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

234 West Century Avenue
Bismarck, ND 58503
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Acronyms

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

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:

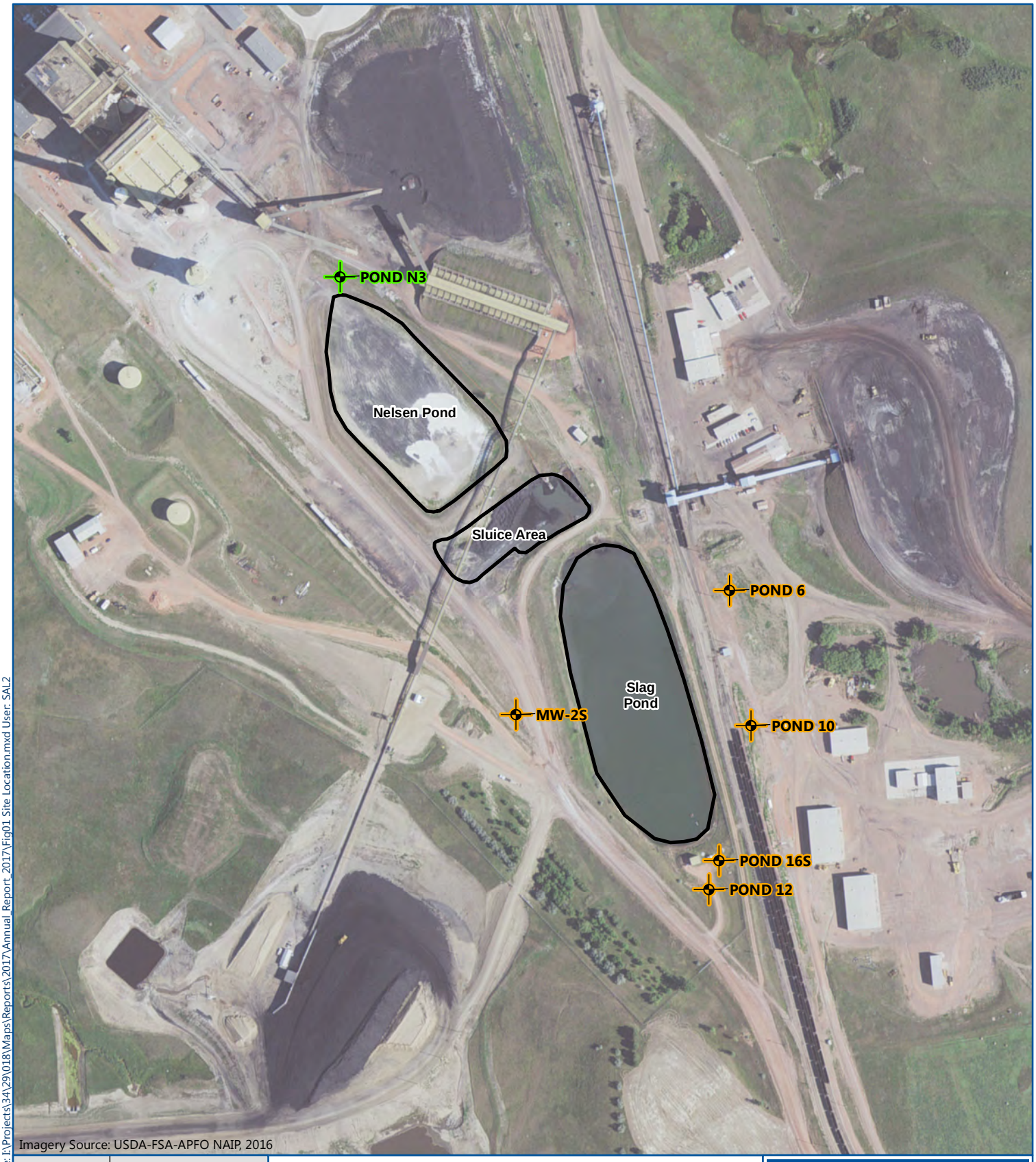
- Evaluate the cause of the low recharge rate noted for monitoring well POND 10 and develop a response to comply with CCR Rule requirements.
- Evaluate analytical results from the 2018 semiannual detection monitoring events for statistically significant increases (SSIs) according to the CCR Groundwater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

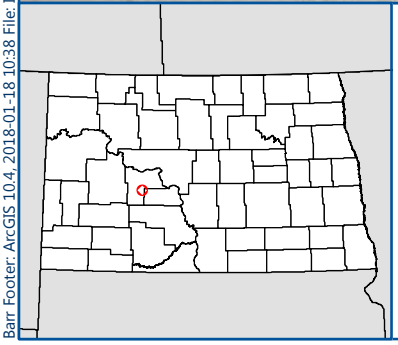
3.0 References

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





Upgradient Monitoring Well

Downgradient Monitoring Well

Pond Outline

N

0 200 400

Feet

SITE LOCATION
Slag Pond
Coyote Station
Otter Tail Power Company
Beulah, North Dakota

FIGURE 1

Barr Footer: ArcGIS 10.4, 2018-01-18 10:38 File: I:\Projects\34\29\018\Maps\Reports\2017\Annual_Report_2017\Fig01 Site Location.mxd User: SAL2

Appendices

Appendix A

Laboratory Reports and Field Sheets

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

CASE NARRATIVE

MVTL Lab Reference No/SDG: **201682-2990**
Client: **Ottertail Power Company**
Location: **Coyote Station**
Project Identification: **CCR Slag Pond**
Event & Year **3rd 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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Client:	**Ottertail Power Company**
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Event & Year	**3rd Quarter 2016**
MVTL Laboratory Identifications:	**16-W4194 through 16-W4200**

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).

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 5OCT 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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

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

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

PO #: 48895

Temp at Receipt: 3.8C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	16 Sep 16	KMD
Lab, pH	* 7.1	s.u.	0.1	SM4500 H+ B	19 Sep 16 17:00	ML
Field pH	7.28	s.u.	0.1	SM 4500 H+ B	14 Sep 16 11:19	JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 16 11:19	JSM
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	JSM
Fluoride	0.44	mg/l	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/l	1.0	SM4500-Cl-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	I1750-85	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/l	0.10	6010	26 Sep 16 11:49	KMD
Boron - Total	2.88	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	0.0352	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	0.0079	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	0.0075	mg/l	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 11:00	KMD

* Holding time exceeded

Approved by: Claudette K Carrep RC 5VCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

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

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

Project Name: OTP Coyote CCR Slag Pond

Sample Description: PONDN3

PO #: 48895

Temp at Receipt: 3.8C

Event and Year: 3rd QTR 2016

	As Received Result		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	6.80	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
Fluoride	0.27	mg/l	0.10	SM4500-F-C	19 Sep 16 17:00	ML
Sulfate	3310	mg/l	5.00	ASTM D516-07	21 Sep 16 13:06	EMS
Chloride	38.4	mg/l	1.0	SM4500-Cl-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	4990	mg/l	5	I1750-85	20 Sep 16 13:09	ML
Calcium - Total	490	mg/l	1.0	6010	19 Sep 16 15:16	SZ
Lithium - Total	0.44	mg/l	0.10	6010	26 Sep 16 11:49	KMD
Boron - Total	0.49	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	0.0026	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Barium - Total	0.0455	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	0.0069	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Cobalt - Total	0.0068	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Lead - Total	0.0020	mg/l	0.0005	6020	21 Sep 16 11:00	KMD
Molybdenum - Total	0.0052	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Selenium - Total	0.0566	mg/l	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: Claudette K Carroll CC 5 OCT 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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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

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

PO #: 48895

Temp at Receipt: 3.8C

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND12

Event and Year: 3rd QTR 2016

	As Received Result		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/l	1.0	SM4500-Cl-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	2840	mg/l	5	I1750-85	20 Sep 16 13:09	ML
Calcium - Total	174	mg/l	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/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	0.0209	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/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	0.0031	mg/l	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 11:00	KMD

* Holding time exceeded

Approved by: Claudette K Carroll SOCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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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

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

PO #: 48895

Temp at Receipt: 3.8C

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND15S

Event and Year: 3rd QTR 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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-Cl-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/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	0.0024	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Selenium - Total	0.0062	mg/l	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: Claudette K Carroll 5OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 3.8C

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND16S

Event and Year: 3rd QTR 2016

	As Received Result		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/l	0.10	SM4500-F-C	19 Sep 16 17:00	ML
Sulfate	1310	mg/l	5.00	ASTM D516-07	21 Sep 16 13:25	EMS
Chloride	21.2	mg/l	1.0	SM4500-Cl-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/l	5	I1750-85	20 Sep 16 13:09	ML
Calcium - Total	173	mg/l	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/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	0.0468	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	0.0016	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	0.0302	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/l	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 11:00	KMD

* Holding time exceeded

Approved by: Claudette K Carrep

cc SOCTIL

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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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

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

PO #: 48895

Temp at Receipt: 3.8C

Project Name: OTP Coyote CCR Slag Pond

Sample Description: MW2S

Event and Year: 3rd QTR 2016

	As Received Result		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 17:00	ML
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
Fluoride	0.27	mg/l	0.10	SM4500-F-C	19 Sep 16 17:00	ML
Sulfate	3100	mg/l	5.00	ASTM D516-07	21 Sep 16 13:25	EMS
Chloride	26.0	mg/l	1.0	SM4500-Cl-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	4740	mg/l	5	I1750-85	20 Sep 16 13:09	ML
Calcium - Total	550	mg/l	1.0	6010	19 Sep 16 16:16	SZ
Lithium - Total	0.38	mg/l	0.10	6010	26 Sep 16 11:49	KMD
Boron - Total	0.28	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	0.0118	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	0.0022	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Cobalt - Total	< 0.002	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	0.0022	mg/l	0.0020	6020	21 Sep 16 11:00	KMD
Selenium - Total	0.1034	mg/l	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: Claudette K. Carroll CL 5OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Temp at Receipt: 3.8C

Project Name: OTP Coyote CCR Slag Pond

Sample Description: FIELDBLANK

Event and Year: 3rd QTR 2016

	As Received Result		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-Cl-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	< 5	mg/l	5	I1750-85	20 Sep 16 13:09	ML
Calcium - Total	< 1	mg/l	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	< 0.1	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	< 0.005 ^	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/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	< 0.002	mg/l	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 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 5OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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Quality Control Report

Lab IDs: 16-W4194 to 16-W4200 **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 3.5	20 20	- - - -	- - - -	< 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

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MEMBER
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Quality Control Report

Lab IDs: 16-W4194 to 16-W4200 **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
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 0.0	20 20	- -	- -	< 0.1 < 0.1
Lead - Total mg/l	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	- -	- -	< 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 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 3.0	20 20	- -	- -	< 5 < 5
Thallium - Total mg/l	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. Gould

5 OCT 11

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

Chain of Custody Record

Project Name: OTP Coyote CCR Slag Pond Sept 16

Name of Sampler(s): Jeremy Meyer

Report To: Otter Tail Power
Attn: Paul Vukonich
Address: PO Box 496
Fergus Falls, MN 56538-0496
Phone:

Carbon Copy:
Attn:
Address:

Work Order Number: 82-2990

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Sample appearance	500 ml HNO_3	1 liter	500 ml HNO_3 (filtered)					Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W4194	Pond6	14 Sept 16	~~Clear~~ 1420	GW	Clear	X	X	X					12.18	3982	7.28	OTP CCR List. No RadChem.
W4195	PondN3	15 Sept 16	1420	GW	Partly Cloudy	X	X	X					13.64	4882	6.80	
—	Pond10	14 Sept 16	1051	GW	— *	X	X	X					insufficient volume			
W4196	Pond12	15 Sept 16	1625	GW	Clear	X	X	X					12.90	3536	7.27	
W4197	Pond15S	15 Sept 16	1556	GW	Clear	X	X	X					14.06	4387	6.41	
W4198	Pond16S	14 Sept 16	1342	GW	Clear	X	X	X					13.27	2603	6.99	
W4199	MW2S	14 Sept 16	1440	GW	Clear	X	X	X					16.16	4554	7.07	
W4200	Field Blank (FB)	15 Sept 16	NA	W	—	X	X	X					NA	NA	NA	
								*								

Comments: * — 16 Sept 16

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

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

Field Datasheet

Groundwater Assessment

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

Weather Conditions: Temp: 55 °F Wind: S @ 5-10 Precip: **Sunny / (Partly Cloudy) / Cloudy**

Well Information

Well Locked?	Yes	(No)	in manhole
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	16.85	ft
Total Well Depth:	18.78	ft
Well Volume:	1.2	liters
Depth to Top of Pump:	17.20	ft
Water Level After Sample:	17.00	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	1059 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	14 Sept 16	Time of Sampling:	1119 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±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	1.01	229.7	1.49	17.10	500	Clear
3	1114	12.22	3958	7.27	0.90	227.3	0.93	17.10	500	Clear
4	1119	12.18	3982	7.28	0.86	225.4	0.79	17.11	500	Clear
5										
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond N3
Sampling Personal:	Jeremy Meyer

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

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	(No)	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	11.88	ft
Total Well Depth:	37.07	ft
Well Volume:	15.5	liters
Depth to Top of Pump:	34.52	ft
Water Level After Sample:	16.01	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	15 Sept 16	Time Purging Began:	1040 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	15 Sept 16	Time of Sampling:	1420 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1045	14.41	4870	6.83	5.34	193.1	71000	12.09	500.0	Turbid
2	1105	14.01	4875	6.81	1.99	175.0	71000	14.18	2000.0	Turbid
3	1125	13.86	4880	6.81	3.18	178.5	978.0	14.74	2000.0	Turbid
4	1145	13.67	4879	6.80	2.56	178.9	581.0	15.10	2000.0	Slightly Turbid
5	1205	13.68	4878	6.80	2.56	180.7	363.0	15.32	2000.0	Slightly Turbid
6	1225	13.72	4885	6.80	1.38	183.7	272.0	15.44	2000.0	Slightly Turbid
7	1245	13.75	4887	6.81	1.00	194.2	198.0	14.78	2000.0	Slightly Turbid
8	1305	13.65	4879	6.80	2.02	192.6	211.0	15.05	2000.0	Slightly Turbid
9	1325	13.61	4882	6.80	4.27	191.6	195.0	15.40	2000.0	Slightly Turbid
10	1345	13.54	4886	6.80	1.24	191.4	146.0	15.50	2000.0	

~~Stabilized:~~ ~~Yes~~ ~~No~~

Total Volume Removed: — mL

Comments:

Continued on next page

MVTL
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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond N3
Sampling Personal:	Jeremy [illegible]
Date:	15 Sept 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1350	13.55	4884	6.80	0.73	191.5	140.0	15.58	500.0	Slightly Turbid
12	1355	13.62	4884	6.80	2.50	191.4	131.0	15.60	500.0	Slightly Turbid
13	1400	13.70	4886	6.80	2.26	191.6	135.0	15.58	500.0	Slightly Turbid
14	1405	13.72	4882	6.80	1.98	191.8	117.0	15.63	500.0	Slightly Turbid
15	1415	13.62	4884	6.80	1.89	191.7	122.0	15.65	500.0	Slightly Turbid
16	1420	13.64	4882	6.80	1.81	191.9	116.0	15.68	500.0	Slightly Turbid
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 21,500.0 mL

Comments:

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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 10
Sampling Personal:	

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

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	19.62	ft
Total Well Depth:	22.18	ft
Well Volume:	1.5	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	—	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:			

Control Settings	
Purge:	sec.
Recover:	sec.
PSI:	
Pumping Rate:	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	14 Sept 16	Time of Sampling:	1051 ~~am~~/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: _____ mL

Comments:

Insufficient volume
No Sample
Well historically has poor recharge

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Field Datasheet

Groundwater Assessment

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

Weather Conditions: Temp: 60 °F Wind: N 05-10 Precip: **Sunny / Partly Cloudy / ~~Cloudy~~**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	36.63	ft
Total Well Depth:	40.12	ft
Well Volume:	—	liters
Depth to Top of Pump:	37.50	ft
Water Level After Sample:	36.92	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes ~~No~~
Duplicate Sample?:	Yes ~~No~~
Duplicate Sample ID:	—

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	15 Sept 16	Time Purging Began:	1520 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	15 Sept 16	Time of Sampling:	1625 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1525	13.90	3639	7.27	6.98	172.9	55.1	36.85	500.0	Clear
2	1535	12.59	3547	7.27	3.48	172.7	27.8	36.93	1000.0	Clear
3	1545	12.37	3541	7.27	2.22	168.5	22.7	36.95	1000.0	clear
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	1000.0	Clear
6	1615	13.06	3530	7.31	1.65	140.6	9.81	36.83	1000.0	Clear
7	1620	12.83	3532	7.28	1.71	134.3	6.71	36.86	500.0	clear
8	1625	12.90	3536	7.27	1.66	127.8	5.36	36.88	500.0	Clear
9										
10										

Stabilized: Yes ~~No~~ Total Volume Removed: 6500.0 mL

Comments:

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Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Sept 2016
Sample ID: Pond 1S S
Sampling Personal: Jeremy Meyer

Weather Conditions: Temp: 55 °F Wind: NOS-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	32.50	ft
Total Well Depth:	37.72	ft
Well Volume:	3.2	liters
Depth to Top of Pump:	35.42	ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	15 Sept 16	Time Purging Began:	0910 (am)/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	1030 (am)/pm
Sample Date:	15 Sept 16	Time of Sampling:	1356 am/(pm)

Bottle List:	CCR: 1L Raw, 500mL Nitric, ~~4~~ 3 -1L Nitric

Insufficient recharge to collect all 1L Nitric Samples

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0915	11.86	4093	6.65	5.51	167.9	8.92	33.00	500.0	Clear
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	Clear
4	0935	11.74	4044	6.69	7.88	175.6	12.9	33.58	1000.0	clear
5	0945	11.58	4047	6.69	8.02	180.5	14.6	33.98	1000.0	Clear
6	0955	11.56	4055	6.69	7.41	184.6	14.0	34.35	1000.0	Clear
7	1005	11.61	4052	6.68	6.96	188.8	15.6	34.70	1000.0	clear
8	1015	11.58	4058	6.67	6.08	194.1	11.3	35.02	1000.0	clear
9	1025	11.80	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	Top of Pump	500.0	clear

Stabilized: Yes (No)

Total Volume Removed: — mL

Comments:

Continued on next page

MVTL
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Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**Sept 2016**
Sample ID:	Pond 15 S
Sampling Personal:	Jeremy Mayer
Date:	15 Sept 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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		purged well for 5min before sampling to clear line.								
12	1551							35.37	–	
13	1556	14.06	4387	6.41	4.23	58.2	25.7	35.42	500	clear
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: **Yes** (No)

Total Volume Removed: 9500 mL

Comments:

MVTL
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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 16S
Sampling Personal:	Jeremy Hays

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

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	Yes	(No)	labeled well
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	38.11	ft
Total Well Depth:	48.83	ft
Well Volume:	—	liters
Depth to Top of Pump:	46.00	ft
Water Level After Sample:	39.60	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	1222 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	14 Sept 16	Time of Sampling:	1342 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1227	13.73	2533	7.03	2.78	205.8	30.7	38.67	500	Clear
2	1232	13.26	2491	7.00	2.11	207.9	49.3	38.96	500	Clear
3	1237	13.18	2498	7.01	1.93	208.1	35.9	39.06	1000	Clear
4	1252	13.27	2500	7.01	1.77	207.1	33.0	39.16	1000	Clear
5	1302	13.15	2529	7.02	1.64	206.2	27.3	39.21	1000	Clear
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	1.61	169.7	11.3	39.37	1000	Clear
9	1337	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

Stabilized: (Yes) No Total Volume Removed: 8000 mL

Comments:

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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	MW 25
Sampling Personal:	Jeremy Myers

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	23.89	ft
Total Well Depth:	36.60	ft
Well Volume:	7.8 —	liters
Depth to Top of Pump:	34.40	ft
Water Level After Sample:	Top of pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4 / 4	sec.
Recover:	56 / 26	sec.
PSI:	20	
Pumping Rate:	100/200	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	0913 (am/pm)
Well Purged Dry?	(Yes) No	Time Purged Dry:	1033 (am/pm)
Sample Date:	14 Sept 16	Time of Sampling:	1400 (am/pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. 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	2.77	25.18	500	clear
3	0928	10.37	4550	6.93	7.11	256.0	3.50	26.01	500	Clear
4	0933	9.79	4530	6.94	8.15	252.7	4.74	27.03	1000	Clear
5	0938	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	Clear
8	1013	10.18	4574	6.99	8.53	223.5	2.48	31.33	2000	clear
9	1023	10.28	4577	6.98	8.30	215.2	1.53	32.30	2000	clear
10	1033	10.44	4479	6.93	5.59	211.4	0.70	33.40	2000	clear

Stabilized: Yes (No)

Total Volume Removed: — mL

Continued on next page

Comments:

Water level not stabilizing
increased pumping rate to 200 mL/min

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Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Sept 2016
Sample ID: MW2S
Sampling Personal: [illegible signature]
Date: 14 Sept 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1043	10.52	4470	6.91	4.45	206.4	0.51	Top of Pump	2000	Clear
12		well purged dry								
13										
14	1435	purged well for 5 min to clear line						32.80	500	
15	1440	16.16	4554	7.07	6.66	200.0	1.08	—	—	Clear
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: Yes (No) — No circled

Total Volume Removed: 16,500 mL
17,000

Comments:

pg 2 of 2

OTP Coyote
Water levels

well ID	Date	Time	depth to water
N3	13 Sept 16	0943	12.32
15S	13 Sept 16	0947	31.65
MW2S	13 Sept 16	0950	23.90
12	13 Sept 16	0952	36.71
16S	13 Sept 16	0953	38.19
10	13 Sept 16	1001	19.78
6	13 Sept 16	1003	16.96
Blue			
8	13 Sept 16	1016	73.93
16	13 Sept 16	1023	75.78
15	13 Sept 16	1025	77.03
6	13 Sept 16	1028	63.01
7	13 Sept 16	1032	80.21
14	13 Sept 16	1034	79.14
13	13 Sept 16	1046	105.35

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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: **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.

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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:	**16-W4201 through 16-W4207**
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: Claudette Carroll **DATE:** 18OCT16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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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

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

PO #: 48895

Temp at Receipt: 3.8C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	7.28	s.u.	0.1	SM 4500 H+ B	14 Sep 16 11:19	JSM
Field Appearance	Clear		NA	SM 2110	14 Sep 16 11:19	JSM
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	JSM
Radium 226	See Attached Report				3 Oct 16	OL
Radium 228	See Attached Report				1 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carrep CC 18OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote CCR Slag Pond

Sample Description: PONDN3

Temp at Receipt: 3.8C

Event and Year: 3RD QTR 2016

	As Received Result		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 Attached Report				3 Oct 16	OL
Radium 228	See Attached Report				1 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 18OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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

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

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

PO #: 48895

Project Name: OTP Coyote CCR Slag Pond

Temp at Receipt: 3.8C

Sample Description: POND12

Event and Year: 3RD QTR 2016

	As Received Result		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 Attached Report				3 Oct 16	OL
Radium 228	See Attached Report				2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll CC 18OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

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

PO #: 48895

Project Name: OTP Coyote CCR Slag Pond

Temp at Receipt: 3.8C

Sample Description: POND15S

Event and Year: 3RD QTR 2016

	As Received Result		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 Attached Report				3 Oct 16	OL
Radium 228	See Attached Report				2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carrep 17 OCT 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

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

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

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

PO #: 48895

Project Name: OTP Coyote CCR Slag Pond

Sample Description: POND16S

Temp at Receipt: 3.8C

Event and Year: 3RD QTR 2016

	As Received Result		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 Attached Report				3 Oct 16	OL
Radium 228	See Attached Report				2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 18OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

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

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

PO #: 48895

Project Name: OTP Coyote CCR Slag Pond

Sample Description: MW2S

Temp at Receipt: 3.8C

Event and Year: 3RD QTR 2016

	As Received Result		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 Attached Report				3 Oct 16	OL
Radium 228	See Attached Report				2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 18OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 3.8C

Event and Year: 3RD QTR 2016

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			3 Oct 16	OL
Radium 228	See Attached Report			2 Oct 16	OL

OL = Analysis performed by an Outside Laboratory.

CC
Approved by: Claudette K Carrep 18OCT16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

Date: 10/11/2016

CLIENT: MVTL Laboratories, Inc.
Project: 201682-2291
Lab Order: S1609366

CASE NARRATIVE

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
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

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-001
ClientSample ID: 16-W4201 Pond6
COC:

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/Init	
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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-002
ClientSample ID: 16-W4202 PondN3
COC:

WorkOrder: S1609366
CollectionDate: 9/14/2016 2:20:00 PM
DateReceived: 9/21/2016 8:02:00 PM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-003
ClientSample ID: 16-W4203 Pond12
COC:

WorkOrder: S1609366
CollectionDate: 9/15/2016 4:25:00 PM
DateReceived: 9/21/2016 8:02:00 PM
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	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

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-004
ClientSample ID: 16-W4204 Pond15S
COC:

WorkOrder: S1609366
CollectionDate: 9/15/2016 3:56:00 PM
DateReceived: 9/21/2016 8:02:00 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	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	MB
Radium 228 Precision (±)	3.2	pCi/L			Ga-Tech	10/02/2016 401	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-005
ClientSample ID: 16-W4205 Pond16S
COC:

WorkOrder: S1609366
CollectionDate: 9/14/2016 1:42:00 PM
DateReceived: 9/21/2016 8:02:00 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	10/03/2016 1454	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	10/03/2016 1454	MB
Radium 228	-4.4	pCi/L		1	Ga-Tech	10/02/2016 702	MB
Radium 228 Precision (±)	3.3	pCi/L			Ga-Tech	10/02/2016 702	MB

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-006
ClientSample ID: 16-W4206 MW2S
COC:

WorkOrder: S1609366
CollectionDate: 9/14/2016 2:40:00 PM
DateReceived: 9/21/2016 8:02:00 PM
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	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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 10/11/2016
Report ID S1609366001

ProjectName: 201682-2291
Lab ID: S1609366-007
ClientSample ID: 16-W4207 Field Blank
COC:

WorkOrder: S1609366
CollectionDate: 9/15/2016
DateReceived: 9/21/2016 8:02:00 PM
FieldSampler:
Matrix: Water

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. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

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	PrepDate: 09/26/16 12:00			BatchID: 12360		
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-388 (09/30/16 15:50)	RunNo: 139392	PrepDate: 09/26/16 12:00			BatchID: 12360		
Analyte	Result	RL	Spike	Ref Samp	%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	PrepDate: 09/26/16 12:00			BatchID: 12360		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	74	1	77	ND	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	PrepDate: 09/26/16 12:00			BatchID: 12360		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	72	1	74	2.73	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	PrepDate: 09/26/16 0:00			BatchID: 12387		
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-1667 (10/03/16 14:54)	RunNo: 139587	PrepDate: 09/26/16 0:00			BatchID: 12387		
Analyte	Result	RL	Spike	Ref Samp	%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	PrepDate: 09/26/16 0:00			BatchID: 12387		
Analyte	Result	RL	Spike	Ref Samp	%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	PrepDate: 09/26/16 0:00			BatchID: 12387		
Analyte	Result	RL	Conc	%RPD	%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	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201682-2991

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 9/19/2016
	Project Name/Number:	Purchase Order #: BL5668

Sample Information						Bottle Type						Analysis
IML Lab Number	S1609366 MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	16-W4201	Pond6		9/14/2016	1119							Ra226 & Ra228 on all
002	16-W4202	PondN3		9/14/2016	1420							
003	16-W4203	Pond12		9/15/2016	1625							
004	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								

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 Boys	9.21.16	15:43	20.2
2.							

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

Field Datasheet

Groundwater Assessment

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

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

Well Information

Well Locked?	Yes	(No)	in manhole
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	16.85	ft
Total Well Depth:	18.78	ft
Well Volume:	1.2	liters
Depth to Top of Pump:	17.20	ft
Water Level After Sample:	17.08	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	1059	(am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	—	am/pm
Sample Date:	14 Sept 16	Time of Sampling:	1119	(am)/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1104	12.43	3892	7.21	1.21	230.9	3.11	17.05	500	Clear
2	1109	12.41	3923	7.24	1.01	229.7	1.49	17.10	500	Clear
3	1114	12.22	3958	7.27	0.90	227.3	0.93	17.10	500	Clear
4	1119	12.18	3982	7.28	0.86	225.4	0.79	17.11	500	Clear
5										
6										
7										
8										
9										
10										

Stabilized: (Yes) No Total Volume Removed: 2000 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond N3
Sampling Personal:	Jeremy Meyer

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

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	(No)	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	11.88	ft
Total Well Depth:	37.07	ft
Well Volume:	15.5	liters
Depth to Top of Pump:	34.52	ft
Water Level After Sample:	16.01	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	Control Settings	
Sampling Method:	Bladder	Purge:	4 sec.
Dedicated Equip?:	Yes (No)	Recover:	56 sec.
Duplicate Sample?:	Yes (No)	PSI:	25
Duplicate Sample ID:	—	Pumping Rate:	100 mL/min

Purge Date:	15 Sept 16	Time Purging Began:	1040 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	15 Sept 16	Time of Sampling:	1420 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1045	14.41	4870	6.83	5.34	193.1	71000	12.09	500.0	Turbid
2	1105	14.01	4875	6.81	1.99	175.0	71000	14.18	2000.0	Turbid
3	1125	13.86	4880	6.81	3.18	178.5	978.0	14.74	2000.0	Turbid
4	1145	13.67	4879	6.80	2.56	178.9	581.0	15.10	2000.0	Slightly Turbid
5	1205	13.68	4878	6.80	2.56	180.7	363.0	15.32	2000.0	Slightly Turbid
6	1225	13.72	4885	6.80	1.38	183.7	272.0	15.44	2000.0	Slightly Turbid
7	1245	13.75	4887	6.81	1.00	194.2	198.0	14.78	2000.0	Slightly Turbid
8	1305	13.65	4879	6.80	2.02	192.6	211.0	15.05	2000.0	Slightly Turbid
9	1325	13.61	4882	6.80	4.27	191.6	195.0	15.40	2000.0	Slightly Turbid
10	1345	13.54	4886	6.80	1.24	191.4	146.0	15.50	2000.0	

~~Stabilized:~~ Yes No

Total Volume Removed: — mL

Comments:

Continued on next page

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond N3
Sampling Personal:	[illegible]
Date:	15 Sept 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1350	13.55	4884	6.80	0.73	191.5	140.0	15.58	500.0	Slightly Turbid
12	1355	13.62	4884	6.80	2.50	191.4	131.0	15.60	500.0	Slightly Turbid
13	1400	13.70	4886	6.80	2.26	191.6	135.0	15.58	500.0	Slightly Turbid
14	1405	13.72	4882	6.80	1.98	191.8	117.0	15.63	500.0	Slightly Turbid
15	1415	13.62	4884	6.80	1.89	191.7	122.0	15.65	500.0	Slightly Turbid
16	1420	13.64	4882	6.80	1.81	191.9	116.0	15.68	500.0	Slightly Turbid
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 21,500.0 mL

Comments:

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

Field Datasheet

Groundwater Assessment

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

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

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	19.62	ft
Total Well Depth:	22.18	ft
Well Volume:	1.5	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	—	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes ~~No~~
Duplicate Sample?:	Yes ~~No~~
Duplicate Sample ID:	

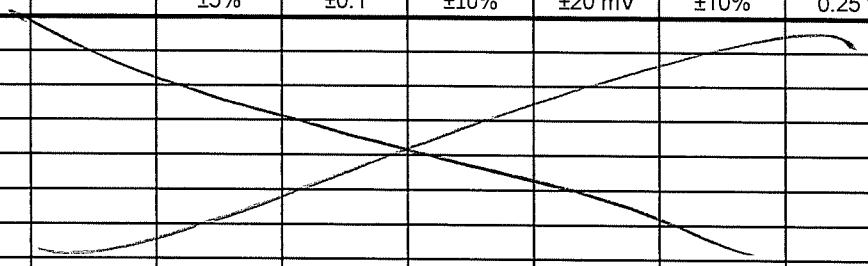
Control Settings	
Purge:	sec.
Recover:	sec.
PSI:	
Pumping Rate:	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	14 Sept 16	Time of Sampling:	1051 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										



Stabilized: Yes No

Total Volume Removed: _____ mL

Comments:

Insufficient volume
No Sample
Well historically has poor recharge

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

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

Weather Conditions: Temp: 60 °F Wind: N 05-10 Precip: **Sunny / Partly Cloudy / ~~Cloudy~~**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	36.63	ft
Total Well Depth:	40.12	ft
Well Volume:	—	liters
Depth to Top of Pump:	37.50	ft
Water Level After Sample:	36.92	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	15 Sept 16	Time Purging Began:	1520 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	15 Sept 16	Time of Sampling:	1625 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1525	13.90	3639	7.27	6.98	172.9	55.1	36.85	500.0	Clear
2	1535	12.59	3547	7.27	3.48	172.7	27.8	36.93	1000.0	Clear
3	1545	12.37	3541	7.27	2.22	168.5	22.7	36.93	1000.0	Clear
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	1000.0	Clear
6	1615	13.06	3530	7.31	1.65	140.6	9.81	36.83	1000.0	Clear
7	1620	12.83	3532	7.28	1.71	134.3	6.71	36.86	500.0	Clear
8	1625	12.90	3536	7.27	1.66	127.8	5.36	36.88	500.0	Clear
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 6500.0 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 1S s
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 55 °F Wind: NOS-10 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	32.50	ft
Total Well Depth:	37.72	ft
Well Volume:	3.2	liters
Depth to Top of Pump:	35.42	ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	15 Sept 16	Time Purging Began:	0910 (am)/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	1030 (am)/pm
Sample Date:	15 Sept 16	Time of Sampling:	1556 am/(pm)

Bottle List:	CCR: 1L Raw, 500mL Nitric, ~~4~~ 3-1L Nitric

Insufficient recharge to collect all 1L Nitric Samples

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0915	11.86	4093	6.65	5.51	167.9	8.92	33.00	500.0	Clear
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	Clear
4	0935	11.74	4044	6.69	7.88	175.6	12.9	33.58	1000.0	Clear
5	0945	11.58	4047	6.69	8.02	180.5	14.6	33.98	1000.0	Clear
6	0955	11.56	4055	6.69	7.41	184.6	14.0	34.35	1000.0	Clear
7	1005	11.61	4052	6.68	6.96	188.8	15.6	34.70	1000.0	clear
8	1015	11.58	4058	6.67	6.08	194.1	11.3	35.02	1000.0	Clear
9	1025	11.80	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	Top of Pump	500.0	clear

Stabilized: Yes (No)

Total Volume Removed: — mL

Comments:

Continued on next page

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 15S
Sampling Personal:	Jeremy Meyer
Date:	15 Sept 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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		purged well for 5min before sampling to clear line.								
12	1551							35.37	—	
13	1556	14.06	4387	6.41	4.23	58.2	25.7	35.42	500	clear
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: Yes (No)

