



CCR Monitoring Closure Verification Report

Black Dog Generating Plant
Burnsville, Minnesota

Prepared for
Northern States Power Company

July 31, 2019

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Certifications

I hereby certify that I have examined the facility and, being familiar with the provisions of 40 CFR 257 Subpart D, attest that the groundwater data have been collected appropriately and that this Groundwater Closure Report has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR §257.91. I hereby certify that the monitoring system is adequate for this facility. I further certify that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.



Jeremy J. Gacnik, P.E.

July 31, 2019

Date

PE #: 49292

Acronyms

Acronym	Description
CCR	coal combustion residuals
EPA	United States Environmental Protection Agency
GWPS	groundwater protection standards
MCL	maximum containment level
NSPM	Northern States Power Company
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
SOP	standard operating procedure
UPL	upper prediction limit

1.0 Introduction

This Closure Monitoring Verification Report provides groundwater monitoring information supporting the certification of closure of the Black Dog Generating Plant coal combustion residuals (CCR) units in accordance with the United States Environmental Protection Agency (EPA) rule to regulate the disposal of CCR as solid waste [CCR Rule: Subtitle D of the Resource Conservation and Recovery Act (RCRA), 40 CFR Parts 257 and 261 (EPA, 2015a)]. Under the provision for closure by removal of CCR, §257.102(c) of the CCR Rule states:

Closure by removal of CCR: An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to § 257.95(h) for constituents listed in appendix IV to this part.

1.1 Background

Northern States Power Company, a Minnesota corporation doing business as Xcel Energy (NSPM), formerly operated three CCR units, referred to as Ash Ponds 1, 2, and 3 (collectively the Ash Ponds) at its Black Dog Generating Plant (Plant or Site), located in Burnsville, MN (Figure 1). Coal operations ceased at the Plant on April 16, 2015 and CCR discharges to the Ash Ponds ceased prior to October 19, 2015. The remaining wastewater discharged from the Plant was directed to an alternate discharge system in 2016, thereby allowing for closure of the Ash Ponds and their associated components. NSPM drained the Ash Ponds and removed CCR in accordance with the Ash Pond Closure Plan (Barr, 2016) by December 12, 2016. The removal of CCR throughout the CCR Units is documented in the CCR Surface Impoundment Closure Certification Report, Ash Ponds 1-3 (Barr, 2017a).

1.2 Report Organization

This report is organized into the following additional sections:

- Section 2.0 of this report documents the process for establishing groundwater protection standards (GWPS) pursuant to §257.95(h) for constituents listed in appendix IV to the CCR Rule.
- Section 3.0 of this report describes hydrogeologic conditions and documents that groundwater monitoring concentrations do not exceed the GWPS, demonstrating that the Site meets the requirements for closure in accordance with §257.102(c).
- Section 4.0 includes references.

2.0 Groundwater Protection Standards

As stated in the CCR Rule (as modified by Amendments to the National Minimum Criteria [Phase One, Part One], July 30, 2018), GWPS are to be established in accordance with §257.95(h), which states:

(h) The owner or operator of the CCR unit must establish a groundwater protection standard for each constituent in appendix IV to this part detected in the groundwater. The groundwater protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been established under §§ 141.62 and 141.66 of this title, the MCL for that constituent;

(2) For the following constituents:

(i) Cobalt 6 micrograms per liter (µg/l);

(ii) Lead 15 µg/l;

(iii) Lithium 40 µg/l; and

(iv) Molybdenum 100 µg/l

(3) For constituents for which the background level is higher than the levels identified under paragraphs (h)(1) and (h)(2) of this section, the background concentration.

Therefore, to develop values for GWPS, the “background concentration” needs to be determined for each appendix IV constituent and compared to the MCL and the values in (h)(2) above. The following subsections provide details on the baseline monitoring used to develop the background concentrations and the development of GWPS.

2.1 CCR Monitoring System

NSPM established a multiunit groundwater monitoring system for the former CCR Units in 2017 for use in conducting baseline monitoring to establish background conditions, and then for use in final closure monitoring to document GWPS were met. The monitoring system included seven wells to characterize background groundwater conditions at the Site and five wells located downgradient of the former CCR Units for closure monitoring. The monitoring system is documented in the Groundwater Monitoring System Certification Report (Barr, 2019a) and shown on Figure 2.

2.2 Baseline Data Collection

During the baseline groundwater monitoring period, December 2017 through October 2018, each monitoring well was sampled a minimum of eight times. Each sampling event included measuring water levels to evaluate the groundwater flow direction at the Site and the collection of samples for laboratory analysis of parameters listed in Appendices III and IV of the CCR Rule. Groundwater samples were also analyzed for additional parameters (e.g., major cations and anions) to verify the appropriateness of the monitoring network.

The groundwater samples were collected and analyzed in accordance with the Sampling and Analysis Plan (SAP; Barr, 2017b). Sampling services were provided by Pace Analytical Services of Minneapolis, Minnesota (Pace). The samples were analyzed by the following labs using the appropriate methodologies: Xcel Energy's Minneapolis Testing Laboratory and Pace Analytical Services located in Greensburg, Pennsylvania. Copies of the laboratory reports with the baseline groundwater data are included in Appendix A.

2.2.1 Data Quality Review

The baseline groundwater data were reviewed in general accordance with Barr's data quality review standard operating procedures (SOPs) included in the SAP (Barr, 2017b). The data quality reviews included a check for completeness, field quality control, and laboratory quality control. Details from the data quality review are included in Appendix B. The baseline groundwater data were determined to be acceptable as qualified with the exception of the following rejected data:

Well	Sample Date	Rationale	Details
W600A	May 8, 2018	Elevated turbidity (200 NTU)	Analytical data from this well / sampling events were rejected and are not included in the baseline data set.
W600A	June 12, 2018	Elevated turbidity (54 NTU)	
W601A	February 7, 2018	Elevated turbidity (320 NTU)	Analytical data from this well / sampling event were rejected and are not included in the baseline data set.

These wells were resampled on two occasions for which the data was determined to be acceptable for use.

2.3 Background Concentrations

Background concentrations for each appendix IV parameter were determined based on results of background well sampling during the CCR baseline monitoring period. Background concentrations were established in accordance with the methods outlined in the CCR Groundwater Statistical Analysis Plan (Barr, 2019c). The methods used to establish background concentrations are discussed below, and detailed information regarding the background data assessment is provided in Appendix C.

2.3.1 Background Data Set

The background data set (Table C-1) includes monitoring results from background well sampling completed during the baseline monitoring period. This data set was used to establish background concentrations for the constituents listed in appendix IV of the CCR Rule. Representativeness of the data was reviewed by performing outlier testing, as described in Appendix C. All values were retained for use in the background data set.

