### These results apply only to the samples tested.

### Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range
- Н Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### RL - Reporting Limit

- Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Wade Nieuwsma, Assistant Laboratory Manager

Page 6 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

**CLIENT:** 

Project:

Work Order:

MVTL Laboratories, Inc.

S1705436

201782-1316

Date: 7/3/2017

Report ID: S1705436001

Radium 228 by Ga/Tech	Sample Type MBLK	L	Inits: pCi/L			
MB-442 (06/09/17 07:05)	RunNo: 146784	PrepDate: (	05/31/17 14:00	Bat	chID 13271	
Analyte	Result	RL Sp	ike Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1				
MB-443 (06/27/17 09:36)	RunNo: 147448	PrepDate: (	06/05/17 14:00	Bat	chID 13359	
Analyte	Result	RL Sp	ike Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1				
Radium 228 by Ga/Tech	Sample Type LCS	U	nits: pCi/L			
LCS-442 (06/09/17 10:08)	RunNo: 146784	PrepDate: (	05/31/17 14:00	Bat	chID 13271	
Analyte	Result	RL Sp	ike Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	43	1 40	1.1	108	65.9 - 132	
LCS-443 (06/27/17 12:39)	RunNo: 147448	PrepDate: (	06/05/17 14:00	Bate	chID 13359	
Analyte	Result	RL Sp	ike Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	49	1 40	.1	121	65.9 - 132	
Radium 228 by Ga/Tech	Sample Type LCSD	U	nits: pCi/L			
LCSD-442 (06/09/17 13:11)	RunNo: 146784	PrepDate: 0	5/31/17 14:00	Bate	chID 13271	
Analyte	Result	RL Co	nc %RPD	%REC	% RPD Limits	Qual
Total Radium 228	45	1 4:	3 4.95	113	20	
Radium 228 by Ga/Tech	Sample Type MS	U	nits: pCi/L			
S1705435-003AMS (06/11/17 01:49)	RunNo: 146784	PrepDate: 0	5/31/17 14:00	Bato	hID 13271	
Analyte	Result	RL Spi	ke Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	40	1 40	.1 ND	100	50 - 139	
MS-443 (06/27/17 18:45)	RunNo: 147448	PrepDate: 0	6/05/17 14:00	Bato	:hID 13359	
Analyte	Result	RL Spi	ke Ref Samp		% Rec Limits	Qual
Total Radium 228	45	1 40	.1 ND	111	50 - 139	
adium 228 by Ga/Tech	Sample Type MSD	Uı	nits: pCi/L			
MSD-443 (06/27/17 21:48)	RunNo: 147448	PrepDate: 0	6/05/17 14:00	Bato	hID 13359	
Analyte	Result	RL Co		%REC	% RPD Limits	Qual

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

**CLIENT:** 

Project:

MVTL Laboratories, Inc.

Work Order:

S1705436

201782-1316

Date: 7/3/2017

Report ID: S1705436001

Radium 226 in Water -	Sample Type MBLK	Units: pCi/L								
MB-1758 (06/13/17 12:50)	RunNo: 146860	Prep	Date: 06/05/17 0:00	Bat	chID 13287					
Analyte	Result	RL	Spike Ref Sam	p %REC	% Rec Limits	Qual				
Radium 226	ND	0.2								
MB-1759 (06/12/17 11:00)	RunNo: 146863	Prep	Date: 06/07/17 0:00	Bat	chID 13289					
Analyte	Result	RL	Spike Ref Sam	P %REC	% Rec Limits	Qual				
Radium 226	ND	0.2								
Radium 226 in Water -	Sample Type LCS		Units: pCi/L							
LCS-1758 (06/13/17 12:50)	RunNo: 146860	Prep	Date: 06/05/17 0:00	Bate	chID 13287					
Analyte	Result	RL	Spike Ref Sam	%REC	% Rec Limits	Qual				
Radium 226	5.2	0.2	6.41	80.6	67.1 - 122					
LCS-1759 (06/12/17 11:00)	RunNo: 146863	Prep	Date: 06/07/17 0:00	Bate	hID 13289					
Analyte	Result	RL	Spike Ref Samp	%REC	% Rec Limits	Qual				
Radium 226	5.8	0.2	6.41	89.7	67.1 - 122					
Radium 226 in Water -	Sample Type LCSD		Units: pCi/L							
LCSD-1758 (06/13/17 12:50)	RunNo: 146860	Prep	Date: 06/05/17 0:00	Bato	hID 13287					
Analyte	Result	RL	Conc %RPD	%REC	% RPD Limits	Qual				
Radium 226	6.2	0.2	5.2 18.5	97.1	20					
LCSD-1759 (06/12/17 11:00)	RunNo: 146863	PrepDate: 06/07/17 0:00		Bato	hiD 13289					
Analyte	Result	RL	Conc %RPD	%REC	% RPD Limits	Qual				
Radium 226	6.6	0.2	5.8 13.7	103	20	<del></del>				
Radium 226 in Water -	Sample Type MS		Units: pCi/L							
S1705435-003AMS (06/13/17 15:03)	RunNo: 146860	Prepl	Date: 06/05/17 0:00	Bato	hID 13287					
Analyte	Result	RL	Spike Ref Samp	%REC	% Rec Limits	Quai				
Radium 226	6.2	0.2	6.41 ND	96.2	65 - 131	*****				
S1705436-003AMS (06/12/17 11:00)	RunNo: 146863	Prep[	Date: 06/07/17 0:00	Bato	hID 13289					
Analyte	Result	RL	Spike Ref Samp	%REC	% Rec Limits	Qual				
Radium 226	9.2	0.2	12.8 0.3	69.1	65 - 131					
Radium 226 in Water -	Sample Type MSD		Units: pCi/L							
S1705435-003AMSD (06/13/17 15:03)	RunNo: 146860	Prep	Date: 06/05/17 0:00	Batc	hID 13287					
Analyte	Result	RL .	Conc %RPD	%REC	% RPD Limits	Qual				
Radium 226	6.0	0.2	6.2 2.84	93.5	20					

Qualifiers:

Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits

Χ Matrix Effect E Value above quantitation range

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory L

0 Outside the Range of Dilutions

Spike Recovery outside accepted recovery limits



## LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

## **Chain of Custody Record**

Page 1 of 1 .

	B00) 279-6885	Fax: (701) 258-9724									2	201782-1316		
Company Nam	e and Address:		·	Account #	*						Ph	one #:		
	D./I	VTL		0 / /								701-258-9720		
		Broadway		Contact: Fax #:  Claudette For faxed report check box										
	Bismarcl	c, ND 58501		Name of S		ette	<u>e</u>				_	For faxed report check box		
Billing Address	s (indicate if different	t from above):		Trame or o	ampier.							For e-mail report check box		
				Quote Nur	nber			-112			Da	te Submitted:		
		Box 249										19-May-17		
	inew Ulm	<u>, MN 56073</u>		Project Na	me/Numbe	er:					Pu	rchase Order #:		
		Sample Information				Τ		- 441 -			<u></u>	BL5877		
		Cample information			I	Bottle Type					т—	Analysis		
51705	136						_							
							NO	yed						
IML Lab			0			ated	F	/ials	Jar					
Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Umpreserved	Glass	Other		Analysis Dawying d		
	17-W1862	FB Slag	GW	T	1	├ゔ	1	> >	9	0	-	Analysis Required		
200				16-May-17			4		<del> </del>	ļ		Ra226 & Ra228		
4.5	17-W1863	Pond6	GW	16-May-17	959		4		<u> </u>	ļ		Ra226 & Ra228		
	17-W1864	PondN3	GW	16-May-17	1232		4					Ra226 & Ra228		
004	17-W1865	Pond12	GW	16-May-17	1725		4					Ra226 & Ra228		
005	17-W1866	Pond16S	GW	16-May-17	1550		4					Ra226 & Ra228		
006	17-W1867	MW2S	GW	16-May-17	1402		4					Ra226 & Ra228		
Commonter														
Comments: All	results must be rend	orted as a numerical value												

Transferred by:	Date:	Time:	Sample Condition:	, Received by:	Date:		Temp:
T. Olson	19-May-17	1700		Kathu Bun	523.17	12:17	124
2.					*		



Groundwater Assessment

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pandlo	

Ordinawate					A336331	menr		Sample ID.		F	and bo		
2616 E. Broadway Ave, Bis	smarck, ND							Sampling F	ersonal:	1	- sluge		
Phone: (701) 258-9	9720												
leather Conditions:		Temp:	<b>5</b> 0 °F.	1	Wind:	Nos-	10		Precip	: Sun	ny / Partiy (	Cloudy /Clo	udv
	Well Info	rmation						Sa	mpling	Informati			
Well Locked?	Yes	_NO	in manhole			Purgi	ng Method:	Blac	lder		Co	ntrol Setting	s
Well Labeled?	(Yes)	No				Sampli	ng Method:	Blac	lder	1	Purge:		sec
Casing Straight?	(Pes)	No				Dedicat	ed Equip?:	Yes	No		Recover:	55	sec
Grout Seal Intact?	Yes	No	Not Visib	rie		Duplicate	Sample?:	Yes	<b>₫</b>		PSI:		
epairs Necessary:						Duplicate:	Sample ID:				Pumping R		mL/mii
Casing	Diameter:		2"							<u>l</u>			
Water Level Befo	ore Purge:		17.69	ft		F	urge Date:	16 May 1	7-	Time Purg	ing Began:	0939	am/pn
Total W	Vell Depth:	<b></b>		ft		Well P	urged Dry?		NO	Time F	Purged Dry:	20-	am/pn
We	ell Volume:			liters		Sa	mple Date:	lie Man 1	7	Time o	f Sampling:	0959	(and/pn
Depth to Top	o of Pump:	l	7,22	ft									p ::
Water Level Afte	er Sample:	Bel	low Pump	ft		Bottle	1L Raw, 50	00mL Nitric,	500mL Nit	ric (filtered).	250mL Sul	firic	
Measurement Method: Electric Water Level Indicator				cator		List:	4 - 1L Nitrio						
							· · · · · · · · · · · · · · · · · · ·						

### **Field Measurements**

zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 consecutive)		Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
Time		±5%	±0,1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
७९५५	10,62	4332	6,66	6.82	227.9	6.78	Below Pur (GP)	500,0	Clean
0949	10.41	4606	6.97	6.44	20914	5,04	RP	500,0	Clear
0954	10.48	4661	7.02	6.55	206,4	4.14		580,0	Clear
0959	10.57	4764	7,04	6.41	203,3	1.83	28		Clear
	ecutive) Time ©역내내 Ø택내	ecutive) (°C) Time  0944 10.62  0949 10.41  0954 10.48  0959 10.57	ecutive) (°C) Cond.  Time ±5%  0944 10.82 4332  0949 10.41 4606  0954 10.48 4661  0959 10.57 4764	ecutive) (°C) Cond. pH Time ±5% ±0.1  0944 10.82 4332 6.68  0949 10.41 4606 6.97  0954 10.48 4661 7.02  0959 10.57 4764 7.04	ecutive) (°C) Cond. pH (mg/L) Time	ecutive) (°C) Cond. pH (mg/L) (mV)  Time	ecutive) (°C) Cond. pH (mg/L) (mV) (NTU)  Time	ecutive) (°C) Cond. pH (mg/L) (mV) (NTU) Level (ft)  Time	ecutive) (°C) Cond. pH (mg/L) (mV) (NTU) Level (ft) Removed  Time

Stabilized: Yes No

Total Volume Removed: 4000.0 mL

Comments:

water level belowpung. mointained 100ml/min durning purging & Soupling



### **Groundwater Assessment**

Company:	OTP Coyote
Event:	2017
Sample ID:	Pard N3
Sampling Personal:	Jeving play a

Phone: (701) 258-9720

Filotic. (701) 230-3	720												
Weather Conditions:		Temp:	50 .	F	Wind:	Nosto			Precip	Sunr	ny / Partly C	Cloudy /Clo	oudy
	Well Info	rmation						Sar	npling l	nformatio	on		
Well Locked?	Yes)	No				Purging N	lethod:	Blado	ler		Co	ntrol Settin	gs
Well Labeled?	Yes	No			•	Sampling N	lethod:	Blado	ler		Purge:	5	sec.
Casing Straight?	YES)	No				Dedicated I	Equip?:	Yes	<b>₩</b>		Recover:	55	sec.
Grout Seal Intact?	Yes	No	Not Vi	sible		Duplicate Sar	mple?:	Yes	<b>(ID</b> )		PSI:	20	
Repairs Necessary:						Duplicate Sam	ple ID:				Pumping R	ate: / <i>0</i> 0	mL/min
Casing	Diameter:		2"	:									·
Water Level Befo	ore Purge:	11	.66	ft		Purg	e Date:	16 May	17	Time Purg	ing Began:	1112	<u>∕am</u> /pm
Total W	/ell Depth:	_		ft		Well Purge	ed Dry?	Yes	ND	Time F	urged Dry:		am/pm
We	ell Volume:	-		liters		Sampl	e Date:	16 Man	17	Time of	Sampling:	1232	am/pm
Depth to Top	of Pump:	_		ft									
Water Level Afte	er Sample:		15,25	ft		Bottle 1L	Raw, 500	mL Nitric, 5	00mL Nit	ric (filtered),	250mL Sul	firic	
Measuremen	t Method:	Electric V	Vater Level I	ndicator		List: 4 -	1L Nitric						
								1					