Total Volume Removed: 4500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	Pond 16S
Sampling Personal:	Jeremy Player

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

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	Yes	(No)	Labeled well
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	38.11	ft
Total Well Depth:	48.83	ft
Well Volume:	—	liters
Depth to Top of Pump:	46.00	ft
Water Level After Sample:	39.60	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	1222 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	14 Sept 16	Time of Sampling:	1342 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1227	13.73	2533	7.03	2.78	205.8	30.7	38.67	500	Clear
2	1232	13.26	2491	7.00	2.11	207.9	49.3	38.96	500	Clear
3	1237	13.18	2498	7.01	1.93	208.1	35.9	39.06	1000	Clear
4	1252	13.27	2500	7.01	1.77	207.1	33.0	39.16	1000	Clear
5	1302	13.15	2529	7.02	1.64	206.2	27.3	39.21	1000	Clear
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	1.61	169.7	11.3	39.37	1000	Clear
9	1337	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

Stabilized: (Yes) No Total Volume Removed: 8000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	Sept 2016
Sample ID:	MW 25
Sampling Personal:	Jeremy Myers

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	23.89	ft
Total Well Depth:	36.60	ft
Well Volume:	7.8 —	liters
Depth to Top of Pump:	34.40	ft
Water Level After Sample:	Top of pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4 / 4	sec.
Recover:	56 / 26	sec.
PSI:	20	
Pumping Rate:	100/200	mL/min

Purge Date:	14 Sept 16	Time Purging Began:	0913 (am/pm)
Well Purged Dry?	(Yes) No	Time Purged Dry:	1033 (am/pm)
Sample Date:	19 Sept 16	Time of Sampling:	1400 (am/pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	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	2.77	25.18	500	clear
3	0928	10.37	4550	6.93	7.11	256.0	3.50	26.01	500	Clear
4	0933	9.79	4530	6.94	8.15	252.7	4.74	27.03	1000	Clear
5	0938	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	Clear
8	1013	10.18	4574	6.99	8.53	223.5	2.48	31.33	2000	clear
9	1023	10.28	4577	6.98	8.30	215.2	1.53	32.30	2000	clear
10	1033	10.44	4479	6.93	5.59	211.4	0.70	33.40	2000	clear

Stabilized: Yes (No)

Total Volume Removed: — mL

Continued on next page

Comments:

water level not stabilizing
increased pumping rate to 200 mL/min

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: Sept 2016
Sample ID: MW2S
Sampling Personal: Jeremy Thy
Date: 14 Sept 16

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1043	10.52	4470	6.91	4.45	206.4	0.51	Top of Pump	2000	Clear
12		well purged dry								
13										
14	1435	purged well for 5min to clear line						32.80	500	
15	1440	16.16	4554	7.07	6.66	200.0	1.08	—	—	Clear
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: Yes (No)

Total Volume Removed: 16,500 mL
17,000

Comments:

PS 2 of 2

OTP Coyote
Water levels

well ID	Date	Time	depth to water
N3	13 Sept 16	0943	12.32
15S	13 Sept 16	0947	31.65
MW2S	13 Sept 16	0950	23.90
12	13 Sept 16	0952	36.71
16S	13 Sept 16	0953	38.19
10	13 Sept 16	1001	19.78
6	13 Sept 16	1003	16.96
Blue			
8	13 Sept 16	1016	73.93
16	13 Sept 16	1023	75.78
15	13 Sept 16	1025	77.03
6	13 Sept 16	1028	63.01
7	13 Sept 16	1032	80.21
14	13 Sept 16	1034	79.14
13	13 Sept 16	1046	105.35

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

Chain of Custody Record

Project Name: OTP Coyote RadChem Slag Pond Sept 16

Name of Sampler(s): Serenity

Report To: Otter Tail Power
Attn: Paul Vukonich
Address: PO Box 496
Fergus Falls, MN 56538-0496
Phone:

Carbon Copy:
Attn:
Address:

Work Order Number: 82-2991

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Sample Appearance	1000 ml HNO_3							Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W4201	Pond6	14 Sept 16	1119	GW	Clear	4							12.18	3982	7.28	OTP CCR combined RadChem
W4202	PondN3	15 Sept 16	1420	GW	partly cloudy *	4							13.64	4882	6.80	
—	Pond10	14 Sept 16	1051	GW	—	4							insufficient volume			
W4203	Pond12	15 Sept 16	1625	GW	Clear	4							12.90	3536	7.27	
W4204	Pond15S	15 Sept 16	1556	GW	Clear	4							14.06	4387	6.41	
W4205	Pond16S	14 Sept 16	1342	GW	Clear	4							13.27	2603	6.99	
W4206	MW2S	14 Sept 16	1440	GW	Clear	4							16.16	4554	7.07	
W4207	Field Blank (FB)	15 Sept 16	NA	W	Clear	4							NA	NA	NA	

Comments:
* ~1 in 16 Sept 16

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	[signature]	Log in	16 Sept 16 1040	[signature]		16 Sept 2016 1540	3.8°C TM562
2							
3							

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

MEMBER ACIL

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

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

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**

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: Claudette Carroll **DATE:** 14 Dec 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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

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

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

Project Name: OTP Coyote Slag Pond Oct 2016

PO #: 48895

Sample Description: Pond6

Temp at Receipt: 0.3 ROI

	As Received Result		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	See Attached Report				8 Nov 16	OL
Radium 228	See Attached Report				25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

cc

Approved by: Claudette K Carrep 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

CERTIFICATION: ND # ND-00016

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

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

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

Project Name: OTP Coyote Slag Pond Oct 2016

PO #: 48895

Sample Description: PondN3

Temp at Receipt: 0.3 ROI

	As Received Result		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
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
Radium 226	See Attached Report				8 Nov 16	OL
Radium 228	See Attached Report				25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

cc

Approved by: Claudette K Carroll 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 sample quantity
= Due to concentration of other analytes
* = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

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

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

Project Name: OTP Coyote Slag Pond Oct 2016

PO #: 48895

Sample Description: Pond12

Temp at Receipt: 0.3 ROI

	As Received Result		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		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
Radium 226	See Attached Report				8 Nov 16	OL
Radium 228	See Attached Report				25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carrep cc 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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Pond16S

Temp at Receipt: 0.3 ROI

	As Received Result		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
Radium 226	See Attached Report				8 Nov 16	OL
Radium 228	See Attached Report				25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 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 sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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Report Date: 13 Dec 16
Lab Number: 16-W4938
Work Order #:82-3450
Account #: 006106
Date Sampled: 19 Oct 16 8:40
Date Received: 20 Oct 16 7:57
Sampled By: MVTL Field Services

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

Project Name: OTP Coyote Slag Pond Oct 2016

PO #: 48895

Sample Description: MW2S

Temp at Receipt: 0.3 ROI

	As Received Result		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	See Attached Report				8 Nov 16	OL
Radium 228	See Attached Report				25 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carrol 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

CERTIFICATION: ND # ND-00016

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www.mvtl.com

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

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

PO #: 48895

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Field Blank

Temp at Receipt: 0.3 ROI

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

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll 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

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

Date: 12/1/2016

CLIENT: MVTL Laboratories, Inc.
Project: 201682-3450
Lab Order: 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:

Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	12/1/2016 S1610372001
ProjectName:	201682-3450	**WorkOrder:**	S1610372
Lab ID:	S1610372-001	**CollectionDate:**	10/19/2016 2:40:00 PM
ClientSample ID:	16-W4934 Pond6	**DateReceived:**	10/25/2016 2:33:00 PM
COC:	201682-3450	**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	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. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/1/2016
Report ID S1610372001

ProjectName: 201682-3450
Lab ID: S1610372-002
ClientSample ID: 16-W4935 PondN3
COC: 201682-3450

WorkOrder: S1610372
CollectionDate: 10/18/2016 1:42:00 PM
DateReceived: 10/25/2016 2:33:00 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	11/08/2016 1212	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1212	MB
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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/1/2016
Report ID S1610372001

ProjectName: 201682-3450
Lab ID: S1610372-003
ClientSample ID: 16-W4936 Pond12
COC: 201682-3450

WorkOrder: S1610372
CollectionDate: 10/19/2016 10:21:00 AM
DateReceived: 10/25/2016 2:33:00 PM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/1/2016
Report ID S1610372001

ProjectName: 201682-3450
Lab ID: S1610372-004
ClientSample ID: 16-W4937 Pond16S
COC: 201682-3450

WorkOrder: S1610372
CollectionDate: 10/19/2016 12:43:00 PM
DateReceived: 10/25/2016 2:33:00 PM
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	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. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/1/2016
Report ID S1610372001

ProjectName: 201682-3450
Lab ID: S1610372-005
ClientSample ID: 16-W4938 MW2S
COC: 201682-3450

WorkOrder: S1610372
CollectionDate: 10/19/2016 8:40:00 AM
DateReceived: 10/25/2016 2:33:00 PM
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	11/08/2016 1415	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	11/08/2016 1415	MB
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. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/1/2016
Report ID S1610372001

ProjectName: 201682-3450
Lab ID: S1610372-006
ClientSample ID: 16-W4939 FIELD BLANK
COC: 201682-3450

WorkOrder: S1610372
CollectionDate: 10/19/2016
DateReceived: 10/25/2016 2:33:00 PM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Total							
Radium 226	0.1	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	MB
Radium 228	-0.2	pCi/L		2	Ga-Tech	11/25/2016 1836	MB
Radium 228 Precision (±)	2.9	pCi/L			Ga-Tech	11/25/2016 1836	MB

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

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: 11/07/16 14:00 BatchID: 12572

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-399 (11/23/16 14:21) RunNo: 141245 PrepDate: 11/07/16 14:00 BatchID: 12572

Analyte	Result	RL	Spike	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 BatchID: 12572

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	41	1	35	14.8	104	20	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

S1610375-002AMS (11/24/16 05:43) RunNo: 141245 PrepDate: 11/07/16 14:00 BatchID: 12572

Analyte	Result	RL	Spike	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** Units: pCi/L

S1610375-002AMSD (11/24/16 08:47) RunNo: 141245 PrepDate: 11/07/16 14:00 BatchID: 12572

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1610372
Project: 201682-3450

Date: 12/1/2016
Report ID: S1610372001

Radium 226 in Water - Total by SM7500RA_B Sample Type **MBLK** Units: pCi/L

MB-1682 (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/31/16 0:00			BatchID: 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** Units: pCi/L

LCS-1682 (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/31/16 0:00			BatchID: 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** Units: pCi/L

LCSD-1682 (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/31/16 0:00			BatchID: 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** Units: pCi/L

S1610375-002AMS (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/31/16 0:00			BatchID: 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** Units: pCi/L

S1610375-002AMSD (11/08/16 12:12)	RunNo: 140673	PrepDate: 10/31/16 0:00			BatchID: 12505		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	12.0	0.2	12.8	6.25	98.0	20	

Qualifiers:

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

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201682-3450

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 21-Oct-16
	Project Name/Number:	Purchase Order #: BL5700

Sample Information						Bottle Type						Analysis
SI610372 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
001	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					Ra226 & Ra228
004	16-W4937	Pond16S	GW	19-Oct-16	1243		4					Ra226 & Ra228
005	16-W4938	MW2S	GW	19-Oct-16	840		4					Ra226 & Ra228
006	16-W4939	Field Blank	GW	19-Oct-16			4					Ra226 & Ra228

Comments: All results must be reported as a numerical value

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	21-Oct-16	1700		Kathy Bom	10.25.16	14:33	13.4 C
2.							

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 6
Sampling Personal:	Jerry Flynn

Weather Conditions: Temp: 45 °F Wind: NW 5-10 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

Well Information

Well Locked?	Yes	(No)	in manhole
Well Labeled?	~~Yes~~	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	16.98	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	— 17.25	ft	
Water Level After Sample:	Below Pump	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	19 Oct 16		Time Purging Began:	1410 am/(pm)
Well Purged Dry?	Yes	(No)	Time Purged Dry:	— am/pm
Sample Date:	19 Oct 16		Time of Sampling:	1440 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1415	13.02	3993	7.10	3.21	174.5	2.93	Below Pump (BP)	500	clear
2	1420	12.51	4064	7.09	2.15	179.3	1.43	BP	500	Clear
3	1425	11.59	4123	7.13	1.73	180.6	0.68	BP	500	Clear
4	1430	11.46	4154	7.19	1.54	180.6	0.53	BP	500	Clear
5	1435	11.67	4182	7.19	1.50	181.3	0.49	BP	500	clear
6	1440	11.57	4190	7.21	1.44	181.7	0.54	BP	500	clear
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3000 mL

Comments:

water level below pump during purging but purging rate kept up at 100 mL/min.

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond N3
Sampling Personal:	Jeremy Foley

Weather Conditions: Temp: 45 °F Wind: S @ 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	(No)	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	11.66	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.90	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	25	
Pumping Rate:	200/100	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1137 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	18 Oct 16	Time of Sampling:	1342 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1142	12.93	5201	6.67	4.81	134.2	546.0	13.79	1000	partly cloudy
2	~~1202~~ 1152	12.79	5191	6.66	5.30	127.7	564.0	16.48	2000	partly cloudy
3	1212	13.22	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	17.05	4000	partly Cloudy
5	1252	12.84	5190	6.66	4.44	155.6	44.0	17.26	4000	partly Cloudy
6	1312	12.87	5204	6.66	5.19	158.2	32.7	~~17~~.44	4000	partly Cloudy
7	1332	12.82	5200	6.66	5.77	159.1	25.5	17.73	4000	Clear
8	1337	12.74	5199	6.66	5.81	159.1	24.7	17.69	~~1000~~ 500	Clear
9	1342	12.58	5192	6.66	6.02	159.2	25.4	17.75	~~1000~~ 500	Clear
10										

Stabilized: (Yes) No

Total Volume Removed: 24,000 mL

Comments:

water level not stabilizing

decreased purge rate to 100 mL/min @ 1152

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 10 Sheet 1 of 2
Sampling Personal:	Jerry Glen

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	~~Yes~~	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	~~27.92~~ 19.92	ft
Total Well Depth:	22.05	ft
Well Volume:	1.4	liters
Depth to Top of Pump:	20.40	ft
Water Level After Sample:	Below pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5 / 3	sec.
Recover:	55 / 57	sec.
PSI:	20 / 10	
Pumping Rate:	100 / 50	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1114 (am)/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	~~1149~~ 1121 (am)/pm
Sample Date:	19 Oct 16	Time of Sampling:	1335 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1119	12.87	3332	7.14	8.01	103.2	25.2	Below Pump	500	Clear
2	1121	13.11	3321	7.14	7.87	102.0	—	Below Pump	200	Clear
3										
4										
5										
6										
7										
8										
9	~~1334~~							20.45		
10	1335	13.64	3209	7.42	10.07	171.4	10.1	—	—	Clear

Stabilized: Yes (No)

Total Volume Removed: 700 mL

Comments:

Collected 1L Raw & 500mL Nitric before well went dry @ 1402

Sampled well @ 50mL/min

Left pump in well to try to complete sampling at a later date

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

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

Weather Conditions: Temp: 40 °F Wind: NW 5-10 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	36.90	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	37.48	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	40	
Pumping Rate:	200/100	mL/min

Purge Date:	19 Oct 16	Time Purging Began:	0926 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	19 Oct 16	Time of Sampling:	1021 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0931	9.52	3724	7.14	1.19	208.1	30.1	37.41	1000	Clear
2	0936	9.71	3715	7.18	0.89	187.3	19.8	37.86	2000	clear
3	0941	9.53	3688	7.19	0.82	184.0	10.4	37.43	1000	clear
4	0956	9.48	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	Clear
6	1006	9.53	3673	7.21	1.59	152.3	3.56	37.48	500	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	Clear
10										

Stabilized: (Yes) No

Total Volume Removed: 7000 mL

Comments:

At 0941 decreased purging rate to 100mL/min due to water level not stabilizing

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 15s
Sampling Personal:	Jay Gly

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

Well Information

Well Locked?	Yes	~~NO~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	~~35.35~~ 35.55		ft
Total Well Depth:	37.72		ft
Well Volume:	1.3		liters
Depth to Top of Pump:	35.59		ft
Water Level After Sample:			ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	45	
Pumping Rate:	200/100	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1428 am/pm
Well Purged Dry?	~~Yes~~ No	Time Purged Dry:	1453 am/pm
Sample Date:	19 Oct 16	Time of Sampling:	0821 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±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 pump (BP)	1000	Clear
2	~~*1436~~	~~10.36~~	~~4351~~	~~6.54~~	~~11.36~~	~~179.4~~	~~15.3~~	~~Below Pump~~	~~600~~	~~Clear~~
3	1438	10.25	4353	6.54	10.49	178.7	10.4	BP	1000	clear
4	1443	10.32	4351	6.53	9.91	177.6	6.53	BP	1000	clear
5	1448	10.70	4339	6.52	8.93	174.7	4.59	BP	1000	clear
6	1453	10.85	4347	6.52	8.83	174.2	—	BP	500	clear
7										
8										
9	0819	purged well for 2 min to clear line				@ 100mL/min		BP	300	
10	0821	7.46	4327	6.51	7.55	278.4	2.89	—	—	clear

Stabilized: Yes ~~No~~

Total Volume Removed: ~~*4600~~ mL

Comments:

*18 Oct 16

~~1448~~ * At 1448 reduced purging rate to 100ml/min since well was not purging dry this event

well eventually purged dry at 1453 left pump in well while it recharged

Poor recharge. only able to collect field reading will try to sample at a later date

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 16S
Sampling Personal:	Jerry May

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

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	37.90	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	—	ft	
Water Level After Sample:	40.04	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	35	sec.
PSI:	40	
Pumping Rate:	~~100~~	mL/min

Purge Date:	19 Oct 16	Time Purging Began:	1108 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	19 Oct 16	Time of Sampling:	1243 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. 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	partly cloudy
3	1133	10.60	2866	6.92	1.06	160.9	40.1	39.52	2000	partly cloudy
4	1153	10.51	2886	6.91	1.12	157.8	48.2	39.61	1000	partly cloudy
5	1213	11.01	2915	6.90	1.18	148.0	15.8	39.70	2000	Clear
6	1233	10.93	2936	6.93	1.06	139.8	10.4	39.90	2000	Clear
7	1238	10.75	2942	6.92	1.05	138.4	10.7	39.85	500	Clear
8	1243	11.02	2941	6.94	1.07	137.8	10.1	39.93	500	Clear
9										
10										

Stabilized: Yes No

Total Volume Removed: 9500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	MW25
Sampling Personal:	Jerry Hoyer

Weather Conditions: Temp: 40 °F Wind: NW 5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	(Yes)	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	23.25	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	34.50	ft
Water Level After Sample:	33.56	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	40	
Pumping Rate:	200/100	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1457 am/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	1607 am/pm
Sample Date:	19 Oct 16	Time of Sampling:	0840 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1502	9.97	4849	6.94	13.62	169.2	2.45	25.43	1000	Clear
2	1507	9.84	4806	6.95	14.02	169.0	4.10	26.98	1000	clear
3	1527	9.76	4808	6.94	14.17	170.4	5.42	29.95	4000	clear
4	1547	9.57	4842	7.00	13.85	172.9	7.89	32.35	4000	clear
5	1607	9.41	4742	6.95	13.05	173.6	7.89	Below Pump	4000	Clear
6										
7										
8										
9	0837	purged dwl for 3 min to clear line @ 100 ml/min						31.15	300	
10	0840	9.12	4671	6.94	8.92	253.8	0.86	—	—	Clear

Stabilized: Yes (No)

Total Volume Removed: ~~14000~~ 14,300 mL

Comments:

Left pump in well while it recharged.

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

Chain of Custody Record

Project Name: OTP Coyote RadChem Slag Pond Oct 2016		**Name of Sampler(s):** Jeremy Meyer
Report To: Otter Tail Power Attn: Paul Vukonich Address: PO Box 496 Fergus Falls, MN 56538-0496 Email: pvukonich@otpco.com	**Carbon Copy:** OTP Attn: Josh Hollen Address: Email: jhollen@otpco.com	**Work Order Number:** 82-3450

Lab Number	Sample ID	Date	Time	Sample Type	Sample appearance	1000 ml HNO_3						Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W4934	Pond6	19 Oct 16	1440	GW	Clear	4						11.57	4190	7.21	OTP CCR combined RadChem
W4935	PondN3	18 Oct 16	1342	GW	clear	4						12.58	5192	6.66	
~~W4936~~	Pond10	19 Oct 16	1335	GW	Clear	~~4~~						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~~						7.46	4327	6.51	
W4937	Pond16S	19 Oct 16	1243	GW	Clear	4						11.02	2941	6.94	
W4938	MW2S	19 Oct 16	0840	GW	clear	4						9.12	4671	6.94	
W4939	Field Blank (FB)	19 Oct 16	NA	W		4						NA	NA	NA	

(margin note: 20 Oct 16)

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

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	[signature]	Log in	20 Oct 16 0757	C. Cantu [signature]		20 Oct 16 757	0.3 R01 TM588
2							
3							

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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.

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Client:	**Ottertail Power Company**
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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 additional dilutions required to minimize the effects of sample matrix.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 5/11/16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Quality Control Report

Lab IDs: 16-W4940 to 16-W4946 **Project:** OTP Coyote Slag Pond CCR **Work Order:** 201682-3451

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
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	16W4940q	< 0.001	0.4198	105	75-125	0.4198	0.4182	105	0.4	20	-	-	
				0.400	16W4941q	< 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	8.2	20	-	-	
				0.400	16W4941q	< 0.002	0.4096	102	75-125	0.4096	0.4152	104	1.4	20	-	-	
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	16W4941q	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	16W4827q	< 0.0005	0.4352	109	75-125	0.4352	0.4338	108	0.3	20	-	-	< 0.0005
				0.400	16W4940q	< 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	120	0.5	20	-	-	
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	1.1	20	-	-	< 0.1
	0.40	115	80-120	2.00	16-W4941	0.69	2.62	97	75-125	2.62	2.60	95	0.8	20	-	-	< 0.1
	0.40	120	80-120	0.400	16-W5155	0.60	1.03	108	75-125	1.03	1.02	105	1.0	20	-	-	< 0.1
				0.400	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	0.5	20	-	-	< 0.0005
				0.400	16W4940q	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	102	1.2	20	-	-	
Calcium - Total mg/l	20.0	95	80-120	2000	16W4923q	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	730	1140	82	75-125	168	168	93	0.0	20	-	-	< 1
				500	16W4941q	515	955	88	75-125						-	-	< 1
				100	16W4962q	74.7	168	93	75-125						-	-	

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Quality Control Report

Lab IDs: 16-W4940 to 16-W4946 **Project:** OTP Coyote Slag Pond CCR **Work Order:** 201682-3451

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	16W4827q	0.0045	0.3960	98	75-125	0.3960	0.3938	97	0.6	20	-	-	< 0.002
				0.400	16W4940q	< 0.002	0.4020	100	75-125	0.4020	0.3804	95	5.5	20	-	-	
				0.400	16W4941q	< 0.002	0.3928	98	75-125	0.3928	0.3950	99	0.6	20	-	-	
Cobalt - Total mg/l	0.0160	97	80-120	0.400	16W4827q	< 0.002	0.3898	97	75-125	0.3898	0.3824	96	1.9	20	-	-	< 0.002
				0.400	16W4940q	0.0086	0.4184	102	75-125	0.4184	0.3990	98	4.7	20	-	-	
				0.400	16W4941q	0.0048	0.3998	99	75-125	0.3998	0.4052	100	1.3	20	-	-	
Fluoride mg/l	0.50	106	90-110	0.500	16-W4912	< 0.1	0.53	106	80-120	0.53	0.54	108	1.9	20	-	-	< 0.1
				0.500	16-W4945	0.28	0.75	94	80-120	0.75	0.76	96	1.3	20	-	-	< 0.1
Lead - Total mg/l	0.0160	98	80-120	0.400	16W4827q	0.0018	0.3972	99	75-125	0.3972	0.3832	95	3.6	20	-	-	< 0.0005
				0.400	16W4940q	< 0.0005	0.3906	98	75-125	0.3906	0.3834	96	1.9	20	-	-	
				0.400	16W4941q	0.0006	0.3846	96	75-125	0.3846	0.3854	96	0.2	20	-	-	
Lithium - Total mg/l	0.40	100	80-120	2.00	16-D4370	0.96	2.83	93	75-125	2.83	2.83	93	0.0	20	-	-	< 0.1
	0.40	105	80-120	0.400	16-W4823	0.10	0.51	102	75-125	0.51	0.52	105	1.9	20	-	-	< 0.1
	0.40	110	80-120	0.800	16-W4827	0.10	0.92	102	75-125	0.92	1.00	112	8.3	20	-	-	< 0.1
				0.400	16-W4940	0.06	0.49	108	75-125	0.49	0.50	110	2.0	20	-	-	< 0.1
				2.00	16-W4941	< 0.5	2.39	120	75-125	2.39	2.30	115	3.8	20	-	-	< 0.1
Mercury - Total mg/l	0.0020	90	85-115	0.002	16-W4912	< 0.0002	0.0016	80	70-130	0.0016	0.0015	75	6.5	20	-	-	< 0.0002
	0.0020	105	85-115	0.002	16-W4945	< 0.0002	0.0017	85	70-130	0.0017	0.0018	90	5.7	20	-	-	< 0.0002
				0.002	16-W5079	< 0.0002	0.0019	95	70-130	0.0019	0.0020	100	5.1	20	-	-	
				0.002	16-W5143	< 0.0002	0.0019	95	70-130	0.0019	0.0019	95	0.0	20	-	-	
Molybdenum - Total mg/l	0.1000	104	80-120	0.100	16-W4753Q	0.0038	0.0933	90	75-125	0.3456	0.3728	92	7.6	20	-	-	< 0.002
				0.400	16-W4753Q	0.0038	0.3456	85	75-125	0.3960	0.3980	100	0.5	20	-	-	
				0.400	16-W4823Q	< 0.002	0.3960	99	75-125	0.3880	0.3746	94	3.5	20	-	-	
				0.400	16-W4827Q	< 0.002	0.3880	97	75-125	0.3934	0.3900	96	0.9	20	-	-	
				0.400	16-W4940Q	0.0058	0.3934	97	75-125	0.3978	0.3826	95	3.9	20	-	-	
				0.400	16-W4941Q	0.0034	0.3978	99	75-125						-	-	

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Quality Control Report

Lab IDs: 16-W4940 to 16-W4946 **Project:** OTP Coyote Slag Pond CCR **Work Order:** 201682-3451

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
pH units	-	-	-	-	-	-	-	-	-	6.8	6.8	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	5.9	5.9	-	0.0	20	-	-	-
Selenium - Total mg/l	0.1000	94	80-120	0.400	16-W4753	< 0.002	0.3032	76	75-125	0.3032	0.3268	82	7.5	20	-	-	< 0.002
				0.400	16-W4823	< 0.002	0.4550	114	75-125	0.4550	0.4228	106	7.3	20	-	-	
				0.400	16-W4827	< 0.002	0.4254	106	75-125	0.4254	0.4252	106	0.0	20	-	-	
				0.400	16-W4940	< 0.002	0.4386	110	75-125	0.4386	0.4192	105	4.5	20	-	-	
				0.400	16-W4941	0.0530	0.5196	117	75-125	0.5196	0.5186	116	0.2	20	-	-	
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	16W4827q	< 0.0005	0.3930	98	75-125	0.3930	0.3812	95	3.0	20	-	-	< 0.0005
				0.400	16W4940q	< 0.0005	0.3862	97	75-125	0.3862	0.3860	96	0.1	20	-	-	
				0.400	16W4941q	< 0.0005	0.3866	97	75-125	0.3866	0.3842	96	0.6	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	3090	3100	-	0.3	20	-	-	< 5
	-	-	-	-	-	-	-	-	-	39200	38900	-	0.8	20	-	-	

Approved by: Claudette Cant
5/9/16

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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

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

PO #: 48895

Project Name: OTP Coyote Slag Pond CCR

Temp at Receipt: 0.3C ROI

Sample Description: Pond6

Event and Year: Oct 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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-Cl-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	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/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/l	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/l	0.0020	6020	26 Oct 16 11:07	CC
Cobalt - Total	0.0086	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	0.0058	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

* Holding time exceeded

CC
SMW16

Approved by: Claudette K. Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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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

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

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

PO #: 48895

Temp at Receipt: 0.3C ROI

Project Name: OTP Coyote Slag Pond CCR

Sample Description: PondN3

Event and Year: OCt 2016

	As Received Result		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/l	1.0	SM4500-Cl-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/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/l	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0197	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	0.0005	mg/l	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/l	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/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

CC
SNMb

Approved by: Claudette K Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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

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

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	26.8	mg/l	1.0	SM4500-Cl-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	2660	mg/l	5	I1750-85	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/l	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0446	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	< 0.0005	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
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/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 Carroll 5 NOV 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
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com
MEMBER ACIL

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

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

Project Name: OTP Coyote Slag Pond CCR

Sample Description: Pond12

Event and Year: Oct 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	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/l	1.0	SM4500-Cl-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/l	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/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/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/l	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/l	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/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

CC
SMM6

Approved by: Claudette K. Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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www.mvtl.com

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

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

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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		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
Fluoride	0.24	mg/l	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/l	1.0	SM4500-Cl-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/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	1.98	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/l	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	0.0481	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	0.0017	mg/l	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/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	0.0087	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

CC
SMM6

Approved by: Claudette K. Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
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www.mvtl.com

Report Date: 4 Nov 16
Lab Number: 16-W4945
Work Order #:82-3451
Account #: 006106
Date Sampled: 19 Oct 16 8:40
Date Received: 20 Oct 16 7:57
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 0.3C ROI

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

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Oct 16	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/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	25.8	mg/l	1.0	SM4500-Cl-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	4800	mg/l	5	I1750-85	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/l	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/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	0.0121	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	< 0.0005	mg/l	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	< 0.002	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	0.0908	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 Carroll CC 5 NOV 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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

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

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

PO #: 48895

Project Name: OTP Coyote Slag Pond CCR

Temp at Receipt: 0.3C ROI

Sample Description: Field Blank

Event and Year: Oct 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	21 Oct 16	ML
Lab, pH	* 6.0	s.u.	0.1	SM4500 H+ B	20 Oct 16 18:00	KMD
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	20 Oct 16 18:00	KMD
Sulfate	< 5	mg/l	5.00	ASTM D516-07	2 Nov 16 13:07	KMD
Chloride	< 1	mg/l	1.0	SM4500-Cl-E	28 Oct 16 12:30	KMD
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	3 Nov 16 11:17	EV
Total Dissolved Solids	< 5	mg/l	5	I1750-85	21 Oct 16 18:12	CC
Calcium - Total	< 1	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	< 0.1	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/l	0.0020	6020	26 Oct 16 11:07	CC
Barium - Total	< 0.002	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	< 0.0005	mg/l	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	< 0.002	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/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 Carroll CC SNV16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 6
Sampling Personal:	Jerry Thyne

Weather Conditions: Temp: 45 °F Wind: NW 5-10 Precip: **Sunny / (Partly Cloudy) / Cloudy**

Well Information

Well Locked?	Yes	(No)	in manhole
Well Labeled?	~~Yes~~	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	16.98	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	— 17.25	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	19 Oct 16	Time Purging Began:	1410	am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	—	am/pm
Sample Date:	19 Oct 16	Time of Sampling:	1440	am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1415	13.02	3993	7.10	3.21	174.5	2.93	Below Pump (BP)	500	Clear
2	1420	12.51	4064	7.09	2.15	179.3	1.43	BP	500	Clear
3	1425	11.59	4123	7.13	1.73	180.6	0.68	BP	500	Clear
4	1430	11.46	4154	7.19	1.54	180.6	0.53	BP	500	Clear
5	1435	11.67	4182	7.19	1.50	181.3	0.49	BP	500	Clear
6	1440	11.57	4190	7.21	1.44	181.7	0.54	BP	500	Clear
7										
8										
9										
10										

Stabilized: (Yes) No Total Volume Removed: 3000 mL

Comments:

water level below pump during purging but purging rate kept up at 100 mL/min.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond N3
Sampling Personal:	Jeremy Ly

Weather Conditions: Temp: 45 °F Wind: SOS-10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	(No)	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	11.66	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	17.90	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	25	
Pumping Rate:	200/100	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1137 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	18 Oct 16	Time of Sampling:	1342 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1142	12.93	5201	6.67	4.81	134.2	546.0	13.79	1000	partly cloudy
2	~~1202~~ 1152	12.79	5191	6.66	5.30	~~142.7~~ 142.7	564.0	16.48	~~2~~000	partly cloudy
3	1212	13.22	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	17.05	4000	partly Cloudy
5	1252	12.84	5198	6.66	4.44	155.6	44.0	17.26	4000	partly Cloudy
6	1312	12.87	5204	6.66	5.19	158.2	32.7	~~17.44~~	4000	partly Cloudy
7	1332	12.82	5200	6.66	5.77	159.1	25.5	17.73	4000	Clear
8	1337	12.74	5199	6.66	5.81	159.1	24.7	17.69	~~1000~~ 500	Clear
9	1342	12.58	5192	6.66	6.02	159.2	25.4	17.75	~~1000~~ 500	Clear
10										

Stabilized: (Yes) No

Total Volume Removed: 24,000 mL

Comments:

water level not stabilizing

decreased purge rate to 100mL/min @ 1152

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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 10 Sheet 1 of 2
Sampling Personal:	Jerry Hyer

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	~~27.92~~ 19.92 ft
Total Well Depth:	22.05 ft
Well Volume:	1.4 liters
Depth to Top of Pump:	20.40 ft
Water Level After Sample:	Below pump ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5/3	sec.
Recover:	55/57	sec.
PSI:	20/10	
Pumping Rate:	100/50	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1114 (am)/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	~~1149~~ 1121 (am)/pm
Sample Date:	19 Oct 16	Time of Sampling:	1335 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1119	12.87	3332	7.14	8.01	103.2	25.2	Below Pump	500	Clear
2	1121	13.11	3321	7.14	7.87	102.0	—	Below Pump	200	Clear
3										
4										
5										
6										
7										
8										
9	~~1334~~							20.45		
10	1335	13.64	3209	7.42	10.07	171.4	10.1	—	—	Clear

Stabilized: Yes (No) Total Volume Removed: ~~700~~ mL

Comments:

Collected 1L Raw & 500mL Nitric before well went dry @ 1404
Sampled well @ 50mL/min
Left pump in well to try to complete sampling at a later date

MVTL
2616 E. Broadway Ave, Bismarck, ND
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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 12
Sampling Personal:	Jerry Hy

Weather Conditions: Temp: 40 °F Wind: NW 5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	36.90	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	37.48	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	40	
Pumping Rate:	200/100	mL/min

Purge Date:	19 Oct 16	Time Purging Began:	0926 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	19 Oct 16	Time of Sampling:	1021 (am)/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	0931	9.52	3724	7.14	1.19	208.1	30.1	37.41	1000	Clear
2	0941	9.71	3715	7.18	0.89	187.3	19.8	37.86	2000	Clear
3	0951	9.53	3688	7.19	0.82	184.0	10.4	37.43	1000	clear
4	0956	9.48	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	Clear
6	1006	9.53	3673	7.21	1.59	152.3	3.56	37.48	500	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	Clear
10										

Stabilized: (Yes) No Total Volume Removed: 7000 mL

Comments:

At 0941 decreased purging rate to 100mL/min due to water level not stabilizing

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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 15s
Sampling Personal:	Jerry Ehr

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

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	*~~35.35~~ 35.55		ft
Total Well Depth:	37.72		ft
Well Volume:	1.3		liters
Depth to Top of Pump:	35.59		ft
Water Level After Sample:			ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	45	
Pumping Rate:	200/100	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1428 am/pm
Well Purged Dry?	~~Yes~~ No	Time Purged Dry:	1453 am/pm
Sample Date:	19 Oct 16	Time of Sampling:	0821 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1433	10.35	4352	6.55	11.30	179.1	17.9	Below pump (BP)	1000	Clear
2	~~*1436~~	~~10.36~~	~~4351~~	~~6.54~~	~~11.36~~	~~179.4~~	~~15.3~~	~~Below Pump~~	~~600~~	~~clear~~
3	1438	10.25	4353	6.54	10.49	178.7	10.4	BP	1000	clear
4	1443	10.32	4351	6.53	9.91	177.6	6.53	BP	1000	clear
5	1448	10.70	4339	6.52	8.93	174.7	4.59	BP	1000	clear
6	1453	10.85	4347	6.52	8.83	174.2	—	BP	500	clear
7										
8										
9	0819	purged well for 2 min to clear line				@ 100mL/min		BP	300	
10	0821	7.46	4327	6.51	7.55	278.4	2.89	—	—	clear

Stabilized: Yes ~~No~~ Total Volume Removed: *~~4600~~ mL

Comments:

*18 Oct 16

~~1448~~ * At 1448 reduced purging rate to 100ml/min since well was not purging dry this event well eventually purged dry at 1453 left pump in well while it recharged Poor recharge. only able to collect field reading will try to sample at a later date

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Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	Pond 16S
Sampling Personal:	Jerry Myr

Weather Conditions: Temp: 40 °F Wind: NW 5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	37.90		ft
Total Well Depth:	—		ft
Well Volume:	—		liters
Depth to Top of Pump:	—		ft
Water Level After Sample:	40.04		ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes (No)		
Duplicate Sample?:	Yes (No)		
Duplicate Sample ID:	—		
Purge Date:	19 Oct 16	Time Purging Began:	1108 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	19 Oct 16	Time of Sampling:	1243 am/(pm)

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	40	
Pumping Rate:	200	mL/min

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. 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	partly cloudy
3	1133	10.60	2866	6.92	1.06	160.9	40.1	39.52	2000	partly cloudy
4	1153	10.51	2886	6.91	1.12	157.8	48.2	39.61	1000	partly cloudy
5	1213	11.01	2915	6.90	1.18	148.0	15.8	39.70	2000	Clear
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	Clear
8	1243	11.02	2941	6.94	1.07	137.8	10.1	39.93	500	Clear
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 9500 mL

Comments:

MVTL

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	MW25
Sampling Personal:	Jerry Hy-

Weather Conditions: Temp: 40 °F Wind: NE 5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	(Yes)	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	23.25	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	34.50	ft
Water Level After Sample:	33.56	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	25/55	sec.
PSI:	40	
Pumping Rate:	200/100	mL/min

Purge Date:	18 Oct 16	Time Purging Began:	1457 am/(pm)
Well Purged Dry?	(Yes) No	Time Purged Dry:	1607 am/(pm)
Sample Date:	19 Oct 16	Time of Sampling:	0840 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1502	9.97	4849	6.94	13.62	169.2	2.45	25.43	1000	Clear
2	1507	9.84	4806	6.95	14.02	169.0	4.10	26.98	1000	clear
3	1527	9.76	4808	6.01	14.17	170.4	5.42	29.95	4000	clear
4	1547	9.57	4842	7.00	13.85	172.9	7.89	32.35	4000	clear
5	1607	9.41	4742	6.95	13.05	173.6	7.89	Below Pump	4000	Clear
6										
7										
8										
9	0837	purged dry for 3 min to clear line @				100 ml/min		31.15	300	
10	0840	9.12	4671	6.94	8.92	253.8	0.86	—	—	Clear

Stabilized: Yes (No)

Total Volume Removed: ~~14000~~ 14,300 mL

Comments:

Left pump in well while it recharged.