2.3.2 Background Calculation

Consistent with the CCR Rule (§257.93 (f)), statistical methods were used to evaluate the background data set and establish background concentrations (Barr, 2019c). Background concentrations for each appendix

IV parameter were calculated based on the upper prediction limit (UPL) of the background data set, with 95% probability and two future measurements, coinciding with the two closure monitoring events.

Prior to computing the UPL, goodness-of-fit testing was performed on the background data set for each appendix IV parameter to assess whether the data sets fit a normal distribution. For all parameters, the data set did not fit a normal distribution, therefore, nonparametric methods were used for the statistical analysis. Goodness-of-fit test results are included in Table C-2 in Appendix C.

The UPL results are shown in Table C-3 in Appendix C.

2.4 Establishment of Groundwater Protection Standards

In accordance with the CCR Rule (§257.95(h)), GWPS were established to be the highest of the following values: the MCL; the values listed for cobalt, lead, lithium, and molybdenum; or the background concentrations (UPL), as shown in Table C-2. The GWPS are provided in Table 1.

3.0 Closure Verification

As defined in the CCR Rule (§257.102(c)), closure verification sampling was needed to confirm groundwater monitoring concentrations do not exceed the GWPS. Closure verification sampling took place in March and May 2019, and included the measurement of water levels in the monitoring wells to verify groundwater flow directions at the Site and the collection of samples in downgradient wells for laboratory analysis and comparison to the GWPS. Groundwater samples were also collected from the background wells for informational purposes. The samples were analyzed for the parameters listed in Appendices III and IV of the CCR Rule and additional parameters (e.g., major cations and anions). The sampling, laboratory analysis, and data quality review methods were consistent with the methods used during baseline sampling and the SAP, updated at the time of network certification (Barr, 2019b). The closure verification groundwater data were reviewed and determined to be acceptable with qualifications, as presented in Appendix B. Closure monitoring laboratory reports are included in Appendix D.

3.1 Groundwater Flow Direction

Maps depicting groundwater contours and flow directions during the closure monitoring events are attached as Figures 3 and 4. The groundwater flow directions at the Site during these monitoring events were consistent with flow patterns observed during baseline sampling and the downgradient wells were positioned hydraulically downgradient of the former CCR units.

3.2 Analytical Results

The concentrations of parameters listed in appendix IV of the CCR rule from downgradient well sampling during the two closure monitoring events are compared to GWPS in Table 2. No appendix IV parameters were detected in downgradient wells at concentrations above the GWPS established pursuant to §257.95(h).

3.3 Conclusion

Groundwater monitoring at the Site was conducted in accordance with the CCR Rule to support closure of the CCR units. Closure monitoring results were below GWPS, therefore the Site meets the requirements for closure of the CCR units in accordance with §257.102(c).

4.0 References Cited

- Barr, 2019a. Groundwater Monitoring System Certification Report, Black Dog Generating Plant, Ash Ponds 1-3, Burnsville, Minnesota. Prepared for Northern States Power Company. March 2019
- Barr, 2019b. Sampling and Analysis Plan, CCR Rule Groundwater Monitoring Program, Black Dog Generating Plant. Prepared for Northern States Power Company. April 2019.
- Barr, 2019c. CCR Groundwater Statistical Analysis Plan, Black Dog Generating Plant. Prepared for Northern States Power Company. April 2019.
- Barr, 2017a. CCR Surface Impoundment Closure Certification Report, Ash Ponds 1-3, Black Dog Generating Plant. Prepared for Northern States Power Company. February 2017.
- Barr, 2017b. Sampling and Analysis Plan, CCR Rule Groundwater Monitoring Program, Black Dog Generating Plant. Prepared for Northern States Power Company. November 2017.
- Barr, 2016. Ash Pond Closure Plan, Black Dog Generating Plant. Prepared for Northern States Power Company. May 2016.
- EPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance. EPA 530/R-09-007. March 2009.
- EPA, 2010. National Functional Guidelines for Inorganic Superfund Data Review, US EPA Contract Laboratory Program, United States Environmental Protection Agency. [Online] OSWER 9240.1-51. USEPA-540-R-10-011, January 2010.
<http://epa.gov/superfund/programs/clp/download/ism/ism1nfg.pdf>.
- EPA, 2015a. Hazardous and Solid Waste Management Systems; Management of Coal Combustion Residuals From Electric Utility, CFR Parts 257 and 261 , Federal Register, Vol. 80, No. 74, April 17, 2015.

Tables

Table 1
CCR Groundwater Protection Standards
Black Dog Generating Plant
Burnsville, MN

Parameter	Units	GWPS
Appendix IV Parameters		
Antimony, total	ug/l	6 MCL
Arsenic, total	ug/l	51 UPL
Barium, total	ug/l	2000 MCL
Beryllium, total	ug/l	4 MCL
Cadmium, total	ug/l	5.47 UPL
Chromium, total	ug/l	100 MCL
Cobalt, total	ug/l	49.1 UPL
Fluoride	mg/l	4 MCL
Lead, total	ug/l	15 MCL
Lithium, total	mg/l	0.418 UPL
Mercury, total	ug/l	2 MCL
Molybdenum, total	ug/l	323 UPL
Selenium, total	ug/l	159 UPL
Thallium, total	ug/l	2 MCL
Radium, combined (226+228), Calculation	pCi/l	5 MCL

Notes:

MCL - Maximum contaminant level.

UPL -Background Upper Prediction Limit. Upper Tolerance Limit and Upper Prediction Limit are equal because distribution is nonparametric