### **Field Measurements**

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	secutive)	(°C)	Cond.	рH	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1117-	12.61	5183	6.88	8.32	258.9	351.0	15.60	500,0	Portly Clock (PC)
2	1137	12.52	5176	6.82	7.50	274.5	342.0	13.85	2000,0	PC
3	1157	12,74	5167	6.72	7.09	276.6	180,0	14.59	Z000.0	PC
4	1217	12.86	5162	6,60	7.96	252,7	117.0	14,75	200,0	PC
5	1222	12.75	5160	6.67	6,40	256.4	108,0	14,93	500,0	PC
6	1227	12.78	5152	6.67	6.31	256.9	છ, છ	14.64	200,00	PC
7	1232	12.74	5146	6.66	6.16	256.5	79.6	15.01	540.0	PC
8							,			
9										
10										

Stabilized: Yes No

Total Volume Removed: <u>&ccO, ひ</u> mL



Groun	dwater	Δοςρο	emani
OLUUII	uwater	ASSES	>111e/11

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 10
Sampling Personal:	Jan plan

							-				11-07-	_	
Phone: (701) 258-97	720												
Weather Conditions:		Temp:	o	=	Wind:				Precip	: Sun	ny / Partly C	oudy / Ci	oudy
\	<b>V</b> ell Info	rmation						Sa	mpling	Information	on		
Well Locked?	Yes	No				Purg	ing Method:	Blad	der		Cor	trol Settir	ngs
Well Labeled?	Yes	No				Sampl	ling Method:	Blad	der		Purge:		sec.
Casing Straight?	(es	No				Dedica	ated Equip?:	Yes	No	1	Recover:		sec.
Grout Seal Intact?	(es	No	Not Vis	ible		Duplicate	e Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping Ra	te:	mL/min
Casing I	Diameter:		2"										
Water Level Befo	re Purge:		21.83	ft			Purge Date:			Time Purg	ing Began:		am/pm
Total We	ell Depth:		22.10	ft		Well F	Purged Dry?	Yes	No	Time F	urged Dry:	***************************************	am/pm
Wel	l Volume:		0.2	liters		S	ample Date:	16 9 lan 17		Time o	f Sampling:	1.65	(am/pm
Depth to Top	of Pump:			ft									
Water Level After	r Sample:			ft		Bottle	1L Raw, 50	00mL Nitric,	500mL Nit	ric (filtered),	250mL Sulfi	ric	
Measurement	Method:	Electric \	Nater Level In	dicator		List:	4 - 1L Nitrio						
				Field	Measure	ments	ja v					V	*

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1		·								
2						- Commence of the Commence of				
3					a market a second	<del></del>				
4										
5										
6										
7										
8										
9			/							
10										

Stabilized:

Total Volume Removed: mL

Comments:

finsufficient Volume No Sayle



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 12
Sampling Personal:	kin of

Phone: (701) 258-9720

								<del>1~</del>	
	Temp	60 °F	\\/ind:	k = C= 10					
Well Info			vviriu.	1/20210		Precip	: Sunny / Partiv	Cloudy / Clo	oudy
					Sa	ampling I	nformation		
				Purging Method:				ontrol Sotting	
		,				lder			
		N-437: "				(No.			sec
(163)	NO	Not Visib	le			Wo			sec
Diameter:		2"		Duplicate Sample ID:					mL/mir
	₹.						<u> </u>		11111/11111
		78 70	π			17	Time Purging Began:	1650	2m/#6
			Π litana			(Ng)			am/pm am/pm
		AA 38,52	illers #	Sample Date:	16 May 1.	7		1775	am/on
	3				•				arri/pri
Method:			ator III	1 , , ,	00mL Nitric, 5	500mL Nitri	ic (filtered), 250mL Sul	firic	
		rater Level marc	ator		2				
			Field Measure	ements					
	Yes Yes Yes Yes Oiameter: re Purge: ell Depth: Volume: of Pump: Sample: Method:	Well Information Yes No Yes No Yes No Yes No Oiameter: re Purge: 3 ell Depth: Volume: of Pump: 7 Sample: 3 Method: Electric V	Well Information  Yes No Yes No Yes No Yes No Not Visib  Diameter: 2"  re Purge: 37, 70  ell Depth: Volume: of Pump: As 36,52  Sample: 38,42  Method: Electric Water Level Indice	Well Information  Yes No Yes No Yes No Yes No Yes No Not Visible  Diameter: 2"  re Purge: 37,70 ft ell Depth: ft Volume: liters of Pump: As 36,52 ft Sample: 36,42 ft  Method: Electric Water Level Indicator	Well Information  Yes No Yes No Yes No Yes No No Not Visible  Diameter: 2" The Purge: 37, 70 ft ell Depth: ft Volume: litters of Pump: Assistant Sample: 36,52 ft Sample: 36,42 ft Method: Electric Water Level Indicator  Purging Method: Sampling Method: Dedicated Equip?: Duplicate Sample: Duplicate Sample ID: Well Purge Date: Well Purged Dry? Sample Date: Sample Date: Sample: Sample Date: Sample:  Well Information  Yes No Yes No Yes No Yes No Yes No Yes No Not Visible  Dedicated Equip?: Yes Duplicate Sample?: Yes Duplicate Sample ID:  Purge Date: 16 May 19 Well Purged Dry? Yes Sample: 36,42 ft Method: Electric Water Level Indicator  Purging Method: Black Sampling Meth	Well Information  Yes No  Yes No  Yes No  No  Ves No  No  Not Visible  Diameter:  Te Purge:  Te Purge:  To Purge:  Te Pur	Temp: 60 °F Wind: NSTO Precip: Sunny / Partive Sampling Information  Yes No Purging Method: Bladder Sampling Method: Bladder Dedicated Equip?: Yes No Duplicate Sample: Yes No Time Purging Began: Well Purged Dry: Sample Date: 16 Method: Bladder Purging Recover: Policy Purging Dedicated Sample: 16 Method: 17 Time Purging Began: Well Purged Dry: Yes No Time Purged Dry: Sample Date: 16 Method: 18 Method: Electric Water Level Indicator  Purging Method: Bladder Purging Bladder Purging Recover: Policy Purging Dedicated Sample: 18 Method: 19	Well Information  Yes No No No Not Visible  Diameter: Purge: 37,70 ft Ell Depth: Volume: Purge: 38,52 ft Sample: 38,42 ft Method: Electric Water Level Indicator  Sampling Method: Bladder Sampling Method: Bladder Purge: Sunny / Partiv Clouely / Cl	

Field Measurement	rements
-------------------	---------

Stabil	ization	Temp	Spec.	1		Weasure				
	ecutive)	(°C)	Cond.	рH	DO (mg/L)	ORP	Turbidity		mL	Discription:
SEQ#	Time		±5%	±0.1	±10%	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
1	1655	11.46	3505	7.0S	4.78	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
2	17500	11.23	3491	7.04	4.79		64.1	38,16	50.0	Clem
3	1703	11,12	3504	7.09	4.44	27-0.9	20,1	38,40	290'0	Clea
4	1710	11.01	3507		4.26	241,7	12.1	38,42	200,0	Clea
5	1715	11.04	3507	7,08	4.16	209.8	5.73	38,43	50.0	Clear
6	1720	11.06	3502		4,12	p89.3	2,80	38,43	500.00	Clea
7	1725	11,24	3507	7.10	4,18	177,5	3,14	38,43	50,0	cles
8		10101		7770	-1110	170.3	1.18	38,43	G,002	Clea
9										
10										
tabilized:	(Tes)	No					tal Volume		36.0	

Comments:

Total Volume Removed: ろろかっ mL



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 165
Sampling Personal:	Jerry Man

Temp	: 60	°F	Wind:	N @5~10		Precip:	Sun	nv / Partiv (	Cloudy / Cir	walv		
Informatior	1				S				-10 a a g 7 O 10	<u>John y</u>		
No No				Purging Method:			TOTTIALI	T	-1-10-10			
§ No									_	js		
S No					<del></del>					sec		
	Not	Visible						Recover:		sec		
	1 1100	VISIBIC				NO		PSI:	25			
ter.	ງ"			Duplicate Sample ID:				Pumping R	ate: /00	mL/mir		
	27.97	π				12	Time Purg	ing Began:	1510	am/pm		
		π				<b>₹</b> No	Time F	urged Dry:		am/pm		
		liters		Sample Date:	16 May 1	7	Time of	Sampling:	1550	am/pm		
		ft										
	10,72	ft		Bottle 1L Raw, 50	00mL Nitric	500ml Nitric	(filtered)	250ml Sulf	iric			
od: Electric	Water Leve	el Indicator				TOOME THE	(micrea),	ZOUTIL Guil	IIIC			
	Information No No No No No No No No No No No No No	Information  No No No No No No No No No No No No No	Information  No No No No No Not Visible  Peter: 2" Tge: 39,49 ft poth: ft me: liters mp: ft pole: 40,72 ft	Information  No No No No No No No No Not Visible  Ster:  Tge:  Tge	Information  No Purging Method: Sampling Method: Dedicated Equip?: Duplicate Sample?: Duplicate Sample ID:  rige: 39,49 ft pth: ft pth: ft me: liters mp: ft pole: 40,72 ft  Bottle 1L Raw, 50	Information   S   No	Sampling In   Purging Method:   Bladder   Sampling Method:   Bladder   Sampling Method:   Bladder   Dedicated Equip?:   Yes   No   Purging Date:   Yes   No   Purging Date:   Well Purged Date	Sampling Information   Sampling Information   Sampling Method:   Bladder   Sampling Method:   Bladder   Sampling Method:   Bladder   Dedicated Equip?:   Yes   No   Yes   No   Duplicate Sample?:   Yes   No   Duplicate Sample ID:   Duplicate Sample ID:   Time Purgeth:   Yes   No   Duplicate Sample ID:   Well Purged Dry?   Yes   Time Purgeth:   Yes   No   Time Purgeth:	Sampling Information   Sampling Information   Sampling Information   Sampling Information   Sampling Information   Sampling Method: Bladder   Sampling Method: Bladder   Purge: Recover.   Dedicated Equip?: Yes No   Post: Duplicate Sample ID:   Pumping Recover.   Pumping Recover.   Pumping Recover.   Purge Date:   Sample  Sampling Information   Sampling Information   Sampling Information   Sampling Information   Sampling Information   Sampling Information   Sampling Method: Bladder   Sampling Method: Bladder   Sampling Method: Bladder   Purge: Sampling Method: Sampling Method: Bladder   Purge: Sampling Method: Sampling Method: Purge: Sampling Method: Bladder   Purge: Sampling Method: Sampling Method: Sampling Method: Bladder   Purge: Sampling Method: Sampling			

Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mol	
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	,		mL .	Discription:
SEQ#	Time		±5%	±0.1			(NTU)	Level (ft)	Removed	
1		12 - 7	<u> </u>		±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
	1515	12.07	3143	6.70	5,60	280.1	64.4	39,95	500,0	Cles
2	1525	11.69	3144	6.68	5,13	264.8	95.4	40,02	[000.0	Elea
3	1535	11.64	3163	6,69	4.99	241.4	107.0	40,20	10001	Partly Clardy
4	1540	11.68	3159	6,71	4.63	229.5	94.1	40.28	500.0	Clea
5	1545	11.61	3160	6,72	4.84	219.3	82,9	40,32	200.0	
6	1550	11.44	3161	6,73	4.84	210,7	75.6	40.44		Cles
7				3.77		0.01.7	1218	10.41	S20.0	cler
8										
9										
10										
tabilized:	(Yes)	No	I	<u> </u>	L		4-137-1			

Total Volume Removed: 4000.0 mL

Comments:



### **Groundwater Assessment**

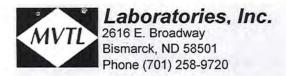
Company:	OTP Coyote
Event:	2017
Sample ID:	Mwzs
Sampling Personal:	Jan sting