Chain of Custody Record

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

Project Name: OTP Coyote CCR Slag Pond Oct 2016

Name of Sampler(s): Jeremy Mayer

Report To:	Otter Tail Power	**Carbon Copy:**	OTP
Attn:	Paul Vukonich	Attn:	Josh Hollen
Address:	PO Box 496 Fergus Falls, MN 56538-0496	Address:	
Email:	pvukonich@otpco.com	Email:	jhollen@otpco.com

Work Order Number: 82-3451

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type		500 ml HNO_3	1 liter						Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W4940	Pond6	19Oct16	1440	GW	Clear	X	X						11.57	4190	7.21	OTP CCR List. No RadChem.
W4941	PondN3	18Oct16	1342	GW	Clear	X	X						12.58	5192	6.66	
W4942	Pond10	19Oct16	1335	GW	Clear	X	X						13.64	3209	7.42	
W4943	Pond12	19Oct16	1021	GW	Clear	X	X						9.51	3678	7.22	
—	Pond15S	19Oct16	0821	GW	Clear	~~X~~	~~X~~						7.46	4327	6.51	
W4944	Pond16S	19Oct16	1243	GW	Clear	X	X						11.02	2941	6.94	
W4945	MW2S	19Oct16	0840	GW	Clear	X	X						9.12	4671	6.94	
W4946	Field Blank (FB)	19Oct16	NA	W	~~Clear~~	X	X						NA	NA	NA	

Comments: *19 Oct16 - only able to collect field readings on well Pond 15s due to insufficient recharge will try to sample at a later date

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1		Log in	20 Oct 16 0757			20Oct2016 0757	0.3°C COI TM588
2							
3							

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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
MEMBER ACIL

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: Claudette Carroll **DATE:** 14 Dec 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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

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

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

PO #: 48895

Project Name: OTP Coyote Slag Pond Oct 2016

Sample Description: Pond 10

Temp at Receipt: 8.9C ROI

	As Received Result		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				12 Nov 16	OL
Radium 228	Attached				29 Nov 16	OL

OL = Analysis performed by an Outside Laboratory.

cc

Approved by: Claudette K Carroll 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

CERTIFICATION: ND # ND-00016

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Date: 12/1/2016

CLIENT: MVTL Laboratories, Inc.
Project: 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: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/1/2016
Report ID S1610450001

ProjectName: 201682-3487
Lab ID: S1610450-001
ClientSample ID: 16-W5012 Pond 10
COC: 201682-3487

WorkOrder: S1610450
CollectionDate: 10/21/2016 9:18:00 AM
DateReceived: 10/31/2016 11:49:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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. **RL - Reporting Limit**

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1610450
Project: 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	PrepDate: 11/09/16 0:00			BatchID: 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	PrepDate: 11/09/16 0:00			BatchID: 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	PrepDate: 11/09/16 0:00			BatchID: 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	PrepDate: 11/14/16 0:00			BatchID: 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	PrepDate: 11/14/16 0:00			BatchID: 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	PrepDate: 11/14/16 0:00			BatchID: 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	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:

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

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201682-3487

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
	Quote Number	Date Submitted:
	Project Name/Number:	Purchase Order #: BL5702

Sample Information						Bottle Type						Analysis
IML Lab Number	S16104S0 MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	16-W5012	Pond 10	GW	21-Oct-16	918		2					Ra226 & Ra228

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

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T.Olson	27-Oct-16	1700		Kathy Boyle	10-31-16	11:49	12.6 C
2.							

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

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**
Event: **2016**
Sample ID: Pond 10 Sheet 2 of 2
Sampling Personal: Darren Wiesnaag

Weather Conditions: Temp: 45 °F Wind: S S Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	20.46 ft
Total Well Depth:	22.18 ft
Well Volume:	~~——~~ 1.1 liters
Depth to Top of Pump:	20.50 ft
Water Level After Sample:	22.01 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes ~~No~~
Duplicate Sample?:	Yes ~~No~~
Duplicate Sample ID:	~~——~~

Control Settings	
Purge:	3 sec.
Recover:	57 sec.
PSI:	10
Pumping Rate:	50 mL/min

Purge Date:	~~——~~	Time Purging Began:	~~——~~ am/pm
Well Purged Dry?	~~Yes~~ ~~No~~	Time Purged Dry:	~~——~~ am/pm
Sample Date:	21 Oct 16	Time of Sampling:	0918 am/pm

Bottle List: CCR: ~~1L Raw, 500mL Nitric,~~ 2 ~~4~~ 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0918	12.29	3337	7.14	~~10.44~~ 8.82	196.9	7.51	20.50 Top of pump	100	clear
2										
3										
4										
5										
6										
7										
8										
9										
10										

Stabilized: Yes (No) Total Volume Removed: 100 mL

Comments:

Wells purged dry on 18 Oct 19, partial sample collected on 19 Oct 16 of 1L Raw & 500mL/nitric

Pond 15S 1020Am 21Oct16

36.94

37.64

0.5

Insufficient recharge for sampling.

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

Chain of Custody Record

Project Name: OTP Coyote RadChem Slag Pond Oct 2016

Name of Sampler(s): Darren Nicholaus

Report To:	Otter Tail Power	**Carbon Copy:**	OTP
Attn:	Paul Vukonich	Attn:	Josh Hollen
Address:	PO Box 496 Fergus Falls, MN 56538-0496	Address:	
Email:	pvukonich@otpco.com	Email:	jhollen@otpco.com

Work Order Number: 82-3487

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type		1000 ml HNO_3							Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W5012	Pond 10	21Oct16	0918	GW	*	4	2						12.29	3337	7.14	OTP CCR combined RadChem

Comments: * ON 21Oct16

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	Darren Nicholaus	Login	21Oct16 1003			21 Oct 2016 1003	8.9°C ROI TM588
2							
3							

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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: Claudette Carroll **DATE:** 14 Dec 16

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Quality Control Report

Lab ID: 16-W5702 **Project:** OTP Coyote Pond CCR **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	16W5697q	< 0.001	0.4170	104	75-125	0.4170	0.3882	97	7.2	20	-	-	< 0.001
				0.400	16W5739q	< 0.001	0.4306	108	75-125	0.4306	0.4172	104	3.2	20	-	-	
				0.400	16W5805q	< 0.001	0.4376	109	75-125	0.4376	0.4404	110	0.6	20	-	-	
				0.400	16W5806q	< 0.001	0.4392	110	75-125	0.4392	0.4498	112	2.4	20	-	-	
Arsenic - Total mg/l	0.1000	107	80-120	0.400	16W5697q	< 0.002	0.4460	112	75-125	0.4460	0.4298	107	3.7	20	-	-	< 0.002
				0.400	16W5739q	< 0.002	0.4484	112	75-125	0.4484	0.4378	109	2.4	20	-	-	
				0.400	16W5805q	< 0.002	0.4522	113	75-125	0.4522	0.4448	111	1.6	20	-	-	
				0.400	16W5806q	< 0.002	0.4342	109	75-125	0.4342	0.4730	118	8.6	20	-	-	
Barium - Total mg/l	0.1000	97	80-120	0.400	16W5697q	0.0357	0.4126	94	75-125	0.4126	0.4062	93	1.6	20	-	-	< 0.002
				0.400	16W5739q	0.0355	0.4316	99	75-125	0.4316	0.4306	99	0.2	20	-	-	
				0.400	16W5805q	0.0109	0.4160	101	75-125	0.4160	0.4210	103	1.2	20	-	-	
				0.400	16W5806q	0.0200	0.4302	103	75-125	0.4302	0.4348	104	1.1	20	-	-	
Beryllium - Total mg/l	0.1000	102	80-120	0.400	16W5697q	< 0.0005	0.4130	103	75-125	0.4130	0.4032	101	2.4	20	-	-	< 0.0005
				0.400	16W5739q	< 0.0005	0.4240	106	75-125	0.4240	0.4234	106	0.1	20	-	-	
				0.400	16W5805q	< 0.0005	0.4246	106	75-125	0.4246	0.4260	106	0.3	20	-	-	
				0.400	16W5806q	< 0.0005	0.4364	109	75-125	0.4364	0.4542	114	4.0	20	-	-	
Boron - Total mg/l	0.40	108	80-120	20.0	16-D4679	17.8	36.8	95	75-125	36.8	37.7	100	2.4	20	-	-	< 0.1
	0.40	112	80-120	0.400	16-W5697	0.37	0.73	90	75-125	0.73	0.74	92	1.4	20	-	-	< 0.1
															-	-	< 0.1
Cadmium - Total mg/l	0.1000	105	80-120	0.400	16W5697q	< 0.0005	0.4174	104	75-125	0.4174	0.3956	99	5.4	20	-	-	< 0.0005
				0.400	16W5739q	0.0006	0.4296	107	75-125	0.4296	0.4148	104	3.5	20	-	-	
				0.400	16W5805q	< 0.0005	0.4150	104	75-125	0.4150	0.4148	104	0.0	20	-	-	
				0.400	16W5806q	< 0.0005	0.4426	111	75-125	0.4426	0.4598	115	3.8	20	-	-	
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

Lab ID: 16-W5702 **Project:** OTP Coyote Pond CCR **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
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	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	16W5739q	0.0097	0.4000	98	75-125	0.4000	0.3960	97	1.0	20	-	-	
				0.400	16W5805q	< 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/l	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	0.1000	95	80-120	0.400	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	0.3692	92	0.8	20	-	-	
				0.400	16W5805q	< 0.0005	0.3732	93	75-125	0.3732	0.3720	93	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	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
															-	-	< 0.1
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	-	-	-

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Lab ID: 16-W5702 **Project:** OTP Coyote Pond CCR **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
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	-	-	< 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	-	-	
Sulfate mg/l	100	102	80-120	1000	16-W5697	1070	1990	92	80-120	1990	2040	97	2.5	20	-	-	< 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	-	-	< 0.0005
				0.400	16W5739q	< 0.0005	0.3756	94	75-125	0.3756	0.3750	94	0.2	20	-	-	
				0.400	16W5805q	< 0.0005	0.3724	93	75-125	0.3724	0.3718	93	0.2	20	-	-	
				0.400	16W5806q	< 0.0005	0.3966	99	75-125	0.3966	0.4014	100	1.2	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	1960	2010	-	2.5	20	-	-	< 5
	-	-	-	-	-	-	-	-	-	2000	2010	-	0.5	20	-	-	

Approved by: C. Gantzel
14 Dec 16

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Report Date: 13 Dec 16
Lab Number: 16-W5702
Work Order #:82-3818
Account #: 006106
Date Sampled: 15 Nov 16 7:28
Date Received: 16 Nov 16 8:00
Sampled By: MVTL Field Services

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

PO #: 48895

Project Name: OTP Coyote Pond CCR

Temp at Receipt: 0.8C ROI

Sample Description: Pond 10

Event and Year: Nov 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	16 Nov 16	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/l	0.10	SM4500-F-C	16 Nov 16 17:00	SVS
Sulfate	1660	mg/l	5.00	ASTM D516-07	9 Dec 16 13:30	KMD
Chloride	26.0	mg/l	1.0	SM4500-Cl-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/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	0.0376	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
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	0.0037	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/l	0.0005	6020	5 Dec 16 13:44	CC

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 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

CERTIFICATION: ND # ND-00016

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: ~~[illegible]~~ Pond 10

Sampling Personal: Darren Nieswang

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	20.78	ft	
Total Well Depth:	22.6	ft	
Well Volume:	0.9	liters	
Depth to Top of Pump:	18.80	ft	
Water Level After Sample:		ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equip?:	Yes	(No)
Duplicate Sample?:	Yes	(No)
Duplicate Sample ID:	—	

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	14Nov16	Time Purging Began:	0918 (am)/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	0926 (am)/pm
Sample Date:	—	Time of Sampling:	See below am/pm

Bottle List:			
	500 mL Nitric	1 Liter Raw	
	~~500 mL Nitric (filtered)~~	~~250 mL Sulfiric~~	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	N ~~0926~~									
2	0926	12.07	3352	7.08	~~4~~ 7.54	183.0	24.6	18.80	800	Cl
3								TP		
4	~~0847~~ 1742 started sampling 14Nov16									
5	0728 started sampling 15Nov16									
6										
7										
8										
9										
10										

Stabilized: Yes (No)

Total Volume Removed: 800 mL

Comments:

1 - 1L

1 - 500 N

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

Chain of Custody Record

Project Name: OTP Coyote CCR Pond Nov2016

Name of Sampler(s): Darren Tesmer

Report To: Otter Tail Power
Attn: Paul Vukonich
Address: PO Box 496
Fergus Falls, MN 56538-0496
Email: pvukonich@otpco.com

Carbon Copy: OTP
Attn: Josh Hollen
Address:
Email: jhollen@otpco.com

Work Order Number: 82-3818

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	500 ml HNO_3	1 liter						Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W5702	Pond 10	15-Nov-16	0728	GW		X	X						12.07	3352	7.08	OTP CCR List. No RadChem.

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Darren Tesmer	Walk-in 2	15Nov16 1905	C. Canto		16NOV16 820	ROI 0.8
2							TM588
3							15Nov16 DN 1905

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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

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 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**

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: Claudette Carroll **DATE:** 14 Dec 16
Claudette Carroll - MVTL Bismarck Laboratory Manager

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Quality Control Report

Lab IDs: 16-W5738 to 16-W5743 **Project:** OTP CCR Pond **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	16W5697q	< 0.001	0.4170	104	75-125	0.4170	0.3882	97	7.2	20	-	-	< 0.001
				0.400	16W5739q	< 0.001	0.4306	108	75-125	0.4306	0.4172	104	3.2	20	-	-	
				0.400	16W5805q	< 0.001	0.4376	109	75-125	0.4376	0.4404	110	0.6	20	-	-	
				0.400	16W5806q	< 0.001	0.4392	110	75-125	0.4392	0.4498	112	2.4	20	-	-	
Arsenic - Total mg/l	0.1000	107	80-120	0.400	16W5697q	< 0.002	0.4460	112	75-125	0.4460	0.4298	107	3.7	20	-	-	< 0.002
				0.400	16W5739q	< 0.002	0.4484	112	75-125	0.4484	0.4378	109	2.4	20	-	-	
				0.400	16W5805q	< 0.002	0.4522	113	75-125	0.4522	0.4448	111	1.6	20	-	-	
				0.400	16W5806q	< 0.002	0.4342	109	75-125	0.4342	0.4730	118	8.6	20	-	-	
Barium - Total mg/l	0.1000	97	80-120	0.400	16W5697q	0.0357	0.4126	94	75-125	0.4126	0.4062	93	1.6	20	-	-	< 0.002
				0.400	16W5739q	0.0355	0.4316	99	75-125	0.4316	0.4306	99	0.2	20	-	-	
				0.400	16W5805q	0.0109	0.4160	101	75-125	0.4160	0.4210	103	1.2	20	-	-	
				0.400	16W5806q	0.0200	0.4302	103	75-125	0.4302	0.4348	104	1.1	20	-	-	
Beryllium - Total mg/l	0.1000	102	80-120	0.400	16W5697q	< 0.0005	0.4130	103	75-125	0.4130	0.4032	101	2.4	20	-	-	< 0.0005
				0.400	16W5739q	< 0.0005	0.4240	106	75-125	0.4240	0.4234	106	0.1	20	-	-	
				0.400	16W5805q	< 0.0005	0.4246	106	75-125	0.4246	0.4260	106	0.3	20	-	-	
				0.400	16W5806q	< 0.0005	0.4364	109	75-125	0.4364	0.4542	114	4.0	20	-	-	
Boron - Total mg/l	0.40	112	80-120	4.00	16-W5739	2.66	6.31	91	75-125	6.31	6.34	92	0.5	20	-	-	< 0.1
				2.00	16-W5805	0.68	2.42	87	75-125	2.42	2.34	83	3.4	20	-	-	< 0.1
				0.400	16-W5806	0.41	0.79	95	75-125	0.79	0.81	100	2.5	20	-	-	
Cadmium - Total mg/l	0.1000	105	80-120	0.400	16W5697q	< 0.0005	0.4174	104	75-125	0.4174	0.3956	99	5.4	20	-	-	< 0.0005
				0.400	16W5739q	0.0006	0.4296	107	75-125	0.4296	0.4148	104	3.5	20	-	-	
				0.400	16W5805q	< 0.0005	0.4150	104	75-125	0.4150	0.4148	104	0.0	20	-	-	
				0.400	16W5806q	< 0.0005	0.4426	111	75-125	0.4426	0.4598	115	3.8	20	-	-	
Calcium - Total mg/l	20.0	101	80-120	500	16W5739q	140	580	88	75-125	580	590	90	1.7	20	-	-	< 1
	20.0	106	80-120	500	16W5747q	146	615	94	75-125	615	585	88	5.0	20	-	-	< 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

Lab IDs: 16-W5738 to 16-W5743 **Project:** OTP CCR Pond **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
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	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	16W5739q	0.0097	0.4000	98	75-125	0.4000	0.3960	97	1.0	20	-	-	
				0.400	16W5805q	< 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/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	1.3	20	-	-	< 0.1
Lead - Total mg/l	0.1000	95	80-120	0.400	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	0.3692	92	0.8	20	-	-	
				0.400	16W5805q	< 0.0005	0.3732	93	75-125	0.3732	0.3720	93	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	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	20	-	-	< 0.1
Mercury - Total mg/l	0.0020	95	85-115	0.002	16-W5805	< 0.0002	0.0015	75	70-130	0.0015	0.0015	75	0.0	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	4.4	20	-	-	< 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	0.4188	103	1.9	20	-	-	

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Quality Control Report

Lab IDs: 16-W5738 to 16-W5743 **Project:** OTP CCR Pond **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
pH units	-	-	-	-	-	-	-	-	-	8.0	8.0	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	7.1	7.2	-	1.4	20	-	-	-
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	-	-	< 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	-	-	
Sulfate mg/l	100	100	80-120	2000	16-W5739	1810	3620	90	80-120	3620	3740	96	3.3	20	-	-	< 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	-	-	< 0.0005
				0.400	16W5739q	< 0.0005	0.3756	94	75-125	0.3756	0.3750	94	0.2	20	-	-	
				0.400	16W5805q	< 0.0005	0.3724	93	75-125	0.3724	0.3718	93	0.2	20	-	-	
				0.400	16W5806q	< 0.0005	0.3966	99	75-125	0.3966	0.4014	100	1.2	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	4480	4640	-	3.5	20	-	-	< 5
	-	-	-	-	-	-	-	-	-	1690	1640	-	3.0	20	-	-	< 5
	-	-	-	-	-	-	-	-	-	3860	3930	-	1.8	20	-	-	

Approved by: C. Gault
14 Dec 16

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

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

Project Name: OTP CCR Pond

Sample Description: Field Blank P

Event and Year: November 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	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-Cl-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/l	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/l	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/l	0.0020	6020	5 Dec 16 13:44	CC
Barium - Total	< 0.002	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
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	< 0.002	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/l	0.0005	6020	5 Dec 16 13:44	CC

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 14Dec16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

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

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

Project Name: OTP CCR Pond

Sample Description: Pond6

Event and Year: November 2016

	As Received Result		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
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
Fluoride	0.48	mg/l	0.10	SM4500-F-C	18 Nov 16 17:00	SVS
Sulfate	1810	mg/l	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	24.6	mg/l	1.0	SM4500-Cl-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	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
Lithium - 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
Antimony - 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
Cadmium - 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
Lead - Total	< 0.001 ^	mg/l	0.0005	6020	5 Dec 16 13:44	CC
Molybdenum - Total	0.0063	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/l	0.0005	6020	5 Dec 16 13:44	CC

* Holding time exceeded

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

CC
14 Dec 16

Approved by: Claudette K Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

Project Name: OTP CCR Pond

Sample Description: PondN3

Event and Year: November 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	17 Nov 16	SVS
Lab, pH	* 6.6	s.u.	0.1	SM4500 H+ B	18 Nov 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	17 Nov 16 11:37	DJN
Field Temperature	9.61	Degrees C	0.1	SM 2550B	17 Nov 16 11:37	DJN
Field Conductivity	5220	umhos/cm	1	EPA 120.1	17 Nov 16 11:37	DJN
Fluoride	0.29	mg/l	0.10	SM4500-F-C	18 Nov 16 17:00	SVS
Sulfate	3250	mg/l	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	34.9	mg/l	1.0	SM4500-Cl-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	4950	mg/l	5	I1750-85	21 Nov 16 13:59	CC
Calcium - Total	500	mg/l	1.0	6010	23 Nov 16 15:00	SZ
Lithium - Total	< 0.5 @	mg/l	0.10	6010	1 Dec 16 10:08	SZ
Boron - Total	0.56	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/l	0.0020	6020	5 Dec 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	5 Dec 16 13:44	CC
Cadmium - Total	0.0006	mg/l	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/l	0.0005	6020	5 Dec 16 13:44	CC

* Holding time exceeded

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

Approved by: Claudette K Carroll 14Dec16

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-00616

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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

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

Project Name: OTP CCR Pond

Sample Description: Pond12

PO #: 48895

Temp at Receipt: 4.0C

Event and Year: November 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	23.0	mg/l	1.0	SM4500-Cl-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	I1750-85	21 Nov 16 13:59	CC
Calcium - Total	176	mg/l	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/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	0.0216	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
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/l	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/l	0.0005	6020	5 Dec 16 13:44	CC

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 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:
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CERTIFICATION: ND # ND-00016

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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

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

Project Name: OTP CCR Pond

Sample Description: Pond16S

Event and Year: November 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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-Cl-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	I1750-85	21 Nov 16 13:59	CC
Calcium - Total	204	mg/l	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/l	0.0020	6020	5 Dec 16 13:44	CC
Barium - Total	0.0472	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
Cadmium - Total	0.0020	mg/l	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	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/l	0.0005	6020	5 Dec 16 13:44	CC

* Holding time exceeded

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

CC
14Dec16

Approved by: Claudette K. Carroll

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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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

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

	As Received Result		Method RL	Method Reference	Date Analyzed	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/l	5.00	ASTM D516-07	9 Dec 16 14:30	KMD
Chloride	24.7	mg/l	1.0	SM4500-Cl-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	4710	mg/l	5	I1750-85	21 Nov 16 13:59	CC
Calcium - Total	545	mg/l	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/l	0.0020	6020	5 Dec 16 13:44	CC
Barium - Total	0.0121	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
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	< 0.002	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	8 Dec 16 9:15	CC
Selenium - Total	0.1146	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

* Holding time exceeded

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

Approved by: Claudette K. Carroll CC 14 DEC 16

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: Pond 6

Sampling Personal: Darren Nieswag

Weather Conditions: Temp: 35 °F Wind: NW 10-15 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	Yes	(No)	manhole
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.55	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	16.45	ft
Water Level After Sample:	17.70	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	17Nov16	Time Purging Began:	0802 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	17Nov16	Time of Sampling:	0832 (am/pm)

Bottle List:			
2 – 500 mL Nitric	2 – 1 Liter Raw	4 – 1L Nitric	
500 mL Nitric (filtered)	250 mL Sulfiric		

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	0807	9.95	4168	6.98	1.52	195.3	4.03	Top	500	clr
2	0817	9.82	4267	7.08	0.49	153.7	0.84	Top	1000	clr
3	0822	9.82	4305	7.12	0.41	137.2	0.57	Top	500	clr
4	0827	9.75	4337	7.15	0.38	123.9	0.58	Top	500	clr
5	0832	9.73	4352	7.15	0.37	118.9	0.59	Top	500	clr
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3000 mL

Comments:

water level below pump but kept up.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: Pond N3

Sampling Personal: Darren Nyswaag

Weather Conditions: Temp: 36 °F Wind: NW 20 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	11.66	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	32.50	ft
Water Level After Sample:	17.42	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	17Nov16	Time Purging Began:	0952 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	17Nov16	Time of Sampling:	1137 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	0957	9.78	5250	~~6.73~~	2.73	117.9	>1000	13.13	500	Turbid
2	1017	10.10	5245	6.69	0.30	107.8	471	15.39	~~2000~~ 500	Turbid
3	1037	9.59	5251	6.60	0.23	104.9	171	16.43	2000	Partly cloudy
4	1057	9.63	5244	6.60	0.21	103.8	100	16.68	2000	Partly cloudy
5	1117	9.56	5242	6.59	0.18	103.0	39.1	17.13	2000	clear
6	1127	9.46	5244	6.59	0.18	102.6	24.3	17.24	1000	clear
7	1132	9.49	5261	6.59	0.17	102.4	24.9	17.18	500	clear
8	1137	~~9.61~~	5220	6.59	0.17	102.3	26.0	17.21	500	clear
9		9.61								
10										

Stabilized: Yes No

Total Volume Removed: 10,500 mL

Comments: -

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2016
Sample ID: Pond 12
Sampling Personal: Darren Nieswand

Weather Conditions: Temp: 58 °F Wind: W 5 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	36.80 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	38.41 ft
Water Level After Sample:	~~38.26~~ 37.26 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	16Nov16	Time Purging Began:	1248 am/pm
Well Purged Dry?	~~Yes~~ (No)	Time Purged Dry:	— ~~am/pm~~
Sample Date:	16Nov16	Time of Sampling:	1353 am/pm

Bottle List:			
	2 - 500 mL Nitric	2 - 1 Liter Raw	
	500 mL Nitric (filtered)	250 mL Sulfiric	4 1L Nitric

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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		
1	1253	11.24	3796	6.96	0.85	108.2	25.9	37.20	500	clr
2	1308	11.07	3799	6.94	0.80	97.0	16.4	37.25	1500	clr
3	1323	11.08	3785	6.98	0.64	91.3	10.3	37.27	1500	clr
4	1328	11.04	3782	6.99	0.58	89.8	7.81	37.25	500	clr
5	1338	10.99	3774	7.01	0.54	87.9	4.88	37.32	1000	clr
6	1343	10.91	3770	7.01	0.56	87.3	3.11	37.34	500	clr
7	1348	10.90	3769	7.02	0.57	87.0	3.37	37.36	500	clr
8	1353	11.02	3770	7.02	0.56	86.6	3.17	37.26	500	clr
9										
10										

Stabilized (Yes) No
Total Volume Removed: 6500 mL
Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**

Event: **2016**

Sample ID: Pond 165

Sampling Personal: Darren Nisbet

Weather Conditions: Temp: 50 °F Wind: W 10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	38.37	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	46.17	ft
Water Level After Sample:	40.02	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes ~~No~~		
Duplicate Sample?:	Yes ~~No~~		
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	16 Nov 16	Time Purging Began:	1506 ~~am/pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— ~~am/pm~~
Sample Date:	16 Nov 16	Time of Sampling:	1646 am/pm

Bottle List:	500 mL Nitric	1 Liter Raw	4-1L NA	
	~~500 mL Nitric (filtered)~~	~~250 mL Sulfric~~		

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	1511	11.65	3048	6.80	0.69	101.6	117	39.20	500	Slightly cloudy
2	1531	11.28	3060	6.82	0.48	95.8	56.6	39.53	2000	Slightly cloudy
3	1551	11.10	3085	6.82	0.58	93.7	43.6	39.55	2000	Clear
4	1606	11.07	3099	6.79	0.76	90.5	43.2	39.61	1500	clear
5	1611	11.08	3100	6.80	0.70	89.8	41.1	39.65	500	clear
6	1626	10.95	3109	6.82	0.61	87.0	23.1	39.78	1500	clear
7	1636	10.89	3110	6.83	0.57	86.1	19.7	39.83	1000	clear
8	1641	10.88	3104	6.85	0.56	85.7	19.6	39.89	500	clear
9	1646	10.89	3104	6.85	0.54	85.5	19.8	39.86	500	clear
10										

Stabilized: Yes ~~No~~

Total Volume Removed: 10,000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2016
Sample ID:	MW 25
Sampling Personal:	Darren Nieswaag

Weather Conditions: Temp: 50 °F Wind: NW 5 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	23.68	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	34.02	ft
Water Level After Sample:	34.01	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equip?:	Yes No	
Duplicate Sample?:	Yes No	
Duplicate Sample ID:		

Control Settings		
Purge:	5	sec.
Recover:	25	sec.
PSI:	—	
Pumping Rate:	200	mL/min

Purge Date:	15 Nov 16	Time Purging Began:	1605 am/~~pm~~
Well Purged Dry?	~~Yes~~ No	Time Purged Dry:	1720 am/~~pm~~
Sample Date:	16 Nov 16	Time of Sampling:	1720 am/~~pm~~

Bottle List:				
	500 mL Nitric	1 Liter Raw	4 - 1L Nitric	
	~~500 mL Nitric (filtered)~~	~~250 mL Sulfiric~~		

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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		
1	1610	9.78	4885	6.83	6.86	59.2	4.99	24.74	~~2~~1000	clr
2	1625	9.69	4800	6.89	8.10	89.6	6.05	28.10	3000	clr
3	1640	9.63	4861	6.95	8.20	96.8	3.66	29.71	3000	clr
4	1655	9.45	4880	6.96	8.20	100.3	1.93	31.54	3000	clr
5	1710	9.33	4908	6.93	7.73	101.9	0.91	33.02	3000	clr
6	1720	9.27	4734	6.87	4.48	100.8	0.42	34.02	2000	clr
7										
8										
9	1212	started to purge line						31.24		
10	1215	10.25	4935	6.78	4.89	109.5	1.28	32.06	600	clr

Stabilized: Yes ~~No~~ Total Volume Removed: 15000 mL

Comments:

Left pump in overnight

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

Chain of Custody Record

Project Name: OTP Coyote CCR Pond Nov2016

Name of Sampler(s): Darren Nicsway

Report To: Otter Tail Power
Attn: Paul Vukonich
Address: PO Box 496
Fergus Falls, MN 56538-0496
Email: pvukonich@otpco.com

Carbon Copy: OTP
Attn: Josh Hollen
Address:
Email: jhollen@otpco.com

Work Order Number: 82-3852

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	500 ml HNO_3	1 liter						Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
WS738	Field Blank P	17Nov16	NA	W	—	X	X						NA	NA	NA	OTP CCR List. No RadChem.
WS739	Pond6	17Nov16	0832	GW	clear	X	X						9.73	4352	7.15	
WS740	PondN3	17Nov16	1137	GW	clear	X	X						9.61	5220	6.59	
WS741	Pond12	16Nov16	1353	GW	Clear	X	X						11.02	3770	7.02	
WS742	Pond16S	16Nov16	1646	GW	clear	X	X						10.89	3104	6.85	
WS743	MW2S	16Nov16	1215	GW	clear	X	X						10.25	4935	6.78	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	° C
1	Dave Mang	Login	17Nov16 1530			17Nov2016 1530	4.0°C TMS88
2							
3							

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

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	S1611405-003	16-W5771
Pond10	S1611405-004	16-W5772
Pond12	S1611405-005	16-W5773
Pond15S	n/a	Not sampled at this time
Pond16S	S1611405-006	16-W5774
MW2S	S1611405-007	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: Claudette Carroll **DATE:** 10Jan17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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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

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

PO #: 48895

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Field Blank P

Temp at Receipt: Ambient

Event and Year: November 2016

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

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll cc 10 Jan 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Temp at Receipt: Ambient

	As Received Result		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 Attached Report				9 Dec 16	OL
Radium 228	See Attached Report				22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 18 Jan 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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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

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

PO #: 48895

Project Name: OTP Coyote Rad Chem Pond

Sample Description: PondN3

Temp at Receipt: Ambient

Event and Year: November 2016

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.59	s.u.	0.1	SM 4500 H+ B	17 Nov 16 11:37	DJN
Field Appearance	Clear		NA	SM 2110	17 Nov 16 11:37	DJN
Field Temperature	9.61	Degrees C	0.1	SM 2550B	17 Nov 16 11:37	DJN
Field Conductivity	5220	umhos/cm	1	EPA 120.1	17 Nov 16 11:37	DJN
Radium 226	See Attached Report				9 Dec 16	OL
Radium 228	See Attached Report				22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carrep 10 JAN 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 concentration of other analytes
: = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote Rad Chem Pond

Temp at Receipt: Ambient

Sample Description: Pond10

Event and Year: November 2016

	As Received Result		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	See Attached Report				9 Dec 16	OL
Radium 228	See Attached Report				22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll cc 10 Jan 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond12

Temp at Receipt: Ambient

Event and Year: November 2016

	As Received Result		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 Attached Report				9 Dec 16	OL
Radium 228	See Attached Report				22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll RC 10 Jan 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Temp at Receipt: Ambient

Project Name: OTP Coyote Rad Chem Pond

Sample Description: Pond16S

Event and Year: November 2016

	As Received Result		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	See Attached Report				9 Dec 16	OL
Radium 228	See Attached Report				22 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll 18 Jan 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote Rad Chem Pond

Temp at Receipt: Ambient

Sample Description: Pond2S

Event and Year: November 2016

	As Received Result		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	See Attached Report				9 Dec 16	OL
Radium 228	See Attached Report				23 Dec 16	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carrep 10 Jan 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

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:

Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-001
ClientSample ID: 16-W5769 Field Blank P
COC: 201682-3866

WorkOrder: S1611405
CollectionDate: 11/17/2016
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	0.16	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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-002
ClientSample ID: 16-W5770 Pond6
COC: 201682-3866

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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-003
ClientSample ID: 16-W5771 PondN3
COC: 201682-3866

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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-004
ClientSample ID: 16-W5772 Pond10
COC: 201682-3866

WorkOrder: S1611405
CollectionDate: 11/17/2016 11:33:00 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	0.3	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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-005
ClientSample ID: 16-W5773 Pond12
COC: 201682-3866

WorkOrder: S1611405
CollectionDate: 11/16/2016 4:40:00 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	0.2	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	-4.5	pCi/L		1	Ga-Tech	12/22/2016 1946	WN
Radium 228 Precision (±)	3.4	pCi/L			Ga-Tech	12/22/2016 1946	WN

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-006
ClientSample ID: 16-W5774Pond 16S
COC: 201682-3866

WorkOrder: S1611405
CollectionDate: 11/16/2016 8:42:00 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	0.4	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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 12/30/2016
Report ID S1611405001

ProjectName: 201682-3866
Lab ID: S1611405-007
ClientSample ID: 16-W5775 Pond 2S
COC: 201682-3866

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/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	-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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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
C	Calculated Value
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

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1611405
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	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	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	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	%REC	% Rec Limits	Qual
Radium 226	14.6	0.2	11.8	4.9	82.3	65 - 131	

Qualifiers:

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

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201682-3866

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box
	Quote Number	Date Submitted: 18-Nov-16
	Project Name/Number:	Purchase Order #: BL5730

S1611405

Sample Information						Bottle Type							Analysis
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
001	16-W5769	Field Blank P	GW	17-Nov-16			4						Ra226 & Ra228
002	16-W5770	Pond6	GW	17-Nov-16	1040		4						Ra226 & Ra228
003	16-W5771	PondN3	GW	17-Nov-16	1413		4						Ra226 & Ra228
004	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 results must be reported as a numerical value.