Table 2
Closure Verification Monitoring Results
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type			W602A 3/13/2019 N	W602A 5/15/2019 N	W603A 3/12/2019 N	W603A 5/14/2019 N	W604A 3/12/2019 N	W604A 5/14/2019 N	W605A 3/12/2019 N	W605A 5/14/2019 N	W7A 3/13/2019 N	W7A 5/15/2019 N
Parameter	Units	Xcel Black Dog Groundwater Protection Standards										
Effective Date												
Exceedance Key		No Exceedances										
Appendix IV Parameters												
Antimony, total	ug/l	6 MCL	< 0.500	< 0.500	1.21	1.04	0.845	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic, total	ug/l	51 UPL	3.14	3.12	5.18	4.62	3.56	2.48	4.69	5.79	1.29	1.11
Barium, total	ug/l	2000 MCL	77.4	66.5	42.8	45.0	46.1	37.7	49.8	44.5	52.8	72.4
Beryllium, total	ug/l	4 MCL	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium, total	ug/l	5.47 UPL	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	0.123	< 0.100
Chromium, total	ug/l	100 MCL	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cobalt, total	ug/l	49.1 UPL	1.88	0.531	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Fluoride	mg/l	4 MCL	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead, total	ug/l	15 MCL	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium, total	mg/l	0.418 UPL	0.0249	0.0181	0.109	0.0971	0.0291	0.0164	< 0.0150	< 0.0150	0.0223	< 0.0150
Mercury, total	ug/l	2 MCL	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum, total	ug/l	323 UPL	68.6	46.4	158	164	122	86.9	88.8	47.8	81.2	34.8
Selenium, total	ug/l	159 UPL	< 0.500	< 0.500	1.42	2.90	6.54	2.02	< 0.500	0.507	< 0.500	< 0.500
Thallium, total	ug/l	2 MCL	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Radium 226	pCi/l		0.262 +/- 0.364 ND	0.495 +/- 0.371	0.571 +/- 0.563 ND	0.236 +/- 0.402 ND	0.173 +/- 0.635 ND	0.205 +/- 0.484 ND	-0.216 +/- 0.425 ND	0.473 +/- 0.516 ND	0.324 +/- 0.383 ND	0.556 +/- 0.383
Radium 228	pCi/l		0.762 +/- 0.381 b	0.641 +/- 0.645 ND	0.847 +/- 0.461 b	0.150 +/- 0.780 ND	0.253 +/- 0.352 ND	0.819 +/- 0.824 ND	0.736 +/- 0.461 ND	-0.504 +/- 0.635 ND	0.0840 +/- 0.381 ND	1.15 +/- 0.785 ND
Radium, combined (226+228), Barr Calculation	pCi/l	5 MCL	0.26 +/- 0.36 ND	1.14 +/- 0.74 q	0.57 +/- 0.56 ND	0.386 +/- 0.88 ND	0.43 +/- 0.73 ND	1.02 +/- 0.96 ND	0.74 +/- 0.46 ND	0.473 +/- 0.52 ND	0.41 +/- 0.54 ND	1.71 +/- 0.87 q

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
N	Sample Type: Normal
ND	Not detected. Radiochemical parameters are ND if the uncertainty is greater than the result or if the MDC is greater than the result.
b	Radium 228 result is a potential false positive value based on blank data validation procedures. Concentrations identified as potential false positive are excluded from calculations. Combined Radium result is the same as the Radium 226 result.
q	The combined radium result includes both detected and not detected values.

Xcel Black Dog Groundwater Protection Standards

MCL	Maximum contaminant level.
UPL	Background Upper Prediction Limit. Upper Tolerance Limit and Upper Prediction Limit are equal because distribution is nonparametric