Phone: (701) 258-9720

						_					·····			
	Temp:	50	°F	Wind:	NOS	-10		Precip	: Suni	ny / Partly C	loudy / Clou	idy		
Well Information  Well Locked? Yes No  Well Labeled? Yes No  Casing Straight? Yes No  Grout Seal Intact? Yes No  Casing Diameter: 2"  Water Level Before Purge: 22.16  Total Well Depth: Well Volume: Ii  Depth to Top of Pump:  Water Level After Sample: 26.63							Sa	ampling	Information					
Yes	No				Purgi	ng Method:	Blac	der		Co	ntrol Settings	3		
Yes)	No				Sampli	ng Method:	Blac	der		Purge:	5	sec.		
YES?	No				Dedica	ted Equip?:	Yes	<b>₫</b>			55	sec.		
Yes	No	Not	/isible		Duplicate	Sample?:	Yes	(₹o		PSI:	25			
					Duplicate	Sample ID:			]	Pumping Ra	ate: <i>( 0</i> 0	mL/min		
Diameter:									<b>-</b>					
e Purge:	2	2.18	ft		F	Purge Date:	16 Ma	17-	Time Purg	ing Began:	1337	am#pm		
ell Depth:		,	ft		Well P	urged Dry?	Yes	(Mo)	Time F	urged Dry:		am/pm		
Volume:			liters		Sa	ample Date:	Clo Men	17	Time of	Sampling:	1402	am/pm		
of Pump:	~~		ft					.,						
Sample:	Z&	3,83	ft		Bottle	1L Raw, 500	0mL Nitric,	500mL Nit	ric (filtered),	250mL Sulf	iric			
Method:	Electric V	Vater Leve	Indicator		List:	4 - 1L Nitric								
			Fiold	Moasura	monto									
	Yes Yes Yes Viameter: e Purge: ell Depth: Volume: of Pump: Sample:	Vell Information Yes No Yes No Yes No Yes No Viameter: e Purge: 22 ell Depth: Volume: of Pump: Sample: 26	Vell Information  Yes No Yes No Yes No Yes No Ves No Yes No Ves N	Vell Information  Yes No Yes N	Vell Information  Yes No Yes N	Vell Information  Yes No Purgi Sampli  Yes No Dedica Duplicate Duplicate Diameter: 2"  e Purge: 22.16 ft  Volume: ft Volume: liters of Pump: ft Sample: 26.63 ft  Bottle	Purging Method: Sampling Method: Sampling Method: Dedicated Equip?: Duplicate Sample? Duplicate Sample ID:  Purge Date: Well Purged Dry? Volume: Itters of Pump: Sample: Sampl	Vell Information Sampling Method: Black   Yes No Sampling Method: Black   Sampling Method: Black   Dedicated Equip?: Yes   Duplicate Sample?: Yes   Duplicate Sample ID: Duplicate Sample ID:   Purge Date: 16 Max   Well Purged Dry? Yes   Yes Yes   Sample: Sample Date: 16 Max   Sample: Bottle 1L Raw, 500mL Nitric,   List: 4 - 1L Nitric	Purging Method: Bladder	Sampling Information   Purging Method: Bladder   Sampling Method: Bladder   Sampling Method: Bladder   Sampling Method: Bladder   Dedicated Equip?: Yes No   Duplicate Sample?: Yes No   Duplicate Sample ID:   Duplicate Sample ID:   Duplicate Sample ID:   Purge Date:   No   No   Duplicate Sample ID:   Purge Date:   No   Duplicate Sample ID:   Duplicate Sample ID:   Duplicate Sample ID:   Purge Date:   No   Time	Sampling Information   Purging Method: Bladder   Purge: Sampling Method: Bladder   Purge: Sampling Method: Bladder   Purge: Dedicated Equip? Yes No   Policated Equip? Yes No   Purge: Duplicate Sample ID:   Pumping Reduced Equip?   Purge Date: No   Purge Date: No   Purge Date: No   Purge Date: No   Time Purging Began: No   Purge Date: No   Time Purged Dry: Sample Date: No   No   Time Purged Dry: Sample Date: No   Time Of Sampling: No   Time Of Sampling: No   No   Time Purged Dry: No   Time Of Sampling: No   No   Time Purged Dry: No   Time Of Sampling: No   No   No   No   No   No   No   No	Sampling Information   Purging Method:   Bladder   Bladder   Purge:   Sampling Method:   Bladder   Purge:   Sampling Method:   Bladder   Purge:   Sampling Method:   Bladder   Purge:   Sampling Method:   Purge:   Sampling Met		

### Field Weasurements

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1342	10.95	5009	6.91	7,24	26.2	2.43	22,71	500,0	Clea
2	[347	10.51	4994	6.91	6,37	262.6	1,45	23,45	500,0	Clear
3	1352	10.49	4990	6.91	6,20	2871	1.53	24,10	500,0	Cles
4	1337	10,73	4982	6.92	6,25	291,9	1,42	24,58	500,0	Clex
5	1402	10.57	4952	6,94	6,45	29B.2	1.60	25,08	500,0	Clear
6										
7										
8										
9										
10										
Stabilized:	Yes	No				To	otal Volume	Removed:	2500,0	mL



# **Chain of Custody Record**

Project Nam	e:	Event:	Work Order Number:	-
(	OTP Coyote - Slag Pond	May 2017	80-1016	
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):  Severy Mayor	
phone:	ihollen@otnco.com			

	Samp	on	В	ottle Type	Fi	eld Para	ameters	Analysis			
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric		Temp (°C)	Spec. Cond.	Ha	Analysis Required
W1862	FB Slag	16 May 17	NA	W	_	4		NA	NA	NA	
W1863	Pond6	16 May 17	0959	GW	Clear	4		10,57	4764	7.04	
W1864	PondN3	16 May 17	1232	GW	Partly Clady	4		12.74	5146	6.66	
~	Pond10	16May 17	1105	GW	_	2		insuffici	ant volu	m	
W1865	Pond12	16 May 17	1725	GW	Clear	4		11.24	3507	7.10	Rad 226 & Rad 228
W1866	Pond16S	16 May 17	1550	GW	Clean	4		11.44	3161	6.73	11au 220 & 11au 220
W1867	MW2S	16 May 17	1402	GW	Clear	4		10,57	4952	6.94	

Comments:

Relinquished By:		Sample Condition:			
Name:	Date/Time	Location:	Temp (°C)		
	18 May 17	CogIP	3.5		
	0746	Walk In #2	TM562 / TM588		
2					

Receive	d by:
Name:	Date/Time
1 Mall Sugar	18May 17 800
Wylle Imonan	V
- 0	



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### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201782-1627

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond
Event & Year June 2017

MVTL Laboratory Identifications: 17-W2416 through 17-W2421

Page 1 of 2

Sample Identification	MVTL Laboratory #
FB Slag	17-W2416
Pond6	17-W2417
PondN3	17-W2418
Pond10	Insufficient volume – no sample
Pond12	17-W2419
Pond16S	17-W2420
MW2S	17-W2421

#### I. RECEIPT

- All samples were received at the laboratory on 20 Jun 17 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - o Temperature of samples upon receipt was 2.8°C.
- All samples were properly preserved unless noted here and/or flagged on the individual analytical laboratory report.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.

#### II. HOLDING TIMES

 With the exception of laboratory pH, all holding times were met for both preparation and analysis unless noted here.

#### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Methods 6010D and Method 6020B were used to analyze the metals.



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### **CASE NARRATIVE**

MVTL Lab Reference No/SDG: 201782-1627

Client: Ottertail Power Company

Location: Coyote Station
Project Identification: CCR Slag Pond

Event & Year June 2017

MVTL Laboratory Identifications: 17-W2416 through 17-W2421

Page 2 of 2

### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted here and/or flagged on the individual analytical laboratory report.

o For some metals, the reported results were elevated due to instrument performance at the lower limit of quantitation (LLOQ).

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudille antle DATE: 6JULIT

Claudette Carroll - MVTL Bismarck Laboratory Manager

## **MVTL**

### MINNESOTA VALLEY TESTING LABORATORIES, INC.

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Page: 1 of 2

Quality Control Report
Lab IDs: 17-W2416 to 17-W2421

<b>Lab IDs:</b> 17-W2416 to 17	-W2421	Pr	oject: O1	P Coyote	-Slag Pond	Tanada a serverana	work Or	<b>aer:</b> 201	782-162	·							
Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec Limits	Method Blank
Antimony - Total mg/l	0.1000	113	80-120	0.400 0.400	17W2417q 17-M1481	< 0.001 < 0.004	0.4386 0.4180	110 104	75-125 75-125	0.4386 0.4370	0.4352 0.4434	109 111	0.8 1.5	20 20	-	-	< 0.001
Arsenic - Total mg/l	0.1000	111	80-120	0.400 0.400	17W2417q 17-M1481	< 0.002 < 0.008	0.4324 0.4152	108 104	75-125 75-125	0.4324 0.4392	0.4348 0.4568	109 114	0.6 3.9	20 20		-	< 0.002
Barium - Total mg/l	0.1000	108	80-120	0.400	17W2417q	0.0415	0.4496	102	75-125	0.4496	0.4460	101	0.8	20			< 0.002
Beryllium - Total mg/l	0.1000	113	80-120	0.400 0.400	17-W2417 17-M1481	< 0.0005 < 0.002	0.3440 0.3516	86 88	75-125 75-125	0.3440 0.3516	0.3426 0.3618	86 90	0.4 2.9	20 20	-	-	< 0.000
Boron - Total mg/l	0.40 0.40	90 90	80-120 80-120	0.400 0.400	17-W2375 17-W2417	1.06 3.01	1.47 3.37	102 90	75-125 75-125	1.47 3.37	1.48 3.35	105 85	0.7 0.6	20 20	-		< 0.1 < 0.1 < 0.1 < 0.1
Cadmium - Total mg/l	0.1000	115	80-120	0.400 0.400	17W2417q 17-M1481	0.0013 < 0.002	0.4378 0.4212	109 105	75-125 75-125	0.4378 0.4476	0.4458 0.4392	111 110	1.8 1.9	20 20	_	_	< 0.000:
Calcium - Total mg/l	20.0	112	80-120	100 500	17W2407q 17W2417q	111 162	207 660	96 100	75-125 75-125	207 660	205 660	94 100	1.0 0.0	20 20	-	-	< 1 < 1
Chloride mg/l	30.0 30.0	88 87	80-120 80-120	30.0 600 60.0	17-W2518 17-M1545 17-W2438	220 686 7.0	253 1340 59.8	110 109 88	80-120 80-120 80-120	253 1340 59.8	252 1300 60.0	107 102 88	0.4 3.0 0.3	20 20 20	-	-	< 1 < 1 < 1
Chromium - Total mg/l	0.1000	112	80-120	0.400 0.400	17W2417q 17-M1481	< 0.002 0.0408	0.3910 0.4276	98 97	75-125 75-125	0.3910 0.4600	0.4142 0.4570	104 104	5.8 0.7	20 20	-	-	< 0.002
Cobalt - Total mg/l	0.1000	110	80-120	0.400 0.400	17W2417q 17-M1481	0.0315 < 0.008	0.4300 0.3868	100 97	75-125 75-125	0.4300 0.4214	0.4504 0.4184	105 105	4.6 0.7	20 20	-	-	< 0.002
Fluoride mg/l	0.50	104	90-110	0.500 0.500	17-W2417 17-W2421	0.41 0.29	0.89 0.75	96 92	80-120 80-120	0.89 0.75	0.90 0.74	98 90	1.1 1.3	20 20	-	-	< 0.1 < 0.1
Lead - Total mg/l	0.1000	103	80-120	0.400 0.400	17W2417q 17-M1481	0.0006 < 0.002	0.3820 0.3748	95 94	75-125 75-125	0.3820 0.3916	0.3802 0.4014	95 100	0.5 2.5	20 20	-	-	< 0.000:

### **MVTL**

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Page: 2 of 2

**Quality Control Report** 

**Lab IDs:** 17-W2416 to 17-W2421

Project: OTP Coyote-Slag Pond

Work Order: 201782-1627

Analyte	LCS Spike Amt	LCS Rec %	LCS % Rec Limits	Matrix Spike Amt	Matrix Spike ID	Matrix Spike Orig Result	Matrix Spike Result	Matrix Spike Rec %	Matrix Spike % Rec Limits	MSD/ Dup Orig Result	MSD/ Dup Result	MSD Rec %	MSD/ Dup RPD	MSD/ Dup RPD Limit (<)	Known Rec (%)	Known % Rec	Method Blank
Lithium - Total mg/l	0.40 0.40	112 110	80-120 80-120	0.400 0.400	17-W2375 17-W2417	0.16 0.06	0.60 0.51	110 112	75-125 75-125	0.60 0.51	0.59 0.50	108 110	1.7 2.0	20 20	-	- - -	< 0.1 < 0.1 < 0.1 < 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.100 0.002 0.002 0.002	17-M1524 17-W2439 17-W2475 17-W2479	< 0.01 < 0.0002 < 0.0002 < 0.0002	0.0991 0.0019 0.0020 0.0019	99 95 100 95	70-130 70-130 70-130 70-130	0.0991 0.0019 0.0020 0.0019	0.1003 0.0019 0.0020 0.0019	100 95 100 95	1.2 0.0 0.0 0.0	20 20 20 20 20	- - -	-	< 0.0000
Molybdenum - Total mg/l	0.1000	103	80-120	0.400	17-W2417	0.0235	0.4152	98	75-125	0.4152	0.4276	101	2.9	20	_	_	< 0.002
pH units	-	-	-	1	-	-	<u>-</u>		-	6.8 11.1	6.9 11.0	-	1.5	20 20	-	-	-
Selenium - Total mg/l	0.1000	110	80-120	0.400 0.400	17-W2417 17-M1481	< 0.005 < 0.02	0.4534 0.4652	113 116	75-125 75-125	0.4534 0.4652	0.4736 0.4684	118 117	4.4 0.7	20 20	-	_	< 0.002
Sulfate mg/l	100 100	100 92	80-120 80-120	100 2000	17-W2384 17-W2438	39.4 787	129 2670	90 94	80-120 80-120	129 2670	133 2720	94 97	3.1 1.9	20 20	-	-	< 5 < 5
Thallium - Total mg/l	0.1000	107	80-120	0.400 0.400	17W2417q 17-M1481	< 0.0005 < 0.002	0.3890 0.3766	97 94	75-125 75-125	0.3890 0.3928	0.3792 0.4022	95 101	2.6 2.4	20 20	-	-	< 0.000:
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	1970 2020	1990 2010	-	1.0 0.5	20 20	-	-	< 10 < 10