2 coolers

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	18-Nov-16	1700		[signature]	11/23/16	12:33	9.8
2.							12.8°

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: Pond 6

Sampling Personal: Darren Nieswag

Weather Conditions: Temp: 35 °F Wind: NW 10-15 Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	(No)	manhole
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.55	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	16.45	ft
Water Level After Sample:	17.70	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	17Nov16	Time Purging Began:	0802 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	17Nov16	Time of Sampling:	0832 (am/pm)

Bottle List:	2 – 500 mL Nitric	2 – 1 Liter Raw	4 – 1L Nitric	
	500 mL Nitric (filtered)	250 mL Sulfiric		

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	0807	9.95	4168	6.98	1.52	195.3	4.03	Top	500	clr
2	0817	9.82	4267	7.08	0.49	153.7	0.84	Top	1000	clr
3	0822	9.82	4305	7.12	0.41	177.2	0.57	Top	500	clr
4	0827	9.75	4337	7.15	0.38	123.9	0.58	Top	500	clr
5	0832	9.73	4352	7.15	0.37	118.9	0.59	Top	500	clr
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3000 mL

Comments:

water level below pump but kept up.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: Pond N3

Sampling Personal: Darren Nyswaag

Weather Conditions: Temp: 36 °F Wind: NW 20 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	11.66 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	32.50 ft
Water Level After Sample:	17.42 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	17Nov16	Time Purging Began:	0952 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	17Nov16	Time of Sampling:	1137 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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		
1	0957	9.78	5250	~~7.73~~	2.73	117.9	>1000	13.13	500	Turbid
2	1017	10.10	5245	~~6.64~~ 6.64	0.30	107.8	471	15.39	~~2000~~ 1000	Turbid
3	1037	9.59	5251	6.60	0.23	104.9	171	16.43	2000	Partly cloudy
4	1057	9.63	5244	6.60	0.21	103.8	100	16.68	2000	Partly cloudy
5	1117	9.56	5242	6.60	0.18	103.0	39.1	17.13	2000	clear
6	1127	9.46	5244	6.59	0.18	102.6	24.3	17.24	1000	clear
7	1132	9.49	5261	6.59	0.17	102.4	24.9	17.18	500	clear
8	1137	~~9.61~~ 9.61	5220	6.59	0.17	102.3	26.0	17.21	500	clear
9										
10										

Stabilized: Yes No

Total Volume Removed: 10,500 mL

Comments: -

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: ~~MW-10~~ Pond 10

Sampling Personal: Darren Nieswang

Weather Conditions: Temp: 60 °F Wind: S S Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	20.78	ft
Total Well Depth:	22.6	ft
Well Volume:	0.9	liters
Depth to Top of Pump:	18.80	ft
Water Level After Sample:	~~40.02~~	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	14Nov16	Time Purging Began:	0918 (am)/pm
Well Purged Dry?	(Yes) No	Time Purged Dry:	0926 (am)/pm
Sample Date:	—	Time of Sampling:	See below am/pm

Bottle List:				
	500 mL Nitric	1 Liter Raw		
	500 mL Nitric (filtered)	250 mL Sulfiric		

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	~~0846~~	12.07	3352	7.08	~~7.54~~	183.0	24.6	18.80 TOP	800	clr
2	0926									
3										
4	~~3842742~~	Started Sampling 14Nov16								
5	0728	Started Sampling 15Nov16								
6	0819	Started Sampling 16Nov16								
7	1735	Started Sampling 16Nov16								
8	0728	Started Sampling 17Nov16								
9	~1230									
10										

Stabilized: Yes (No)

Total Volume Removed: 800 mL

Comments: CCR
1 - 1L
1 - 500 N

NP
1 - 250
CCR
1 - 500N
1 - 500NF
1 - 1L raw

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2016
Sample ID: Pond 12
Sampling Personal: Darren Tiesway

Weather Conditions: Temp: 58 °F Wind: W 5 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	36.80 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	38.41 ft
Water Level After Sample:	~~38.26~~ 37.26 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	16Nov16	Time Purging Began:	1248 am/pm
Well Purged Dry?	~~Yes~~ ~~No~~	Time Purged Dry:	— ~~am/pm~~
Sample Date:	16Nov16	Time of Sampling:	1353 am/pm

Bottle List:	2 - 500 mL Nitric	2 - 1 Liter Raw		
	500 mL Nitric (filtered)	250 mL Sulfiric	4 1L Nitric	

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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		
1	1253	11.24	3796	6.96	0.85	108.2	25.9	37.20	500	clr
2	1308	11.07	3799	6.94	0.80	97.0	16.4	37.25	1500	clr
3	1323	11.06	3785	6.98	0.64	91.3	10.3	37.23	1500	clr
4	1328	11.04	3782	6.99	0.58	89.8	7.81	37.25	500	clr
5	1338	10.99	3774	7.01	0.54	87.9	4.88	37.32	1000	clr
6	1343	10.91	3770	7.01	0.56	87.3	3.11	37.34	500	clr
7	1348	10.90	3769	7.02	0.57	87.0	3.37	37.36	500	clr
8	1353	11.02	3770	7.02	0.56	86.6	3.17	37.26	500	clr
9										
10										

Stabilized? (Yes) No

Total Volume Removed: 6500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2016
Sample ID: Pond 165
Sampling Personal: Darren Mowry

Weather Conditions: Temp: 50 °F Wind: W 10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	38.37	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	46.17	ft
Water Level After Sample:	40.02	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes ~~No~~		
Duplicate Sample?:	Yes ~~No~~		
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	30	
Pumping Rate:	100	mL/min

Purge Date:	16 Nov 16	Time Purging Began:	1506 ~~am/pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— ~~am/pm~~
Sample Date:	16 Nov 16	Time of Sampling:	1646 am/pm

Bottle List:				
	500 mL Nitric	1 Liter Raw	4 - 1L N.	
	~~500 mL Nitric (filtered)~~	~~250 mL Sulfric~~		

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	1514	11.65	3048	6.80	0.69	101.6	117	39.20	500	Slightly cloudy
2	1531	11.28	3060	6.82	0.48	95.8	156.6	39.53	2000	Slightly cloudy
3	1551	11.10	3085	6.82	0.58	93.7	43.6	39.55	2000	Slightly Clear
4	1606	11.07	3099	6.79	0.76	90.5	93.2	34.61	1500	Clear
5	1611	11.08	3100	6.80	0.70	89.8	41.1	39.65	500	clear
6	1626	10.95	3109	6.82	0.61	87.0	23.1	39.78	1500	clear
7	1636	10.89	3110	6.83	0.57	86.1	19.7	39.83	1000	clear
8	1641	10.88	3104	6.85	0.56	85.7	19.6	39.84	500	clear
9	1646	10.89	3104	6.85	0.54	85.5	19.8	39.86	500	clear
10										

Stabilized: Yes No

Total Volume Removed: 10,000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2016

Sample ID: MW 25

Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 50 °F Wind: 0 W 5 Precip: Sunny / ~~Partly Cloudy~~ / Cloudy

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	23.68	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	34.02	ft
Water Level After Sample:	34.01	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equip?:	Yes	No
Duplicate Sample?:	Yes	No
Duplicate Sample ID:		

Control Settings		
Purge:	5	sec.
Recover:	25	sec.
PSI:	—	
Pumping Rate:	200	mL/min

Purge Date:	15Nov16	Time Purging Began:	1605 am/~~pm~~
Well Purged Dry?	~~Yes~~	No	Time Purged Dry:	1720 am/~~pm~~
Sample Date:	16Nov16	Time of Sampling:	1720 am/~~pm~~

Bottle List:			
	500 mL Nitric	1 Liter Raw	4-1L Nitric
	~~500 mL Nitric (filtered)~~	~~250 mL Sulfuric~~	

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect.
1	1610	9.78	4885	6.83	6.86	59.2	4.99	29.74	~~2~~1000	clr
2	1625	9.69	4800	6.89	8.10	89.6	6.05	28.10	3000	clr
3	1640	9.63	4861	6.95	8.20	96.8	3.66	29.71	3000	clr
4	1655	9.45	4880	6.96	8.20	100.3	1.93	31.54	3000	clr
5	1710	9.33	4908	6.93	7.73	101.9	0.91	33.02	3000	clr
6	1720	9.27	4734	6.87	4.48	100.8	0.42	34.02	2000	clr
7										
8										
9	1212	started to purge line						31.29		
10	1215	10.25	4935	6.78	4.89	109.5	1.28	32.06	600	clr

Stabilized: Yes (No)

Total Volume Removed: 15,000 mL

Comments:

Left pump in overnight

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

Chain of Custody Record

Project Name: OTP Coyote RadChem Pond Nov2016

Name of Sampler(s): Darren Nieswand

Report To: Otter Tail Power
Attn: Paul Vukonich
Address: PO Box 496
Fergus Falls, MN 56538-0496
Email: pvukonich@otpco.com

Carbon Copy: OTP
Attn: Josh Hollen
Address:
Email: jhollen@otpco.com

Work Order Number: 82-3866

Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	1000 ml HNO_3	Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
WS769	Field Blank P	17Nov16	NA	W		4	NA	NA	NA	OTP CCR combined RadChem
WS770	Pond6	17Nov16	0832	GW	clear	4	9.73	4352	7.15	
WS771	PondN3	17Nov16	1137	GW	Clear	4	9.61	5220	6.59	
WS772	Pond10	17Nov16	1230	GW	clear	2	12.07	3352	7.08	
WS773	Pond12	16Nov16	1353	GW	clear	4	11.02	3770	7.02	
*	~~Pond15S~~	—	—	~~GW~~	—	~~4~~	~	~	~	
WS774	Pond16S	16Nov16	1646	GW	clear	4	10.89	3104	6.85	
WS775	MW2S	16Nov16	1215	GW	clear	4	10.25	4935	6.78	

Comments: *17Nov16DN

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Darren Nieswand	Login	17Nov16 1530			17Nov2016 1530	Ambient
2							
3							

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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com
MEMBER ACIL

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)	S1702039-001	17-W228
Pond6	S1702039-002	17-W229
PondN3	S1702039-003	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

- 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: Claudette Carroll **DATE:** 20FEB17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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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

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

Project Name: OTP Coyote RadChem Pond 2017

PO #: 49854

Sample Description: Field Blank (FB)

Temp at Receipt: 1.8C ROI

Event and Year: January 2017

	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 Carroll cc 20feb17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 49854

Project Name: OTP Coyote RadChem Pond 2017

Temp at Receipt: 1.8C ROI

Sample Description: Pond6

Event and Year: January 2017

	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 Attached Report				14 Feb 17	OL
Radium 228	See Attached Report				15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

cc

Approved by: Claudette K Carroll 20Feb17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 49854

Project Name: OTP Coyote RadChem Pond 2017

Sample Description: PondN3

Temp at Receipt: 1.8C ROI

Event and Year: January 2017

	As Received Result		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 Attached Report				15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll 20 Feb 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 49854

Project Name: OTP Coyote RadChem Pond 2017

Temp at Receipt: 1.8C ROI

Sample Description: Pond12

Event and Year: January 2017

	As Received Result		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	umhos/cm	1	EPA 120.1	31 Jan 17 12:09	DJN
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 Carrep CC 20Feb17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 49854

Project Name: OTP Coyote RadChem Pond 2017

Temp at Receipt: 1.8C ROI

Sample Description: Pond16S

Event and Year: January 2017

	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	See Attached Report				15 Feb 17	OL

OL = Analysis performed by an Outside Laboratory.

CC

Approved by: Claudette K Carroll 20Feb17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 49854

Project Name: OTP Coyote RadChem Pond 2017

Temp at Receipt: 1.8C ROI

Sample Description: MW2S

Event and Year: January 2017

	As Received Result		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	1	EPA 120.1	31 Jan 17 17:50	DJN
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. Carroll 20 Feb 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

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:

Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	2/17/2017
		Report ID	S1702039001
ProjectName:	WO# 201782-0233	**WorkOrder:**	S1702039
Lab ID:	S1702039-001	**CollectionDate:**	1/31/2017
ClientSample ID:	17-W228 Field Blank	**DateReceived:**	2/3/2017 11:08:00 AM
COC:	201782-0233	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 2/17/2017
Report ID S1702039001

ProjectName: WO# 201782-0233
Lab ID: S1702039-002
ClientSample ID: 17-W229 Pond6
COC: 201782-0233

WorkOrder: S1702039
CollectionDate: 1/31/2017 10:21:00 AM
DateReceived: 2/3/2017 11:08:00 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	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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 2/17/2017
Report ID S1702039001

ProjectName: WO# 201782-0233
Lab ID: S1702039-003
ClientSample ID: 17-W230 PondN3
COC: 201782-0233

WorkOrder: S1702039
CollectionDate: 1/31/2017 4:20:00 PM
DateReceived: 2/3/2017 11:08:00 AM
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	02/14/2017 1644	MB
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	02/14/2017 1644	MB
Radium 228	0.3	pCi/L		1	Ga-Tech	02/15/2017 805	WN
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	02/15/2017 805	WN

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 2/17/2017
Report ID S1702039001

ProjectName: WO# 201782-0233
Lab ID: S1702039-004
ClientSample ID: 17-W231 Pond12
COC: 201782-0233

WorkOrder: S1702039
CollectionDate: 1/31/2017 12:09:00 PM
DateReceived: 2/3/2017 11:08:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 2/17/2017
Report ID S1702039001

ProjectName: WO# 201782-0233
Lab ID: S1702039-005
ClientSample ID: 17-W232 Pond16S
COC: 201782-0233

WorkOrder: S1702039
CollectionDate: 1/31/2017 4:30:00 PM
DateReceived: 2/3/2017 11:08:00 AM
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	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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 2/17/2017
Report ID S1702039001

ProjectName: WO# 201782-0233
Lab ID: S1702039-006
ClientSample ID: 17-W233 MW2S
COC: 201782-0233

WorkOrder: S1702039
CollectionDate: 1/31/2017 5:50:00 PM
DateReceived: 2/3/2017 11:08:00 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	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.

RL - Reporting Limit

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
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

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: 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 PrepDate: 02/15/17 0:00 BatchID 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 PrepDate: 02/15/17 0:00 BatchID 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 PrepDate: 02/15/17 0:00 BatchID 12844

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: pCi/L

S1702064-003AMS (02/16/17 05:36) RunNo: 143176 PrepDate: 02/15/17 0:00 BatchID 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	%RPD	%REC	% RPD Limits	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

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			BatchID 12837		
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-1718 (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/08/17 0:00			BatchID 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: pCi/L

LCSD-1718 (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/08/17 0:00			BatchID 12837		
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: pCi/L

S1702064-003AMS (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/08/17 0:00			BatchID 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: pCi/L

S1702064-003AMSD (02/14/17 16:44)	RunNo: 143093	PrepDate: 02/08/17 0:00			BatchID 12837		
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	E	Value above quantitation range
G	Analyzed at IML Gillette laboratory	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201782-0233

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 1-Feb-17
	Project Name/Number:	Purchase Order #: BL5775

Sample Information						Bottle Type						Analysis
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
1702639-001	17-W228	Field Blank	GW	31-Jan-17			4					Ra226 & Ra228
-002	17-W229	Pond6	GW	31-Jan-17	1021		4					Ra226 & Ra228
-003	17-W230	PondN3	GW	31-Jan-17	1620		4					Ra226 & Ra228
-004	17-W231	Pond12	GW	30-Jan-17	1209		4					Ra226 & Ra228
-005	17-W232	Pond16S	GW	30-Jan-17	1630		4					Ra226 & Ra228
-006	17-W233	MW2S	GW	31-Jan-17	1750		4					Ra226 & Ra228

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

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	1-Feb-17	1700		Lisa Fabstad	2-3-17	11:05	1.0
2.							

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 6

Sampling Personal: Darren Wiesmann

Weather Conditions: Temp: 31 °F Wind: W 20-25 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	18.33	ft
Total Well Depth:	18.76	ft
Well Volume:	0.3	liters
Depth to Top of Pump:	17.20	ft
Water Level After Sample:	17.20	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	50	mL/min

Purge Date:	31Jan17	Time Purging Began:	0936 ~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— ~~am~~/pm
Sample Date:	31Jan17	Time of Sampling:	1021 ~~am~~/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0941	5.60	4443	7.05	10.10	231.6	6.12	17.20	250	Slightly turbid
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	clear
4	1006	6.18	4799	7.14	7.59	200.8	5.42	17.20	250	clear
5	1011	5.55	4840	7.16	7.72	195.4	3.74	17.20	250	"
6	1016	5.82	4830	7.16	7.63	194.5	3.44	17.20	250	"
7	1021	5.97	4840	7.16	7.45	191.8	3.42	17.20	250	"
8										
9										
10										

Stabilized: Yes ~~No~~

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond N3

Sampling Personal: Darren Nitschke

Weather Conditions: Temp: 24 °F Wind: W30 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	12.64	ft
Total Well Depth:	37.05	ft
Well Volume:	15.1	liters
Depth to Top of Pump:	34.056	ft
Water Level After Sample:	18.06	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:			

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	31 Jan 17	Time Purging Began:	1200 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	~~am/pm~~
Sample Date:	31 Jan 17	Time of Sampling:	1420 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1205	9.56	5300	6.56	3.61	113.9	373	13.72	500	Turbid
2	1230	9.53	5282	6.54	1.59	107.4	641	15.36	2500	Turbid
3	1300	9.20	5298	6.54	~~0.88~~	105.1	243	16.71	@3000	Turbid
4	1330	8.56	5317	6.52	0.86	102.6	144	17.18	3000	Turbid
5	1400	8.84	5301	6.52	0.74	101.7	88.9	17.58	3000	slightly turbid
6	1430	8.39	5302	6.53	0.73	101.1	80.4	17.63	3000	ST
7	1500	8.03	5308	6.53	0.87	102.0	48.7	17.76	3000	ST
8	1530	8.34	5324	6.54	0.96	102.7	54.0	18.02	3000	ST
9	1600	6.84	5326	6.53	0.67	99.1	~~54.0~~	18.00	3000	ST
10	1610	6.80	5315	6.53	0.68	99.3	45.8	18.04	1000	clear

Stabilized: ~~Yes~~ ~~No~~ Total Volume Removed: — mL

Comments:

(continued next page

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond N3
Sampling Personal: Darren Nieswand
Date:

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	~~clear~~ SF clear
12	1620	7.09	5306	6.53	0.66	99.1	45.7	18.05	500	clear
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 26,000 mL

Comments:

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

Field Datasheet

Groundwater Assessment

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

Weather Conditions: Temp: 40 °F Wind: W 25 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	21.59 ft
Total Well Depth:	22.15 ft
Well Volume:	0.4 liters
Depth to Top of Pump:	18.80 ft
Water Level After Sample:	ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 Jan 17	Time Purging Began:	1004 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	30 Jan 17	Time of Sampling:	1004 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1009									
2										
3										
4										
5										
6										
7										
8										
9										
10										

Stabilized: Yes No Total Volume Removed: _____ mL

Comments: Due to low volume in well and slow recharge the full sample set of bottles was not able to be collected at time of sample field readings.

	Date/Time		Date/Time		Date/Time		Date/Time
Collected 1L Raw at:		Collected 500mL Nitric at:		Collected 1L Nitrics at:		Collected 1L Nitrics at:	

went back and got a watter level of 21.63.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 12

Sampling Personal: Darren Nieswang

Weather Conditions: Temp: 37 °F Wind: W 25-30 Precip: Sunny / ~~Partly Cloudy~~ / Cloudy

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	37.23		ft
Total Well Depth:	40.10		ft
Well Volume:	1.8		liters
Depth to Top of Pump:	37.70		ft
Water Level After Sample:	37.70		ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:			

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 Jan 17	Time Purging Began:	1057 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	30 Jan 17	Time of Sampling:	1209 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1104	7.46	3713	6.92	1.92	182.9	50.8	37.65	500	Slightly Turbid
2	1119	7.79	3711	6.97	0.94	94.2	21.2	37.70	1500	ST
3	1129	7.90	3705	7.02	0.73	62.4	15.7	37.70	1000	clear
4	1139	7.94	3697	7.03	0.64	65.4	10.1	37.70	1000	clear
5	1149	7.91	3695	7.04	0.60	70.6	6.49	37.70	1000	clear
6	1154	7.97	3694	7.05	0.58	72.5	5.73	37.70	500	clear
7	~~1159~~ 1159	8.01	3692	7.05	0.56	75.5	4.51	37.70	500	clear
8	1204	8.02	3694	7.05	0.57	76.0	4.27	37.70	500	clear
9	1209	8.06	3698	7.05	0.55	77.8	4.12	37.70	500	clear
10										

Stabilized: Yes No

Total Volume Removed: 7000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 16 S

Sampling Personal: Darren Nieswang

Weather Conditions: Temp: 44 °F Wind: w 30 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	38.89	ft	
Total Well Depth:	48.85	ft	
Well Volume:	6.2	liters	
Depth to Top of Pump:	46.07	ft	
Water Level After Sample:		ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 Jan 17	Time Purging Began:	1305 am/pm
Well Purged Dry?	Yes	No	Time Purged Dry: am/pm
Sample Date:	30 Jan 17	Time of Sampling:	1630 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. 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	0.42	69.2	79.3	39.79	2000	Slightly Turbid
3	1350	9.17	3262	6.74	0.38	72.9	53.9	40.06	2000	ST
4	1410	9.16	3251	6.76	0.35	74.0	40.2	40.29	2000	ST
5	1450	—	—	—	—	—	28.1	—	4000	ST
6	1530	—	—	—	—	—	19.2	40.54	4000	CL
7	1610	—	—	—	—	—	11.2	—	4000	CL
8	1620	8.95	3182	6.90	0.23	51.6	9.96	40.81	1000	CL
9	1625	8.86	3182	6.90	0.24	51.4	9.59	40.76	500	CL
10	1630	8.90	3176	6.91	0.23	50.7	9.96	40.79	500	CL

Stabilized: Yes No

Total Volume Removed: 20,500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: MW25

Sampling Personal: Darren Pleasant

Weather Conditions: Temp: 25 °F Wind: W 20 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	23.88 ft
Total Well Depth:	38.55 ft
Well Volume:	9.1 liters
Depth to Top of Pump:	34.38 ft
Water Level After Sample:	28.87 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	31 Jan 17	Time Purging Began:	1720 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~am/pm~~
Sample Date:	31 Jan 17	Time of Sampling:	1750 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1725	5.98	4993	6.81	7.12	112.7	5.87	25.29	500	clr
2	~~1730~~ 1730	5.91	4992	6.81	7.06	112.1	5.00	25.82	500	clr
3	1735	5.97	4966	6.83	7.23	112.4	6.02	26.94	500	clr
4	1740	5.89	4948	6.85	7.26	112.6	7.38	27.67	500	clr
5	1745	5.06	4951	6.86	7.28	112.7	7.67	27.71	500	clr
6	1750	5.17	4944	6.87	7.30	112.3	7.88	27.86	500	clr
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3000 mL

Comments:

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

Chain of Custody Record

Project Name: OTP Coyote RadChem Pond 2017

Name of Sampler(s): Darren Nieswaag

Report To:	Otter Tail Power	**Carbon Copy:**	OTP
Attn:	Paul Vukonich	Attn:	Josh Hollen
Address:	PO Box 496 Fergus Falls, MN 56538-0496	Address:	
Email:	pvukonich@otpco.com	Email:	jhollen@otpco.com

Work Order Number: 82-0233

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	1000 ml HNO_3							Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W228	Field Blank (FB)	31Jan17	NA	W	clear	4							NA	NA	NA	OTP CCR combined RadChem
W229	Pond6	31Jan17	1021	GW	clear	4							5.97	4840	7.16	
W230	PondN3	31Jan17	1620	GW	clear	4							7.09	5306	6.53	
—	Pond10	30Jan17	1004	GW	—	~~2~~ DN 30Jan17							—	—	—	
W231	Pond12	30Jan17	1209	GW	clear	4							8.06	3698	7.05	
W232	Pond16S	30Jan17	1630	GW	clear	4							8.90	3176	6.91	
W233	MW2S	31Jan17	1750	GW	clear	4							5.17	4944	6.87	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Darren Nieswaag	Walk in 2	31Jan17 1953	Angela Simmons		01Feb17 800 ROI 1.8°C	ROI 1.8 TM 588
2							
3							31Jan17 DN

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
MEMBER ACIL

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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-0260
82-0259

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	TEMP (°C)	EC	pH	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Blue6	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
Blue7	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
Blue13	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
Blue14	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
Blue15	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
Blue16	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

MVTL Laboratories Inc.
FIELD DATA REPORT

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	pH	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

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 6

Sampling Personal: Darren Wieswaag

Weather Conditions: Temp: 31 °F Wind: W 20-25 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	18.33	ft
Total Well Depth:	18.76	ft
Well Volume:	0.3	liters
Depth to Top of Pump:	17.20	ft
Water Level After Sample:	17.20	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	50	mL/min

Purge Date:	31 Jan 17	Time Purging Began:	0936 ~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— ~~am~~/pm
Sample Date:	31 Jan 17	Time of Sampling:	1021 ~~am~~/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	0941	5.60	4443	7.05	10.10	231.6	6.12	17.20	250	Slightly turbid
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	clear
4	1006	6.18	4799	7.14	7.59	200.8	5.42	17.20	250	clear
5	1011	5.55	4840	7.16	7.72	195.4	3.74	17.20	250	"
6	1016	5.82	4830	7.16	7.63	194.5	3.44	17.20	250	"
7	1021	5.97	4840	7.16	7.45	191.8	3.42	17.20	250	"
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**

Event: **2017**

Sample ID: Pond N3

Sampling Personal: Darren Nitschke

Weather Conditions: Temp: 24 °F Wind: W30 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	12.64	ft	
Total Well Depth:	37.05	ft	
Well Volume:	15.1	liters	
Depth to Top of Pump:	34.056	ft	
Water Level After Sample:	18.06	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	31 Jan 17	Time Purging Began:	1200 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	— am/pm
Sample Date:	31 Jan 17	Time of Sampling:	1420 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1205	9.56	5300	6.56	3.61	113.9	373	13.72	500	Turbid
2	1230	9.53	5282	6.54	1.59	107.4	64.1	15.31	2500	Turbid
3	1300	9.20	5298	6.54	~~0.88~~	105.1	243	16.71	~~3000~~	Turbid
4	1330	8.56	5317	6.52	0.86	102.6	144	17.18	3000	Turbid
5	1400	8.84	5301	6.52	0.74	101.7	88.9	17.58	3000	Slightly Turbid
6	1430	8.39	5302	6.53	0.73	101.1	~~80.4~~	17.63	3000	ST
7	1500	8.03	5308	6.53	0.87	102.0	48.7	17.76	3000	ST
8	1530	8.39	5324	6.54	0.96	102.7	54.0	18.02	3000	ST
9	1600	6.84	5326	6.53	0.67	99.1	~~51.8~~	18.00	3000	ST
10	1610	6.80	5315	6.53	0.68	99.3	45.8	18.04	1000	Clear

Stabilized: ~~Yes~~ No

Total Volume Removed: — mL

Comments:

(continued next page

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

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**
Event: **2017**
Sample ID: Pond N3
Sampling Personal: Darren Nieswand
Date:

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	~~clear~~ SI cloudy
12	1620	7.09	5306	6.53	0.16	99.1	45.7	18.05	500	cloudy
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

Stabilized: (Yes) No

Total Volume Removed: 26,000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

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

Weather Conditions: Temp: 40 °F Wind: W 25 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	21.59	ft	
Total Well Depth:	22.15	ft	
Well Volume:	0.4	liters	
Depth to Top of Pump:	18.80	ft	
Water Level After Sample:		ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		
Purge Date:	30 Jan 17		
Well Purged Dry?	Yes	No	
Sample Date:	30 Jan 17		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	—	
Pumping Rate:	100	mL/min
Time Purging Began:	1004	am/pm
Time Purged Dry:		am/pm
Time of Sampling:	1004	am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1009									
2										
3										
4										
5										
6										
7										
8										
9										
10										

Stabilized: Yes No Total Volume Removed: _____ mL

Comments: Due to low volume in well and slow recharge the full sample set of bottles was not able to be collected at time of sample field readings.