Figures

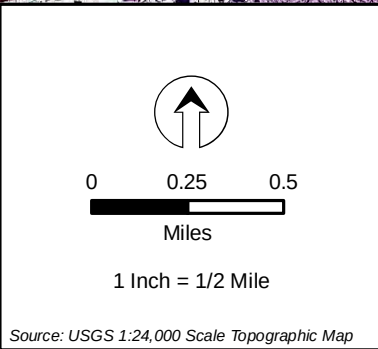
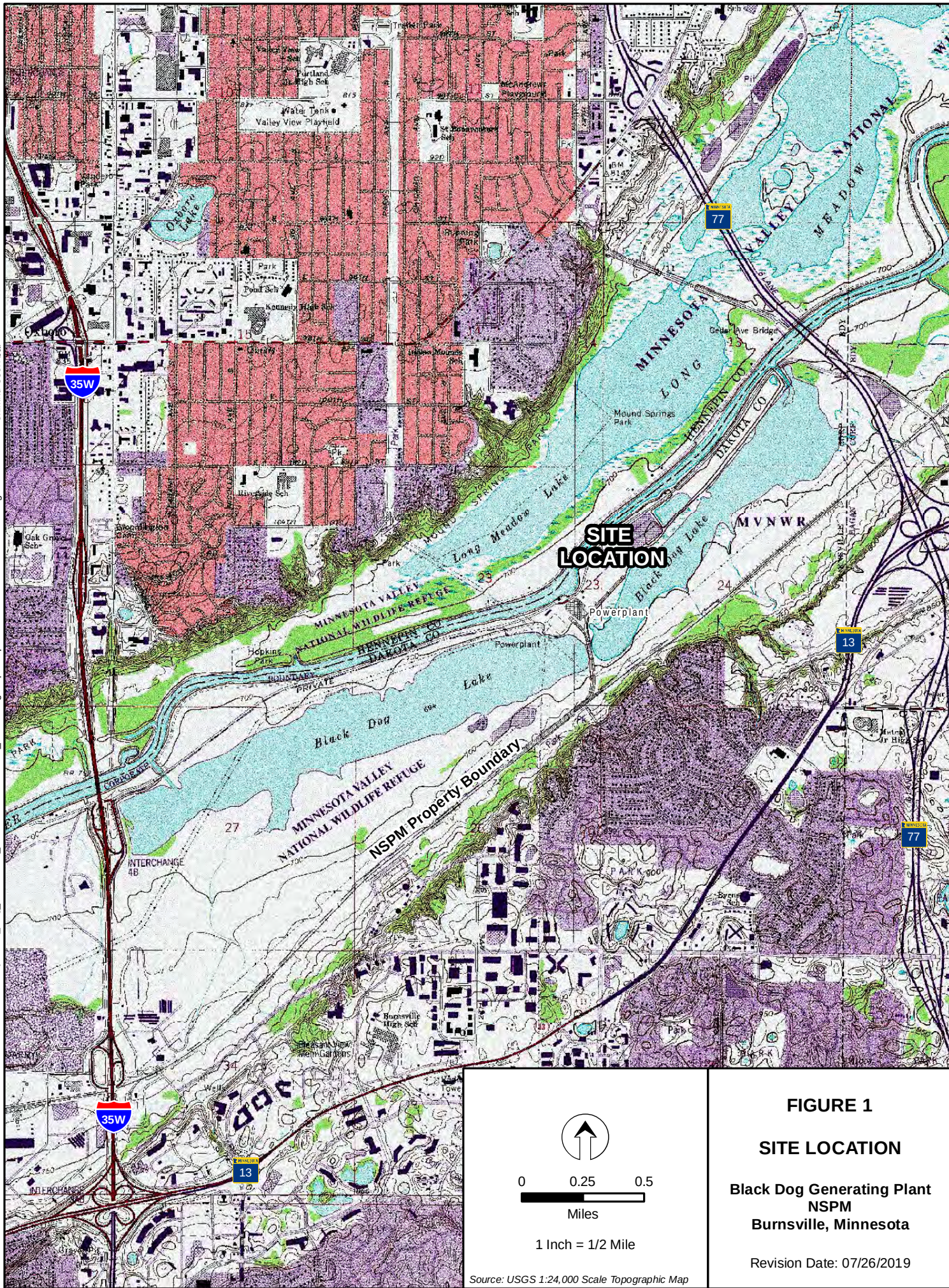
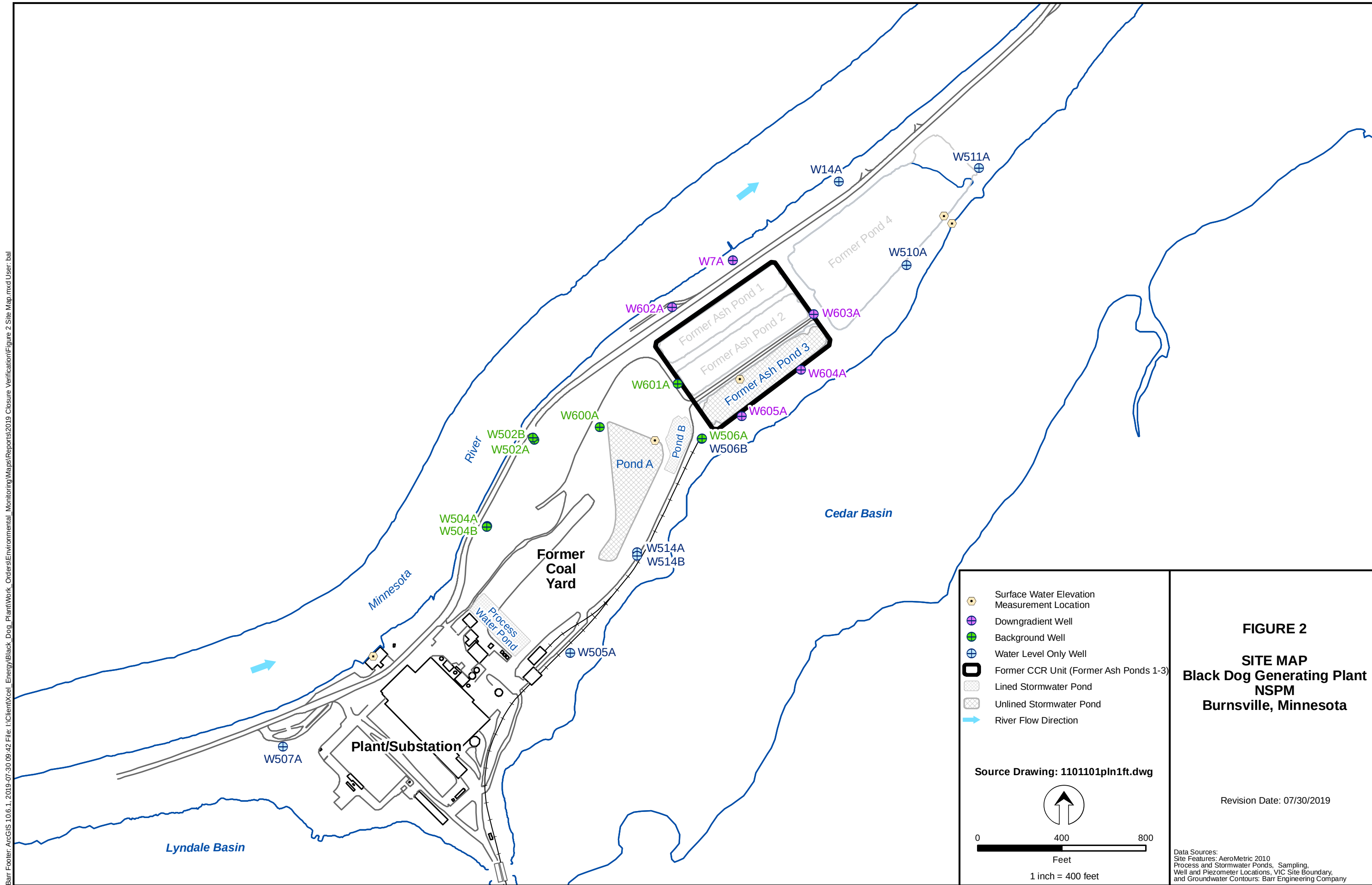
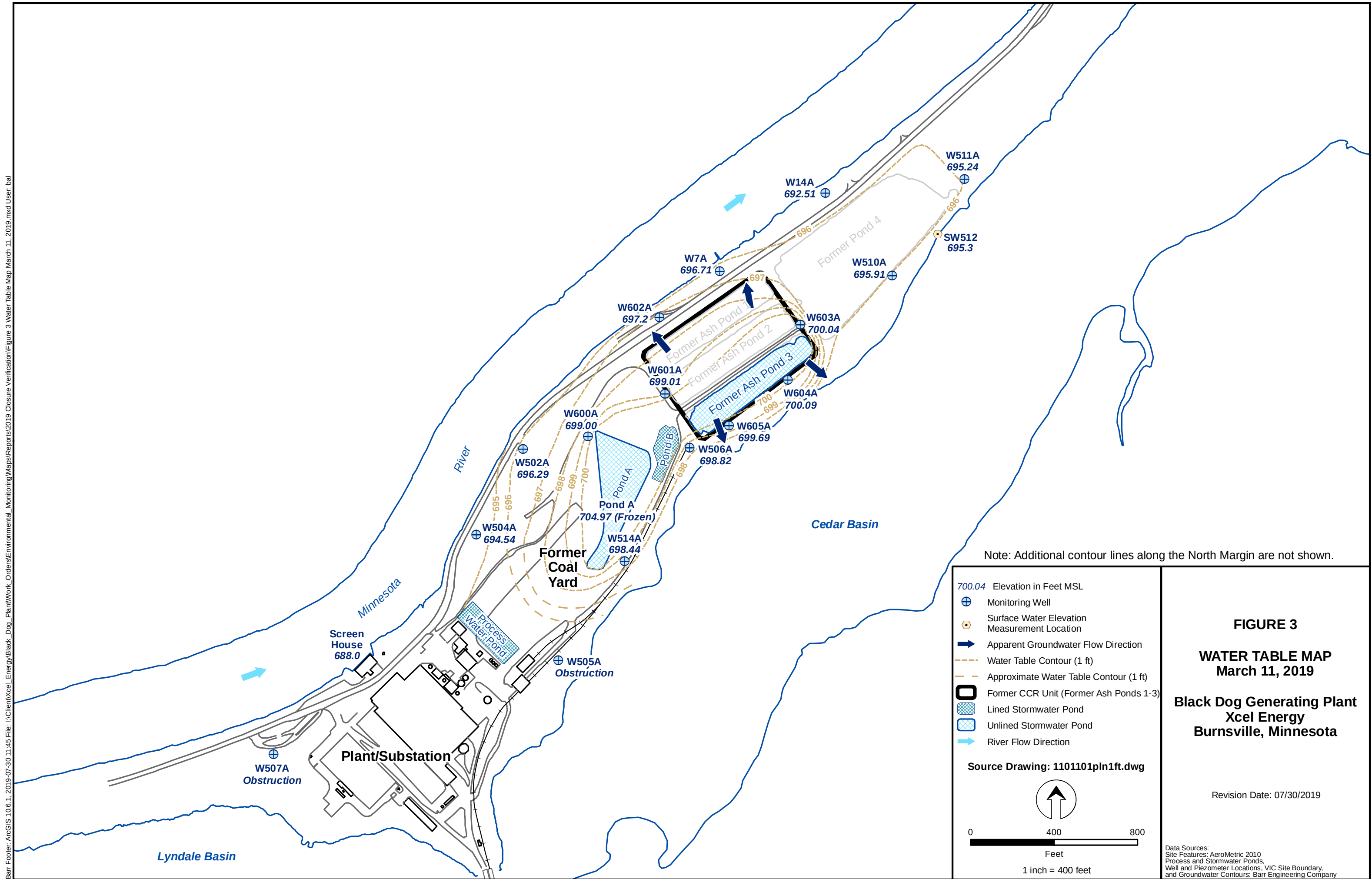
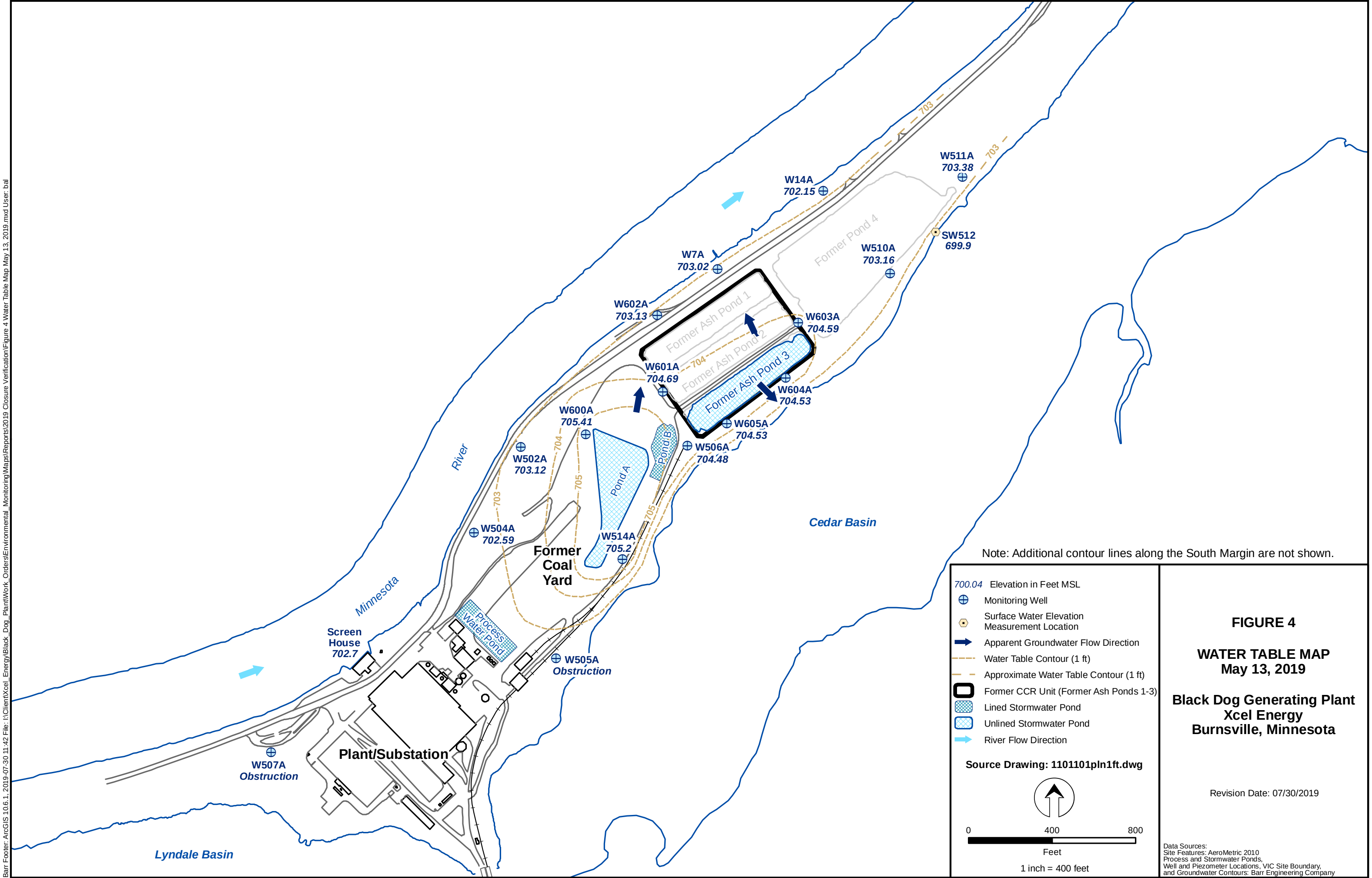