Approved by:	C. Gurl
	6JUL17



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: June 2017

Page: 1 of 6

Report Date: 3 Jul 17 Lab Number: 17-W2416 Work Order #:82-1627 Account #: 006106

Date Sampled: 19 Jun 17

Date Received: 20 Jun 17 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		7.7.7		EPA 200.2	20 Jun 17	cs
Lab, pH	* 7.8	s.u.	0.1	SM4500 H+ B	20 Jun 17 17:00	CS
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	22 Jun 17 13:09	EMS
Chloride	< 1	mg/l	1.0	SM4500-C1-E	29 Jun 17 14:29	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	23 Jun 17 11:15	EV
otal Dissolved Solids	< 10	mg/1	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	< 1	mg/1	1.0	6010	23 Jun 17 11:53	SZ
ithium - Total	< 0.1	mg/1	0.10	6010	23 Jun 17 15:15	KMD
Boron - Total	< 0.1	mg/1	0.10	6010	21 Jun 17 14:51	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Jun 17 13:40	KMD
rsenic - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	< 0.002	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Chromium - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Cobalt - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
olybdenum - Total	< 0.005 ^	mg/l	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	< 0.005 *	mg/1	0.0020	6020	22 Jun 17 12:43	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
***************************************	3 210121	and the				

<sup>\*</sup> Holding time exceeded

Approved by:

Claudite K. Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to co

! = Due to sample quantity + = Due to in

# = Due to concentration of other analytes
+ = Due to internal standard response

<sup>\*</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: June 2017

2 of 6 Page:

Report Date: 3 Jul 17 Lab Number: 17-W2417 Work Order #:82-1627 Account #: 006106

Date Sampled: 19 Jun 17 11:19 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		7.70	77.17	EPA 200.2	20 Jun 17	CS
Field pH	7.28	s.u.	0.1	SM 4500 H+ B	19 Jun 17 11:19	DJN
Lab, pH	* 7.6	s.u.	0.1	SM4500 H+ B	20 Jun 17 17:00	CS
Field Appearance	Clear		NA	SM 2110	19 Jun 17 11:19	DJN
Field Temperature	13.4	Degrees C	0.1	SM 2550B	19 Jun 17 11:19	DJN
Field Conductivity	4848	umhos/cm	1	EPA 120.1	19 Jun 17 11:19	DJN
Fluoride	0.41	mg/1	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	1770	mg/1	5.00	ASTM D516-07	22 Jun 17 13:09	EMS
Chloride	27.8	mg/l	1.0	SM4500-C1-E	29 Jun 17 14:29	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Jun 17 11:15	EV
Total Dissolved Solids	2990	mg/1	10	I1750-85	21 Jun 17 14:42	svs
Calcium - Total	162	mg/1	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	< 0.1	mg/1	0.10	6010	23 Jun 17 16:15	KMD
Boron - Total	3.01	mg/1	0.10	6010	21 Jun 17 15:51	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	21 Jun 17 13:40	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	0.0415	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Cadmium - Total	0.0013	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Chromium - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Cobalt - Total	0.0315	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	0.0006	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	0.0235	mg/1	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	< 0.005 ^	mg/l	0.0020	6020	22 Jun 17 12:43	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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



CERTIFICATE of ANALYSIS - CCR

Josh Hollen

Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: June 2017

3 of 6 Page:

Report Date: 3 Jul 17 Lab Number: 17-W2418 Work Order #:82-1627 Account #: 006106

Date Sampled: 19 Jun 17 13:21 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	20 Jun 17	CS
Field pH	6.72	s.u.	0.1	SM 4500 H+ B	19 Jun 17 13:21	DJN
Lab, pH	* 6.9	s.u.	0.1	SM4500 H+ B	20 Jun 17 17:00	CS
Field Appearance	Partly Clo	oudy	NA	SM 2110	19 Jun 17 13:21	DJN
Field Temperature	17.5	Degrees C	0.1	SM 2550B	19 Jun 17 13:21	DJN
Field Conductivity	5295	umhos/cm	1	EPA 120.1	19 Jun 17 13:21	DJN
Fluoride	0.29	mg/1	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	2890	mg/l	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	40.0	mg/1	1.0	SM4500-C1-E	29 Jun 17 14:29	EMS
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	23 Jun 17 11:15	EV
Total Dissolved Solids	4980	mg/1	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	530	mg/1	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	0.48	mg/l	0.10	6010	23 Jun 17 16:15	KMD
Boron - Total	0.48	mg/1	0.10	6010	21 Jun 17 15:51	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Jun 17 13:40	KMD
Arsenic - Total	0.0030	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	0.0562	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Cadmium - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Chromium - Total	0.0096	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Cobalt - Total	0.0060	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	0.0024	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	< 0.005 ^	mg/l	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	0.0714	mg/l	0.0020	6020	22 Jun 17 12:43	KMD
Thallium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to con

! = Due to sample quantity # = Due to in

# = Due to concentration of other analytes + = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: June 2017

4 of 6 Page:

Report Date: 3 Jul 17 Lab Number: 17-W2419 Work Order #:82-1627 Account #: 006106

Date Sampled: 19 Jun 17 16:38 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	20 Jun 17	CS
Field pH	7.14	s.u.	0.1	SM 4500 H+ B	19 Jun 17 16:38	DJN
Lab, pH	* 7.2	s.u.	0.1	SM4500 H+ B	20 Jun 17 17:00	CS
Field Appearance	Clear		NA	SM 2110	19 Jun 17 16:38	DJN
Field Temperature	13.8	Degrees C	0.1	SM 2550B	19 Jun 17 16:38	DJN
Field Conductivity	3579	umhos/cm	1	EPA 120.1	19 Jun 17 16:38	DJN
Fluoride	0.11	mg/l	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	1450	mg/1	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	21.3	mg/l	1.0	SM4500-C1-E	3 Jul 17 15:27	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Jun 17 11:15	EV
Total Dissolved Solids	2680	mg/1	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	168	mg/l	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	23 Jun 17 16:15	KMD
Boron - Total	1.75	mg/1	0.10	6010	21 Jun 17 15:51	KMD
Antimony - Total	< 0.001	mg/1	0.0010	6020	21 Jun 17 13:40	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	0.0197	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Chromium - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Cobalt - Total	0.0085	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	< 0.005 ^	mg/1	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	< 0.005 ^	mg/l	0.0020	6020	22 Jun 17 12:43	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

# = Due to sample matrix # = Due to constant to the property of the pro

# = Due to concentration of other analytes + = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: June 2017

5 of 6 Page:

Report Date: 3 Jul 17 Lab Number: 17-W2420 Work Order #:82-1627 Account #: 006106

Date Sampled: 19 Jun 17 18:00 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

	As Receive Result	ed	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion		1,00	3.01	EPA 200.2	20 Jun 17	CS
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	19 Jun 17 18:00	DJN
Lab, pH	* 6.8	s.u.	0.1	SM4500 H+ B	20 Jun 17 17:00	CS
Field Appearance	Clear		NA	SM 2110	19 Jun 17 18:00	DJN
Field Temperature	14.4	Degrees C	0.1	SM 2550B	19 Jun 17 18:00	DJN
Field Conductivity	3240	umhos/cm	1	EPA 120.1	19 Jun 17 18:00	DJN
Fluoride	0.19	mg/1	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	1380	mg/1	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	22.0	mg/1	1.0	SM4500-C1-E	3 Jul 17 15:27	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	23 Jun 17 11:15	EV
Total Dissolved Solids	2480	mg/1	10	11750-85	21 Jun 17 14:42	svs
Calcium - Total	194	mg/l	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	23 Jun 17 16:15	KMD
Boron - Total	2.50	mg/1	0.10	6010	21 Jun 17 15:51	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Jun 17 13:40	KMD
Arsenic - Total	< 0.002	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	0.0423	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Beryllium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Cadmium - Total	0.0017	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Chromium - Total	0.0055	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Cobalt - Total	0.0299	mg/1	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	0.0008	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	0.0068	mg/1	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	< 0.005 ^	mg/l	0.0020	6020	22 Jun 17 12:43	KMD
Thallium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

Claudite K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset = \text{Due to sample matrix}$   $\emptyset = \text{Due to sample quantity}$   $\emptyset = \text{Due to interpolate the property of the property$ 

# = Due to concentration of other analytes
+ = Due to internal standard response

<sup>^</sup> Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



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CERTIFICATE of ANALYSIS - CCR

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

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: June 2017

6 of 6 Page:

Report Date: 3 Jul 17 Lab Number: 17-W2421 Work Order #:82-1627 Account #: 006106

Date Sampled: 19 Jun 17 15:10 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

	As Receive Result	d	Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	20 Jun 17	CS
Field pH	7.00	s.u.	0.1	SM 4500 H+ B	19 Jun 17 15:10	DJN
Lab, pH	* 7.3	s.u.	0.1	SM4500 H+ B	20 Jun 17 17:00	CS
Field Appearance	Clear		NA	SM 2110	19 Jun 17 15:10	DJN
Field Temperature	13.3	Degrees C	0.1	SM 2550B	19 Jun 17 15:10	DJN
Field Conductivity	5070	umhos/cm	1	EPA 120.1	19 Jun 17 15:10	DJN
Fluoride	0.29	mg/l	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	2800	mg/1	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	23.9	mg/1	1.0	SM4500-C1-E	3 Jul 17 15:27	KMD
Mercury - Total	< 0.0002	mg/1	0.0002	EPA 245.1	23 Jun 17 11:15	EV
Total Dissolved Solids	4790	mg/1	10	11750-85	21 Jun 17 14:42	svs
Calcium - Total	580	mg/1	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	0.43	mg/1	0.10	6010	23 Jun 17 16:15	KMD
Boron - Total	0.24	mg/1	0.10	6010	21 Jun 17 15:51	KMD
Antimony - Total	< 0.001	mg/l	0.0010	6020	21 Jun 17 13:40	KMD
Arsenic - Total	< 0.002	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	0.0140	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Beryllium - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Cadmium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	< 0.005 ^	mg/1	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	0.1344	mg/1	0.0020	6020	22 Jun 17 12:43	KMD
Thallium - Total	< 0.0005	mg/1	0.0005	6020	21 Jun 17 13:40	KMD

<sup>\*</sup> Holding time exceeded

Approved by:

6JUL17 Claudette K Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below:  $\emptyset$  = Due to sample matrix  $\emptyset$  = Due to compare the property of the p

# = Due to concentration of other analytes
+ = Due to internal standard response

Elevated result due to instrument performance at the lower limit of quantification (LLOQ).



### **Groundwater Assessment**

Company:	OTP	Coyote		
Event:	2017	7		
Sample ID:	Conl	6		
Sampling Per	sonal: QA		NITUG	

Phone: (701) 258-9	720											
Veather Conditions:		Temp:	72°F	Wind:	W/10			Precip:	(Sunr	y / Partly C	loudy / Clo	udy
1	WelLInfo	rmation					Sa	ampling l	nformatio	on		
Well Locked?	Yes	No			Purgi	ng Method:	Blac	dder		Co	ntrol Setting	S
Well Labeled?	(Ves	No			Sampli	ng Method:	Bla	dder		Purge:	5	sec.
Casing Straight?	Yes	No			Dedicat	ed Equip?:	Yes	ZMO2		Recover:	55	sec.
Grout Seal Intact?	(es	No	Not Visible		Duplicate	Sample?:	Yes	(NO)		PSI:		
Repairs Necessary:					Duplicate	Sample ID:		<del></del>	]	Pumping Ra	ate: [6 <i>0</i>	mL/min
Casing	Diameter:		2"									
Water Level Befo	ore Purge:		10,24 ft		F	Purge Date:	19 Jus	0/7	Time Purg	ing Began:	1054	(am/pm
Total W	/ell Depth:		ft ft		Well P	urged Dry?	Yes	Mo		urged Dry:		<del>am/p</del> m
We	ll Volume:		liters		Sa	ımple Date:	19 Tune	17	Time of	f Sampling:	1119	am/pm
Depth to Top	of Pump:	1	ファマチ ft				-					
Water Level Afte	er Sample:	1/ ji	7,29 Below gunoft		Bottle	1L Raw, 50	0mL Nitric	, 4 - 1L Nitri	С			
Measuremen	t Method:	Electric V	Vater Level Indicator		List:							
			Field I	Measure	ements							
	_		50	ODD	Tarabalation	18/-4	I	1	Disamintian	. I		

Stabili	Stabilization Temp		Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1259	14.88	4586	7,21	8.47	2506	3/11	17,29	500	
2	1004	13,30	4761	7,24	8,79	258.3	13,2	17,24	500	ca
3	1109	13:66	4780	7,24	8077	261,1	5,01	17.24	500	Cl
4	1114	13018	4827	7,27	8.98	265,2	4.17	17,24	510	00
5	1119	13,41	4848	7.28	7,18	26,1	3.88	17,24	500	a
6										
7										
8										
9										
10										

Stabilized: Yes
Comments:

Total Volume Removed: 2 500 mL

Water was below pump.