	Date/Time		Date/Time		Date/Time		Date/Time
Collected 1L Raw at:		Collected 500mL Nitric at:		Collected 1L Nitrics at:		Collected 1L Nitrics at:	

went back and got a watter level of 21.63.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 12

Sampling Personal: Darren Nieswang

Weather Conditions: Temp: 37 °F Wind: W 25-30 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	37.23		ft
Total Well Depth:	40.10		ft
Well Volume:	1.8		liters
Depth to Top of Pump:	37.70		ft
Water Level After Sample:	37.70		ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 Jan 17	Time Purging Began:	1057 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	30 Jan 17	Time of Sampling:	1209 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1104	7.46	3713	6.92	1.92	182.9	50.8	37.65	500	Slightly Turbid
2	1119	7.79	3711	6.97	0.94	94.2	21.2	37.70	1500	ST
3	1129	7.90	3705	7.02	0.73	62.4	15.7	37.70	1000	Clear
4	1139	7.94	3697	7.03	0.64	65.4	10.1	37.70	1000	Clear
5	1149	7.91	3695	7.04	0.60	70.6	6.49	37.70	1000	Clear
6	1154	7.97	3694	7.05	0.58	72.5	5.73	37.70	500	Clear
7	~~1159~~ 1159	8.01	3692	7.05	0.56	75.5	4.51	37.70	500	Clear
8	1204	8.02	3694	7.05	0.57	76.0	4.27	37.70	500	Clear
9	1209	8.06	3698	7.05	0.55	77.8	4.12	37.70	500	Clear
10										

Stabilized: Yes No

Total Volume Removed: 7000 mL

Comments: Q

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**

Event: **2017**

Sample ID: Pond 16 S

Sampling Personal: Darren Nipsuvag

Weather Conditions: Temp: 44 °F Wind: w 30 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	38.89		ft
Total Well Depth:	48.85		ft
Well Volume:	6.2		liters
Depth to Top of Pump:	46.07		ft
Water Level After Sample:			ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	30 Jan 17	Time Purging Began:	1305 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	30 Jan 17	Time of Sampling:	1630 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±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	0.42	69.2	79.3	39.79	2000	Slightly Turbid
3	1350	9.17	3262	6.74	0.38	72.9	53.9	40.06	2000	ST
4	1410	9.16	3251	6.76	0.35	74.0	40.2	40.29	2000	ST
5	1450	—					28.1	—	4000	ST
6	1530	—					19.2	40.54	4000	Clear
7	1610	—					11.2	—	4000	Clear
8	1620	8.95	3182	6.90	0.23	51.6	9.96	40.81	1000	Clear
9	1625	8.86	3182	6.90	0.24	51.4	9.59	40.76	500	Clear
10	1630	8.90	3176	6.91	0.23	50.7	9.96	40.79	501	Clear

Stabilized: Yes No

Total Volume Removed: 20,500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: MW25
Sampling Personal: Darren Nicewarner

Weather Conditions: Temp: 25 °F Wind: W 20 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	23.88	ft
Total Well Depth:	38.55	ft
Well Volume:	9.1	liters
Depth to Top of Pump:	34.38	ft
Water Level After Sample:	28.87	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equip?:	Yes (No)	
Duplicate Sample?:	Yes (No)	
Duplicate Sample ID:	—	

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	31 Jan 17	Time Purging Began:	1720 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~am/pm~~
Sample Date:	31 Jan 17	Time of Sampling:	1750 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1725	5.98	4993	6.81	7.12	112.7	5.87	25.29	500	clr
2	MS 1730	5.91	4992	6.81	7.06	112.1	5.00	25.82	500	clr
3	1735	5.97	4966	6.83	7.23	112.4	6.02	26.94	500	clr
4	1740	5.89	4948	6.85	7.26	112.6	7.38	27.67	500	clr
5	1745	5.06	4951	6.86	7.28	112.7	7.67	27.71	500	clr
6	1750	5.17	4944	6.87	7.30	112.3	7.88	27.86	500	clr
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 3000 mL

Comments:

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MEMBER ACIL

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:	**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 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).
    - 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.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 20FEB17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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

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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	17-W237	0.11	0.63	104	80-120	0.63	0.64	106	1.6	20	-	-	< 0.1
				0.500	17-W239	0.32	0.76	88	80-120	0.76	0.76	88	0.0	20	-	-	< 0.1
Lead - Total mg/l	0.1000	91	80-120	0.400	17W100q	0.0066	0.3560	87	75-125	0.3560	0.3560	87	0.0	20	-	-	< 0.0005
				0.400	17W239q	< 0.0005	0.3800	95	75-125	0.3800	0.3776	94	0.6	20	-	-	
Lithium - Total mg/l	0.40	100	80-120	0.400	17-W239	0.51	1.09	145	75-125	1.09	1.04	132	4.7	20	-	-	< 0.1
	0.40	100	80-120	0.200	17-W239	0.51	0.75	120	75-125	0.75	0.73	110	2.7	20	-	-	< 0.1
				0.400	17-W261	0.12	0.68	140	75-125	0.68	0.68	140	0.0	20	-	-	< 0.1
Mercury - Total mg/l	0.0020	95	85-115	0.002	A2179	< 0.0002	0.0017	85	70-130	0.0017	0.0019	95	11.1	20	-	-	< 0.0002
				0.002	17-W236	< 0.0002	0.0018	90	70-130	0.0018	0.0018	90	0.0	20	-	-	
				0.002	17-W261	< 0.0002	0.0018	90	70-130	0.0018	0.0018	90	0.0	20	-	-	
Molybdenum - Total mg/l	0.1000	97	80-120	0.400	17W100q	0.0154	0.4192	101	75-125	0.4192	0.4188	101	0.1	20	-	-	< 0.002
				0.400	17W239q	< 0.002	0.4276	107	75-125	0.4276	0.4308	108	0.7	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	9.7	9.7	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	6.8	6.9	-	1.5	20	-	-	-
Selenium - Total mg/l	0.1000	112	80-120	0.400	17W100q	< 0.002	0.4884	122	75-125	0.4884	0.4928	123	0.9	20	-	-	< 0.002
				0.400	17W239q	0.1080	0.6054	124	75-125	0.6054	0.6020	124	0.6	20	-	-	
Sulfate mg/l	100	100	80-120	100	17-W234	< 5	93.4	93	80-120	93.4	98.0	98	4.8	20	-	-	< 5
	100	103	80-120	2000	17-W239	2820	4710	94	80-120	4710	4430	80	6.1	20	-	-	< 5
				200	17-W240	235	401	83	80-120	401	399	82	0.5	20	-	-	
Thallium - Total mg/l	0.1000	98	80-120	0.400	17W100q	< 0.0005	0.3746	94	75-125	0.3746	0.3730	93	0.4	20	-	-	< 0.0005
				0.400	17W239q	< 0.0005	0.3932	98	75-125	0.3932	0.3840	96	2.4	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	4590	4690	-	2.2	20	-	-	< 5

Approved by: C. Carlson

20 FEB 17

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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

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

PO #: 48895

Temp at Receipt: 1.8C ROI

Project Name: OTP Coyote CCR Pond 2017

Sample Description: Field Blank (FB)

Event and Year: January 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Feb 17	SVS
Lab, pH	* 8.2	s.u.	0.1	SM4500 H+ B	1 Feb 17 17:00	SVS
Field Appearance	Clear		NA	SM 2110	31 Jan 17	DJN
Fluoride	< 0.1	mg/l	0.10	SM4500-F-C	1 Feb 17 17:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	3 Feb 17 8:23	EMS
Chloride	< 1	mg/l	1.0	SM4500-Cl-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	< 5	mg/l	10	I1750-85	1 Feb 17 15:03	SVS
Calcium - Total	< 1	mg/l	1.0	6010	9 Feb 17 9:44	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	15 Feb 17 13:15	KMD
Boron - Total	< 0.1	mg/l	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/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/l	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/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	< 0.002	mg/l	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/l	0.0005	6020	3 Feb 17 9:40	KMD

* Holding time exceeded

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

CC

Approved by: Claudette K. Carroll 20Feb17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Temp at Receipt: 1.8C ROI

Project Name: OTP Coyote CCR Pond 2017

Sample Description: Pond6

Event and Year: January 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Feb 17	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/l	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-Cl-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	3600	mg/l	10	I1750-85	1 Feb 17 15:03	SVS
Calcium - Total	146	mg/l	1.0	6010	9 Feb 17 9:44	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	15 Feb 17 13:15	KMD
Boron - Total	2.36	mg/l	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/l	0.0020	6020	3 Feb 17 9:40	KMD
Barium - Total	0.0360	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	0.0011	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	0.0193	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/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

* Holding time exceeded

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

Approved by: Claudette K Carroll 2/16/17

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

CERTIFICATION: ND # ND-00016

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

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

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

PO #: 48895

Temp at Receipt: 1.8C ROI

Project Name: OTP Coyote CCR Pond 2017

Sample Description: PondN3

Event and Year: January 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	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	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
Fluoride	0.31	mg/l	0.10	SM4500-F-C	1 Feb 17 17:00	SVS
Sulfate	2970	mg/l	5.00	ASTM D516-07	3 Feb 17 8:23	EMS
Chloride	35.0	mg/l	1.0	SM4500-Cl-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/l	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/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	0.0169	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	0.0006	mg/l	0.0005	6020	3 Feb 17 9:40	KMD
Chromium - Total	0.0026	mg/l	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/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 2086517

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 1.8C ROI

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Feb 17	SVS
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	1 Feb 17 17:00	SVS
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	umhos/cm	1	EPA 120.1	31 Jan 17 12:09	DJN
Fluoride	0.11	mg/l	0.10	SM4500-F-C	1 Feb 17 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-Cl-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	2740	mg/l	10	I1750-85	1 Feb 17 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	15 Feb 17 13:15	KMD
Boron - Total	1.81	mg/l	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/l	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/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	0.0079	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	< 0.002	mg/l	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/l	0.0005	6020	3 Feb 17 9:40	KMD

* Holding time exceeded

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

cc

Approved by: Claudette K. Carroll 20 Feb 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:
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CERTIFICATION: ND # ND-00016

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www.mvtl.com

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

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

Project Name: OTP Coyote CCR Pond 2017

PO #: 48895

Sample Description: Pond16S

Temp at Receipt: 1.8C ROI

Event and Year: January 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	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	6.91	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
Fluoride	0.26	mg/l	0.10	SM4500-F-C	1 Feb 17 17:00	SVS
Sulfate	1430	mg/l	5.00	ASTM D516-07	3 Feb 17 8:23	EMS
Chloride	20.7	mg/l	1.0	SM4500-Cl-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	2400	mg/l	10	I1750-85	1 Feb 17 15:03	SVS
Calcium - Total	196	mg/l	1.0	6010	9 Feb 17 9:44	KMD
Lithium - Total	< 0.1	mg/l	0.10	6010	15 Feb 17 13:15	KMD
Boron - Total	1.79	mg/l	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/l	0.0020	6020	3 Feb 17 9:40	KMD
Barium - Total	0.0308	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	0.0017	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	0.0293	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	0.0079	mg/l	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/l	0.0005	6020	3 Feb 17 9:40	KMD

* Holding time exceeded

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

cc

Approved by: Claudette K. Carroll 208617

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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MEMBER ACIL

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

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

PO #: 48895

Temp at Receipt: 1.8C ROI

Project Name: OTP Coyote CCR Pond 2017

Sample Description: MW2S

Event and Year: January 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	1 Feb 17	SVS
Lab, pH	* 7.2	s.u.	0.1	SM4500 H+ B	1 Feb 17 17:00	SVS
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	1	EPA 120.1	31 Jan 17 17:50	DJN
Fluoride	0.32	mg/l	0.10	SM4500-F-C	1 Feb 17 17:00	SVS
Sulfate	2820	mg/l	5.00	ASTM D516-07	3 Feb 17 8:44	EMS
Chloride	23.0	mg/l	1.0	SM4500-Cl-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	4590	mg/l	10	I1750-85	1 Feb 17 15:03	SVS
Calcium - Total	515	mg/l	1.0	6010	9 Feb 17 9:44	KMD
Lithium - Total	0.51	mg/l	0.10	6010	15 Feb 17 13:15	KMD
Boron - Total	0.21	mg/l	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/l	0.0020	6020	3 Feb 17 9:40	KMD
Barium - Total	0.0134	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/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/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	< 0.002	mg/l	0.0020	6020	3 Feb 17 9:40	KMD
Selenium - Total	0.1080	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

* Holding time exceeded

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

Approved by: Claudette K Carroll cc 28Feb17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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

Chain of Custody Record

Project Name: OTP Coyote CCR Pond 2017

Name of Sampler(s): Darren Nieswaag

Report To: Otter Tail Power
Attn: Paul Vukonich
Address: PO Box 496
Fergus Falls, MN 56538-0496
Email: pvukonich@otpco.com

Carbon Copy: OTP
Attn: Josh Hollen
Address:
Email: jhollen@otpco.com

Work Order Number: 82-0234

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (clear, partly cloudy, cloudy)	500 ml HNO_3	1 liter						Field Temperature °C	Field Spec. Cond.	Field pH	Analysis Required
W234	Field Blank (FB)	31Jan17	NA	W	clear	X	X						NA	NA	NA	OTP CCR List. No RadChem.
W235	Pond6	31Jan17	1021	GW	clear	X	X						5.97	4840	7.16	
W236	PondN3	31Jan17	1620	GW	clear	X	X						7.09	5306	6.53	
—	Pond10	30Jan17	1004	GW	—	~~X~~	~~X~~	DW	30Jan17				—	—	—	
W237	Pond12	30Jan17	1209	GW	clear	X	X						8.06	3698	7.05	
W238	Pond16S	30Jan17	1630	GW	clear	X	X						8.90	3176	6.91	
W239	MW2S	31Jan17	1750	GW	clear	X	X						5.17	4944	6.87	

Comments:

	Transferred by:	Sample Condition	Date/Time	Received by:	Sample Condition	Date/Time	°C
1	Dave Ning	Walk in 2	31Jan17 1953	Angel Simonson		01Feb17 900	ROI 1.8
2							TM 5.8.8
3							31Jan17 DW

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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

MVTL Laboratories Inc.
FIELD DATA REPORT

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	pH	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	parly 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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-0465
82-0466

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	TEMP (°C)	EC	pH	Turb. NTU	SAMPLE APPEARANCE OR COMMENT
Blue6	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
Blue7	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
Blue13	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
Blue14	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
Blue15	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
Blue16	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	MVTL 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.
  - Methods 6010D and Method 6020B were used to analyze the metals.

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

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 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).
    - 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.

SIGNED: Claudette Carroll **DATE:** 22 Mar 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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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
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 1.8	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 3.8	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	- - - - - - - - - -	- - - - - - - - - -	< 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	- -	- -	< 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	17W554q	< 0.0005	0.3660	92	75-125	0.3660	0.3626	91	0.9	20	-	-	< 0.0005
				0.400	17W573q	0.0011	0.3640	91	75-125	0.3640	0.3734	93	2.5	20	-	-	
Lithium - Total mg/l	0.40	102	80-120	0.400	17-W554	0.10	0.58	120	75-125	0.58	0.57	118	1.7	20	-	-	< 0.1
	0.40	100	80-120	0.400	17-W573	0.53	1.00	118	75-125	0.55	0.53	115	3.7	20	-	-	< 0.1
	0.40	98	80-120	0.400	17-W597	0.07	0.55	120	75-125	1.00	0.93	100	7.3	20	-	-	< 0.1
															-	-	< 0.1
															-	-	< 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.002	17-W576	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
				0.002	17-W617	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	
Molybdenum - Total mg/l	0.1000	87	80-120	0.400	17-W490	0.0025	0.3818	95	75-125	0.3818	0.3892	97	1.9	20	-	-	< 0.002
				0.400	17-W573	0.0030	0.3966	98	75-125	0.3966	0.4024	100	1.5	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	8.2	8.3	-	1.2	20	-	-	-
	-	-	-	-	-	-	-	-	-	6.4	5.9	-	8.1	20	-	-	-
Selenium - Total mg/l	0.1000	105	80-120	0.400	17W554q	< 0.002	0.4600	115	75-125	0.4600	0.4536	113	1.4	20	-	-	< 0.002
				0.400	17W573q	0.0641	0.5422	120	75-125	0.5422	0.5662	126	4.3	20	-	-	
Sulfate mg/l	100	103	80-120	1000	17-W554	750	1660	91	80-120	1660	1630	88	1.8	20	-	-	< 5
	100	99	80-120	1000	17-W574	1380	2280	90	80-120	2280	2290	91	0.4	20	-	-	< 5
	100	96	80-120	200	17-W568	409	606	98	80-120	606	556	74	8.6	20	-	-	< 5
				1000	17-D736	984	1880	90	80-120	1880	1890	91	0.5	20	-	-	
Thallium - Total mg/l	0.1000	97	80-120	0.400	17W554q	< 0.0005	0.3750	94	75-125	0.3750	0.3752	94	0.1	20	-	-	< 0.0005
				0.400	17W573q	< 0.0005	0.3708	93	75-125	0.3708	0.3808	95	2.7	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	5010	5020	-	0.2	20	-	-	< 10

Approved by: C. Gantzel
22 Mar 17

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

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

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: FB Slag

Event and Year: March 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	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/l	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-Cl-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/l	0.10	6010	10 Mar 17 13:13	KMD
Boron - Total	< 0.1	mg/l	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/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll 22 Mar 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote CCR-Slag Pond

Temp at Receipt: 0.7C ROI

Sample Description: Pond6

Event and Year: March 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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-Cl-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/l	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	152	mg/l	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/l	0.0020	6020	8 Mar 17 9:30	KMD
Barium - Total	0.0371	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	0.0013	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	0.0234	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	0.0074	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll 22 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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: = 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

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

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: PondN3

Temp at Receipt: 0.7C ROI

Event and Year: March 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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 Cloudy		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/l	5.00	ASTM D516-07	3 Mar 17 14:20	EMS
Chloride	34.1	mg/l	1.0	SM4500-Cl-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	5100	mg/l	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	498	mg/l	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/l	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/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	0.0006	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	0.0041	mg/l	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/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0030	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	0.0641	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

* Holding time exceeded

cc

Approved by: Claudette K Carroll 22 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Project Name: OTP Coyote CCR-Slag Pond

Temp at Receipt: 0.7C ROI

Sample Description: Pond12

Event and Year: March 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	2 Mar 17	SVS
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	2 Mar 17 17:00	SVS
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
Fluoride	0.11	mg/l	0.10	SM4500-F-C	2 Mar 17 17:00	SVS
Sulfate	1380	mg/l	5.00	ASTM D516-07	3 Mar 17 15:31	EMS
Chloride	22.0	mg/l	1.0	SM4500-Cl-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	2830	mg/l	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	173	mg/l	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	1.85	mg/l	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	0.0209	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/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/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll 22 Mar 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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@ = Due to sample matrix # = Due to concentration of other analytes
! = Due to sample quantity * = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

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

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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	6.89	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
Fluoride	0.22	mg/l	0.10	SM4500-F-C	2 Mar 17 17:00	SVS
Sulfate	1320	mg/l	5.00	ASTM D516-07	3 Mar 17 15:31	EMS
Chloride	21.3	mg/l	1.0	SM4500-Cl-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/l	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	211	mg/l	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/l	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	0.0356	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	0.0016	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Chromium - Total	0.0027	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Cobalt - Total	0.0274	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Lead - Total	0.0007	mg/l	0.0005	6020	8 Mar 17 9:30	KMD
Molybdenum - Total	0.0061	mg/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	< 0.01 ^	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll 22 Mar 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
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www.mvtl.com

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

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

Project Name: OTP Coyote CCR-Slag Pond

Sample Description: MW2S

Event and Year: March 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	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/l	5.00	ASTM D516-07	17 Mar 17 8:46	EMS
Chloride	23.3	mg/l	1.0	SM4500-Cl-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/l	10	I1750-85	3 Mar 17 14:17	SVS
Calcium - Total	520	mg/l	1.0	6010	7 Mar 17 15:26	KMD
Lithium - Total	0.44	mg/l	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/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	0.0134	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/l	0.0020	6020	8 Mar 17 14:20	KMD
Selenium - Total	0.1193	mg/l	0.0020	6020	8 Mar 17 9:30	KMD
Thallium - Total	< 0.0005	mg/l	0.0005	6020	8 Mar 17 9:30	KMD

* Holding time exceeded

cc

Approved by: Claudette K Carroll 22 Mar 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: ~~Pond 6~~ Pond 6
Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 25 °F Wind: Light Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	18.00	ft
Total Well Depth:	18.76	ft
Well Volume:	0.5	liters
Depth to Top of Pump:	17.20	ft
Water Level After Sample:	17.20 Top.	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:		
Pumping Rate:	100	mL/min

Purge Date:	1 March 17	Time Purging Began:	1412 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~am/pm~~
Sample Date:	1 March 17	Time of Sampling:	1502 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1417	8.37	4424	7.04	1.78	174.7	6.99	17.20	500	clear
2	1432	8.61	4912	7.20	0.53	183.2	3.86	17.20	1500	clr
3	1442	7.87	5064	7.25	0.40	191.4	2.32	17.20	1000	clear
4	1452	7.78	5098	7.26	0.36	196.8	2.18	17.20	1000	clr
5	1457	7.83	5129	7.26	0.34	200.3	2.11	17.20	500	clr
6	1502	7.94	5123	7.26	0.34	203.3	2.00	17.20	500	clr
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 5000 mL

Comments:

* DN 1 March 17

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond N3
Sampling Personal: Darcia Nieman

Weather Conditions: Temp: 17 °F Wind: NW9 Precip: Sunny / Partly Cloudy / Cloudy

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	12.00 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	34.52 ft
Water Level After Sample:	16.71 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes (No)
Duplicate Sample?:	Yes (No)
Duplicate Sample ID:	—

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	—	
Pumping Rate:	200	mL/min

Purge Date:	1 March 17	Time Purging Began:	0910 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~am/pm~~
Sample Date:	1 March 17	Time of Sampling:	1110 (am/pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0915	10.00	5330	6.67	3.05	205.1	870	13.08	500	cloudy
2	0935	8.79	5314	6.68	0.73	198.4	588	14.62	2000	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	Partly cloudy
6	1100	7.60	5318	6.67	0.42	218.9	92.1	15.58	500	Partly cloudy
7	1105	7.66	5315	6.67	0.38	221.3	91.5	15.68	500	Partly cloudy
8	1110	7.60	5312	6.67	0.38	224.9	93.0	15.68	500	Partly cloudy
9										
10										

Stabilized: (Yes) No

Comments:

Total Volume Removed: 12,000 mL

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond10

Sampling Personal: Darren McCarvy

Weather Conditions: Temp: 17 °F Wind: NE S Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes (No)	
Well Labeled?	(Yes) No	
Casing Straight?	(Yes) No	
Grout Seal Intact?	(Yes) No	Not Visible
Repairs Necessary:		

Casing Diameter:	2"	
Water Level Before Purge:	21.63	ft
Total Well Depth:	22.10	ft
Well Volume:	0.3	liters
Depth to Top of Pump:	20.50	ft
Water Level After Sample:	—	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes (No)
Duplicate Sample?:	Yes (No)
Duplicate Sample ID:	—

Control Settings		
Purge:	5	sec.
Recover:	5 5	sec.
PSI:		
Pumping Rate:	—	mL/min

Purge Date:	27 Feb 17	Time Purging Began:	0923 (am)/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	27 Feb 17	Time of Sampling:	0930 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1										
2										
3										
4			Insufficient							
5			Volume no			Sample				
6										
7										
8										
9										
10										

Stabilized: Yes No

Total Volume Removed: _____ mL

Comments: Due to low volume in well and slow recharge the full sample set of bottles was not able to be collected at time of sample field readings.

	Date/Time		Date/Time		Date/Time		Date/Time
Collected 1L Raw at:		Collected 500mL Nitric at:		Collected 1L Nitrics at:		Collected 1L Nitrics at:	

Couldn't bring enough water up to get a reading, could only get enough water to fill line up. There wasn't enough volume of water to get a sample or reading.

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond 12
Sampling Personal: Darren Wiesner

Weather Conditions: Temp: 20 °F Wind: Light Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	37.41	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	37.67	ft
Water Level After Sample:	37.67	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	2 March 17	Time Purging Began:	0921 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	2 March 17	Time of Sampling:	1021 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0926	7.30	3632	7.11	5.81	152.5	17.3	37.67	500	clear
2	0941	7.23	3635	7.19	1.48	146.0	22.4	37.67	1500	clear
3	0956	7.31	3632	7.20	1.20	145.2	13.8	37.67	1500	clear
4	1001	7.25	3629	7.20	1.19	145.6	12.3	37.67	500	clear
5	1006	7.65	3623	7.20	1.20	145.8	10.1	37.67	500	clear
6	1011	7.39	3629	7.20	1.21	145.7	8.02	37.67	500	clear
7	1016	7.58	3628	7.20	1.17	145.9	7.63	37.67	500	clear
8	1021	7.69	3628	7.20	1.15	146.0	7.46	37.67	500	clear
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 6,000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 16S

Sampling Personal: Parker Nesvacil

Weather Conditions: Temp: 16 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	39.17 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	46.10 ft
Water Level After Sample:	40.49 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:			

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	2 March 17	Time Purging Began:	*1130 / ~~1530~~ am/pm
Well Purged Dry?	Yes	No	Time Purged Dry:	~~am/pm~~
Sample Date:	2 March 17	Time of Sampling:	1255 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1135	7.91	3191	6.87	4.13	162.4	208	39.72	500	Partly cloudy
2	1150	7.86	3225	6.81	1.30	143.6	98.8	39.96	1500	Partly cloudy
3	1210	8.49	3227	6.83	1.32	99.5	62.8	40.24	2000	clear
4	1230	8.07	3214	6.87	1.17	81.1	39.6	40.34	2000	clear
5	1240	8.02	3214	6.87	1.23	77.1	40.2	40.46	1000	clear
6	1245	8.13	3204	6.89	1.09	73.9	33.6	40.49	500	clear
7	1250	8.02	3201	6.88	1.06	73.1	30.9	40.49	500	clear
8	1255	8.00	3205	6.89	1.09	71.5	30.6	40.49	500	clear
9										
10										

Stabilized: **Yes** **No**

Total Volume Removed: 8500 mL

Comments:

*ON 2 March 17

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: MW 25
Sampling Personal: Darren Wiesway

Weather Conditions: Temp: 24 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	23.94 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	34.15 ft
Water Level After Sample:	30.51 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:			

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:		
Pumping Rate:	100	mL/min

Purge Date:	1 March 17	Time Purging Began:	1206 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— ~~am/pm~~
Sample Date:	1 March 17	Time of Sampling:	1306 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1211	7.91	5058	6.95	5.55	209.7	21.9	24.73	500	clear
2	1226	8.19	5025	6.96	5.33	194.6	14.2	26.76	1500	clear
3	1236	8.46	5005	6.97	6.37	190.5	8.53	27.36	1000	clear
4	1246	8.47	5001	~~7.00~~	6.82	182.8	10.6	27.98	1000	clear
5	1251	8.30	5014	7.01	6.84	181.0	8.68	28.07	500	clear
6	1256	8.48	5026	7.00	6.89	179.8	~~6.6~~ 5.44	28.27	500	clear
7	1301	8.29	5031	7.00	6.92	179.0	5.14	28.38	500	clear
8	1306	8.16	5033	7.01	6.95	176.9	4.97	28.42	500	clear
9										
10										

Stabilized: Yes No

Total Volume Removed: 6000 mL

Comments:

* for 1 March 17

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

Chain of Custody Record

Project Name: OTP Coyote - Slag Pond	**Event:** Mar ~~Feb~~ 2017 CC (A) 21Mar17	**Work Order Number:** 82-0495
Report To: Otter Tail Power Attn: Paul Vukonich Address: PO Box 496 Fergus Falls, MN 56538-0496 phone: email: pvukonich@otpco.com	**Carbon Copy:** OTP Attn: Josh Hollen Address: jhollen@otpco.com	**Name of Sampler(s):** Darren Nieswaag

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter	500mL Nitric						Temp (°C)	Spec. Cond.	pH	Analysis Required
W571	FB Slag	2March17	NA	W	clear	X	X						NA	NA	NA	OTP List 1
W572	Pond6	1March17	1502	GW	clear	X	X						7.94	5123	7.26	
W573	PondN3	1March17	1110	GW	Partly cloudy	X	X						7.60	5312	6.67	
—	Pond10	27Feb17	0930	GW	—	~~X~~	~~X~~	27Feb17 10W					no	Sample		
W574	Pond12	2March17	1021	GW	clear	X	X						7.69	3628	7.20	
W575	Pond16S	2March17	1255	GW	clear	X	X						8.00	3205	6.89	
W576	MW2S	1March17	1306	GW	clear	X	X						8.16	5033	7.01	

Comments:

Relinquished By:			Sample Condition:	
	Name:	Date/Time	Location:	Temp (°C)
1	Darren Nieswaag	2March17 1535	Log In Walk In #2	ROI 0.7 TM562 TM588
2				

Received by:	
Name:	Date/Time
Angel Simonson	2March17 1535 0.7°C ROI TM562

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www.mvtl.com
MEMBER ACIL

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

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	S1703062-004	17-W580
Pond16S	S1703062-005	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.
  - 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**

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: Claudette Carroll **DATE:** 19 May 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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www.mvtl.com

CERTIFICATE of ANALYSIS - CCR

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

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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: FB Slag

Temp at Receipt: 16.9C

Event and Year: Feb/Mar 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			27 Mar 17	OL
Radium 228	See Attached Report			26 Mar 17	OL

cc

Approved by: Claudette K Carroll 19 May 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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www.mvtl.com

MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: Pond6

Temp at Receipt: 16.9C

Event and Year: Feb/Mar 2017

	As Received Result		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 Attached Report				27 Mar 17	OL
Radium 228	See Attached Report				27 Mar 17	OL

Approved by: Claudette K Carroll 18 May 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: PondN3

Temp at Receipt: 16.9C

Event and Year: Feb/Mar 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Field pH	6.67	s.u.	0.1	SM 4500 H+ B	1 Mar 17 11:10	DJN
Field Appearance	Partly Cloudy		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
Radium 226	See Attached Report				27 Mar 17	OL
Radium 228	See Attached Report				27 Mar 17	OL

Approved by: Claudette K Carroll cc 19 May 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:
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: = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: Feb/Mar 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	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	See Attached Report				5 Apr 17	OL
Radium 228	See Attached Report				27 Mar 17	OL

Approved by: Claudette K Carroll 19 May 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: Pond16S

Temp at Receipt: 16.9C

Event and Year: Feb/Mar 2017

	As Received Result		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	See Attached Report				5 Apr 17	OL
Radium 228	See Attached Report				27 Mar 17	OL

Approved by: Claudette K Carroll 19 May 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: Feb/Mar 2017

	As Received Result		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 Attached Report				5 Apr 17	OL
Radium 228	See Attached Report				27 Mar 17	OL

Approved by: Claudette K Carroll 19 May 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

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

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	4/7/2017
		Report ID	S1703062001
ProjectName:	201782-0496	**WorkOrder:**	S1703062
Lab ID:	S1703062-001	**CollectionDate:**	3/2/2017
ClientSample ID:	17-W577 FB Slag	**DateReceived:**	3/7/2017 11:33:00 AM
COC:	201782-0496	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	G	Analyzed at IML Gillette laboratory
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	M	Value exceeds Monthly Ave or MCL or is less than LCL
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 4/7/2017
Report ID S1703062001

ProjectName: 201782-0496
Lab ID: S1703062-002
ClientSample ID: 17-W578 Pond6
COC: 201782-0496

WorkOrder: S1703062
CollectionDate: 3/1/2017 3:02:00 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	0.1	pCi/L		0.2	SM 7500 Ra-B	03/27/2017 1428	MB
Radium 226 Precision (±)	0.05	pCi/L			SM 7500 Ra-B	03/27/2017 1428	MB
Radium 228	0.8	pCi/L		1	Ga-Tech	03/27/2017 153	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	03/27/2017 153	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	4/7/2017 S1703062001
ProjectName:	201782-0496	**WorkOrder:**	S1703062
Lab ID:	S1703062-003	**CollectionDate:**	3/1/2017 11:10:00 AM
ClientSample ID:	17-W579 PondN3	**DateReceived:**	3/7/2017 11:33:00 AM
COC:	201782-0496	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 4/7/2017
Report ID S1703062001

ProjectName: 201782-0496
Lab ID: S1703062-004
ClientSample ID: 17-W580 Pond12
COC: 201782-0496

WorkOrder: S1703062
CollectionDate: 3/2/2017 10:21:00 AM
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	0.8	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	-2.2	pCi/L		1	Ga-Tech	03/27/2017 801	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	03/27/2017 801	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 4/7/2017
Report ID S1703062001

ProjectName: 201782-0496
Lab ID: S1703062-005
ClientSample ID: 17-W581 Pond16S
COC: 201782-0496

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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 4/7/2017
Report ID S1703062001

ProjectName: 201782-0496
Lab ID: S1703062-006
ClientSample ID: 17-W582 MW2S
COC: 201782-0496

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/Init	
Radionuclides - Total							
Radium 226	0.2	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	1.8	pCi/L		1	Ga-Tech	03/27/2017 1408	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	03/27/2017 1408	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1703062
Project: 201782-0496

Date: 4/7/2017
Report ID: S1703062001

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-424 (03/25/17 13:08)	RunNo: 144300	PrepDate: 03/15/17 12:00			BatchID 12988		
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-424 (03/25/17 16:11)	RunNo: 144300	PrepDate: 03/15/17 12:00			BatchID 12988		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	37	1	40.1		91.6	65.9 - 132	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

MS-424 (03/25/17 22:19)	RunNo: 144300	PrepDate: 03/15/17 12:00			BatchID 12988		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	42	1	40.1	2	102	65.9 - 132	

S1703036-003AMS (03/28/17 02:24)	RunNo: 144300	PrepDate: 03/15/17 12:00			BatchID 12988		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	26	1	40.1	1	62.6	50 - 139	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-424 (03/26/17 01:23)	RunNo: 144300	PrepDate: 03/15/17 12:00			BatchID 12988		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	44	1	42	3.27	105	20	

Qualifiers:

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1703062
Project: 201782-0496

Date: 4/7/2017
Report ID: S1703062001

Radium 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	Qual
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	Qual
Radium 226	ND	0.2					

Radium 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	Qual
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	Qual
Radium 226	6.1	0.2	5.89		103	67.1 - 122	

Radium 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	Qual
Radium 226	5.4	0.2	5.8	8.50	90.9	20	

Radium 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	Qual
Radium 226	6.1	0.2	5.89	0.2	99.9	65 - 131	

Radium 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	Qual
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	Qual
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	
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	6.1	0.2	6.2	2.20	103	20	

Qualifiers:

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

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201782-0496

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 3-Mar-17
	Project Name/Number:	Purchase Order #: BL5805

Sample Information						Bottle Type						Analysis
$1703062- IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W577	FB Slag	GW	2-Mar-17	NA		4					Ra226 & Ra228
002	17-W578	Pond6	GW	1-Mar-17	1502		4					Ra226 & Ra228
003	17-W579	PondN3	GW	1-Mar-17	1110		4					Ra226 & Ra228
004	17-W580	Pond12	GW	2-Mar-17	1021		4					Ra226 & Ra228
005	17-W581	Pond16S	GW	2-Mar-17	1255		4					Ra226 & Ra228
006	17-W582	MW2S	GW	1-Mar-17	1255		4					Ra226 & Ra228

Comments: All results must be reported as a numerical value. Use 17-W561 as MS/MSD

2 Coolers

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
A. Simonson	3-Mar-17	1700		Kathy Boys	3.7.17	11:33	6.8
2.							8.2

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: ~~# Pond 6~~ Pond 6
Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 25 °F Wind: Light Precip: Sunny / Partly Cloudy / (Cloudy)

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	18.00 ft
Total Well Depth:	18.76 ft
Well Volume:	0.5 liters
Depth to Top of Pump:	17.20 ft
Water Level After Sample:	17.20 Top. ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:		
Pumping Rate:	100	mL/min

Purge Date:	1 March 17	Time Purging Began:	1412 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— ~~am/pm~~
Sample Date:	1 March 17	Time of Sampling:	1502 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1417	8.37	4424	7.04	1.78	174.7	6.99	17.20	500	clear
2	1432	8.61	4912	7.20	0.53	183.2	3.86	17.20	1500	clr
3	1442	7.87	5064	7.25	0.40	191.4	2.32	17.20	1000	clear
4	1452	7.78	5098	7.26	0.36	196.8	2.18	17.20	1000	clear
5	1457	7.83	5129	7.26	0.34	200.3	2.11	17.20	500	clr
6	1502	7.94	5123	7.26	0.34	208.3	2.00	17.20	500	clr
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 5000 mL

Comments:
* DN 1 March 17

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond N3
Sampling Personal: Darcia Niesen

Weather Conditions: Temp: 17 °F Wind: NW9 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	12.00	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	34.52	ft	
Water Level After Sample:	16.71	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		
Purge Date:	1 March 17	Time Purging Began:	0910 (am/pm)
Well Purged Dry?	Yes	(No)	Time Purged Dry: ~~am/pm~~
Sample Date:	1 March 17	Time of Sampling:	1110 (am/pm)

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	-	
Pumping Rate:	200	mL/min

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0915	10.00	5330	6.67	3.05	205.1	870	13.08	500	cloudy
2	0935	8.79	5314	6.68	0.73	198.4	582	14.62	2000	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	Partly cloudy
6	1100	7.60	5318	6.67	0.42	218.9	92.1	15.58	500	Partly cloudy
7	1105	7.66	5315	6.67	0.38	221.3	91.5	15.68	500	Partly cloudy
8	1110	7.60	5312	6.67	0.38	224.9	93.0	15.68	500	Partly cloudy
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 12,000 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond10
Sampling Personal: [illegible signature]

Weather Conditions: Temp: 17 °F Wind: NE 5 Precip: Sunny / Partly Cloudy / Cloudy (circled: Cloudy)

Well Information

Well Locked?	Yes	No (circled)	
Well Labeled?	Yes (circled)	No	
Casing Straight?	Yes (circled)	No	
Grout Seal Intact?	Yes (circled)	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	21.63	ft	
Total Well Depth:	22.10	ft	
Well Volume:	0.3	liters	
Depth to Top of Pump:	20.50	ft	
Water Level After Sample:	—	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No (circled)	
Duplicate Sample?:	Yes	No (circled)	
Duplicate Sample ID:	—		
Purge Date:	27 Feb 17	Time Purging Began:	0923 am/pm (am circled)
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	27 Feb 17	Time of Sampling:	0930 am/pm (am circled)
Bottle List:	CCR: 1L Raw, 500mL Nitric, 4-1L Nitric		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:		
Pumping Rate:	—	mL/min

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Insufficient volume no sample

Stabilized: Yes No Total Volume Removed: ______ mL

Comments: Due to low volume in well and slow recharge the full sample set of bottles was not able to be collected at time of sample field readings.