FIGURE 1
SITE LOCATION
Black Dog Generating Plant
NSPM
Burnsville, Minnesota
Revision Date: 07/26/2019





Note: Additional contour lines along the North Margin are not shown.



Appendices

Appendix A

Baseline Data

January 08, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

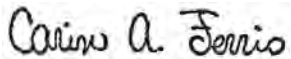
RE: Project: 17-1366,Xcel Energy-Black Dog
Pace Project No.: 30238992

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 16, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30238992001	Field Blank	Water	12/11/17 13:15	12/16/17 10:30
30238992002	W504A	Water	12/11/17 14:10	12/16/17 10:30
30238992003	W504B	Water	12/11/17 15:00	12/16/17 10:30
30238992004	W502A	Water	12/12/17 09:45	12/16/17 10:30
30238992005	W502B	Water	12/12/17 10:25	12/16/17 10:30
30238992006	W602A	Water	12/12/17 11:30	12/16/17 10:30
30238992007	W7A	Water	12/12/17 12:40	12/16/17 10:30
30238992008	W14A	Water	12/12/17 13:30	12/16/17 10:30
30238992009	W511A	Water	12/12/17 14:30	12/16/17 10:30
30238992010	W510A	Water	12/12/17 15:40	12/16/17 10:30
30238992011	W600A	Water	12/13/17 08:50	12/16/17 10:30
30238992012	W601A	Water	12/13/17 10:00	12/16/17 10:30
30238992013	W603A	Water	12/13/17 11:00	12/16/17 10:30
30238992014	W604A	Water	12/13/17 12:30	12/16/17 10:30
30238992015	Duplicate	Water	12/13/17 12:30	12/16/17 10:30
30238992016	W514A	Water	12/13/17 13:30	12/16/17 10:30
30238992017	W506A	Water	12/13/17 14:30	12/16/17 10:30
30238992018	W605A	Water	12/13/17 15:40	12/16/17 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 17-1366,Xcel Energy-Black Dog
Pace Project No.: 30238992