### **Groundwater Assessment**

**OTP Coyote** Company: 2017 Event: Sample ID: Sampling Personal:

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9	720												
Weather Conditions: Temp: 75°F					Wind:	w/1	<del></del>		Precip	Suni	ny )Partly (	Cloudy / Clou	ıdy
	Well Info	rmation				•		Sa	Sampling Information				
Well Locked?	Yes	No				Purgi	ing Method:	Blad	lder		Co	ontrol Settings	3
Well Labeled?	Xes	No				Sampli	ing Method:	Blad	lder		Purge:	5	sec.
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	MO		Recover:	55	sec.
Grout Seal Intact?	YES	No	Not Visi	ible		Duplicate	e Sample?:	Yes	NO		PSI:		
Repairs Necessary:					Duplicate Sample ID: Pumpir				Pumping R	Rate: / 🕖 🛈	mL/min		
Casing	Diameter:		2"									,	
Water Level Befo	ore Purge:	?	2,51	ft			Purge Date:	19 June	el 7	Time Purg	ing Began:	1226	am/pm
Total W	Vell Depth:			ft		Well F	urged Dry?	Yes	No	Time F	Purged Dry:		_am/pm
We	ell Volume:			liters		Sa	ample Date:	19 June	17	Time of	f Sampling:	1321	am/pm
Depth to Top	of Pump:	2	9.46	ft									
Water Level After	er Sample:	15	182	ft		Bottle	1L Raw, 50	00mL Nitric,	4 - 1L Nitri	С			
Measuremen	t Method:	Electric V	Vater Level Inc	dicator		List:							
				Fiold	Moseur	omonte							

### Field Measurements

Stabili	ization	Temp	Temp Spec.			ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1231	15,41	5307	L87/	4.22	225.9	14,0	13.13	500	de
2	1246	17,18	5311	683	2,36	240.4	11.2	14,39	21500	cler
3	17/1	16,99	5315	6.82	2,22	2460	53,4	14.58	180	de
4	101256	16,69	5311	6.81	2,09	250,0	105	14.82	500	Partly Cloudy
5	1306	16.88	5302	6,76	1.61	254,4	172	1512	1000	Partly Coul
6	1311	16.77	5304	6,75	1,18	455	155	15118	500	Partly clock
7	1316	17,42	5301	6,73	1,13	25620	150	15,24	500	Partly class
8	1321	17,47	5295	6,72	1.09	258.3	163	15.26	500	7 5057
9		/ /			•					
10									6.	
0	/ V	NI -							Caa	

No

Total Volume Removed: 5566 mL

Comments:



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pand 10	
Sampling Per	sonal: Darres	Nigran

Comments:

Phor	ne: (701) 258-9	9720												
Weather C	onditions:	· · · · · · · · · · · · · · · · · · ·	Temp:	75	°F	Wind: /	1/1	0		Precip	Sunny) Partl	y Cloudy /	Clou	dy
		Well Info	rmation						Sa	nformation				
We	II Locked?	Xes/	- No				Purgi	ng Method:	Blad			Control Settings		
Wel	II Labeled?	Yes	No					ng Method:	Blad	der	Purg	e: [		sec.
Casin	g Straight?	Yes	No				Dedicat	ed Equip?:	Yes	(No	Recove		/	sec.
Grout S	eal Intact?	Yes	No	Not \	/isible		Duplicate	Sample?:	Yes	Nø	PS	SI:		
Repairs Ne	ecessary:						Duplicate	Sample ID:	-		Pumping	Rate:	$\overline{}$	mL/min
	Casing Diameter: 2"									7				
Wate	Water Level Before Purge: 21.84 ft					F	Purge Date: Time Purging Beg				n:		am/pm	
	Total V	Vell Depth:	2	2,12	ft		Well P	urged Dry?		No	Time Purged Dr	y:		am/pm
	We	ell Volume:		012	liters		Sa	mple Date:	19 Jun	17	Time of Samplin	g: 121	<u>' フ</u>	am/pm
	Depth to Top of Pump:									<b>,</b>				
Water Level After Sample:					ft		Bottle	1L Raw, 50	00mL Nitric,	4 - 1L Nitri	С			
Ī.	<b>l</b> easuremer	nt Method:	Electric \	Water Level	Indicator		List:							
					Field	Measure	ements							
Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL		Discription:	7		
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed		, Color, Odor, Ect.			
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear,	partly cloudy, cloudy			
1												_		
2												4		
3												_		
<u>4</u> 5											•	-		
6												-		
7												-		
8												-		
9														
10	*											7		
Stabilized:	Yes	-No				Т	otal Volume	Removed:	***************************************	ml		_		

Insufficient volume no Sample.



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	201,7	
Sample ID:	10nd 12	
Sampling Pers	sonal:	Niesman

Phone: (701) 258-9720

Phone: (701) 258-9	720						_							
Weather Conditions:		Temp:	75°F		Wind:	11/10	) -15		Precip:	Sunr	y Rartly C	loudy / Clou	dy	
1	Well Info	rmation						Sampling Information						
Well Locked?	Yes	∠No <sub>&gt;</sub>				Purgi	ng Method:	Bla	dder		Со	ntrol Settings		
Well Labeled?	, Yes>	No				Sampli	ng Method:	Bla	dder		Purge:	5	sec.	
Casing Straight?	Yes	No			_	Dedicat	ted Equip?:	Yes	(No)		Recover:	55	sec.	
Grout Seal Intact?	Yes	No	Not Vis	ible -		Duplicate	Sample?:	Yes	No		PSI:			
Repairs Necessary:		<u>.</u>				Duplicate	Sample ID:	<u> </u>			Pumping Ra	ate: / 2 0	mL/min	
Casing	Diameter:		2"									, ,		
Water Level Befo	ore Purge:	3	7.85	ft		F	Purge Date:	19 Tu	e17	Time Purg	ing Began:	1608	am/gm	
Total W	/ell Depth:			ft		Well P	urged Dry?	Yes	No		urged Dry:		am/pm	
We	II Volume:			liters		Sa	mple Date:	19Ju	e/17	Time of	Sampling:	1638	am/pm	
Depth to Top	of Pump:		18.58	ft										
Water Level Afte	r Sample:		8.51	ft		Bottle	1L Raw, 50	0mL Nitric	, 4 - 1L Nitri	2				
Measuremen	t Method:	Electric	Water Level Inc	dicator		List:								
				<b>F:</b> -1-1 1	M									

#### Field Measurements

Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	рН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1613	14.86	3553	7.06	3,56	271,2	53.3	78,31	500	Cler
2	1618	14,5	B1935	7.07	3,80	270,5	38.3	38,31	109	Ch
3	1623	13.98	3574	7,09	1,59	270.6	29,3	38142	500	ch-
4	1628	1332	3582	7.11	0,95	266,6	<b>4</b>	38,48	500	a
5	1633	13,39	3578	7.14	0.93	262.0	6.49100	38048	500	d
6	1638	13,80	3579	7,14	0,90	261.0	13.18	38,48	500	il
7	1000							,		
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 3000 mL



### **Groundwater Assessment**

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Pand 165	
Sampling Pers	sonal: 0 + Coa O	1 6 -

2010 E. Dioadway Ave, Dis	sitiaton, ND					_	Sampling Personal. 1/1/m/V (15/2)							
Phone: (701) 258-9	720													
Weather Conditions:		Temp:	→ °F	Wind: [	N/0-1	5	Precip: Sunny Partly Cloudy / Cloudy							
1	Well Info	rmation					s	ampling l	nformation	mation				
Well Locked?	Yes	No			Purgi	ng Method:	Bla	dder	,	Co	ntrol Settings			
Well Labeled?	Yes	No			Sampli	ng Method:	Bla	dder		Purge:	\$	sec.		
Casing Straight?	Yes	No			Dedica	ted Equip?:	Yes	No		Recover:	55	sec.		
Grout Seal Intact?	Yes	No	Not Visible		Duplicate	Sample?:	Yes	No		PSI:				
Repairs Necessary:					Duplicate	Sample ID:			]	Pumping R	ate: / <i>O</i> O	mL/min		
Casing	Diameter:		2"								•			
Water Level Befo	ore Purge:		39,57 ft		F	Purge Date:	19 Ju	e (7	Time Purg	ing Began:	1735	am/pm		
Total W	/ell Depth:		ft		Well P	urged Dry?	Yes	No	<del></del>	urged Dry:		am/pm		
We	ll Volume:		liters		Sa	ample Date:	19Ju	17	Time of	f Sampling:	1800	am/pm		
Depth to Top	of Pump:	4	5.55 ft					,						
Water Level Afte	er Sample:		40,53 ft		Bottle	1L Raw, 50	0mL Nitric	, 4 - 1L Nitri	С					
Measuremen	t Method:	Electric '	Water Level Indicator		List:									
			Field	Measure	ements									

	1 loid modern cilione										
Stabil	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:	
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.	
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy	
1	1740	15.01	3217	6.67	0,64	277,4	33,3	40,08	500	clear	
2	1750	13.95	3232	617	0.49	276.8	43,3	40,39	901000	de	
3	1755	14.20	32.41	6.67	0,54	27515	40,5	40.36	500	de	
4	1800	14,37	3240	6,67	0,57	272,1	38,8	40,39	500	d	
5 0	Y805										
6											
7											
8											
9											
10											

Stabilized: Yes No

Total Volume Removed: 2500 mL



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Rus nw25
Sampling Pe	ersonal: Darren Niesvacy

Phone: (701) 258-9720

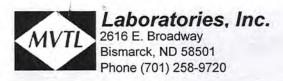
Phone: (701) 258-9	9720											
Weather Conditions:		Temp:	75°F	Wind	1: 1/1	0		Precip:	Sunny /	Partly C	loudy / Clou	idy
	Well Inf	ormation	•				Sa	ampling I	nformation			
Well Locked?	Yes	No			Purg	ging Method:	Blac	lder		Cor	ntrol Settings	;
Well Labeled?	Yes	No			Samp	ling Method:	Blac	ider		Purge:	2	sec
Casing Straight?	Yes	No			Dedica	ated Equip?:	Yes	No	F	Recover:	55	sec
Grout Seal Intact?	Yes	No	Not Visib	le	Duplicat	e Sample?:	Yes	(No)		PSI:		
Repairs Necessary:					Duplicate	Sample ID:			Pui	mping Ra	ite: (00	mL/mir
Casing	Diameter		2"					7				
Water Level Bef	ore Purge	2	2.46	ft		Purge Date:	19 Tu	ne(7	Time Purging	Began:	1425	am/pm
Total W	Vell Depth			ft	Well I	Purged Dry?	Yes	<b>₩</b>	Time Purg	jed Dry:		_am/pm
We	ell Volume			liters	S	ample Date:	19.Ju	217	Time of Sa	mpling:	1500	am/pm
Depth to Top	of Pump	3	4,30	ft			, .					
Water Level Afte	er Sample		29.34	ft	Bottle	1L Raw, 50	0mL Nitric,	4 - 1L Nitri	С			,,,,,
Measuremer	nt Method:	Electric \	Water Level Indic	cator	List:							
					_							

### **Field Measurements**

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1430	12,80	5088	6,88	178	269,8	9,31	23.16	500	dea
2	1440	12,71	5094	6,90	3,09	278,2	3119	24,53	1000	cler
3	1455	12,53	5071	6,98	6.05	2975	4.68	26,43	1500	Can
4	1500	13,04	5074	\$ 7.00	6,11	303,4	4.34	27,19	500	cli
5	1505	13/05	5054	7,00	6.06	307,2	-457	27,27	500	a c
6	1510	13,26	5070	7.00	6.04	310,0	4,32	27,32	500	U-
7						370				
8										
9										
10									(7/70	