Collected 1L Raw at:	Date/Time	Collected 500mL Nitric at:	Date/Time	Collected 1L Nitrics at:	Date/Time	Collected 1L Nitrics at:	Date/Time

Couldn't bring enough water up to get a reading, could only get enough water to fill line up. There wasn't enough volume of water to get a sample or readings.

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 12
Sampling Personal:	Darren Nitsuma

Weather Conditions: Temp: 20 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	37.41		ft
Total Well Depth:	—		ft
Well Volume:	—		liters
Depth to Top of Pump:	37.67		ft
Water Level After Sample:	37.67		ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	2 March 17	Time Purging Began:	0921 am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	2 March 17	Time of Sampling:	1021 am/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0926	7.30	3652	7.11	5.81	152.5	17.3	37.67	500	clear
2	0941	7.23	3635	7.19	1.48	146.0	22.4	37.67	1500	clear
3	0956	7.31	3632	7.20	1.20	145.2	13.8	37.67	1500	clear
4	1001	7.25	3629	7.20	1.19	145.6	12.3	37.67	500	clear
5	1006	7.65	3623	7.20	1.20	145.8	10.1	37.67	500	clear
6	1011	7.39	3629	7.20	1.21	145.7	8.02	37.67	500	clear
7	1016	7.56	3628	7.20	1.17	145.9	7.63	37.67	500	clear
8	1021	7.69	3628	7.20	1.15	146.0	7.46	37.67	500	clear
9										
10										

Stabilized: **Yes** No

Total Volume Removed: 6,000 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond 16 S
Sampling Personal: Darren Nieswang

Weather Conditions: Temp: 16 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	39.17 ft		
Total Well Depth:	— ft		
Well Volume:	— liters		
Depth to Top of Pump:	46.10 ft		
Water Level After Sample:	40.49 ft		
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		
Purge Date:	2 March 17	Time Purging Began:	*1130 ~~1030~~ am/pm
Well Purged Dry?	Yes	No	Time Purged Dry: — ~~am/pm~~
Sample Date:	2 March 17	Time of Sampling:	1255 am/~~pm~~

Control Settings		
Purge:	4	sec.
Recover:	56	sec.
PSI:	—	
Pumping Rate:	100	mL/min

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1135	7.91	3191	6.87	4.13	162.4	208	39.72	500	Partly cloudy
2	1150	7.86	3235	6.81	1.30	143.6	90.8	39.96	1500	Partly cloudy
3	1210	8.49	3227	6.83	1.32	99.5	62.8	40.24	2000	Clear
4	1230	8.07	3214	6.87	1.17	81.1	39.6	40.34	2000	clear
5	1240	8.02	3214	6.87	1.23	77.1	40.2	40.46	1000	clear
6	1245	8.13	3204	6.89	1.09	73.9	33.6	40.49	500	clear
7	1250	8.02	3201	6.88	1.06	73.1	30.9	40.49	500	clear
8	1255	8.00	3205	6.89	1.09	71.5	30.6	40.49	500	clear
9										
10										

Stabilized: **Yes** **No**

Total Volume Removed: 8500 mL

Comments:
* On 2 March 17

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: MW 25
Sampling Personal: Darren Wiesway

Weather Conditions: Temp: 24 °F Wind: Light Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			
Casing Diameter:	2"		
Water Level Before Purge:	23.94		ft
Total Well Depth:	—		ft
Well Volume:	—		liters
Depth to Top of Pump:	34.15		ft
Water Level After Sample:	30.51		ft
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		
Purge Date:	1 March 17	Time Purging Began:	1206 am/pm
Well Purged Dry?	Yes	~~No~~	Time Purged Dry: — ~~am/pm~~
Sample Date:	1 March 17	Time of Sampling:	1306 am/pm

Control Settings		
Purge:	3	sec.
Recover:	57	sec.
PSI:		
Pumping Rate:	100	mL/min

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1211	7.91	5058	6.95	5.55	209.7	21.9	24.73	500	clear
2	1226	8.19	5025	6.96	5.33	194.6	14.2	26.76	1500	cloudy
3	1236	8.46	5005	6.97	6.37	190.5	8.53	27.36	1000	clear
4	1246	8.49	5001	~~7.00~~	6.82	182.8	10.6	27.98	1000	clear
5	1251	8.30	5014	7.01	6.84	181.0	8.68	28.07	500	clear
6	1256	8.48	5026	7.00	6.89	179.8	~~6.6~~ 5.44	28.27	500	clear
7	1301	8.29	5031	7.00	6.92	179.0	5.14	28.38	500	clear
8	1306	8.16	5033	7.01	6.95	176.9	4.94	28.42	500	clear
9										
10										

Stabilized: Yes No

Total Volume Removed: 6000 mL

Comments:

* pur 1 March 17

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	Feb/Mar 2017 ~~Feb 2017~~ (A) cc 19May17	82-0496

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

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric							Temp (°C)	Spec. Cond.	pH	Analysis Required
W577	FB Slag	2March17	NA	W	clear	4							NA	NA	NA	Rad 226 & Rad 228
W578	Pond6	1March17	1502	GW	clear	4							7.94	5123	7.26	
W579	PondN3	1March17	1110	GW	Partly cloudy	4							7.60	5312	6.67	
—	Pond10	27Feb17	0930	GW	—	~~2~~	27Feb17 DN						no sample -			
W580	Pond12	2March17	1021	GW	clear	4							7.69	3628	7.20	
W581	Pond16S	2March17	1255	GW	clear	4							8.00	3205	6.89	
W582	MW2S	1March17	1306	GW	clear	4							8.16	5033	7.01	

Comments:

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1 Dan Nies	2March17 1535	~~Log In~~ Walk In #2	Ambient 16.9 (TM562) / TM588
2			

Received by:	
Name:	Date/Time
Abigail Simonson	02March17 1535
	16.9°C TM562

MINNESOTA VALLEY TESTING LABORATORIES, INC.
1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
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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

MVTL Laboratories Inc.
FIELD DATA REPORT

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	TEMP (°C)	EC	pH	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

MVTL Laboratories Inc.
FIELD DATA REPORT

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	pH	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.
  - 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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MEMBER ACIL

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.
    - 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 Carroll **DATE:** 13Apr17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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Quality Control Report

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	17W730q	< 0.001	0.4092	102	75-125	0.4092	0.4116	103	0.6	20	-	-	< 0.001
				0.400	17W740q	< 0.001	0.4042	101	75-125	0.4042	0.4424	111	9.0	20	-	-	
				0.400	17W758q	< 0.001	0.4404	110	75-125	0.4404	0.4264	107	3.2	20	-	-	
Arsenic - Total mg/l	0.1000	99	80-120	0.400	17W730q	< 0.002	0.4188	105	75-125	0.4188	0.4048	101	3.4	20	-	-	< 0.002
				0.400	17W740q	< 0.002	0.4212	105	75-125	0.4212	0.4722	118	11.4	20	-	-	
				0.400	17W758q	0.0164	0.4538	109	75-125	0.4538	0.4530	109	0.2	20	-	-	
Barium - Total mg/l	0.1000	101	80-120	0.400	17W730q	0.0199	0.4204	100	75-125	0.4204	0.4156	99	1.1	20	-	-	< 0.002
				0.400	17W740q	0.0606	0.4546	98	75-125	0.4546	0.5236	116	14.1	20	-	-	
				0.400	17W758q	0.1073	0.5440	109	75-125	0.5440	0.5750	117	5.5	20	-	-	
Beryllium - Total mg/l	0.1000	101	80-120	0.400	17W730q	< 0.0005	0.3966	99	75-125	0.3966	0.3936	98	0.8	20	-	-	< 0.0005
				0.400	17W740q	< 0.0005	0.3994	100	75-125	0.3994	0.4650	116	15.2	20	-	-	
				0.400	17W758q	< 0.0005	0.4338	108	75-125	0.4338	0.4558	114	4.9	20	-	-	
Boron - Total mg/l	0.40	105	80-120	0.400	17-W740	2.33	2.80	118	75-125	2.80	2.77	110	1.1	20	-	-	< 0.1
				0.400	17-W748	0.26	0.66	100	75-125	0.66	0.64	95	3.1	20	-	-	< 0.1
Cadmium - Total mg/l	0.1000	102	80-120	0.400	17W730q	< 0.0005	0.4080	102	75-125	0.4080	0.4142	104	1.5	20	-	-	< 0.0005
				0.400	17W740q	0.0017	0.3990	99	75-125	0.3990	0.4348	108	8.6	20	-	-	
				0.400	17W758q	< 0.0005	0.4270	107	75-125	0.4270	0.4228	106	1.0	20	-	-	
Calcium - Total mg/l	20.0	104	80-120	100	17W730q	18.5		100	75-125	119	115	96	3.4	20	-	-	< 1
	20.0	102	80-120	100	17W740q	191	280	89	75-125	280	283	92	1.1	20	-	-	< 1
															-	-	< 1
															-	-	< 1
Chloride mg/l	30.0	82	80-120	30.0	17-W730	9.4	37.5	94	80-120	37.5	35.9	88	4.4	20	-	-	< 1
	30.0	83	80-120												-	-	< 1
Chromium - Total mg/l	0.1000	97	80-120	0.400	17W730q	< 0.002	0.3748	94	75-125	0.3748	0.3750	94	0.1	20	-	-	< 0.002
				0.400	17W740q	0.0090	0.3854	94	75-125	0.3854	0.4192	103	8.4	20	-	-	
				0.400	17W758q	< 0.002	0.4036	101	75-125	0.4036	0.4020	100	0.4	20	-	-	

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Quality Control Report

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
Cobalt - Total mg/l	0.1000	98	80-120	0.400	17W730q	< 0.002	0.3846	96	75-125	0.3846	0.3794	95	1.4	20	-	-	< 0.002
				0.400	17W740q	0.0311	0.4178	97	75-125	0.4178	0.4542	106	8.3	20	-	-	
				0.400	17W758q	< 0.002	0.4118	103	75-125	0.4118	0.4082	102	0.9	20	-	-	
Fluoride mg/l	0.50	110	90-110	0.500	17-W741	0.29	0.77	96	80-120	0.77	0.78	98	1.3	20	-	-	< 0.1
	0.50	110	90-110												-	-	< 0.1
Lead - Total mg/l	0.1000	98	80-120	0.400	17W730q	< 0.0005	0.3892	97	75-125	0.3892	0.3790	95	2.7	20	-	-	< 0.0005
				0.400	17W740q	0.0012	0.3788	94	75-125	0.3788	0.4342	108	13.6	20	-	-	
				0.400	17W758q	0.0023	0.4158	103	75-125	0.4158	0.4368	109	4.9	20	-	-	
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	100	85-115	0.002	17-W728	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
	0.0020	95	85-115	0.002	17-w730	< 0.0002	0.0020	100	70-130	0.0020	0.0020	95	0.0	20	-	-	< 0.0002
				0.002	17-W730	< 0.0002	0.0020	100	70-130	0.0018	0.0019		5.4	20	-	-	
				0.002	17-W760	< 0.0002	0.0018	90	70-130						-	-	
Molybdenum - Total mg/l	0.1000	99	80-120	0.400	17W730q	0.0054	0.4018	99	75-125	0.4018	0.4122	102	2.6	20	-	-	< 0.002
				0.400	17W740q	0.0075	0.4048	99	75-125	0.4048	0.4800	118	17.0	20	-	-	
				0.400	17W758q	0.0329	0.4728	110	75-125	0.4728	0.4920	115	4.0	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	6.1	6.0	-	1.7	20	-	-	-
Selenium - Total mg/l	0.1000	102	80-120	0.400	17W730q	< 0.01	0.4112	103	75-125	0.4112	0.4220	106	2.6	20	-	-	< 0.002
				0.400	17W740q	< 0.01	0.4196	105	75-125	0.4196	0.4814	120	13.7	20	-	-	
				0.400	17W758q	< 0.01	0.4616	115	75-125	0.4616	0.4590	115	0.6	20	-	-	
Sulfate mg/l	100	91	80-120	100	17-W732	< 5	83.2	83	80-120	83.2	82.1	82	1.3	20	-	-	< 5
	100	93	80-120												-	-	< 5
Thallium - Total mg/l	0.1000	99	80-120	0.400	17W730q	< 0.0005	0.3936	98	75-125	0.3936	0.3820	96	3.0	20	-	-	< 0.0005
				0.400	17W740q	< 0.0005	0.3814	95	75-125	0.3814	0.4400	110	14.3	20	-	-	
				0.400	17W758q	< 0.0005	0.4154	104	75-125	0.4154	0.4398	110	5.7	20	-	-	

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Quality Control Report

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
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	2720	2750	-	1.1	20	-	-	< 10
	-	-	-	-	-	-	-	-	-	1060	1080	-	1.9	20	-	-	< 10

Approved by: C. Gould

13 Apr 17

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CERTIFICATE of ANALYSIS - CCR

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

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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: April 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	30 Mar 17	SVS
Field pH	7.02	s.u.	0.1	SM 4500 H+ B	29 Mar 17 8:50	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 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
Fluoride	0.40	mg/l	0.10	SM4500-F-C	30 Mar 17 18:00	SVS
Sulfate	1720	mg/l	5.00	ASTM D516-07	31 Mar 17 11:44	EMS
Chloride	23.8	mg/l	1.0	SM4500-Cl-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	3660	mg/l	10	I1750-85	31 Mar 17 15:43	SVS
Calcium - Total	166	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	3.41	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	0.0425	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	0.0013	mg/l	0.0005	6020	6 Apr 17 16:00	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Cobalt - Total	0.0303	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	0.0075	mg/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 13 Apr 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: April 2017

	As Received Result		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 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
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/l	1.0	SM4500-Cl-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/l	10	I1750-85	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/l	0.0010	6020	6 Apr 17 16:00	KMD
Arsenic - Total	0.0028	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Barium - Total	0.0496	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	0.0071	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Cobalt - Total	0.0064	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Lead - Total	0.0020	mg/l	0.0005	6020	6 Apr 17 16:00	KMD
Molybdenum - Total	0.0035	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Selenium - Total	0.0638	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

* Holding time exceeded

Approved by: Claudette K Carroll 13 Apr 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 12 Apr 17
Lab Number: 17-W739
Work Order #:82-0742
Account #: 006106
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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: April 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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-Cl-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/l	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/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 13 Apr 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: April 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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	* 6.8	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/l	0.10	SM4500-F-C	30 Mar 17 18:00	SVS
Sulfate	1270	mg/l	5.00	ASTM D516-07	31 Mar 17 11:44	EMS
Chloride	22.2	mg/l	1.0	SM4500-Cl-E	4 Apr 17 9:41	EMS
Mercury - Total	< 0.0002	mg/l	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/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	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/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	0.0017	mg/l	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/l	0.0005	6020	6 Apr 17 16:00	KMD
Molybdenum - Total	0.0075	mg/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll cc 13 Apr 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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CERTIFICATE of ANALYSIS - CCR

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

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

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: April 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	5.00	ASTM D516-07	31 Mar 17 11:44	EMS
Chloride	24.7	mg/l	1.0	SM4500-Cl-E	4 Apr 17 9:41	EMS
Mercury - Total	< 0.0002	mg/l	0.0002	EPA 245.1	5 Apr 17 12:09	EV
Total Dissolved Solids	4760	mg/l	10	I1750-85	31 Mar 17 15:43	SVS
Calcium - Total	535	mg/l	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/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	0.0146	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	< 0.002	mg/l	0.0020	6020	6 Apr 17 16:00	KMD
Cobalt - Total	< 0.002	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	< 0.002	mg/l	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/l	0.0005	6020	6 Apr 17 16:00	KMD

* Holding time exceeded

Approved by: Claudette K Carroll cc 13Apr17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 6
Sampling Personal:	Jerry Klyne

Weather Conditions: Temp: 40 °F Wind: W@5-10 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.62	ft
Total Well Depth:	18.81	ft
Well Volume:	0.7	liters
Depth to Top of Pump:	17.28	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	5	
Pumping Rate:	100	mL/min

Purge Date:	29 Mar 17	Time Purging Began:	0825 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	29 Mar 17	Time of Sampling:	0850 (am/pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	0830	8.87	4453	7.01	5.61	236.6	5.78	Below Pump (BP)	500.0	Clear
2	0835	8.89	4547	7.00	1.32	235.1	1.75	BP	500.0	Clear
3	0840	9.21	4619	7.01	0.96	223.0	3.55	BP	500.0	Clear
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	BP	500.0	Clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500.0 mL

Comments:

Maintained 100 mL/min purge rate

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond N3
Sampling Personal:	Jerry Hayes

Weather Conditions: Temp: 45 °F Wind: W @ 5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	(No)	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	11.78	ft
Total Well Depth:	37.07	ft
Well Volume:	15.6	liters
Depth to Top of Pump:	31.36	ft
Water Level After Sample:	15.62	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:		
Pumping Rate:	100	mL/min

Purge Date:	29 Mar 17	Time Purging Began:	1318 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	29 Mar 17	Time of Sampling:	1508 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1323	12.68	5154	6.90	4.85	174.1	>1000	12.24	500.0	Cloudy
2	1343	12.64	5140	6.83	4.40	172.4	941.0	14.06	2000.0	Cloudy
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 Cloudy
5	1443	12.84	5126	6.69	0.86	187.3	172.0	15.27	2000.0	Partly Cloudy
6	1453	13.04	5122	6.68	0.73	190.3	148.0	15.35	1000.0	Partly Cloudy
7	1458	12.82	5119	6.68	0.74	191.3	134.0	15.36	500.0	Partly Cloudy
8	1503	12.92	5120	6.67	0.70	192.4	136.0	15.37	500.0	Partly Cloudy
9	1508	12.78	5121	6.67	0.70	192.9	122.0	15.42	500.0	Partly Cloudy
10										

Stabilized: (Yes) No

Total Volume Removed: 11,000.0 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	**OTP Coyote**
Event:	**2017**
Sample ID:	Pond 10
Sampling Personal:	Jeremy Meyer

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

Well Information

Well Locked?	**Yes**	~~No~~	
Well Labeled?	~~Yes~~	**No**	
Casing Straight?	~~Yes~~	**No**	
Grout Seal Intact?	~~Yes~~	**No**	**Not Visible**
Repairs Necessary:			

Casing Diameter:	**2"**	
Water Level Before Purge:	21.64	ft
Total Well Depth:	22.11	ft
Well Volume:	0.29	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	—	ft
Measurement Method:	**Electric Water Level Indicator**	

Sampling Information

Purging Method:	**Bladder**		
Sampling Method:	**Bladder**		
Dedicated Equip?:	**Yes**	**No**	
Duplicate Sample?:	**Yes**	**No**	
Duplicate Sample ID:			

Control Settings		
Purge:		sec.
Recover:		sec.
PSI:		
Pumping Rate:		mL/min

Purge Date:	—	Time Purging Began:	—	**am/pm**
Well Purged Dry?	**Yes** **No**	Time Purged Dry:		**am/pm**
Sample Date:	29 May 17	Time of Sampling:	0814	~~am~~/**pm**

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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										
5										
6										
7										
8										
9										
10										

Stabilized: **Yes** **No** Total Volume Removed: _____ mL

Comments: Insufficient volume No Sample

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 12
Sampling Personal:	Jerry Hayes

Weather Conditions: Temp: 45 °F Wind: SW 5-10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	37.50 ft
Total Well Depth:	40.10 ft
Well Volume:	1.6 liters
Depth to Top of Pump:	30 Mar 17 ~~37.59~~ 38.51 ft
Water Level After Sample:	38.49 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	30 Mar 17	Time Purging Began:	~~0937~~ am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	— am/pm
Sample Date:	30 Mar 17	Time of Sampling:	1027 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	0942	9.27	3493	7.08	0.89	219.4	43.3	38.47	500.0	Clear
2	0947	9.29	3488	7.07	1.08	208.6	24.5	38.48	500.0	Clear
3	0952	9.46	3481	7.11	0.68	178.2	15.0	38.49	500.0	clear
4	0957	9.54	3482	7.15	0.57	146.9	6.58	38.49	500.0	Clear
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	clear
7	1012	9.61	3481	7.16	0.52	81.2	2.90	38.49	500.0	clear
8	1017	9.61	3484	7.16	0.60	66.1	2.74	38.49	500.0	clear
9	1022	9.61	3487	7.15	0.66	57.3	1.66	38.49	500.0	Clear
10	1027	9.65	3487	7.15	0.54	49.9	1.61	38.49	500.0	Clear

Stabilized: Yes No

Total Volume Removed: 5000.0 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 16S
Sampling Personal:	Jeremy Mayer

Weather Conditions: Temp: 45 °F Wind: S 5-10 Precip: **Sunny / Partly Cloudy / (Cloudy)**

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	39.28	ft
Total Well Depth:	48.85	ft
Well Volume:	5.9	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	40.25	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes (No)
Duplicate Sample?:	Yes (No)
Duplicate Sample ID:	—

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	30 Mar 17	Time Purging Began:	1125 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	30 Mar 17	Time of Sampling:	1225 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1130	9.53	3280	6.91	2.06	162.6	90.4	39.55	500.0	Clear
2	1135	9.95	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	9.97	3108	6.88	0.75	158.9	84.1	39.94	500.0	Clear
5	1200	10.13	3116	6.88	0.81	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	Clear
7	1210	10.09	3118	6.87	0.87	147.3	57.7	39.95	500.0	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	500.0	clear
10	1225	10.04	3112	6.87	0.93	137.2	42.6	40.15	500.0	Clear

Stabilized: (Yes) No

Total Volume Removed: 6,000.0 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	MW 25
Sampling Personal:	Jeremy Meyer

Weather Conditions: Temp: 45 °F Wind: W @ 5-10 Precip: **Sunny / (Partly Cloudy) / Cloudy**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	23.20	ft
Total Well Depth:	36.60	ft
Well Volume:	8.23	liters
Depth to Top of Pump:	34.52	ft
Water Level After Sample:	28.55	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	29 Mar 17	Time Purging Began:	1127 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	29 Mar 17	Time of Sampling:	1217 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	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	Clear
3	1142	9.78	4863	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	Clear
5	1152	10.06	4844	6.95	3.92	157.2	1.00	25.57	500.0	Clear
6	1157	10.01	4836	6.97	3.54	157.6	1.03	26.11	500.0	Clear
7	1202	10.43	4821	6.96	5.11	159.8	1.49	26.64	500.0	Clear
8	1207	10.46	4827	6.97	5.31	160.3	1.49	27.11	500.0	Clear
9	1212	10.95	4817	6.98	5.63	160.5	1.47	27.24	500.0	Clear
10	1217	10.36	4816	6.97	5.69	162.1	1.57	27.35	500.0	Clear

Stabilized: (Yes) No

Total Volume Removed: 5000.0 mL

Comments:

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	April 2017	82-0742

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

	Sample Information					Bottle Type							Field Parameters			Analysis
	Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter	500mL Nitric					Temp (°C)	Spec. Cond.	pH	Analysis Required
*	~~W736~~	FB Slag	30Mar17	NA	W	—	X	X					NA	NA	NA	OTP Coyote List 1
	W737	Pond6	29Mar17	0850	GW	Clear	X	X					9.23	4643	7.02	
	W738	PondN3	29Mar17	1508	GW	Partly Cloudy	X	X					12.78	5121	6.67	
	—	Pond10	29Mar17	0814	GW	30Mar17 2nd	~~X~~	~~X~~					insufficient volume			
	W739	Pond12	30Mar17	1027	GW	Clear	X	X					9.65	3487	7.15	
	W740	Pond16S	30Mar17	1225	GW	Clear	X	X					10.04	3112	6.87	
	W741	MW2S	29Mar17	1217	GW	Clear	X	X					10.36	4816	6.97	

Comments: * not analyzed due to preservation error during sampling. Resampled 4Apr17. 7Apr17 cc

Relinquished By:		Sample Condition:	
Name	Date/Time	Location:	Temp (°C)
1	30Mar17 1445	~~Log In~~ Walk In #2	3.9 Rad TM562 / ~~TM588~~
2			

Received by:	
Name:	Date/Time
Angel Simonson	30mar17 1445

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

CASE NARRATIVE

MVTL Lab Reference No/SDG: 201782-0743
IML Lab Reference No/SDG: S1704027
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)	S1704027-001	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.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 4 May 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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www.mvtl.com
MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: FB Slag

Temp at Receipt: 10.0C

Event and Year: Mar 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			20 Apr 17	OL
Radium 228	See Attached Report			20 Apr 17	OL

Approved by: Claudette K Carroll 4 May 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: Pond6

Temp at Receipt: 10.0C

Event and Year: Mar 2017

	As Received Result		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 Attached Report				20 Apr 17	OL
Radium 228	See Attached Report				20 Apr 17	OL

Approved by: Claudette K Carrep cc 4May17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: PondN3

Temp at Receipt: 10.0C

Event and Year: Mar 2017

	As Received Result		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 Attached Report				20 Apr 17	OL
Radium 228	See Attached Report				20 Apr 17	OL

Approved by: Claudette K Carroll 4 May 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: Pond12

Temp at Receipt: 10.0C

Event and Year: Mar 2017

	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 Attached Report				20 Apr 17	OL
Radium 228	See Attached Report				20 Apr 17	OL

Approved by: Claudette K Carroll cc 4May17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: Pond16S

Temp at Receipt: 10.0C

Event and Year: Mar 2017

	As Received Result		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 Attached Report				20 Apr 17	OL
Radium 228	See Attached Report				22 Apr 17	OL

Approved by: Claudette K Carroll rc 4 May 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: MW2S

Temp at Receipt: 10.0C

Event and Year: Mar 2017

	As Received Result		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	See Attached Report				20 Apr 17	OL
Radium 228	See Attached Report				22 Apr 17	OL

Approved by: Claudette K Carroll 4 May 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

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

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	5/1/2017
		Report ID	S1704027001
ProjectName:	201782-0743	**WorkOrder:**	S1704027
Lab ID:	S1704027-001	**CollectionDate:**	3/30/2017
ClientSample ID:	17-W742 FB Slag	**DateReceived:**	4/4/2017 10:49:00 AM
COC:	201782-0743	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 5/1/2017
Report ID S1704027001

ProjectName: 201782-0743
Lab ID: S1704027-002
ClientSample ID: 17-W743 Pond6
COC: 201782-0743

WorkOrder: S1704027
CollectionDate: 3/29/2017 8:50:00 AM
DateReceived: 4/4/2017 10:49:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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	-1.8	pCi/L		1	Ga-Tech	04/20/2017 809	MB
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	04/20/2017 809	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 5/1/2017
Report ID S1704027001

ProjectName: 201782-0743
Lab ID: S1704027-003
ClientSample ID: 17-W744 PondN3
COC: 201782-0743

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	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 5/1/2017
Report ID S1704027001

ProjectName: 201782-0743
Lab ID: S1704027-004
ClientSample ID: 17-W745 Pond12
COC: 201782-0743

WorkOrder: S1704027
CollectionDate: 3/30/2017 10:27:00 AM
DateReceived: 4/4/2017 10:49:00 AM
FieldSampler:
Matrix: Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 5/1/2017
Report ID S1704027001

ProjectName: 201782-0743
Lab ID: S1704027-005
ClientSample ID: 17-W746 Pond 16S
COC: 201782-0743

WorkOrder: S1704027
CollectionDate: 3/30/2017 12:25:00 PM
DateReceived: 4/4/2017 10:49:00 AM
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	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	MB
Radium 228 Precision (±)	1.3	pCi/L			Ga-Tech	04/22/2017 701	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	5/1/2017
		Report ID	S1704027001
ProjectName:	201782-0743	**WorkOrder:**	S1704027
Lab ID:	S1704027-006	**CollectionDate:**	3/29/2017 12:17:00 PM
ClientSample ID:	17-W747 MW2S	**DateReceived:**	4/4/2017 10:49:00 AM
COC:	201782-0743	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	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.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
E	Value above quantitation range	G	Analyzed at IML Gillette laboratory
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	M	Value exceeds Monthly Ave or MCL or is less than LCL
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

Reviewed by: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1704027
Project: 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	PrepDate: 04/10/17 12:00			BatchID 13075		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	ND	1					

MB-429 (04/21/17 15:43)	RunNo: 145273	PrepDate: 04/12/17 12:00			BatchID 13101		
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-428 (04/17/17 18:57)	RunNo: 145016	PrepDate: 04/10/17 12:00			BatchID 13075		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	39	1	40.1		98.0	65.9 - 132	

LCS-429 (04/21/17 18:45)	RunNo: 145273	PrepDate: 04/12/17 12:00			BatchID 13101		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
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	PrepDate: 04/10/17 12:00			BatchID 13075		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
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	PrepDate: 04/10/17 12:00			BatchID 13075		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	74	2	80.1	ND	92.6	50 - 139	

MS-429 (04/22/17 00:54)	RunNo: 145273	PrepDate: 04/12/17 12:00			BatchID 13101		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
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	PrepDate: 04/10/17 12:00			BatchID 13075		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	82	2	74	9.64	102	20	

MSD-429 (04/22/17 03:57)	RunNo: 145273	PrepDate: 04/12/17 12:00			BatchID 13101		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	43	1	41	5.19	107	20	

Qualifiers:

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1704027
Project: 201782-0743

Date: 5/1/2017
Report ID: S1704027001

Radium 226 in Water - Sample Type **MBLK** Units: pCi/L

MB-1738 (04/20/17 14:04)	RunNo: 145012	PrepDate: 04/12/17 0:00			BatchID 13074		
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-1738 (04/20/17 14:04)	RunNo: 145012	PrepDate: 04/12/17 0:00			BatchID 13074		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	6.5	0.2	5.89		110	67.1 - 122	

Radium 226 in Water - Sample Type **LCSD** Units: pCi/L

LCSD-1738 (04/20/17 14:04)	RunNo: 145012	PrepDate: 04/12/17 0:00			BatchID 13074		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	6.2	0.2	6.5	4.82	105	20	

Radium 226 in Water - Sample Type **MS** Units: pCi/L

S1704026-003AMS (04/20/17 14:04)	RunNo: 145012	PrepDate: 04/12/17 0:00			BatchID 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	E	Value above quantitation range
G	Analyzed at IML Gillette laboratory	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201782-0743

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 31-Mar-17
	Project Name/Number:	Purchase Order #: BL5821

Sample Information						Bottle Type						Analysis
S1704027 IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W742	FB Slag	GW	30-Mar-17	NA		4					Ra226 & Ra228
002	17-W743	Pond6	GW	29-Mar-17	850		4					Ra226 & Ra228
003	17-W744	PondN3	GW	29-Mar-17	1508		4					Ra226 & Ra228
004	17-W745	Pond12	GW	30-Mar-17	1027		4					Ra226 & Ra228
005	17-W746	Pond16S	GW	30-Mar-17	1225		4					Ra226 & Ra228
006	17-W747	MW2S	GW	29-Mar-17	1217		4					Ra226 & 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	Intact	Kathy Boys	4.4.17	10:49	10.2
2.							10.9 13.3

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

Chain of Custody Record

Project Name: OTP Coyote - Slag Pond	**Event:** April 2017	**Work Order Number:** 30mar17 ~~B2-0742~~ B2-0743
Report To: Otter Tail Power Attn: Josh Hollen Address: PO Box 496 Fergus Falls, MN 56538-0496 phone: email: jhollen@otpco.com	**Carbon Copy:** Attn: Address:	**Name of Sampler(s):** Jeremy Meyer

Sample Information						Bottle Type								Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric								Temp (°C)	Spec. Cond.	pH	Analysis Required
W742 ~~W736~~	FB Slag	30 Mar 17	NA	W	—	4								NA	NA	NA	Rad 226 & Rad 228
W743 W737	Pond6	29 Mar 17	0850	GW	Clear	4								9.23	4643	7.02	
W744 W738	PondN3	29 Mar 17	1508	GW	Partly Cloudy	4								12.78	5121	6.67	
—	Pond10	29 Mar 17	0814	GW	30 Mar 17 → —	~~2~~								insufficient volume			
W745 W739	Pond12	30 Mar 17	1027	GW	Clear	4								9.65	3487	7.15	
W746 W740	Pond16S	30 Mar 17	1225	GW	Clear	4								10.04	3112	6.87	
W747 W741	MW2S	29 Mar 17	1217	GW	Clear	4								10.36	4816	6.97	

Comments: ~~B2-0742~~ 30 Mar 17 ~~B2-0742~~ B2-0743

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1	30 Mar 17 1445	~~Log In~~ Walk In #2	Ambient 10.0 TM562 / ~~TM588~~
2			

Received by:	
Name:	Date/Time
Angel Simonson	30 Mar 17 1445

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
MEMBER ACIL

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

MVTL Laboratories Inc.
FIELD DATA REPORT

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	TEMP (°C)	EC	pH	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

MVTL Laboratories Inc.
FIELD DATA REPORT

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	pH	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

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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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.
  - 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: Claudette Carroll DATE: 17Apr17
Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

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1201 Lincoln Highway ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
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MEMBER
ACIL

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
Antimony - Total mg/l	0.1000	103	80-120	0.400	17W775q	< 0.001	0.3938	98	75-125	0.3938	0.4062	102	3.1	20	-	-	< 0.001
				0.400	17W791q	< 0.001	0.4078	102	75-125	0.4078	0.4226	106	3.6	20	-	-	
				0.400	17W801q	< 0.001	0.3954	99	75-125	0.3954	0.4168	104	5.3	20	-	-	
Arsenic - Total mg/l	0.1000	106	80-120	0.400	17W775q	< 0.002	0.4124	103	75-125	0.4124	0.4222	106	2.3	20	-	-	< 0.002
				0.400	17W791q	< 0.002	0.4266	107	75-125	0.4266	0.4326	108	1.4	20	-	-	
				0.400	17W801q	< 0.002	0.4158	104	75-125	0.4158	0.4292	107	3.2	20	-	-	
Barium - Total mg/l	0.1000	103	80-120	0.400	17W775q	< 0.002	0.3762	94	75-125	0.3762	0.3824	96	1.6	20	-	-	< 0.002
				0.400	17W791q	0.0440	0.4290	96	75-125	0.4290	0.4384	99	2.2	20	-	-	
				0.400	17W801q	0.0290	0.4074	95	75-125	0.4074	0.4252	99	4.3	20	-	-	
Beryllium - Total mg/l	0.1000	108	80-120	0.400	17W775q	< 0.0005	0.4118	103	75-125	0.4118	0.4052	101	1.6	20	-	-	< 0.0005
				0.400	17W791q	< 0.0005	0.4294	107	75-125	0.4294	0.4398	110	2.4	20	-	-	
				0.400	17W801q	< 0.0005	0.4258	106	75-125	0.4258	0.4460	112	4.6	20	-	-	
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	17W775q	< 0.0005	0.3984	100	75-125	0.3984	0.4040	101	1.4	20	-	-	< 0.0005
				0.400	17W791q	< 0.0005	0.4090	102	75-125	0.4090	0.4226	106	3.3	20	-	-	
				0.400	17W801q	0.0006	0.3892	97	75-125	0.3892	0.4090	102	5.0	20	-	-	
Calcium - Total mg/l	20.0	106	80-120	1000	17M537q	2010	2900	89	75-125	121	119	95	1.7	20	-	-	< 1
				100	17M539q	23.9	121	97	75-125	98.5	97.5	94	1.0	20	-	-	< 1
				100	17M541q	50.3	139	89	75-125	272	269	77	1.1	20	-	-	
				100	17W769q	3.6	98.5	95	75-125						-	-	
				100	17W791q	192	272	80	75-125						-	-	
Chloride mg/l	30.0	80	80-120	30.0	17-W791	8.1	34.3	87	80-120	34.3	36.7	95	6.8	20	-	-	< 1
	30.0	80	80-120												-	-	< 1
	30.0	80	80-120												-	-	< 1
Chromium - Total mg/l	0.1000	99	80-120	0.400	17W775q	< 0.002	0.3762	94	75-125	0.3762	0.3810	95	1.3	20	-	-	< 0.002
				0.400	17W791q	< 0.002	0.3808	95	75-125	0.3808	0.3884	97	2.0	20	-	-	
				0.400	17W801q	< 0.002	0.3676	92	75-125	0.3676	0.3852	96	4.7	20	-	-	

MVTL

MINNESOTA VALLEY TESTING LABORATORIES, INC.