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30238992001	Field Blank	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992002	W504A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992003	W504B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992004	W502A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992005	W502B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992006	W602A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992007	W7A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992008	W14A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992009	W511A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992010	W510A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992011	W600A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992012	W601A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992013	W603A	EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30238992014	W604A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30238992015	Duplicate	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30238992016	W514A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
30238992017	W506A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30238992018	W605A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: January 08, 2018

General Information:

18 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: January 08, 2018

General Information:

18 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: January 08, 2018

General Information:

18 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Sample: Field Blank **Lab ID: 30238992001** Collected: 12/11/17 13:15 Received: 12/16/17 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.609 ± 0.379 (0.374) C:NA T:88%	pCi/L	01/08/18 11:31	13982-63-3	
Radium-228	EPA 904.0	-0.142 ± 0.298 (0.718) C:75% T:100%	pCi/L	01/05/18 11:33	15262-20-1	
Total Radium	Total Radium Calculation	0.609 ± 0.677 (1.09)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W504A **Lab ID: 30238992002** Collected: 12/11/17 14:10 Received: 12/16/17 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.290 ± 0.330 (0.521) C:NA T:94%	pCi/L	01/08/18 11:31	13982-63-3	
Radium-228	EPA 904.0	0.123 ± 0.426 (0.964) C:71% T:77%	pCi/L	01/05/18 11:33	15262-20-1	
Total Radium	Total Radium Calculation	0.413 ± 0.756 (1.49)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W504B **Lab ID: 30238992003** Collected: 12/11/17 15:00 Received: 12/16/17 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.921 ± 0.473 (0.496) C:NA T:94%	pCi/L	01/08/18 11:31	13982-63-3	
Radium-228	EPA 904.0	0.375 ± 0.427 (0.898) C:76% T:75%	pCi/L	01/05/18 11:33	15262-20-1	
Total Radium	Total Radium Calculation	1.30 ± 0.900 (1.39)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W502A **Lab ID: 30238992004** Collected: 12/12/17 09:45 Received: 12/16/17 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.274 ± 0.312 (0.492) C:NA T:101%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	1.70 ± 0.608 (0.931) C:80% T:84%	pCi/L	01/05/18 11:33	15262-20-1	
Total Radium	Total Radium Calculation	1.97 ± 0.920 (1.42)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W502B **Lab ID: 30238992005** Collected: 12/12/17 10:25 Received: 12/16/17 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.442 ± 0.378 (0.513) C:NA T:92%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	0.519 ± 0.406 (0.801) C:75% T:86%	pCi/L	01/05/18 11:34	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 17-1366,Xcel Energy-Black Dog
Pace Project No.: 30238992

Sample: W502B		Lab ID: 30238992005	Collected: 12/12/17 10:25	Received: 12/16/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.961 ± 0.784 (1.31)		pCi/L	01/08/18 14:09	7440-14-4	

Sample: W602A		Lab ID: 30238992006	Collected: 12/12/17 11:30	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.476 ± 0.348 (0.389) C:NA T:87%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	0.790 ± 0.513 (0.977) C:71% T:73%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	1.27 ± 0.861 (1.37)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W7A		Lab ID: 30238992007	Collected: 12/12/17 12:40	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.107 ± 0.245 (0.394) C:NA T:83%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	0.135 ± 0.373 (0.836) C:77% T:78%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	0.242 ± 0.618 (1.23)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W14A		Lab ID: 30238992008	Collected: 12/12/17 13:30	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.638 ± 0.472 (0.638) C:NA T:83%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	0.506 ± 0.384 (0.755) C:76% T:86%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	1.14 ± 0.856 (1.39)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W511A		Lab ID: 30238992009	Collected: 12/12/17 14:30	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.143 ± 0.309 (0.571) C:NA T:91%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	0.701 ± 0.408 (0.740) C:76% T:79%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	0.844 ± 0.717 (1.31)	pCi/L	01/08/18 14:09	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Sample: W510A		Lab ID: 30238992010	Collected: 12/12/17 15:40	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.496 ± 0.390 (0.542) C:NA T:98%	pCi/L	01/08/18 11:50	13982-63-3	
Radium-228	EPA 904.0	1.55 ± 0.602 (0.947) C:70% T:84%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	2.05 ± 0.992 (1.49)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W600A		Lab ID: 30238992011	Collected: 12/13/17 08:50	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.245 ± 0.348 (0.589) C:NA T:94%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.140 ± 0.338 (0.752) C:78% T:82%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	0.385 ± 0.686 (1.34)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W601A		Lab ID: 30238992012	Collected: 12/13/17 10:00	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.639 ± 0.381 (0.362) C:NA T:92%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.399 ± 0.399 (0.826) C:76% T:84%	pCi/L	01/05/18 11:34	15262-20-1	
Total Radium	Total Radium Calculation	1.04 ± 0.780 (1.19)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W603A		Lab ID: 30238992013	Collected: 12/13/17 11:00	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.301 ± 0.342 (0.539) C:NA T:92%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.242 ± 0.357 (0.769) C:74% T:81%	pCi/L	01/05/18 11:35	15262-20-1	
Total Radium	Total Radium Calculation	0.543 ± 0.699 (1.31)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W604A		Lab ID: 30238992014	Collected: 12/13/17 12:30	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.494 ± 0.346 (0.417) C:NA T:97%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.571 ± 0.447 (0.879) C:72% T:72%	pCi/L	01/05/18 11:35	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

Sample: W604A		Lab ID: 30238992014	Collected: 12/13/17 12:30	Received: 12/16/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.07 ± 0.793 (1.30)		pCi/L	01/08/18 14:09	7440-14-4	

Sample: Duplicate		Lab ID: 30238992015	Collected: 12/13/17 12:30	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.134 ± 0.233 (0.587) C:NA T:94%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.0504 ± 0.537 (1.24) C:61% T:69%	pCi/L	01/05/18 11:35	15262-20-1	
Total Radium	Total Radium Calculation	0.0504 ± 0.770 (1.83)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W514A		Lab ID: 30238992016	Collected: 12/13/17 13:30	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.180 ± 0.306 (0.540) C:NA T:96%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.310 ± 0.345 (0.721) C:71% T:88%	pCi/L	01/05/18 11:35	15262-20-1	
Total Radium	Total Radium Calculation	0.490 ± 0.651 (1.26)	pCi/L	01/08/18 14:09	7440-14-4	