Stabilized: Yes No

Total Volume Removed: 4500 mL



# **Chain of Custody Record**

Project Name:		Event:	Work Order Number:
(	OTP Coyote - Slag Pond	June 2017	89-1697
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):  Darran Nieswaay
phone:	ihollen@otpco.com		

	Sample Information							Bottle Type			eld Para	Analysis	
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liler	500mL Nitric			Temp (°C)	Spec. Cond.	Hd	Analysis Required
W2416	FB Slag	19 June 17	NA	W	-	Х	Х			NA	NA	NA	
Wa417	Pond6	19 June 17	1119	GW	clear	X	X			13.41	4848	7,28	
W2418	PondN3	19.June 17	1321	GW	Partly cloudy	Х	Х			17,47	5295	6.72	
-	Pond10	1954ne17	1217	GW	- "		× Pr	19June	7	-	-	_	
W2419	Pond12	19 June 17	1638	GW	clear	Х	Х			13.80	3579	7114	OTP Coyote List 1
wayao	Pond16S	19June 7	1800	GW	clear	Х	Х			14.37	3240	6,67	OTF Coyote List 1
watal	MW2S	19June 7	1510	GW	clear	Х	Х			13,26	50.70	7,00	
									-				

Comments:

Relinquished By:		San	nple Condition:
Name:	Date/Time	Location:	Temp (°C)
1 Da Mis	19Jul 7	Log In Walk In #2	ROJ 2-8 (TM562) TM588
2			

Receive	ed by:
↑ Name:	Date/Time
Ingel Somunicon	20June 1 800



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### **CASE NARRATIVE**

MVTL Lab Reference No/SDG:	201782-1629
IML Lab Reference No/SDG:	S1706440

Client: Ottertail Power Company

Location: Coyote Station

Project Identification: Slag Pond CCR Radiochemistry

Event & Year June 2017

MVTL Laboratory Identifications: 17-W2423 through 17-W2428

IML Laboratory Identifications: S1706440-001 through S1706440-006

Page 1 of 1

Sample Identification	IML Laboratory #	MVTL Laboratory #
FB Slag	S1706440-001	17-W2423
Pond6	S1706440-002	17-W2424
PondN3	S1706440-003	17-W2425
Pond10	n/a	Not sampled
Pond12	S1706440-004	17-W2426
Pond16S	S1706440-005	17-W2427
MW2S	S1706440-006	17-W2428

### I. RECEIPT

- All samples were received at the laboratory on 20 Jun 2017 at 0800.
- Samples were collected and hand delivered by MVTL Field Service personnel to the laboratory.
- Samples were received on ice and evidence of cooling had begun.
  - o Temperature of samples upon receipt was ambient.
- No other exceptions on sample receipt were encountered on this sample set unless noted here.
- All samples requiring radiochemistry analysis were sent via courier to Inter-Mountain Labs (IML) for analysis there. Samples were received at IML on 23 Jun 2017.
  - All samples were properly preserved unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### II. HOLDING TIMES

 All holding times were met for both preparation and analysis unless noted on the individual analytical laboratory report or on the IML Case Narrative.

### III. METHODS

- Approved methodology was followed for all sample analyses.
  - Please refer to the IML Case Narrative for more information regarding methodology.

#### IV. ANALYSIS

 All acceptance criteria was met for calibration, method blanks, laboratory control samples, laboratory fortified matrix/matrix duplicates unless noted on the individual analytical laboratory report or on the IML Case Narrative.

All laborator	y data has been approv	ed by MVTL Laboratories.			
SIGNED:	Clandette	antel	DATE:	8 Avg 17	
Claus	dette Carroll - MVTI Bi	smarck Laboratory Manage	er		



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: June 2017

1 of 6 Page:

Report Date: 7 Aug 17 Lab Number: 17-W2423 Work Order #:82-1629 Account #: 006106 Date Sampled: 19 Jun 17

Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			2 Aug 17	OL
Radium 228	See Attached Report		1	18 Jul 17	OL

Approved by:

Clauditte K. Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

# = Due to concentration of other analytes
+ = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: June 2017

2 of 6 Page:

Report Date: 7 Aug 17 Lab Number: 17-W2424 Work Order #:82-1629 Account #: 006106

Date Sampled: 19 Jun 17 11:19 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Rece: Result	Lved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.28	s.u.	0.1	SM 4500 H+ B	19 Jun 17 11:19	DJN
Field Appearance	Clear		NA	SM 2110	19 Jun 17 11:19	DJN
Field Temperature	13.4	Degrees C	0.1	SM 2550B	19 Jun 17 11:19	DJN
Field Conductivity	4848	umhos/cm	1	EPA 120.1	19 Jun 17 11:19	DJN
Radium 226	See Atta	ched Report			2 Aug 17	OL
Radium 228	See Atta	ached Report			18 Jul 17	OL

Approved by:

Clauditte K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to compared the contract of the contra

# - Due to concentration of other analytes

CERTIFICATION: ND # ND-00016

\* = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: June 2017

3 of 6 Page:

Report Date: 7 Aug 17 Lab Number: 17-W2425 Work Order #:82-1629 Account #: 006106

Date Sampled: 19 Jun 17 13:21 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei	ived	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.72	s.u.	0.1	SM 4500 H+ B	19 Jun 17 13:21	DJN
Field Appearance	Partly (	Cloudy	NA	SM 2110	19 Jun 17 13:21	DJN
Field Temperature	17.5	Degrees C	0.1	SM 2550B	19 Jun 17 13:21	DJN
Field Conductivity	5295	umhos/cm	1	EPA 120.1	19 Jun 17 13:21	DJN
Radium 226	See Atta	ached Report			2 Aug 17	OL
Radium 228		ached Report			18 Jul 17	OL

Approved by:

Claudette K. Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to con
: = Due to sample quantity + = Due to int

# = Due to concentration of other analytes + = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: June 2017

4 of 6 Page:

Report Date: 7 Aug 17 Lab Number: 17-W2426 Work Order #:82-1629 Account #: 006106

Date Sampled: 19 Jun 17 16:38 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.14	s.u.	0.1	SM 4500 H+ B	19 Jun 17 16:38	DJN
Field Appearance	Clear		NA	SM 2110	19 Jun 17 16:38	DJN
Field Temperature	13.8	Degrees C	0.1	SM 2550B	19 Jun 17 16:38	DJN
Field Conductivity	3579	umhos/cm	1	EPA 120.1	19 Jun 17 16:38	DJN
Radium 226	See Atta	ched Report			2 Aug 17	OL
Radium 228		ched Report			19 Jul 17	OL

Approved by:

Clauditte K. Canteo

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

The reporting limit was elevated for any analyte requiring a dilution as coded below: 0 = Due to sample matrix # = Due to constant to the point of the poin

# = Due to concentration of other analytes + = Due to internal standard response



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CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co.

PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: June 2017

Page: 5 of 6

Report Date: 7 Aug 17 Lab Number: 17-W2427 Work Order #:82-1629 Account #: 006106

Date Sampled: 19 Jun 17 18:00 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Recei Result	ved	Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	19 Jun 17 18:00	DJN
Field Appearance	Clear		NA	SM 2110	19 Jun 17 18:00	DJN
Field Temperature	14.4	Degrees C	0.1	SM 2550B	19 Jun 17 18:00	DJN
Field Conductivity	3240	umhos/cm	1	EPA 120.1	19 Jun 17 18:00	DJN
Radium 226	75.2017.75.00	ched Report			1 Aug 17	OL
Radium 228		ched Report			19 Jul 17	OL

Approved by:

Clauditte K Cantep

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL - Method Reporting Limit

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

s = Due to sample matrix ! = Due to sample quantity

# - Due to concentration of other analytes + - Due to internal standard response



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Page: 6 of 6

CERTIFICATE of ANALYSIS - CCR

Josh Hollen Otter Tail Power Co. PO Box 496

Fergus Falls MN 56538-0496

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: June 2017

Report Date: 7 Aug 17 Lab Number: 17-W2428 Work Order #:82-1629 Account #: 006106

Date Sampled: 19 Jun 17 15:10 Date Received: 20 Jun 17 8:00 Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: Ambient

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.00	s.u.	0.1	SM 4500 H+ B	19 Jun 17 15:10	DJN
Field Appearance	Clear		NA	SM 2110	19 Jun 17 15:10	DJN
Field Temperature	13.3	Degrees C	0.1	SM 2550B	19 Jun 17 15:10	DJN
Field Conductivity	5070	umhos/cm	1	EPA 120.1	19 Jun 17 15:10	DJN
Radium 226	See Atta	ched Report			1 Aug 17	OL
Radium 228	See Atta	ched Report			19 Jul 17	OL

Approved by:

Claudette K Canto

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

# = Due to sample matrix # = Due to con

! = Due to sample quantity \* = Due to in

# = Due to concentration of other analytes \* = Due to internal standard response



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date:

**CLIENT:** 

MVTL Laboratories, Inc.

Project:

201782-1629

Lab Order:

S1706440

**CASE NARRATIVE** 

Report ID: S1706440001

Samples 17-W2423 FB Slag, 17-W2424 Pond6, 17-W2425 PondN3, 17-W2426 Pond12, 17-W2427 Pond 16S, and 17-W2428 MW2S were received on June 23, 2017.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition 40 CFR Parts 136 and 141 40 CFR Part 50, Appendices B, J, L, and O Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012 ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: Tom Rutte

Tom Patten, Laboratory Manager

Page 1 of 1



ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1629

Lab ID:

S1706440-001 ClientSample ID: 17-W2423 FB Slag

COC:

201782-1629

Date Reported

8/3/2017

Report ID

S1706440001

WorkOrder:

S1706440

CollectionDate: 6/19/2017

DateReceived:

6/23/2017 11:43:00 AM

FieldSampler:

Matrix: Water

Comments							
Analyses	Result	Units	Qual	RL.	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	ND	pCi/L		0.2	SM 7500 Ra-B	08/02/2017 1443	MB
Radium 226 Precision (±)	NA	pCi/L			SM 7500 Ra-B	08/02/2017 1443	MB
Radium 228	ND	pCi/L		1	Ga-Tech	07/18/2017 1519	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/18/2017 1519	MB

### These results apply only to the samples tested.

Qualifiers:

Analyte detected in the associated Method Blank

Value above quantitation range Ε

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

**RL - Reporting Limit** 

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Tom Patten, Laboratory Manager

Page 1 of 6



ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1629

Lab ID:

S1706440-002 ClientSample ID: 17-W2424 Pond6

COC:

201782-1629

Date Reported

8/3/2017

Report ID

S1706440001

WorkOrder:

S1706440

CollectionDate: 6/19/2017 11:19:00 AM

DateReceived: 6/23/2017 11:43:00 AM

FieldSampler:

Matrix:

Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/l	nit
Radionuclides - Total							
Radium 226	ND	pCi/L		0.2	SM 7500 Ra-B	08/02/2017 1443	MB
Radium 226 Precision (±)	NA	pCi/L			SM 7500 Ra-B	08/02/2017 1443	MB
Radium 228	ND	pCi/L		1	Ga-Tech	07/18/2017 1821	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/18/2017 1821	MB

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Н Holding times for preparation or analysis exceeded

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

**RL** - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Tom Patten, Laboratory Manager

Page 2 of 6



ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc.

2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1629

Lab ID:

S1706440-003 ClientSample ID: 17-W2425 PondN3

COC:

201782-1629

Date Reported

8/3/2017

Report ID

S1706440001

WorkOrder:

S1706440

CollectionDate: 6/19/2017 1:21:00 PM

DateReceived: 6/23/2017 11:43:00 AM

FieldSampler:

Matrix:

Water

#### Comments

Comments							
Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/02/2017 1443	МВ
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/02/2017 1443	MB
Radium 228	ND	pCi/L		1	Ga-Tech	07/18/2017 2124	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/18/2017 2124	MB

These results apply only to the samples tested.

Qualifiers:

В Analyte detected in the associated Method Blank

Value above quantitation range

Holding times for preparation or analysis exceeded Н

Analyzed by another laboratory

Not Detected at the Reporting Limit ND

Spike Recovery outside accepted recovery limits

RL - Reporting Limit

Calculated Value

Analyzed at IML Gillette laboratory

Analyte detected below quantitation limits

Value exceeds Monthly Ave or MCL or is less than LCL М

Outside the Range of Dilutions

Matrix Effect

Reviewed by:

Tom Patten, Laboratory Manager

Page 3 of 6



ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc. 2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1629

Lab ID:

S1706440-004 ClientSample ID: 17-W2426 Pond12

201782-1629

Date Reported 8/3/2017

Report ID

S1706440001

WorkOrder:

S1706440

CollectionDate: 6/19/2017 4:38:00 PM

DateReceived: 6/23/2017 11:43:00 AM

FieldSampler:

Matrix:

Water

#### Commonto

COC:

ılyzed/Init
ny zoumine
1443 MB
1443 MB
7 027 MB
027 MB
7 7 17

These results apply only to the samples tested.