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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
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MEMBER
ACIL

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	17W775q	< 0.002	0.3766	94	75-125	0.3766	0.3802	95	1.0	20	-	-	< 0.002
				0.400	17W791q	< 0.002	0.3778	94	75-125	0.3778	0.3900	98	3.2	20	-	-	
				0.400	17W801q	< 0.002	0.3718	93	75-125	0.3718	0.3800	95	2.2	20	-	-	
Fluoride mg/l	0.50	110	90-110	0.500	17-M510	0.98	1.44	92	80-120	1.44	1.44	92	0.0	20	-	-	< 0.1
				0.500	17-W775	< 0.1	0.55	110	80-120	0.55	0.55	110	0.0	20	-	-	< 0.1
Lead - Total mg/l	0.1000	105	80-120	0.400	17W775q	< 0.0005	0.4050	101	75-125	0.4050	0.4016	100	0.8	20	-	-	< 0.0005
				0.400	17W791q	< 0.0005	0.3992	100	75-125	0.3992	0.4070	102	1.9	20	-	-	
				0.400	17W801q	< 0.0005	0.3938	98	75-125	0.3938	0.4178	104	5.9	20	-	-	
Lithium - Total mg/l	0.40	112	80-120	0.400	17-W775	< 0.1	0.45	112	75-125	0.45	0.45	112	0.0	20	-	-	< 0.1
				0.400	17-W791	0.10	0.56	115	75-125	0.56	0.55	112	1.8	20	-	-	< 0.1
															-	-	< 0.1
Mercury - Total mg/l	0.0020	100	85-115	0.100	17-M541	< 0.01	0.1048	105	70-130	0.1048	0.1038	104	1.0	20	-	-	< 0.0002
				0.002	17-W791	< 0.0002	0.0019	95	70-130	0.0019	0.0020	100	5.1	20	-	-	
Molybdenum - Total mg/l	0.1000	102	80-120	0.400	17W775q	< 0.002	0.3900	98	75-125	0.3900	0.4026	101	3.2	20	-	-	< 0.002
				0.400	17W791q	< 0.002	0.4174	104	75-125	0.4174	0.4304	108	3.1	20	-	-	
				0.400	17W801q	0.0035	0.4068	101	75-125	0.4068	0.4334	107	6.3	20	-	-	
pH units	-	-	-	-	-	-	-	-	-	9.6	7.9	-	19.4	20	-	-	-
	-	-	-	-	-	-	-	-	-	6.9	6.8	-	1.5	20	-	-	-
Selenium - Total mg/l	0.1000	111	80-120	0.400	17W775q	< 0.002	0.4650	116	75-125	0.4650	0.4420	110	5.1	20	-	-	< 0.002
				0.400	17W791q	< 0.002	0.4572	114	75-125	0.4572	0.4448	111	2.7	20	-	-	
				0.400	17W801q	0.0032	0.4510	112	75-125	0.4510	0.4656	116	3.2	20	-	-	
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	17W775q	< 0.0005	0.4210	105	75-125	0.4210	0.4170	104	1.0	20	-	-	< 0.0005
				0.400	17W791q	< 0.0005	0.4172	104	75-125	0.4172	0.4238	106	1.6	20	-	-	
				0.400	17W801q	< 0.0005	0.4070	102	75-125	0.4070	0.4330	108	6.2	20	-	-	
Total Dissolved Solids mg/l	-	-	-	-	-	-	-	-	-	1540	1460	-	5.3	20	-	-	< 10

Approved by: C. Gould 17 Apr 17

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 13 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

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: April 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	0.10	SM4500-F-C	6 Apr 17 17:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	7 Apr 17 9:50	EMS
Chloride	< 1	mg/l	1.0	SM4500-Cl-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	I1750-85	5 Apr 17 14:58	SVS
Calcium - Total	< 1	mg/l	1.0	6010	11 Apr 17 12:01	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	10 Apr 17 14:30	KMD
Boron - Total	< 0.1	mg/l	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/l	0.0020	6020	11 Apr 17 11:00	KMD
Barium - Total	< 0.002	mg/l	0.0020	6020	11 Apr 17 11:00	KMD
Beryllium - Total	< 0.0005	mg/l	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/l	0.0020	6020	11 Apr 17 11:00	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	11 Apr 17 11:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	11 Apr 17 11:00	KMD
Molybdenum - Total	< 0.002	mg/l	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/l	0.0005	6020	11 Apr 17 11:00	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll 17Apr17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	April 2017	82-0783

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

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter	500mL Nitric						Temp (°C)	Spec. Cond.	pH	Analysis Required
W775	FB Slag	4 Apr 17	NA	W		X	X						NA	NA	NA	OTP Coyote List 1

Comments: recollected Field blank due to preservation error

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1	5 Apr 17 0805	Log In Walk In #2	R01 1.4 TM562 / ~~TM588~~
2			

Received by:	
Name:	Date/Time
Angel Simonson	5 April 17 805

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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: S1704139-001
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.

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll DATE: 19 May 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: FB Slag

Temp at Receipt: 1.4C ROI

Event and Year: April 2017

	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

cc

Approved by: Claudette K Carroll 19May17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

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:

Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported** **Report ID**	5/5/2017 S1704139001
ProjectName:	201782-0783	**WorkOrder:**	S1704139
Lab ID:	S1704139-001	**CollectionDate:**	4/4/2017
ClientSample ID:	17-W776 FB Slag	**DateReceived:**	4/11/2017 11:29:00 AM
COC:	201782-0783	**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	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.

RL - Reporting Limit

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
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

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1704139
Project: 201782-0783

Date: 5/5/2017
Report ID: S1704139001

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-430 (04/26/17 11:52)	RunNo: 145297	PrepDate: 04/17/17 14:00			BatchID 13102		
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-430 (04/26/17 14:57)	RunNo: 145297	PrepDate: 04/17/17 14:00			BatchID 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 **LCSD** Units: pCi/L

LCSD-430 (04/26/17 18:01)	RunNo: 145297	PrepDate: 04/17/17 14:00			BatchID 13102		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	41	1	39	3.17	101	20	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

S1704140-003AMS (04/28/17 15:59)	RunNo: 145297	PrepDate: 04/17/17 14:00			BatchID 13102		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	25	1	40.1	ND	62.8	50 - 139	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

S1704140-003AMSD (04/28/17 19:04)	RunNo: 145297	PrepDate: 04/17/17 14:00			BatchID 13102		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	35	1	25	31.3	86.1	20	R

Qualifiers:

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

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1704139
Project: 201782-0783

Date: 5/5/2017
Report ID: S1704139001

Radium 226 in Water - Sample Type **MBLK** Units: pCi/L

MB-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	ND	0.2					

Radium 226 in Water - Sample Type **LCS** Units: 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: 04/25/17 0:00			BatchID 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 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: 04/25/17 0:00			BatchID 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: 04/25/17 0:00			BatchID 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	E	Value above quantitation range
G	Analyzed at IML Gillette laboratory	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
X	Matrix Effect		

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
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Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201782-0783

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 7-Apr-17
	Project Name/Number:	Purchase Order #: BL5827

S1704139

Sample Information						Bottle Type						Analysis
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W776	FB Slag	GW	4-Apr-17	NA		4					Ra226 & Ra228

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

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	7-Apr-17	1700			4/11/17	4:29	11.4°
2.							

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	April 2017	~~82-0783~~ 82-0784

Report To:	Carbon Copy:	Name of Sampler(s):
Attn: Josh Hollen	Attn:	cc 5Apr17
Address: PO Box 496 Fergus Falls, MN 56538-0496	Address:	Jerry Myhre
phone:		
email: jhollen@otpco.com		

Sample Information						Bottle Type								Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric								Temp (°C)	Spec. Cond.	pH	Analysis Required
W776	FB Slag	4Apr17	NA	W		4								NA	NA	NA	Rad 226 & Rad 228

Comments: recollected field blank due to preservation error

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1	5Apr17 0805	(Log-In) Walk In #2	R01 1.4 TM562 / ~~TM588~~
2			

Received by:	
Name:	Date/Time
Angel Simonson	5April17 805

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MEMBER ACIL

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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-1311

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	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	pH	SAMPLE APPEARANCE
Black 810	na	na	17-May-17	13:27	1969.20	1878.25	90.95	91.48	na	0.3	na	na	na	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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-1312

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	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	pH	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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-1313

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 (Liters)	SAMPLE METHOD	TEMP (°C)	EC	pH	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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-1316
82-1296

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	pH	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	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

MVTL Laboratories Inc.
FIELD DATA REPORT

WO# 82-1314
82-1297

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	TEMP (°C)	EC	pH	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

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 6
Sampling Personal:	Jerry Myhre

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

Well Information

Well Locked?	Yes	(No)	in manhole
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.89	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	17.22	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	(100)	mL/min

Purge Date:	16 May 17	Time Purging Began:	0939 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~20~~ am/pm
Sample Date:	16 May 17	Time of Sampling:	0959 (am)/pm

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfuric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	0944	10.82	4332	6.68	6.82	227.9	6.78	Below Pump (BP)	500.0	Clear
2	0949	10.41	4606	6.97	6.44	209.4	5.04	BP	500.0	Clear
3	0954	10.48	4661	7.02	6.55	206.4	4.14	BP	500.0	Clear
4	0959	10.57	4764	7.04	6.41	203.3	1.83	BP	500.0	Clear
5										
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 4000.0 mL

Comments:

Water level below pump. maintained 100mL/min during purging & sampling

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond N13
Sampling Personal:	Jerry Hayes

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

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	11.86	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	15.25	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes (No)		
Duplicate Sample?:	Yes (No)		
Duplicate Sample ID:	—		
Purge Date:	16 May 17	Time Purging Began:	1112 (am/pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	16 May 17	Time of Sampling:	1232 (am/pm)

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1117	12.61	5183	6.88	8.32	258.9	351.0	12.60	500.0	Partly Cloudy (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	6.68	7.96	252.7	117.0	14.75	2000.0	PC
5	1222	12.75	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	89.8	14.84	500.0	PC
7	1232	12.74	5146	6.66	6.16	256.5	79.6	15.01	500.0	PC
8										
9										
10										

Stabilized: ~~Yes~~ No

Total Volume Removed: 8000.0 mL

Comments:

MVTL
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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 10
Sampling Personal:	Jerry Moyer

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	21.83	ft
Total Well Depth:	22.10	ft
Well Volume:	0.2	liters
Depth to Top of Pump:		ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equip?:	Yes	No
Duplicate Sample?:	Yes	No
Duplicate Sample ID:		

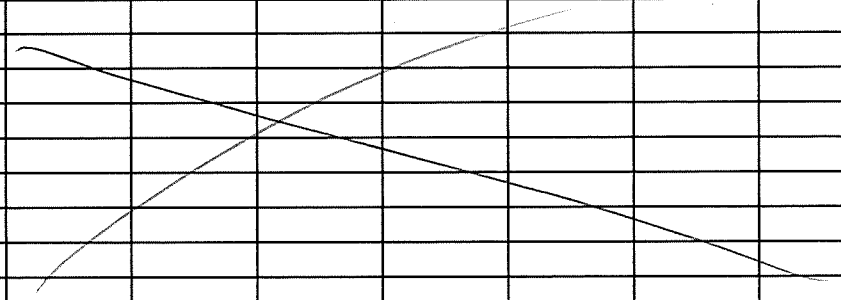
Control Settings	
Purge:	sec.
Recover:	sec.
PSI:	
Pumping Rate:	mL/min

Purge Date:		Time Purging Began:	am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	16 May 17	Time of Sampling:	1105 (am)/pm

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										



Stabilized: Yes No

Total Volume Removed: _____ mL

Comments:

Insufficient Volume

No Sample

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 12
Sampling Personal:	[illegible]

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	37.70 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	~~38.52~~ 38.52 ft
Water Level After Sample:	38.42 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder	Control Settings	
Sampling Method:	Bladder	Purge:	5 sec.
Dedicated Equip?:	Yes (No)	Recover:	55 sec.
Duplicate Sample?:	Yes (No)	PSI:	35
Duplicate Sample ID:	—	Pumping Rate:	100 mL/min

Purge Date:	16 May 17	Time Purging Began:	1650 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	16 May 17	Time of Sampling:	1725 am/(pm)

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1655	11.46	3505	7.05	4.78	278.6	64.1	38.16	500.0	Clear
2	~~1700~~	11.23	3491	7.04	4.79	270.9	20.1	38.40	500.0	Clear
3	1705	11.12	3504	7.09	4.44	241.7	12.1	38.42	500.0	Clear
4	1710	11.01	3507	7.07	4.26	209.8	5.73	38.43	500.0	Clear
5	1715	11.04	3507	7.08	4.16	189.3	2.80	38.43	500.0	Clear
6	1720	11.06	3502	7.09	4.12	177.5	3.14	38.43	500.0	Clear
7	1725	11.24	3507	7.10	4.18	170.3	1.18	38.43	500.0	Clear
8										
9										
10										

Stabilized: (Yes) No Total Volume Removed: 3500.0 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 16S
Sampling Personal:	Jerry Meyer

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

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	39.49 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	40.72 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes (No)
Duplicate Sample?:	Yes (No)
Duplicate Sample ID:	—

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	35	
Pumping Rate:	100	mL/min

Purge Date:	16 May 17	Time Purging Began:	1510 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	16 May 17	Time of Sampling:	1550 am/(pm)

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±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	500.0	Clear
2	1525	11.69	3144	6.68	5.13	264.8	95.4	40.02	1000.0	Clear
3	1535	11.84	3163	6.69	4.99	241.4	107.0	40.20	1000.0	Partly Cloudy
4	1540	11.68	3159	6.71	4.83	229.5	94.1	40.28	500.0	Clear
5	1545	11.61	3160	6.72	4.84	219.3	82.9	40.32	500.0	Clear
6	1550	11.44	3161	6.73	4.84	210.7	75.6	40.44	500.0	Clear
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 4000.0 mL

Comments:

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Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	MW2g
Sampling Personal:	Jerry Myer

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	22.18	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	28.83	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	16 May 17	Time Purging Began:	1337 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	16 May 17	Time of Sampling:	1402 am/(pm)

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1342	10.95	5009	6.91	7.24	286.2	2.43	22.71	500.0	Clear
2	1347	10.51	4994	6.91	6.37	282.6	1.45	23.45	500.0	Clear
3	1352	10.49	4990	6.91	6.20	287.1	1.53	24.10	500.0	Clear
4	1357	10.73	4982	6.92	6.25	291.9	1.42	24.58	500.0	Clear
5	1402	10.57	4952	6.94	6.45	298.2	1.60	25.08	500.0	clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500.0 mL

Comments:

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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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
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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.

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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 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).

All laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 9 Jun 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL

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Quality Control Report

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
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	-	-	< 0.0005
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	0.500 0.500 0.500	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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Quality Control Report

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	17-W1824	< 0.0002	0.0020	100	70-130	0.0020	0.0020	100	0.0	20	-	-	< 0.0002
				0.002	17-W1936	< 0.0002	0.0020	100	70-130	0.0020	0.0019	95	5.1	20	-	-	
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	8.0	-	2.5	20	-	-	-
	-	-	-	-	-	-	-	-	-	9.4	9.4	-	0.0	20	-	-	-
	-	-	-	-	-	-	-	-	-	7.4	7.5	-	1.3	20	-	-	-
	-	-	-	-	-	-	-	-	-	8.4	8.4	-	0.0	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	96	80-120	1000	17-W1824	1050	1940	89	80-120	1940	1950	90	0.5	20	-	-	< 5
	100	90	80-120	1000	17-D1818	929	1780	85	80-120	1780	1770	84	0.6	20	-	-	< 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	2250	-	2.2	20	-	-	< 10
	-	-	-	-	-	-	-	-	-	1980	1960	-	1.0	20	-	-	< 10
	-	-	-	-	-	-	-	-	-	4870	5000	-	2.6	20	-	-	< 10
	-	-	-	-	-	-	-	-	-	4660	4640	-	0.4	20	-	-	< 10
	-	-	-	-	-	-	-	-	-	2370	2250	-	5.2	20	-	-	< 10

Approved by: C. Gustad

9 Jun 17

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CERTIFICATE of ANALYSIS - CCR

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

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

Project Name: OTP Coyote - Slag Pond

Sample Description: FB Slag

	As Received Result		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/l	0.10	SM4500-F-C	18 May 17 18:00	SVS
Sulfate	< 5	mg/l	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	< 1	mg/l	1.0	SM4500-Cl-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/l	10	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/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	< 0.005 ^	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	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	0.0007	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	< 0.002	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

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote - Slag Pond

PO #: 48895

Sample Description: Pond6

Temp at Receipt: 3.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	18 May 17	SVS
Field pH	7.04	s.u.	0.1	SM 4500 H+ B	16 May 17 9:59	JSM
Lab, pH	* 7.4	s.u.	0.1	SM4500 H+ B	19 May 17 17:00	SVS
Field Appearance	Clear		NA	SM 2110	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
Fluoride	0.34	mg/l	0.10	SM4500-F-C	19 May 17 17:00	SVS
Sulfate	1730	mg/l	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	26.1	mg/l	1.0	SM4500-Cl-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	3780	mg/l	10	I1750-85	19 May 17 14:18	SVS
Calcium - Total	184	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	3.39	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	0.0420	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	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	0.0319	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	0.0193	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

* Holding time exceeded

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

Approved by: Claudette K Carroll 9 Jun 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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= 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

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

Project Name: OTP Coyote - Slag Pond

Sample Description: PondN3

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	18 May 17	SVS
Field pH	6.66	s.u.	0.1	SM 4500 H+ B	16 May 17 12:32	JSM
Lab, pH	* 7.0	s.u.	0.1	SM4500 H+ B	19 May 17 17:00	SVS
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
Fluoride	0.26	mg/l	0.10	SM4500-F-C	19 May 17 17:00	SVS
Sulfate	3050	mg/l	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	58.2	mg/l	1.0	SM4500-Cl-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	5000	mg/l	10	I1750-85	19 May 17 14:18	SVS
Calcium - Total	560	mg/l	1.0	6010	30 May 17 15:09	SZ
Lithium - Total	0.48	mg/l	0.10	6010	19 May 17 14:05	KMD
Boron - Total	0.50	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	0.0299	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	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Chromium - Total	0.0045	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	0.0048	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	0.0012	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	0.0033	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Selenium - Total	0.0645	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

* Holding time exceeded

cc

Approved by: Claudette K Carroll 9 Jun 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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! = Due to sample quantity
= 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

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

Project Name: OTP Coyote - Slag Pond

Sample Description: Pond12

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	18 May 17	SVS
Field pH	7.10	s.u.	0.1	SM 4500 H+ B	16 May 17 17:25	JSM
Lab, pH	* 7.3	s.u.	0.1	SM4500 H+ B	19 May 17 17:00	SVS
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
Fluoride	0.10	mg/l	0.10	SM4500-F-C	19 May 17 17:00	SVS
Sulfate	1560	mg/l	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	23.1	mg/l	1.0	SM4500-Cl-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	2660	mg/l	10	I1750-85	19 May 17 14:18	SVS
Calcium - Total	177	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	1.87	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	0.0178	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	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Chromium - Total	0.0089	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	0.0075	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	0.0046	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

* Holding time exceeded

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

Approved by: Claudette K Carroll 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:
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! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

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Josh Hollen
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PO Box 496
Fergus Falls MN 56538-0496

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

Project Name: OTP Coyote - Slag Pond

PO #: 48895

Sample Description: Pond16S

Temp at Receipt: 3.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	0.10	SM4500-F-C	19 May 17 17:00	SVS
Sulfate	1440	mg/l	5.00	ASTM D516-07	25 May 17 16:55	KMD
Chloride	24.2	mg/l	1.0	SM4500-Cl-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	2450	mg/l	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/l	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/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

Report Date: 7 Jun 17
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

Project Name: OTP Coyote - Slag Pond

PO #: 48895

Sample Description: MW2S

Temp at Receipt: 3.5C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				EPA 200.2	18 May 17	SVS
Field pH	6.94	s.u.	0.1	SM 4500 H+ B	16 May 17 14:02	JSM
Lab, pH	* 7.3	s.u.	0.1	SM4500 H+ B	19 May 17 17:00	SVS
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
Fluoride	0.26	mg/l	0.10	SM4500-F-C	19 May 17 17:00	SVS
Sulfate	2810	mg/l	5.00	ASTM D516-07	2 Jun 17 9:16	EMS
Chloride	24.8	mg/l	1.0	SM4500-Cl-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	4870	mg/l	10	I1750-85	19 May 17 14:18	SVS
Calcium - Total	605	mg/l	1.0	6010	30 May 17 15:09	SZ
Lithium - Total	0.44	mg/l	0.10	6010	19 May 17 14:05	KMD
Boron - Total	0.28	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	0.0137	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	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Chromium - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Cobalt - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Lead - Total	< 0.0005	mg/l	0.0005	6020	6 Jun 17 12:00	KMD
Molybdenum - Total	< 0.002	mg/l	0.0020	6020	6 Jun 17 12:00	KMD
Selenium - Total	0.1302	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

* Holding time exceeded

Approved by: Claudette K Carroll cc 9 JUN 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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! = Due to sample quantity
= Due to concentration of other analytes
+ = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	May 2017	82-1296

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

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter	500mL Nitric	500mL Nitric (filtered)	250mL Sulfuric				Temp (°C)	Spec. Cond.	pH	Analysis Required
W1829	FB Slag	16 May 17	NA	W	—	X	X	X	X				NA	NA	NA	OTP Coyote List 1 + OTP Coyote List A
W1830	Pond6	16 May 17	0959	GW	Clear	X	X	X	X				10.57	4764	7.04	
W1831	PondN3	16 May 17	1232	GW	Partly Cloudy	X	X	X	X				12.74	5146	6.66	
—	Pond10	16 May 17	1105	GW	—	X	X	X	X				insufficient volume			
W1832	Pond12	16 May 17	1725	GW	Clear	X	X	X	X				11.24	3507	7.10	
W1833	Pond16S	16 May 17	1550	GW	Clear	X	X	X	X				11.44	3161	6.73	
W1834	MW2S	16 May 17	1402	GW	Clear	X	X	X	X				10.57	4952	6.94	

Comments:

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1	18 May 17 0746	~~Log In~~ Walk In #2	3.5 TM562 ~~TM588~~
2			

Received by:	
Name:	Date/Time
	18 May 2017 0800

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

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	S1705436-002	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

- 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: Claudette Carroll **DATE:** 11 JUL 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 3.5C

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			13 Jun 17	OL
Radium 228	See Attached Report			11 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll 11 JUL 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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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

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

PO #: 48895

Temp at Receipt: 3.5C

	As Received Result		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 Attached Report				13 Jun 17	OL
Radium 228	See Attached Report				11 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 11JUL17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 3.5C

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond N3

Event and Year: May 2017

	As Received Result		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 Attached Report				12 Jun 17	OL
Radium 228	See Attached Report				12 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll CC 11 JUL 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 3.5C

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond 12

Event and Year: May 2017

	As Received Result		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 Attached Report				12 Jun 17	OL
Radium 228	See Attached Report				12 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

cc

Approved by: Claudette K Carroll 11JUL17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

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

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

PO #: 48895

Temp at Receipt: 3.5C

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond 16S

Event and Year: May 2017

	As Received Result		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	See Attached Report				12 Jun 17	OL
Radium 228	See Attached Report				12 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K Carroll 11 JUL 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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CERTIFICATION: ND # ND-00016

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www.mvtl.com

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

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

PO #: 48895

Temp at Receipt: 3.5C

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: May 2017

	As Received Result		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 Attached Report				12 Jun 17	OL
Radium 228	See Attached Report				28 Jun 17	OL

OL = Analysis performed by an Outside Laboratory.

Approved by: Claudette K. Carroll CC 11 JUL 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

Date: 7/3/2017

CLIENT: MVTL Laboratories, Inc.
Project: 201782-1316
Lab Order: 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: _____
Wade Nieuwsma, Assistant Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	7/3/2017
		Report ID	S1705436001
ProjectName:	201782-1316	**WorkOrder:**	S1705436
Lab ID:	S1705436-001	**CollectionDate:**	5/16/2017
ClientSample ID:	17-W1862 FB Slag	**DateReceived:**	5/23/2017 12:17:00 PM
COC:	201782-1316	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 7/3/2017
Report ID S1705436001

ProjectName: 201782-1316
Lab ID: S1705436-002
ClientSample ID: 17-W1863 Pond6
COC: 201782-1316

WorkOrder: S1705436
CollectionDate: 5/16/2017 9:59:00 AM
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	0.19	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	MB
Radium 228 Precision (±)	1.5	pCi/L			Ga-Tech	06/11/2017 2311	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 7/3/2017
Report ID S1705436001

ProjectName: 201782-1316
Lab ID: S1705436-003
ClientSample ID: 17-W1864 PondN3
COC: 201782-1316

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/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	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	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 7/3/2017
Report ID S1705436001

ProjectName: 201782-1316
Lab ID: S1705436-004
ClientSample ID: 17-W1865 Pond12
COC: 201782-1316

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	MB
Radium 226 Precision (±)	0.2	pCi/L			SM 7500 Ra-B	06/12/2017 1100	MB
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 7/3/2017
Report ID S1705436001

ProjectName: 201782-1316
Lab ID: S1705436-005
ClientSample ID: 17-W1866 Pond16S
COC: 201782-1316

WorkOrder: S1705436
CollectionDate: 5/16/2017 3:50:00 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	0.6	pCi/L		0.2	SM 7500 Ra-B	06/12/2017 1100	MB
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.

RL - Reporting Limit

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
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

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 7/3/2017
Report ID S1705436001

ProjectName: 201782-1316
Lab ID: S1705436-006
ClientSample ID: 17-W1867 MW2S
COC: 201782-1316

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	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	MB
Radium 228 Precision (±)	3.0	pCi/L			Ga-Tech	06/28/2017 051	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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

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

Your Environmental Monitoring Partner

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1705436
Project: 201782-1316

Date: 7/3/2017
Report ID: S1705436001

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-442 (06/09/17 07:05)	RunNo: 146784	PrepDate: 05/31/17 14:00			BatchID 13271		
Analyte	Result	RL	Spike	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			BatchID 13359		
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-442 (06/09/17 10:08)	RunNo: 146784	PrepDate: 05/31/17 14:00			BatchID 13271		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	43	1	40.1		108	65.9 - 132	

LCS-443 (06/27/17 12:39)	RunNo: 147448	PrepDate: 06/05/17 14:00			BatchID 13359		
Analyte	Result	RL	Spike	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** Units: pCi/L

LCSD-442 (06/09/17 13:11)	RunNo: 146784	PrepDate: 05/31/17 14:00			BatchID 13271		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	45	1	43	4.95	113	20	

Radium 228 by Ga/Tech Sample Type **MS** Units: pCi/L

S1705435-003AMS (06/11/17 01:49)	RunNo: 146784	PrepDate: 05/31/17 14:00			BatchID 13271		
Analyte	Result	RL	Spike	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: 06/05/17 14:00			BatchID 13359		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Total Radium 228	45	1	40.1	ND	111	50 - 139	

Radium 228 by Ga/Tech Sample Type **MSD** Units: pCi/L

MSD-443 (06/27/17 21:48)	RunNo: 147448	PrepDate: 06/05/17 14:00			BatchID 13359		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	44	1	45	1.33	110	20	

Qualifiers:

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc.
Work Order: S1705436
Project: 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	PrepDate: 06/05/17 0:00			BatchID 13287		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					

MB-1759 (06/12/17 11:00)	RunNo: 146863	PrepDate: 06/07/17 0:00			BatchID 13289		
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-1758 (06/13/17 12:50)	RunNo: 146860	PrepDate: 06/05/17 0:00			BatchID 13287		
Analyte	Result	RL	Spike	Ref Samp	%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	PrepDate: 06/07/17 0:00			BatchID 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	PrepDate: 06/05/17 0:00			BatchID 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			BatchID 13289		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	6.6	0.2	5.8	13.7	103	20	

Radium 226 in Water - Sample Type **MS** Units: pCi/L

S1705435-003AMS (06/13/17 15:03)	RunNo: 146860	PrepDate: 06/05/17 0:00			BatchID 13287		
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	6.2	0.2	6.41	ND	96.2	65 - 131	

S1705436-003AMS (06/12/17 11:00)	RunNo: 146863	PrepDate: 06/07/17 0:00			BatchID 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	PrepDate: 06/05/17 0:00			BatchID 13287		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	6.0	0.2	6.2	2.84	93.5	20	

Qualifiers:

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

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201782-1316

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 19-May-17
	Project Name/Number:	Purchase Order #: BL5877

Sample Information						Bottle Type						Analysis
S1705436 IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W1862	FB Slag	GW	16-May-17	NA		4					Ra226 & Ra228
002	17-W1863	Pond6	GW	16-May-17	959		4					Ra226 & Ra228
003	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

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

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	19-May-17	1700		Kathy Boyd	5.23.17	12:17	18.4
2.							