Sample: W506A		Lab ID: 30238992017	Collected: 12/13/17 14:30	Received: 12/16/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0507 ± 0.231 (0.373) C:NA T:88%		pCi/L	01/08/18 12:34	13982-63-3	
Radium-228	EPA 904.0	0.468 ± 0.376 (0.746) C:74% T:86%		pCi/L	01/05/18 11:35	15262-20-1	
Total Radium	Total Radium Calculation	0.519 ± 0.607 (1.12)		pCi/L	01/08/18 14:09	7440-14-4	

Sample: W605A		Lab ID: 30238992018	Collected: 12/13/17 15:40	Received: 12/16/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.214 ± 0.392 (0.700) C:NA T:83%	pCi/L	01/08/18 12:10	13982-63-3	
Radium-228	EPA 904.0	0.546 ± 0.451 (0.904) C:76% T:74%	pCi/L	01/05/18 11:35	15262-20-1	
Total Radium	Total Radium Calculation	0.760 ± 0.843 (1.60)	pCi/L	01/08/18 14:09	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

QC Batch:	283025	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30238992001, 30238992002, 30238992003, 30238992004, 30238992005, 30238992006, 30238992007, 30238992008, 30238992009, 30238992010, 30238992011, 30238992012, 30238992013, 30238992014, 30238992015, 30238992016, 30238992017, 30238992018		

METHOD BLANK: 1389291 Matrix: Water

Associated Lab Samples: 30238992001, 30238992002, 30238992003, 30238992004, 30238992005, 30238992006, 30238992007, 30238992008, 30238992009, 30238992010, 30238992011, 30238992012, 30238992013, 30238992014, 30238992015, 30238992016, 30238992017, 30238992018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0986 ± 0.329 (0.741) C:76% T:92%	pCi/L	01/05/18 11:33	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 17-1366,Xcel Energy-Black Dog

Pace Project No.: 30238992

QC Batch:	283024	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30238992001, 30238992002, 30238992003, 30238992004, 30238992005, 30238992006, 30238992007, 30238992008, 30238992009, 30238992010, 30238992011, 30238992012, 30238992013, 30238992014, 30238992015, 30238992016, 30238992017, 30238992018		

METHOD BLANK:	1389290	Matrix:	Water

Associated Lab Samples: 30238992001, 30238992002, 30238992003, 30238992004, 30238992005, 30238992006, 30238992007, 30238992008, 30238992009, 30238992010, 30238992011, 30238992012, 30238992013, 30238992014, 30238992015, 30238992016, 30238992017, 30238992018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.295 ± 0.306 (0.456) C:NA T:91%	pCi/L	01/08/18 11:31	

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QUALIFIERS

Project: 17-1366,Xcel Energy-Black Dog
Pace Project No.: 30238992

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30258992

Page: 2 of 2
2125343

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		REGULATORY AGENCY	
Company: <u>Xcel Energy</u>		Report To: <u>David Anderson</u>		Attention: <u>Ciera Ruikkie</u>		☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER _____	
Address: <u>c/o Pace MN Field</u>		Copy To: <u>Tom Halverson</u>		Company Name: <u>Pace MN Field Services</u>			
Email To:		Purchase Order No.:		Address:		Site Location	
Phone: Fax:		Project Name: <u>17-1366 Xcel Energy - Black Dog CCR, Dec/2017</u>		Pace Quote Reference: <u>Tom Halverson</u>		STATE: _____	
Requested Due Date/TAT:		Project Number:		Pace Project Manager: <u>Carin Ferris</u>		Pace Profile #:	

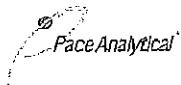
ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Analysis Test ↓	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① Client needs to analyze for: Radium 226+228 pCi/L Combined	David Anderson / Pace	12/14/17	1310	Rymok Muehony / Pace	12/14/17	1030	N/A	N	N	Y

Page 17 of 18 RA-226 EPA 903.1 RA-228 EPA 904.0 ORIGINAL	SAMPLER NAME AND SIGNATURE		Temp in °C Received on Ice (Y/N) Custody Sealed Cooler (Y/N) Samples Intact (Y/N)
	PRINT Name of SAMPLER: <u>David Anderson</u>		
	SIGNATURE of SAMPLER: <u>David Anderson</u>		
		DATE Signed (MM/DD/YY): <u>12/13/17</u>	

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name:

Xcel Energy

Project # 30238992

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7475103260200

Label <u>AKM</u>
LIMS Login <u>AKM</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: AKM 12/16/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/		/	<u>AKM 12/16/17</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>AKM</u> Date/time of preservation _____
				Lot # of added preservative _____
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Aqueous Samples Screened > 0.5 mrem/hr			/	Initial when completed <u>AKM</u> Date: <u>12/16/17</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
1055 01 05 2018 0110



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

22 January 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc: During the first baseline sampling event additional samples will be collected and field filtered to obtain dissolved metals concentrations (in addition to total metals). Re-issued with additional metals and removed TSS. HSD 1/22/18

Enclosed are the results of analyses for samples received by the laboratory on 12/14/2017 10:05. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MCL0153-01	Water	12/11/2017 13:15	12/14/2017 10:05
W504A		MCL0153-02	Water	12/11/2017 14:10	12/14/2017 10:05
W504B		MCL0153-03	Water	12/11/2017 15:00	12/14/2017 10:05
W502A		MCL0153-04	Water	12/12/2017 9:45	12/14/2017 10:05
W502B		MCL0153-05	Water	12/12/2017 10:25	12/14/2017 10:05
W602A		MCL0153-06	Water	12/12/2017 11:30	12/14/2017 10:05
W7A		MCL0153-07	Water	12/12/2017 12:40	12/14/2017 10:05
W14A		MCL0153-08	Water	12/12/2017 13:30	12/14/2017 10:05
W511A		MCL0153-09	Water	12/12/2017 14:30	12/14/2017 10:05
W510A		MCL0153-10	Water	12/12/2017 15:40	12/14/2017 10:05
W600A		MCL0153-11	Water	12/13/2017 8:50	12/14/2017 10:05
W601A		MCL0153-12	Water	12/13/2017 10:00	12/14/2017 10:05
W603A		MCL0153-13	Water	12/13/2017 11:00	12/14/2017 10:05
W604A		MCL0153-14	Water	12/13/2017 12:30	12/14/2017 10:05
Duplicate		MCL0153-15	Water	12/13/2017 12:30	12/14/2017 10:05
W514A		MCL0153-16	Water	12/13/2017 13:30	12/14/2017 10:05
W506A		MCL0153-17	Water	12/13/2017 14:30	12/14/2017 10:05
W605A		MCL0153-18	Water	12/13/2017 15:40	12/14/2017 10:05