Qualifiers:

- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded
- Analyzed by another laboratory Not Detected at the Reporting Limit ND
- Spike Recovery outside accepted recovery limits

RL - Reporting Limit

- С Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- М Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Tom Patten, Laboratory Manager

Page 4 of 6



ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc. 2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

201782-1629

Lab ID: ClientSample ID: 17-W2427 Pond 16S

S1706440-005

COC:

201782-1629

Date Reported 8/3/2017

Report ID

S1706440001

WorkOrder:

S1706440

CollectionDate: 6/19/2017 6:00:00 PM

DateReceived: 6/23/2017 11:43:00 AM

FieldSampler:

Matrix:

Water

#### Commente

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/I	nit
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/01/2017 1833	мв
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/01/2017 1833	МВ
Radium 228	ND	pCi/L		1	Ga-Tech	07/19/2017 330	МВ
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/19/2017 330	MB

#### These results apply only to the samples tested.

#### Qualifiers:

- Analyte detected in the associated Method Blank
- Value above quantitation range F
- Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### **RL** - Reporting Limit

- С Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- М Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Tom Patten, Laboratory Manager

Page 5 of 6



ph: (307) 672-8945

### Sample Analysis Report

Company:

MVTL Laboratories, Inc. 2616 E Broadway Ave.

Bismarck, ND 58501

ProjectName:

Lab ID:

201782-1629

COC:

S1706440-006 ClientSample ID: 17-W2428 MW2S 201782-1629

Date Reported

8/3/2017

Report ID

S1706440001

WorkOrder:

S1706440

CollectionDate: 6/19/2017 3:10:00 PM

DateReceived: 6/23/2017 11:43:00 AM

FieldSampler:

Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	08/01/2017 1833	МВ
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	08/01/2017 1833	MB
Radium 228	ND	pCi/L		1	Ga-Tech	07/19/2017 634	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/19/2017 634	МВ

### These results apply only to the samples tested.

### Qualifiers:

- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Holding times for preparation or analysis exceeded
- Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- Spike Recovery outside accepted recovery limits

### RL - Reporting Limit

- С Calculated Value
- Analyzed at IML Gillette laboratory
- Analyte detected below quantitation limits
- М Value exceeds Monthly Ave or MCL or is less than LCL
- Outside the Range of Dilutions
- Matrix Effect

Reviewed by:

Tom Patten, Laboratory Manager

Page 6 of 6



1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date:

### ANALYTICAL QC SUMMARY REPORT

**CLIENT:** 

MVTL Laboratories, Inc.

S1706440

Work Order: Project:

201782-1629

adium 228 by Ga/Tech Sample Type MBLK			Units	: pCi/L			
MB-448 (07/16/17 11:28)	RunNo: 148120	PrepD	ate: 07/0	5/17 14:00	Bato	hID 13447	
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1					
Radium 228 by Ga/Tech	Sample Type LCS		Units	: pCi/L			
LCS-448 (07/16/17 14:30)	RunNo: 148120	PrepD	ate: 07/0	5/17 14:00	BatchID 13447		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	36	1	39.3		92.5	65.9 - 132	
Radium 228 by Ga/Tech	Sample Type LCSD	Units: pCi/L					
LCSD-448 (07/16/17 17:33)	RunNo: 148120	PrepD	ate: 07/0	5/17 14:00	Bato	hID 13447	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Quai
Total Radium 228	43	1	36	17.3	110	20	······
Radium 228 by Ga/Tech	Sample Type MS		Units	: pCi/L			
S1706439-003AMS (07/17/17 21:00)	RunNo: 148120	PrepD	ate: 07/0	5/17 14:00	BatchID 13447		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	32	1	39.3	ND	81.9	50 - 139	
Radium 228 by Ga/Tech	Sample Type MSD		Units	: pCi/L			
S1706439-003AMSD (07/18/17 00:03)	RunNo: 148120	PrepDa	ate: 07/0	5/17 14:00	Batc	hiD 13447	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	33	1	32	3.67	85.0	20	

Qualifiers:

Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

Х Matrix Effect

В

E Value above quantitation range

Н Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

0 Outside the Range of Dilutions

Spike Recovery outside accepted recovery limits



Work Order:

Project:

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

### **ANALYTICAL QC SUMMARY REPORT**

CLIENT: MVTL Laboratories, Inc.

S1706440 201782-1629 Date:

Radium 226 in Water -	Sample Type MBLK	Units: pCi/L					
MB-1774 (08/01/17 16:17)	RunNo: 148567	PrepDate: 07/24/17 0:00	BatchID 13498				
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual			
Radium 226	ND	0.2					
MB-1773 (08/02/17 10:49)	RunNo: 148571	PrepDate: 07/24/17 0:00	BatchID 13507				
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual			
Radium 226	ND	0.2					
Radium 226 in Water -	Sample Type LCS	Units: pCi/L					
LCS-1774 (08/01/17 16:17)	RunNo: 148567	PrepDate: 07/24/17 0:00	BatchID 13498				
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual			
Radium 226	6.4	0.2 6.41	99.4 67.1 - 122				
LCS-1773 (08/02/17 10:49)	RunNo: 148571	PrepDate: 07/24/17 0:00	BatchID 13507				
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual			
Radium 226	6.1	0.2 6.41	94.6 67.1 - 122				
Radium 226 in Water -	Sample Type MS	Units: pCi/L					
MS-1774 (08/01/17 16:17)	RunNo: 148567	PrepDate: 07/24/17 0:00	BatchID 13498				
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual			
Radium 226	5.9	0.2 6.41 ND	91.5 65 - 131				
MS-1773 (08/02/17 10:49)	RunNo: 148571	PrepDate: 07/24/17 0:00	BatchID 13507				
Analyte	Result	RL Spike Ref Samp	%REC % Rec Limits	Qual			
Radium 226	5.6	0.2 6.41 ND	86.5 65 - 131				
Radium 226 in Water -	Sample Type MSD	Units: pCi/L					
MSD-1774 (08/01/17 16:17)	RunNo: 148567	PrepDate: 07/24/17 0:00	BatchID 13498				
Analyte	Result	RL Conc %RPD	%REC % RPD Limits	Qual			
Radium 226	6.1	0.2 5.9 3.71	94.9 20				
MSD-1773 (08/02/17 10:49)	RunNo: 148571	PrepDate: 07/24/17 0:00	BatchID 13507				
Analyte	Result	RL Conc %RPD	%REC % RPD Limits	Qual			
Radium 226	5.7	0.2 5.6 3.36	89.4 20				

Qual	lifiers:	
<b>Qua</b>	1111619.	

- B Analyte detected in the associated Method Blank
- G Analyzed at IML Gillette laboratory
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- X Matrix Effect

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- O Outside the Range of Dilutions
- S Spike Recovery outside accepted recovery limits



### LABORATORIES, Inc. 2616 E Broadway Ave Bismarck, ND 58501

## **Chain of Custody Record**

Page 1 of 1 .

Toll Free: (8	Phone: (701) 2 00) 279-6885	258-9720 Fax: (701) 258-9724									201782-1629			
	e and Address:		Account #	Account #: Phone #:										
				, isodulit ny							701-258-9720			
		<u>VTL</u>		Contact:		······			**		Fax #:			
At the design of the second of		Broadway			Claud	ette	}				For faxed report check box			
Billing Address	<u>Bismarch</u> (indicate if different		Name of S	ampler:						E-mail: ccarroll@mvtl.com				
	/maioate it amerem		Quote Nur	ahor						For e-mail report check box  Date Submitted:				
	PO B		Quote Hui	inci						21-Jun-17				
	New Ulm		Project Na	me/Numbe	r:					Purchase Order #:				
	·									BL5904				
		Sample Information			, ,,,,,		В	ottle	Ту	ре	Analysis			
S17064	<del>4</del> 5 .					pe	I HNO3	VOC Vials Umpreserved	ar					
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	000 m	oc Vi mpres	Glass Jar	Other	Analysis Required			
001	17-W2423					כ		> _	೨	10				
		FB Slag	GW	19-Jun-17	NA		4		┼	-	Ra226 & Ra228			
002	17-W2424	Pond6	GW	19-Jun-17	1119		4			<u> </u>	Ra226 & Ra228			
003	17-W2425	PondN3	GW	19-Jun-17	1321		4				Ra226 & Ra228			
064	17-W2426	Pond12	GW	19-Jun-17	1638		4				Ra226 & Ra228			
<u> 205</u>	17-W2427	Pond16S	GW	19-Jun-17	1800		4				Ra226 & Ra228			
006	17-W2428	MW2S	GW	19-Jun-17	1510		4				Ra226 & Ra228			
	A. W. S. C.													

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	21-Jun-17	1700		Kathuzon	62317	11:43	20.6
2.							20.8



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	2017	
Sample ID:	Cond 6	/
Sampling Pers	sonal: Parran	Niesman

Phone: (701) 258-9720

` ,							_					
Weather Conditions:		Temp:	72°F		Wind:	W10	<b>)</b>		Precip:	(Sunny / Parti	Cloudy / Clo	oudy
	Well_Info	rmation						Sa	ampling l	nformation		
Well Locked?	Yes	No				Purgi	ing Method:	Blac	dder		Control Setting	 js
Well Labeled?	Yes	No				Sampli	ing Method:	Blac	dder	Purg	e: 5	sec
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	~No≥	Recove	r: 55	sec
Grout Seal Intact?	(Fe)s	No	Not Visib	le		Duplicate	Sample?:	Yes	No	PS	1: -	
Repairs Necessary:						Duplicate	Sample ID:			Pumping	Rate: [60	mL/mi
Casing	Diameter:		2"									
Water Level Bef	ore Purge:		18,24	ft		F	ourge Date:	19 Jun	2/7	Time Purging Begar	1: 105 4	am/pn
Total V	Vell Depth:			ft		Well F	urged Dry?	Yes	(NO)	Time Purged Dr	/:	am/pn
We	ell Volume:			liters		Sa	ample Date:	1 Time		Time of Sampling	1/19	æm⁄pn
Depth to To	p of Pump:	/	7,24	ft								
Water Level After	er Sample:	N 1	Trag Below	- ging)ft		Bottle	1L Raw, 50	0mL Nitric,	4 - 1L Nitrio	2		
Measuremer	nt Method:	Electric	Water Level Indi	• 1		List:						
		-									-	

#### Field Measurements

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1059	14.88	4586	7,21	8.47	2506	3/11	17,29	500	Cl_
2	1004	13,30	4761	7,24	8.79	208.3	13,2	17,24	500	cla
3	1109	13166	4780	7,24	80 ララ	261,1	5001	17.24	500	Cl
4	1114	13018	4827	7,27	8,98	265,2	4.17	17,24	500	
5	1119	13,41	4848	7,28	9,18	26,1	3.88	17,24	500	4
6		,	, 0 , 0	V						
7										
8										
9										
10										

Stabilized: **Yes No** 

Total Volume Removed: 2 500 mL

Comments:

Water was below pump.



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	fond N3
Sampling Per	sonal: Dence Al Decimana

Phone: (701) 258-9	720						-	Jamping I	ersonar.	a) (1 / 201	10 100	s or cong	
Weather Conditions:	Wind: W/O			Precip: (Sunny )Partly Cloudy / Clou									
•	Well Info	rmation						Sa	mpling l	nformation	on		
Well Locked?	Yes	No				Purg	ing Method:	Blad	der		Co	ntrol Settings	3
Well Labeled?	Ztos	No				Sampl	ing Method:	Blad	der		Purge:	9	sec
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	NO		Recover:	53	sec
Grout Seal Intact?				Duplicate	e Sample?:	Yes	NO		PSI:				
Repairs Necessary:					Duplicate	Sample ID:				Pumping R	ate: / 🕖 🛈	mL/mir	
Casing	Diameter:		2"							•		, , , , , , , , , , , , , , , , , , ,	·
Water Level Befo	ore Purge:	?	2,51	ft			Purge Date:	19 Tin	17	Time Purg	ing Began:	1226	am/pm
Total W	/ell Depth:			ft		Well F	Purged Dry?	Yes	No	Time F	Purged Dry:		am/pn
We	ell Volume:			liters		S	ample Date:	19 June	17	Time o	f Sampling:	1321	am/pff
Depth to Top	of Pump:	2	9.46	ft				ι	7				
Water Level Afte	er Sample:	15	182	ft		Bottle	1L Raw, 50	00mL Nitric,	4 - 1L Nitrio	>			
Measuremen	it Method:	Electric V	√ater Level Ind	icator		List:							
				<b>-</b> :	••		·						