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 6
Sampling Personal:	Jerry Myer

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

Well Information

Well Locked?	Yes	(No)	in manhole
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	17.89	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	17.22	ft
Water Level After Sample:	Below Pump	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	(100)	mL/min

Purge Date:	16 May 17	Time Purging Began:	0939 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~—~~ am/pm
Sample Date:	16 May 17	Time of Sampling:	0959 (am)/pm

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	0944	10.82	4332	6.88	6.82	227.9	6.78	Below Pump (BP)	500.0	Clear
2	0949	10.41	4606	6.97	6.44	209.4	5.04	BP	500.0	Clear
3	0954	10.48	4661	7.02	6.55	206.4	4.14	BP	500.0	Clear
4	0959	10.57	4764	7.04	6.41	203.3	1.83	BP	500.0	Clear
5										
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 4000.0 mL

Comments:

Water level below pump. maintained 100mL/min during purging & Sampling

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond N3
Sampling Personal:	Jerry Meyer

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

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"
Water Level Before Purge:	11.86 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	— ft
Water Level After Sample:	15.25 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes (No)		
Duplicate Sample?:	Yes (No)		
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	20	
Pumping Rate:	100	mL/min

Purge Date:	16 May 17	Time Purging Began:	1112 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	16 May 17	Time of Sampling:	1232 (am)/pm

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1117	12.61	5183	6.88	8.32	258.9	351.0	12.60	500.0	Partly Cloudy (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	6.68	7.96	252.7	117.0	14.75	2000.0	PC
5	1222	12.75	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	89.8	14.84	500.0	PC
7	1232	12.74	5146	6.66	6.16	256.5	79.6	15.01	500.0	PC
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 8000.0 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	Pond 10
Sampling Personal:	Sam Mayer

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	21.83	ft
Total Well Depth:	22.10	ft
Well Volume:	0.2	liters
Depth to Top of Pump:		ft
Water Level After Sample:		ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	No	
Duplicate Sample ID:			

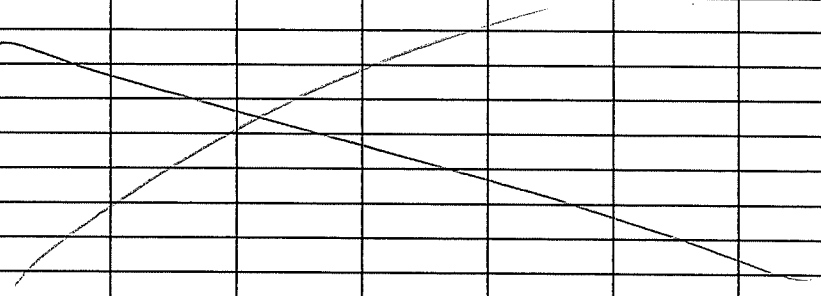
Control Settings		
Purge:		sec.
Recover:		sec.
PSI:		
Pumping Rate:		mL/min

Purge Date:			Time Purging Began:	am/pm
Well Purged Dry?	Yes	No	Time Purged Dry:	am/pm
Sample Date:	16 May 17		Time of Sampling:	1105 (am)/pm

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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										
5										
6										
7										
8										
9										
10										



Stabilized: Yes No

Total Volume Removed: _____ mL

Comments:

Insufficient Volume

No Sample

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond 12
Sampling Personal: Jeremy Mayer

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	37.70	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	~~38.52~~ 38.52	ft
Water Level After Sample:	38.42	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	35	
Pumping Rate:	100	mL/min

Purge Date:	16 May 17	Time Purging Began:	1650	am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	—	am/pm
Sample Date:	16 May 17	Time of Sampling:	1725	am/(pm)

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond.	pH	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Level (ft)	mL Removed	Discription: Clarity, Color, Odor, Ect.
			±5%	±0.1	±10%	±20 mV	±10%	0.25 ft		clear, partly cloudy, cloudy
1	1655	11.46	3505	7.05	4.78	278	64.1	38.16	500.0	Clear
2	~~1700~~	11.23	3491	7.04	4.79	270.9	20.1	38.40	500.0	Clear
3	1705	11.12	3504	7.09	4.44	241.7	12.1	38.42	500.0	Clear
4	1710	11.01	3507	7.07	4.26	209.8	5.73	38.43	500.0	Clear
5	1715	11.04	3507	7.08	4.16	189.3	2.80	38.43	500.0	Clear
6	1720	11.06	3502	7.09	4.12	177.5	3.14	38.43	500.0	Clear
7	1725	11.24	3507	7.10	4.18	170.3	1.18	38.43	500.0	Clear
8										
9										
10										

Stabilized: (Yes) No

Comments:

Total Volume Removed: 3500.0 mL

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond 165
Sampling Personal: Jerry Moyer

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

Well Information

Well Locked?	Yes	No	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	39.49	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	40.72	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder
Sampling Method:	Bladder
Dedicated Equip?:	Yes (No)
Duplicate Sample?:	Yes (No)
Duplicate Sample ID:	—

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	35	
Pumping Rate:	100	mL/min

Purge Date:	16 May 17	Time Purging Began:	1510 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	16 May 17	Time of Sampling:	1550 am/pm

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1515	12.07	3143	6.70	5.60	280.1	64.4	39.95	500.0	Clear
2	1525	11.69	3144	6.68	5.13	264.8	95.4	40.02	1000.0	Clear
3	1535	11.84	3163	6.69	4.99	241.4	107.0	40.20	1000.0	Partly Cloudy
4	1540	11.68	3159	6.71	4.83	229.5	94.1	40.28	500.0	Clear
5	1545	11.61	3160	6.72	4.84	219.3	82.9	40.32	500.0	Clear
6	1550	11.44	3161	6.73	4.84	210.7	75.6	40.44	500.0	clear
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 4000.0 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company:	OTP Coyote
Event:	2017
Sample ID:	MW25
Sampling Personal:	Jerry Player

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

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	22.18	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	28.83	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	(No)	
Duplicate Sample?:	Yes	(No)	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	25	
Pumping Rate:	100	mL/min

Purge Date:	16 May 17	Time Purging Began:	1337 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	16 May 17	Time of Sampling:	1402 am/(pm)

Bottle List:	1L Raw, 500mL Nitric, 500mL Nitric (filtered), 250mL Sulfiric
	4 - 1L Nitric

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1342	10.95	5009	6.91	7.24	~~286.2~~	2.43	22.71	500.0	clear
2	1347	10.51	~~9994~~	6.91	6.37	282.6	1.45	23.45	500.0	clear
3	1352	10.49	4990	6.91	6.20	287.1	1.53	24.10	500.0	clear
4	1357	10.73	4982	6.92	6.25	291.9	1.42	24.58	500.0	clear
5	1402	10.57	4952	6.94	6.45	298.2	1.60	25.08	500.0	clear
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500.0 mL

Comments:

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	May 2017	82-1316

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

Sample Information						Bottle Type								Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric								Temp (°C)	Spec. Cond.	pH	Analysis Required
W1862	FB Slag	16 May 17	NA	W	—	4								NA	NA	NA	Rad 226 & Rad 228
W1863	Pond6	16 May 17	0959	GW	Clear	4								10.57	4764	7.04	
W1864	PondN3	16 May 17	1232	GW	Partly Cloudy	4								12.74	5146	6.66	
—	Pond10	16 May 17	1105	GW	—	2								insufficient volume			
W1865	Pond12	16 May 17	1725	GW	Clear	4								11.24	3507	7.10	
W1866	Pond16S	16 May 17	1550	GW	Clear	4								11.44	3161	6.73	
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)
1	18 May 17 0746	~~Log In~~ Walk In #2	3.5 TM562 / ~~TM588~~
2			

Received by:	
Name:	Date/Time
Angel Simonson	18 May 17 800

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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

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.
  - 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.
    - 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 Carroll **DATE:** 6 JUL 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

MVTL

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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 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	- -	- -	< 0.0005
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	- -	- -	< 0.0005
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	- -	- -	< 0.0005

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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 Limits	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	- - - -	- - - -	< 0.0002
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	- -	- -	- -	- -	- -	- -	- -	- -	- -	6.8 11.1	6.9 11.0	- -	1.5 0.9	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	- -	- -	< 0.0005
Total Dissolved Solids mg/l	- -	- -	- -	- -	- -	- -	- -	- -	- -	1970 2020	1990 2010	- -	1.0 0.5	20 20	- -	- -	< 10 < 10

Approved by: C. Gruel
6 JUL 17

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CERTIFICATE of ANALYSIS - CCR

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

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 8:00
Sampled By: MVTL Field Services

PO #: 48895

Temp at Receipt: 2.8C ROI

Project Name: OTP Coyote-Slag Pond

Sample Description: FB Slag

Event and Year: June 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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-Cl-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	< 10	mg/l	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	< 1	mg/l	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	< 0.1	mg/l	0.10	6010	23 Jun 17 15:15	KMD
Boron - Total	< 0.1	mg/l	0.10	6010	21 Jun 17 14:51	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	< 0.002	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/l	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/l	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

* Holding time exceeded

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

Approved by: Claudette K. Carroll CC 6JUL17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

RL = Method Reporting Limit

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

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: June 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	1770	mg/l	5.00	ASTM D516-07	22 Jun 17 13:09	EMS
Chloride	27.8	mg/l	1.0	SM4500-Cl-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/l	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	162	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	3.01	mg/l	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	0.0415	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	0.0013	mg/l	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	0.0315	mg/l	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	0.0006	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	0.0235	mg/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll CC 6 JUL 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:
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: = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

MINNESOTA VALLEY TESTING LABORATORIES, INC.
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2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com
MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: June 2017

	As Received Result		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 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
Fluoride	0.29	mg/l	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/l	1.0	SM4500-Cl-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	4980	mg/l	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	530	mg/l	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/l	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/l	0.0020	6020	21 Jun 17 13:40	KMD
Barium - Total	0.0562	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/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/l	0.0005	6020	21 Jun 17 13:40	KMD

* Holding time exceeded

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

Approved by: Claudette K Carroll 6 JUL 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:
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! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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MEMBER ACIL

CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: June 2017

	As Received Result		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/l	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	21.3	mg/l	1.0	SM4500-Cl-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/l	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/l	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	0.0197	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/l	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	0.0085	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/l	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

* Holding time exceeded

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

Approved by: Claudette K Carroll 6 JUL 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: June 2017

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Metal Digestion				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/l	0.10	SM4500-F-C	20 Jun 17 17:00	CS
Sulfate	1380	mg/l	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	22.0	mg/l	1.0	SM4500-Cl-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/l	10	I1750-85	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/l	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	0.0423	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	0.0017	mg/l	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/l	0.0020	6020	21 Jun 17 13:40	KMD
Lead - Total	0.0008	mg/l	0.0005	6020	21 Jun 17 13:40	KMD
Molybdenum - Total	0.0068	mg/l	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

* Holding time exceeded

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

Approved by: Claudette K. Carroll 6 JUL 17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: MW2S

Event and Year: June 2017

	As Received Result		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/l	5.00	ASTM D516-07	22 Jun 17 13:28	EMS
Chloride	23.9	mg/l	1.0	SM4500-Cl-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	4790	mg/l	10	I1750-85	21 Jun 17 14:42	SVS
Calcium - Total	580	mg/l	1.0	6010	23 Jun 17 11:53	SZ
Lithium - Total	0.43	mg/l	0.10	6010	23 Jun 17 16:15	KMD
Boron - Total	0.24	mg/l	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/l	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/l	0.0020	6020	22 Jun 17 12:43	KMD
Selenium - Total	0.1344	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

* Holding time exceeded

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

cc

Approved by: Claudette K Carroll 6JUL17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond 6
Sampling Personal: Darren Niessen

Weather Conditions: Temp: 72 °F Wind: W 10 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	18.24 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	17.24 ft
Water Level After Sample:	~~17.24~~ Below pump ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes (No)		
Duplicate Sample?:	Yes (No)		
Duplicate Sample ID:	—		
Purge Date:	19 June 17	Time Purging Began:	1054 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	—— am/pm
Sample Date:	19 June 17	Time of Sampling:	1119 (am)/pm

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1059	14.88	4586	7.21	8.47	250.6	3.11	17.24	500	Clr
2	1104	13.30	4761	7.24	8.79	258.3	13.2	17.24	500	clr
3	1109	13.66	4780	7.24	8.72	261.1	5.01	17.24	500	clr
4	1114	13.18	4827	7.27	8.98	265.2	4.17	17.24	500	clr
5	1119	13.41	4848	7.28	9.18	266.1	3.88	17.24	500	clr
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

Water was below pump.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond N3

Sampling Personal: Darren Nieswaag

Weather Conditions: Temp: 75 °F Wind: N 10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	No	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	~~Yes~~	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"	
Water Level Before Purge:	12.51	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	29.46	ft
Water Level After Sample:	15.82	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes ~~No~~		
Duplicate Sample?:	Yes ~~No~~		
Duplicate Sample ID:	—		

Control Settings			
Purge:	5	sec.	
Recover:	55	sec.	
PSI:	—		
Pumping Rate:	100	mL/min	

Purge Date:	19 June 17	Time Purging Began:	1226 am/~~pm~~
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	____ am/pm
Sample Date:	19 June 17	Time of Sampling:	1321 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1231	15.46	5307	6.82	4.22	225.9	14.0	13.13	500	clear
2	1246	17.18	5311	6.83	2.36	240.4	11.2	14.39	1500	clear
3	1251	16.99	5315	6.82	2.22	246.0	53.4	14.58	500	clear
4	1256	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	15.12	1000	Partly cloudy
6	1311	16.77	5304	6.75	1.18	~~+5.0%~~	155	15.18	500	Partly cloudy
7	1316	17.42	5301	6.73	1.13	~~25.6±2.9~~ 256.9	150	15.24	500	Partly cloudy
8	1321	17.47	5295	6.72	1.09	258.3	163	15.26	500	
9										
10										

Stabilized: Yes ~~No~~

Total Volume Removed: 5500 mL

Comments:

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

Field Datasheet

Groundwater Assessment

Company: **OTP Coyote**
Event: **2017**
Sample ID: Pond 10
Sampling Personal: Darren Nygren

Weather Conditions: Temp: 75 °F Wind: W 10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	~~Yes~~	~~No~~	
Well Labeled?	Yes	No	
Casing Straight?	Yes	No	
Grout Seal Intact?	Yes	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	21.84	ft
Total Well Depth:	22.12	ft
Well Volume:	0.2	liters
Depth to Top of Pump:	~	ft
Water Level After Sample:	~	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	No	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	~		

Control Settings		
Purge:		sec.
Recover:		sec.
PSI:		
Pumping Rate:		mL/min

Purge Date:		Time Purging Began:	am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	19 June 17	Time of Sampling:	1217 am/pm

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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										
5										
6										
7										
8										
9										
10										

Stabilized: ~~Yes~~ ~~No~~ Total Volume Removed: _____ mL

Comments:

Insufficent volume no Sample.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 12

Sampling Personal: Marcus Nieswand

Weather Conditions: Temp: 75 °F Wind: W 10-15 Precip: **Sunny / ~~Partly Cloudy~~ / Cloudy**

Well Information

Well Locked?	Yes ~~No~~	
Well Labeled?	~~Yes~~ No	
Casing Straight?	~~Yes~~ No	
Grout Seal Intact?	~~Yes~~ No	~~Not Visible~~
Repairs Necessary:		

Casing Diameter:	2"	
Water Level Before Purge:	37.85	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	38.58	ft
Water Level After Sample:	38.51	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	Control Settings	
Sampling Method:	Bladder	Purge:	5 sec.
Dedicated Equip?:	Yes ~~No~~	Recover:	55 sec.
Duplicate Sample?:	Yes ~~No~~	PSI:	—
Duplicate Sample ID:		Pumping Rate:	100 mL/min

Purge Date:	19 June 17	Time Purging Began:	1608 ~~am~~/pm
Well Purged Dry?	Yes ~~No~~	Time Purged Dry:	~~am/pm~~
Sample Date:	19 June 17	Time of Sampling:	1638 ~~am~~/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1613	14.86	3553	7.06	3.56	271.2	53.3	38.31	500	clear
2	1618	14.15	3935	7.07	3.80	270.5	38.3	38.39	500	clear
3	1623	13.98	3574	7.09	1.59	270.6	29.3	38.42	500	clear
4	1628	13.32	3582	7.11	0.95	266.6	~~6.49~~ 6.49	38.48	500	clear
5	1633	13.39	3578	7.14	0.93	262.0	4.00	38.48	500	clear
6	1638	13.80	3579	7.14	0.90	261.0	3.18	38.48	500	clear
7										
8										
9										
10										

Stabilized: Yes ~~No~~

Total Volume Removed: 3000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 165

Sampling Personal: Darren Nisbaum

Weather Conditions: Temp: 75 °F Wind: W 10-15 Precip: (Sunny) Partly Cloudy / Cloudy

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	39.57 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	45.55 ft
Water Level After Sample:	40.93 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes (No)		
Duplicate Sample?:	Yes (No)		
Duplicate Sample ID:	—		
Purge Date:	19 June 17	Time Purging Began:	1735 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	19 June 17	Time of Sampling:	1800 am/pm

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. 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	6.67	0.49	276.8	43.3	40.39	1000	clear
3	1755	14.20	3241	6.67	0.54	275.5	40.5	40.36	500	clear
4	1800	14.37	3240	6.67	0.57	272.1	38.8	40.39	500	clear
5	DUP 1805									
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments: —

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: ~~Pond 165~~ MW25
Sampling Personal: Darren Nieuwsma

Weather Conditions: Temp: 75 °F Wind: W10 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	22.46	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	34.30	ft
Water Level After Sample:	29.34	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	19 June 17	Time Purging Began:	1425 am/~~pm~~
Well Purged Dry?	Yes	~~No~~	Time Purged Dry: — am/pm
Sample Date:	19 June 17	Time of Sampling:	1510 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1430	12.80	5088	6.88	6.78	269.8	4.31	23.16	500	clear
2	1440	12.71	5094	6.90	3.09	278.2	3.19	24.53	1000	clear
3	1455	12.53	5071	6.98	6.05	297.5	4.68	26.43	1500	clear
4	1500	13.04	5074	7.00	6.11	303.4	4.34	27.19	500	clear
5	1505	13.05	5054	7.00	6.06	307.2	4.57	27.27	500	clear
6	1510	13.26	5070	7.00	6.04	310.0	4.32	27.32	500	clear
7										
8										
9										
10										

Stabilized: **Yes** / No

Total Volume Removed: 4500 mL

Comments:

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	June 2017	82-1627

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

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter	500mL Nitric						Temp (°C)	Spec. Cond.	pH	Analysis Required
W2416	FB Slag	19June17	NA	W	—	X	X						NA	NA	NA	OTP Coyote List 1
W2417	Pond6	19June17	1119	GW	clear	X	X						13.41	4848	7.28	
W2418	PondN3	19June17	1321	GW	Partly cloudy	X	X						17.47	5295	6.72	
—	Pond10	19June17	1217	GW	—	~~X~~	~~X~~	pH	19June17				—	—	—	
W2419	Pond12	19June17	1638	GW	clear	X	X						13.80	3579	7.14	
W2420	Pond16S	19June17	1800	GW	clear	X	X						14.37	3240	6.67	
W2421	MW2S	19June17	1510	GW	clear	X	X						13.26	5070	7.00	

Comments:

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1	19June17 2033	Log In (Walk In #2)	RO1 2.8 (TM562) TM588
2			

Received by:	
Name:	Date/Time
Angel Simonson	20June17 800

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

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

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.
  - 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 laboratory data has been approved by MVTL Laboratories.

SIGNED: Claudette Carroll **DATE:** 8 Aug 17

Claudette Carroll - MVTL Bismarck Laboratory Manager

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www.mvtl.com

CERTIFICATE of ANALYSIS - CCR

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

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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: FB Slag

Temp at Receipt: Ambient

Event and Year: June 2017

	As Received Result	Method RL	Method Reference	Date Analyzed	Analyst
Radium 226	See Attached Report			2 Aug 17	OL
Radium 228	See Attached Report			18 Jul 17	OL

Approved by: Claudette K. Carroll CC 8 Aug 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond6

Event and Year: June 2017

	As Received Result		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 Attached Report				2 Aug 17	OL
Radium 228	See Attached Report				18 Jul 17	OL

cc

Approved by: Claudette K. Carroll 8Aug17

Claudette K. Carroll, Laboratory Manager, Bismarck, ND

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CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: PondN3

Event and Year: June 2017

	As Received Result		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 Attached Report				2 Aug 17	OL
Radium 228	See Attached Report				18 Jul 17	OL

Approved by: Claudette K. Carroll 8 Aug 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 concentration of other analytes
: = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond12

Event and Year: June 2017

	As Received Result		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 Attached Report				2 Aug 17	OL
Radium 228	See Attached Report				19 Jul 17	OL

cc

Approved by: Claudette K. Carroll 8 Aug 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

Sample Description: Pond16S

Event and Year: June 2017

	As Received Result		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	See Attached Report				1 Aug 17	OL
Radium 228	See Attached Report				19 Jul 17	OL

cc

Approved by: Claudette K Carroll 8 Aug 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 concentration of other analytes
! = Due to sample quantity + = Due to internal standard response

CERTIFICATION: ND # ND-00016

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CERTIFICATE of ANALYSIS - CCR

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

Report Date: 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

Project Name: OTP Coyote-Slag Pond

PO #: 48895

Sample Description: MW2S

Temp at Receipt: Ambient

Event and Year: June 2017

	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 Attached Report				1 Aug 17	OL
Radium 228	See Attached Report				19 Jul 17	OL

Approved by: Claudette K. Carroll 8 Aug 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 concentration of other analytes
! = Due to sample quantity * = Due to internal standard response

CERTIFICATION: ND # ND-00016

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

Your Environmental Monitoring Partner

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 indicatec in this case narrative.

Reviewed by: Tom Patten
Tom Patten, Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company:	MVTL Laboratories, Inc. 2616 E Broadway Ave. Bismarck, ND 58501	**Date Reported**	8/3/2017
		Report ID	S1706440001
ProjectName:	201782-1629	**WorkOrder:**	S1706440
Lab ID:	S1706440-001	**CollectionDate:**	6/19/2017
ClientSample ID:	17-W2423 FB Slag	**DateReceived:**	6/23/2017 11:43:00 AM
COC:	201782-1629	**FieldSampler:**	
		Matrix:	Water

Comments

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
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:

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: Tom Patten
Tom Patten, Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/3/2017
Report ID S1706440001

ProjectName: 201782-1629
Lab ID: S1706440-002
ClientSample ID: 17-W2424 Pond6
COC: 201782-1629

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/Init	
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.

RL - Reporting Limit

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
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: Tom Patten
Tom Patten, Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/3/2017
Report ID S1706440001

ProjectName: 201782-1629
Lab ID: S1706440-003
ClientSample ID: 17-W2425 PondN3
COC: 201782-1629

WorkOrder: S1706440
CollectionDate: 6/19/2017 1:21:00 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	08/02/2017 1443	MB
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.

RL - Reporting Limit

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
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: Tom Patten
Tom Patten, Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/3/2017
Report ID S1706440001

ProjectName: 201782-1629
Lab ID: S1706440-004
ClientSample ID: 17-W2426 Pond12
COC: 201782-1629

WorkOrder: S1706440
CollectionDate: 6/19/2017 4:38:00 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	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	07/19/2017 027	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/19/2017 027	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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: Tom Patten
Tom Patten, Laboratory Manager

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/3/2017
Report ID S1706440001

ProjectName: 201782-1629
Lab ID: S1706440-005
ClientSample ID: 17-W2427 Pond 16S
COC: 201782-1629

WorkOrder: S1706440
CollectionDate: 6/19/2017 6:00:00 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	MB
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 330	MB
Radium 228 Precision (±)	NA	pCi/L			Ga-Tech	07/19/2017 330	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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: Tom Patten
Tom Patten, Laboratory Manager

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

Your Environmental Monitoring Partner

Sample Analysis Report

Company: MVTL Laboratories, Inc.
2616 E Broadway Ave.
Bismarck, ND 58501

Date Reported 8/3/2017
Report ID S1706440001

ProjectName: 201782-1629
Lab ID: S1706440-006
ClientSample ID: 17-W2428 MW2S
COC: 201782-1629

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	MB
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	MB

These results apply only to the samples tested.

RL - Reporting Limit

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
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: Tom Patten
Tom Patten, Laboratory Manager

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc. **Date:**
Work Order: S1706440
Project: 201782-1629

Radium 228 by Ga/Tech Sample Type **MBLK** Units: pCi/L

MB-448 (07/16/17 11:28)	RunNo: 148120	PrepDate: 07/05/17 14:00			BatchID 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	PrepDate: 07/05/17 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	PrepDate: 07/05/17 14:00			BatchID 13447		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
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	PrepDate: 07/05/17 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	PrepDate: 07/05/17 14:00			BatchID 13447		
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Total Radium 228	33	1	32	3.67	85.0	20	

Qualifiers:

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: MVTL Laboratories, Inc. **Date:**
Work Order: S1706440
Project: 201782-1629

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	

Qualifiers:

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

MVTL LABORATORIES, Inc.
2616 E Broadway Ave
Bismarck, ND 58501
Phone: (701) 258-9720
Toll Free: (800) 279-6885 Fax: (701) 258-9724

Chain of Custody Record

201782-1629

Company Name and Address: MVTL 2616 E Broadway Bismarck, ND 58501	Account #:	Phone #: 701-258-9720
	Contact: Claudette	Fax #: For faxed report check box ☐
	Name of Sampler:	E-mail: ccarroll@mvtl.com For e-mail report check box ☐
Billing Address (indicate if different from above): PO Box 249 New Ulm, MN 56073	Quote Number	Date Submitted: 21-Jun-17
	Project Name/Number:	Purchase Order #: BL5904

S1706445

Sample Information						Bottle Type						Analysis
IML Lab Number	MVTL Lab Number	Client Sample ID	Sample Type	Date Sampled	Time Sampled	Untreated	1000 ml HNO3	VOC Vials Unpreserved	Glass Jar	Other		Analysis Required
001	17-W2423	FB Slag	GW	19-Jun-17	NA		4					Ra226 & Ra228
002	17-W2424	Pond6	GW	19-Jun-17	1119		4					Ra226 & Ra228
003	17-W2425	PondN3	GW	19-Jun-17	1321		4					Ra226 & Ra228
004	17-W2426	Pond12	GW	19-Jun-17	1638		4					Ra226 & Ra228
005	17-W2427	Pond16S	GW	19-Jun-17	1800		4					Ra226 & Ra228
006	17-W2428	MW2S	GW	19-Jun-17	1510		4					Ra226 & Ra228

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

Transferred by:	Date:	Time:	Sample Condition:	Received by:	Date:		Temp:
T. Olson	21-Jun-17	1700		Kathy Borys	6.23.17	11:43	20.6
2.							20.8

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 6

Sampling Personal: Darren Nielsen

Weather Conditions: Temp: 72 °F Wind: W 10 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	18.24 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	17.24 ft
Water Level After Sample:	~~17.24~~ Below pump ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder	Control Settings	
Sampling Method:	Bladder	Purge:	5 sec.
Dedicated Equip?:	Yes (No)	Recover:	55 sec.
Duplicate Sample?:	Yes (No)	PSI:	—
Duplicate Sample ID:	—	Pumping Rate:	100 mL/min

Purge Date:	19 June 17	Time Purging Began:	1054 (am)/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	~~am/pm~~
Sample Date:	19 June 17	Time of Sampling:	1119 (am)/pm

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1059	14.88	4586	7.21	8.47	250.6	3.11	17.24	500	cl
2	1104	13.30	4761	7.24	8.79	258.3	13.2	17.24	500	cl
3	1109	13.66	4780	7.24	8.72	261.1	5.01	17.24	500	cl
4	1114	13.18	4827	7.27	8.98	265.2	4.17	17.24	500	cl
5	1119	13.41	4848	7.28	9.18	266.1	3.88	17.24	500	cl
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

Water was below pump.

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond N3

Sampling Personal: Darren Nierenberg

Weather Conditions: Temp: 75 °F Wind: N 10 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		
Casing Diameter:	2"		
Water Level Before Purge:	12.51	ft	
Total Well Depth:	—	ft	
Well Volume:	—	liters	
Depth to Top of Pump:	29.46	ft	
Water Level After Sample:	15.82	ft	
Measurement Method:	Electric Water Level Indicator		

Sampling Information

Purging Method:	Bladder	Control Settings	
Sampling Method:	Bladder	Purge:	5 sec.
Dedicated Equip?:	Yes (No)	Recover:	55 sec.
Duplicate Sample?:	Yes (No)	PSI:	—
Duplicate Sample ID:	—	Pumping Rate:	100 mL/min
Purge Date:	19 June 17	Time Purging Began:	1226 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	19 June 17	Time of Sampling:	1321 am/(pm)
Bottle List:	1L Raw, 500mL Nitric, 4 - 1L Nitric		

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1231	15.46	5307	6.82	4.22	225.9	14.0	13.13	500	clear
2	1246	17.18	5311	6.83	2.36	240.4	11.2	14.39	1500	clear
3	1251	16.99	5315	6.82	2.22	246.0	53.4	14.58	500	clear
4	1256	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	15.12	1000	Partly cloudy
6	1311	16.77	5304	6.75	1.18	~~+50.0~~	155	15.18	500	Partly cloudy
7	1316	17.42	5301	6.73	1.13	~~256.5~~ 258.8	150	15.24	500	Partly cloudy
8	1321	17.47	5295	6.72	1.09	258.3	163	15.26	500	
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 5500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 10

Sampling Personal: Darren Nygaard

Weather Conditions: Temp: 75 °F Wind: W 10 Precip: (Sunny) / Partly Cloudy / Cloudy

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	21.84	ft
Total Well Depth:	22.12	ft
Well Volume:	0.2	liters
Depth to Top of Pump:	—	ft
Water Level After Sample:	—	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	Control Settings	
Sampling Method:	Bladder	Purge:	sec.
Dedicated Equip?:	Yes (No)	Recover:	sec.
Duplicate Sample?:	Yes (No)	PSI:	
Duplicate Sample ID:	—	Pumping Rate:	mL/min

Purge Date:		Time Purging Began:	am/pm
Well Purged Dry?	Yes No	Time Purged Dry:	am/pm
Sample Date:	19 June 17	Time of Sampling:	12:17 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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										
5										
6										
7										
8										
9										
10										

Stabilized: ~~Yes~~ ~~No~~

Total Volume Removed: _____ mL

Comments:

Insufficent Volume no Sample.

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

Field Datasheet

Groundwater Assessment

Company: OTP Coyote
Event: 2017
Sample ID: Pond 12
Sampling Personal: [illegible]

Weather Conditions: Temp: 75 °F Wind: W 10-15 Precip: **Sunny / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	~~No~~	
Well Labeled?	~~Yes~~	No	
Casing Straight?	~~Yes~~	No	
Grout Seal Intact?	Yes	No	~~Not Visible~~
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	37.85	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	38.58	ft
Water Level After Sample:	38.51	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes	~~No~~	
Duplicate Sample?:	Yes	~~No~~	
Duplicate Sample ID:			

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	19 June 17	Time Purging Began:	1608 am/~~pm~~
Well Purged Dry?	Yes	~~No~~	Time Purged Dry:	~~am/pm~~
Sample Date:	19 June 17	Time of Sampling:	1638 am/~~pm~~

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. clear, partly cloudy, cloudy
1	1613	14.86	3553	7.06	3.56	271.2	53.3	38.31	500	clear
2	1618	14.15	01935	7.07	3.80	270.5	38.3	38.39	500	clear
3	1623	13.98	3574	7.09	1.59	270.6	29.3	38.42	500	clear
4	1628	13.32	3582	7.11	0.95	266.6	~~6.44~~ 6.16	38.48	500	clear
5	1633	13.39	3578	7.14	0.93	262.0	4.00	38.48	500	clear
6	1638	13.80	3579	7.14	0.90	261.0	3.18	38.48	500	clear
7										
8										
9										
10										

Stabilized: Yes / No

Total Volume Removed: 3000 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: Pond 165

Sampling Personal: Darren Nicholas

Weather Conditions: Temp: 75 °F Wind: W 10-15 Precip: (Sunny) Partly Cloudy / Cloudy

Well Information

Well Locked?	(Yes)	No	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	(Yes)	No	Not Visible
Repairs Necessary:	—		

Casing Diameter:	2"
Water Level Before Purge:	39.57 ft
Total Well Depth:	— ft
Well Volume:	— liters
Depth to Top of Pump:	45.55 ft
Water Level After Sample:	40.93 ft
Measurement Method:	Electric Water Level Indicator

Sampling Information

Purging Method:	Bladder		
Sampling Method:	Bladder		
Dedicated Equip?:	Yes (No)		
Duplicate Sample?:	Yes (No)		
Duplicate Sample ID:	—		

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	19 June 17	Time Purging Began:	1735 am/pm
Well Purged Dry?	Yes (No)	Time Purged Dry:	am/pm
Sample Date:	19 June 17	Time of Sampling:	1800 am/(pm)

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

Field Measurements

Stabilization (3 consecutive) SEQ #	Time	Temp (°C)	Spec. Cond. ±5%	pH ±0.1	DO (mg/L) ±10%	ORP (mV) ±20 mV	Turbidity (NTU) ±10%	Water Level (ft) 0.25 ft	mL Removed	Discription: Clarity, Color, Odor, Ect. 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	6.67	0.49	276.8	43.3	40.39	1000	clear
3	1755	14.20	3241	6.67	0.54	275.5	40.5	40.36	500	clear
4	1800	14.37	3240	6.67	0.57	272.1	38.8	40.39	500	clear
5	DUP 1805									
6										
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 2500 mL

Comments:

MVTL

2616 E. Broadway Ave, Bismarck, ND

Phone: (701) 258-9720

Field Datasheet

Groundwater Assessment

Company: OTP Coyote

Event: 2017

Sample ID: ~~[illegible]~~ MW25

Sampling Personal: Darren Niesvacy

Weather Conditions: Temp: 75 °F Wind: W 10 Precip: **(Sunny) / Partly Cloudy / Cloudy**

Well Information

Well Locked?	Yes	(No)	
Well Labeled?	(Yes)	No	
Casing Straight?	(Yes)	No	
Grout Seal Intact?	Yes	No	(Not Visible)
Repairs Necessary:			

Casing Diameter:	2"	
Water Level Before Purge:	22.46	ft
Total Well Depth:	—	ft
Well Volume:	—	liters
Depth to Top of Pump:	34.30	ft
Water Level After Sample:	29.34	ft
Measurement Method:	Electric Water Level Indicator	

Sampling Information

Purging Method:	Bladder	
Sampling Method:	Bladder	
Dedicated Equip?:	Yes	(No)
Duplicate Sample?:	Yes	(No)
Duplicate Sample ID:	—	

Control Settings		
Purge:	5	sec.
Recover:	55	sec.
PSI:	—	
Pumping Rate:	100	mL/min

Purge Date:	19 June 17	Time Purging Began:	1425 am/(pm)
Well Purged Dry?	Yes (No)	Time Purged Dry:	— am/pm
Sample Date:	19 June 17	Time of Sampling:	1510 am/(pm)

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

Field Measurements

Stabilization (3 consecutive)		Temp (°C)	Spec. Cond.	pH	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	1430	12.80	5088	6.88	6.78	269.8	9.31	23.16	500	clear
2	1440	12.71	5094	6.90	3.09	278.2	3.19	24.53	1000	clear
3	1455	12.53	5071	6.98	6.05	297.5	4.68	26.43	1500	clear
4	1500	13.04	5074	7.00	6.11	303.4	4.34	27.19	500	clear
5	1505	13.05	5054	7.00	6.06	307.2	4.57	27.27	500	clear
6	1510	13.26	5070	7.00	6.04	310.0	4.32	27.32	500	clear
7										
8										
9										
10										

Stabilized: (Yes) No

Total Volume Removed: 4500 mL

Comments:

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

Chain of Custody Record

Project Name:	Event:	Work Order Number:
OTP Coyote - Slag Pond	June 2017	82-1629

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

Sample Information						Bottle Type							Field Parameters			Analysis
Lab Number	Sample ID	Date	Time	Sample Type	Appearance (Clear, Partly Cloudy, Cloudy)	1 liter Nitric							Temp (°C)	Spec. Cond.	pH	Analysis Required
W2423	FB Slag	19June17	NA	W	—	4							NA	NA	NA	Rad 226 & Rad 228
W2424	Pond6	19June17	1119	GW	clear	4							13.41	4848	7.28	
W2425	PondN3	19June17	1321	GW	Partly cloudy	4							17.47	5295	6.72	
—	Pond10	19June17	1217	GW	—	~~2~~ DM	19June17						—	—	—	
W2426	Pond12	19June17	1638	GW	clear	4							13.80	3579	7.14	
W2427	Pond16S	19June17	1800	GW	clear	4							14.37	3240	6.67	
W2428	MW2S	19June17	1510	GW	clear	4							13.26	5070	7.00	

Comments:

Relinquished By:		Sample Condition:	
Name:	Date/Time	Location:	Temp (°C)
1 Darren Nieswaag	19June17 2033	Log In Walk In #2	Ambient 20.0 TM562 / TM588
2			

Received by:	
Name:	Date/Time
Angel Simonson	20June17 800