#### Field Measurements

Stabil:	ization	Temp	Spec.		DO	ORP	Turbidity	Water	ml	Discription
Stabili	Zation		Spec.		DO	l	Turbluity		mL	Discription:
(3 cons	ecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1231	15,41	5307	1.87	4.22	225.9	14,0	13.13	500	de
2	1246	17,18	5311	6,83	2,36	240,4	11.2	14.39	21500	cler
3	17.51	16,99	5315	682	2,22	2460	53,4	14,58	190	ch
4	191256	16.69	5311	6.81	2,09	250,0	105	14,82	500	Partly Cloudy
5	1306	16.88	5302	6,76	1.61	254,4	172	1512	1000	Parthy Caudh
6	1311	16.77	5304	6,75	1,18	15500	155	15118	500	fathy clash
7	1316	17,42	5 301	6,73	1,13	256250	150	15,24	500	Partly class
8	1321	17,47	5295	6,72	1.09	258.3	163	15.26	500	
9		/ / /								
10									fi-	
C4-6:1:	( Van )	NI.					1 13/1		COLA	•

Stabilized: Yes No

Total Volume Removed: 5500 mL

Comments:



**Groundwater Assessment** 

Company:	OTP Coyote	)
Event:	2017	
Sample ID:	Pand 10	
O 1: D		1/1/

								oampiing r	Cisonai.	011111	11 1 60	1	7		
Phone: (701) 258-97	<b>'</b> 20						<del></del>								
Veather Conditions:		Temp:	75°F	•	Wind:	1/1	0	Precip: Sunny Partly Cloudy / Clou							
\	Well Infor	mation	V			,		S	ampling I	nformation	1				
Well Locked?	Xest	No				Purg	ing Method:	Bla	dder		Con	trol Setting	s 🤈		
Well Labeled?	Yes No			Sampl	ing Method:	Bla	dder		Purge:	<u> </u>	/ sec				
Casing Straight?	Yes	No				Dedica	ted Equip?:	Yes	(No		Recover:		sec		
Grout Seal Intact?	rout Seal Intact? Yes No Not Visible			Duplicate Sample?:		Yes	Yes No		PSI:						
Repairs Necessary:						Duplicate	Sample ID:	ے.		Р	umping Ræ	te:	mL/mi		
Casing I	Diameter:		2"										<u> </u>		
Water Level Befo	re Purge:	·2	-1.84	ft			Purge Date:			Time Purgin	g Began:		am/pr		
Total W	ell Depth:	2	2,12	ft		Well F	Purged Dry?	Yes	No	Time Pu	rged Dry:		am/pr		
Wel	l Volume:		012	liters		Sa	ample Date:	19 Ju	e(7_	Time of S	Sampling:	1217	am/pr		
Depth to Top	of Pump:			ft					•						
Water Level After	r Sample:			ft		Bottle	1L Raw, 50	0mL Nitric	4 - 1L Nitri	C					
Measurement	: Method:	Electric V	Nater Level In	dicator		List:									
				Field	Measure	ements									

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pН	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
SEQ#	Time	( 0)	±5%	±0.1	±10%	±20 mV	±10%	0.25 ft	Removed	clear, partly cloudy, cloudy
1	:									
2		^		· · · · · · · · · · · · · · · · · · ·		·			_	
3										
4						THE REAL PROPERTY AND ADDRESS OF THE PARTY O				·
5										
6										
7								The Real Property lies and the Real Property lie		
8										
9										
10										

Comments:

Insufficient volume no Sample.



**Groundwater Assessment** 

Company:	OTP Coyote	
Event:	201,7	
Sample ID:	101212	
	1.00	

Db---- (704) 059 0700

Phone: (701) 258-9	9720									_	_	-	
Weather Conditions:		Temp:	75	°F	Wind:	11/10	) -15		Precip:	Sunn	y Rartly C	loudy / Clou	dy
	Well Info	rmation						Sa	ampling l	nformatic	n		
Well Locked?	Yes	∠No <sub>&gt;</sub>				Purgir	ng Method:	Blac	der		Co	ntrol Settings	
Well Labeled?	, Yes	No				Samplir	ng Method:	Blac	dder		Purge:	5	sec.
Casing Straight?	Yes	No				Dedicat	ed Equip?:	Yes	(No)		Recover:	55	sec.
Grout Seal Intact?	Yes	No	Not V	distrible.		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:		**				Duplicate:	Sample ID:	<u> </u>			Pumping R	ate: / 2 の	mL/min
Casing	Diameter:		2"_										
Water Level Bef	ore Purge:	3	7185	ft		F	urge Date:	19.Tu	e17	Time Purg	ing Began:	1608	am/gm
Total V	Vell Depth:		_	ft		Well P	urged Dry?	Yes	(No)	Time P	urged Dry:		<del>-am/</del> pm
We	ell Volume:			liters		Sa	mple Date:	19Tu	0/17	Time of	Sampling:	1638	am/pm
Depth to Top	p of Pump:		858	ft					ı			1000	
Water Level Afte	er Sample:	3	8.51	ft		Bottle	1L Raw, 50	00mL Nitric,	4 - 1L Nitrio				
Measuremer	nt Method:	Electric '	Water Level	Indicator		List:							
	•			Field	Measure	ements							
Stabilization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Į.	Discription:	i		
(3 consecutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity	, Color, Odo	or, Ect.		

Temp (°C)	Spec.		DO		- 1 1 114			
(°C)			50	ORP	Turbidity	Water	mL	Discription:
1 (0)	Cond.	pН	(mg/L)	(mV)	(mV) (NTU) Lev		Removed	Clarity, Color, Odor, Ect.
е	±5%	±0.1 ±10% ±20 mV ±10%		±10%	0.25 ft		clear, partly cloudy, cloudy	
3 114.86	3553	7.06	3,56	271,2	53.3	38,31	500	Cles
8 145	31935	7.07	3,80	270,5	38.3	38,39	209	ch
3 13.98	3574	7,09	1,59	270,6	29,3	38142	500	ch-
8 1332	3582	7.11	0,95	266,6	Mit.	28,48	500	"a"
	3578	7.14	0,93	2620	6.44100			d
A   V // A //	3579	72/4	0,90	261.0	13.18	38248	500	U
	e 3 14.86 8 14.5 3 13.98 9 13.32	15% 3   4.86 3553 8   4.5 81935 3   3.98 3574 8   3.39 3578 9   3.90 2579	18	15% ±0.1 ±10%  3   4.86 3553 7.06 3.56  8   4.5 81935 7.07 3.80  3   3.98 3574 7.09 1.59  8   3.32 3582 7.11 0.95  3   3.39 3578 7.14 0.93  8   3.80 3579 7.14 0.93	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Stabilized: Yes No

Total Volume Removed: 3000 mL



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 165
Sampling Pers	sonal: Darren Nieshaan

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

( 10.10. (10.1) 200 0.20							-						
Weather Conditions:		Temp:	→ °F		Wind:	V10-1	5		Precip	Sunr	ny) Partly C	Cloudy / Clou	ıdy
Well	Infor	mation						s	ampling I	nformatio	on		
Well Locked? (X	es_	No				Purgii	ng Method:	Bla	ıdder	'-	Co	ntrol Settings	;
Well Labeled?	es/	No				Sampli	ng Method:	Bla	dder		Purge:	5	sec.
	eş	No				Dedicat	ed Equip?:	Yes	(No)		Recover:	55	sec.
Grout Seal Intact?	es	No	Not Visib	le		Duplicate	Sample?:	Yes	No		PSI:		
Repairs Necessary:						Duplicate	Sample ID:				Pumping R	ate: / 🗷 🔿	mL/min
Casing Diam	eter:		2"									,	
Water Level Before Pu	urge:		39,57	ft.		F	urge Date:	19 Ju	ve ( 7	Time Purg	ing Began:	1735	am/pm
Total Well De	epth:			ft		Well P	urged Dry?	Yes	(NO)	Time F	Purged Dry:		am/pm
Well Volu	ume:		Consequence	liters		Sa	mple Date:	19Jun	-17	Time of	f Sampling:	1800	am/pm
Depth to Top of Pu	ump:	40	5155	ft					,				
Water Level After San	nple:		40,73	ft		Bottle	1L Raw, 50	00mL Nitric	, 4 - 1L Nitri	С			
Measurement Meth	hod:	Electric V	Nater Level Indi	cator		List:							

#### **Field Measurements**

	Tiola modernicho										
Stabili	ization	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:	
(3 cons	secutive)	(°C)	Cond.	pН	(mg/L)	(mV)	(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.	
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy	
1	1740	15,01	3217	6.67	D164	277,4	33,3	40,08	500	clea-	
2	1750	13,95	3232	6.17	0.49	276.8	43,3	40,39	901000	d	
3	1755	14.20	32,41	6.67	0,54	275,5	4025	40.36	500	de-	
4	1800	14,37	3240	6.67	0.57	272,1	38,8	40,39	500	d	
5 %	Y 305			,	1						
6											
7											
8											
9											
10											

Stabilized: Yes No

Total Volume Removed: 2500 mL



**Groundwater Assessment** 

Company:	OTP Coyote
Event:	2017
Sample ID:	Part NW25
0	

2616 E. Broadway Ave, Bis	smarck, ND						;	Sampling F	ersonal: ()	alren	N. 0500	rcez	
Phone: (701) 258-9	9720						_				/ -		
Weather Conditions:		Temp:	75°F		Wind:	W1	0		Precip:	Sun	ŋ͡ỷ / Partly C	oudy / Clou	dy
	Well Inf	ormation	<u> </u>				Sampling Information						
Well Locked?	Yes	(No				Purgi	ing Method:	Blac	dder		Cor	trol Settings	
Well Labeled?	Yes	No				Sampli	ing Method:	Bla	dder		Purge:		sec
Casing Straight?		No				Dedica	ted Equip?:	Yes	(No)		Recover:	<u>55</u>	sec
Grout Seal Intact?	Yes	No	Not Visible	€		Duplicate	e Sample?:	Yes	(No)		PSI:		
Repairs Necessary:						Duplicate	Sample ID:		-		Pumping Ra	ite: <i>(()()</i>	mL/mi
Casing	Diameter	:	2"						7				
Water Level Bef	ore Purge	: 2	2.46	ft		I	Purge Date:	19 Tu	ne(7	Time Puro	ging Began:	1425	am/gr
Total V	Vell Depth	:		ft		Well F	Purged Dry?	Yes	(NO)	Time I	Purged Dry:		_am/pr
We	ell Volume	:		liters		Sa	ample Date:	19.Ju	217	Time o	f Sampling:	1500	am/fir
Depth to Top	p of Pump	: 3	4.30	ft				•					
Water Level After Sample: 29.34		ft		Bottle 1L Raw, 500mL Nitric, 4 - 1L Nitric									
Measuremer	nt Method:	Electric	Water Level Indic	ator		List:							
					•								

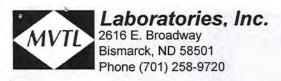
### **Field Measurements**

Stabili	zation	Temp	Spec.		DO	ORP	Turbidity	Water	mL	Discription:
(3 cons	ecutive)	(°C)	(°C) Cond.		pH (mg/L)		(NTU)	Level (ft)	Removed	Clarity, Color, Odor, Ect.
SEQ#	Time		±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1430	12.80	5088	6,88	678	269,8	9,31	23.16	500	clean
2	1440	12,71	5094	6,90	3,09	278,2	3119	24,53	1000	cler
3	1455	12,53	5071	6a 98	6.05	2975	4.68	26,43	1500	C Cer
4	1500	13104	5074	\$7.00	6,11	303,4	4.34	27219	500	cl
5	1505	13105	5054	7,00	6.06	307,2	457	27,27	500	a
6	1510	13,26		7000	6.04	300,0	4,32	27,32	500	U
7						210-				
8										
9									v.	
10									4100	

Stabilized: Yes

Total Volume Removed: 4500 mL

Comments:



# **Chain of Custody Record**

Project Nam	e:	Event:	Work Order Number:	
(	OTP Coyote - Slag Pond	June 2017	82-1629	
Report To: Attn: Address:	Otter Tail Power Josh Hollen PO Box 496 Fergus Falls, MN 56538-0496	Carbon Copy: Attn: Address:	Name of Sampler(s):  Darren Nieswaag	
phone:	ihollen@otpco.com		To lesso day	

	Samp	ole Informatio	n				Bottle Typ	ре	Fi	eld Para	meters	Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric			<sup>Temp</sup> (°C)	Spec. Cond.	Hd	Analysis Required
wa4a3	FB Slag	19 June 17	NA	W	_	4			NA	NA	NA	
wa4a4	Pond6	19June 17	1119	GW	clear	4			13,41	4848	7.28	
Wayas	PondN3	1954nel 7	1321	GW	Partly Cloudy	4		-	17.47	5295	6.72	
_	Pond10	19June 17	1217	GW		-2 ON	190 well			-	1	
Wayalo	Pond12	19June 7	1638	GW	clear	4			13,80	3579	7,14	Rad 226 & Rad 228
wa4a7	Pond16S	19. June 17		GW	clear	4			14.37	3240	6,67	Nau 220 & Nau 220
мачая	MW2S	19 June17		GW	clear	4			13,26	50.70	7,00	

Comments:

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1 Dan Nen	19 met 7	Log In Walk In #2	Anbient 20.0 TM562/TM588
2			

Name:	Date/Time	
In O Din man	actine 17 500	