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Field Blank

MCL0153-01 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 16:32	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 16:32	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 16:32	EPA 300.0	CRL

Wet Chemistry

pH	6.86		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 10:52	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:20	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:52	EPA 200.8	CRL



Amended Report

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1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Field Blank

MCL0153-01 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:46	EPA 200.7	HRD
Calcium	< 0.500	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:44	EPA 200.7	HRD
Potassium	< 0.500	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:44	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:44	EPA 200.7	HRD
Magnesium	< 0.500	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:44	EPA 200.7	HRD
Sodium	< 0.500	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:44	EPA 200.7	HRD
Total Metals by ICP										
Boron	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:44	EPA 200.7	HRD
Calcium	< 0.500	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:42	EPA 200.7	HRD
Potassium	< 0.500	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:42	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:42	EPA 200.7	HRD
Magnesium	< 0.500	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:43	EPA 200.7	HRD
Sodium	< 0.500	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:42	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 14:58	EPA 245.1, 7470A	HRD



Amended Report

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1055 01 05 2018 0110

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W504A

MCL0153-02 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	86.1	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 16:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 16:52	EPA 300.0	CRL
Sulfate	854	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 16:52	EPA 300.0	CRL

Wet Chemistry

pH	7.14		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 10:59	SM 4500-H+ B	CRL
Total Dissolved Solids	1990	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	1.48	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Barium	22.4	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Cobalt	0.963	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Molybdenum	66.0	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:24	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	1.16	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Barium	24.5	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Cobalt	0.850	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Molybdenum	72.1	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 8:56	EPA 200.8	CRL



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W504A

MCL0153-02 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	16.8	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:50	EPA 200.7	HRD
Calcium	337	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:49	EPA 200.7	HRD
Potassium	3.16	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:49	EPA 200.7	HRD
Lithium	0.0502	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:49	EPA 200.7	HRD
Magnesium	74.7	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:49	EPA 200.7	HRD
Sodium	187	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 12:49	EPA 200.7	HRD
Total Metals by ICP										
Boron	17.5	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:48	EPA 200.7	HRD
Calcium	339	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:47	EPA 200.7	HRD
Potassium	3.61	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:47	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:47	EPA 200.7	HRD
Magnesium	74.3	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:48	EPA 200.7	HRD
Sodium	191	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 12:47	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:00	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MCL0153-03 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	58.7	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 17:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 17:13	EPA 300.0	CRL
Sulfate	19.2	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 17:13	EPA 300.0	CRL

Wet Chemistry

pH	7.25		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:02	SM 4500-H+ B	CRL
Total Dissolved Solids	910	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	4.16	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Barium	352	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:36	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	4.53	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Barium	372	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:08	EPA 200.8	CRL



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W504B

MCL0153-03 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Dissolved Metals by ICP										
Boron	0.483	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:06	EPA 200.7	HRD
Calcium	232	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:05	EPA 200.7	HRD
Potassium	1.33	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:05	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:05	EPA 200.7	HRD
Magnesium	80.3	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:05	EPA 200.7	HRD
Sodium	27.1	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:05	EPA 200.7	HRD
Total Metals by ICP										
Boron	0.425	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:25	EPA 200.7	HRD
Calcium	233	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:23	EPA 200.7	HRD
Potassium	1.37	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:23	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:23	EPA 200.7	HRD
Magnesium	81.7	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:24	EPA 200.7	HRD
Sodium	26.2	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:23	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:02	EPA 245.1, 7470A	HRD

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502A

MCL0153-04 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	92.1	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 17:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 17:33	EPA 300.0	CRL
Sulfate	1390	10.0	mg/L		10	BCL0258	12/14/17 10:46	12/15/17 7:06	EPA 300.0	CRL

Wet Chemistry

pH	7.38		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:06	SM 4500-H+ B	CRL
Total Dissolved Solids	2450	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	34.1	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 9:58	EPA 200.8	CRL
Barium	86.7	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 9:58	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 9:58	EPA 200.8	CRL
Molybdenum	72.9	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL
Selenium	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 9:58	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:40	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	35.0	5.00	ug/L		10	BCL0324	12/18/17 6:08	12/19/17 10:42	EPA 200.8	CRL
Barium	89.7	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Cobalt	3.02	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Molybdenum	72.0	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:12	EPA 200.8	CRL



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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502A

MCL0153-04 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	9.17	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:11	EPA 200.7	HRD
Calcium	484	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:10	EPA 200.7	HRD
Potassium	17.6	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:10	EPA 200.7	HRD
Lithium	0.105	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:10	EPA 200.7	HRD
Magnesium	67.7	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:10	EPA 200.7	HRD
Sodium	182	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:10	EPA 200.7	HRD
Total Metals by ICP										
Boron	8.86	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:30	EPA 200.7	HRD
Calcium	484	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:28	EPA 200.7	HRD
Potassium	17.4	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:29	EPA 200.7	HRD
Lithium	0.0938	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:29	EPA 200.7	HRD
Magnesium	67.8	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:29	EPA 200.7	HRD
Sodium	182	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:28	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:03	EPA 245.1, 7470A	HRD



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Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W502B

MCL0153-05 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	89.0	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 19:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 19:36	EPA 300.0	CRL
Sulfate	1340	10.0	mg/L		10	BCL0258	12/14/17 10:46	12/15/17 7:26	EPA 300.0	CRL

Wet Chemistry

pH	7.22		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:10	SM 4500-H+ B	CRL
Total Dissolved Solids	2370	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	5.23	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:10	EPA 200.8	CRL
Barium	146	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL
Selenium	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:10	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:44	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	4.68	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Barium	147	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:16	EPA 200.8	CRL



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W502B

MCL0153-05 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	4.13	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:17	EPA 200.7	HRD
Calcium	489	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:15	EPA 200.7	HRD
Potassium	1.89	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:15	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:15	EPA 200.7	HRD
Magnesium	123	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:16	EPA 200.7	HRD
Sodium	71.3	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:15	EPA 200.7	HRD
Total Metals by ICP										
Boron	3.78	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:35	EPA 200.7	HRD
Calcium	490	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:34	EPA 200.7	HRD
Potassium	1.87	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:34	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:34	EPA 200.7	HRD
Magnesium	125	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:34	EPA 200.7	HRD
Sodium	68.0	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:34	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:05	EPA 245.1, 7470A	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W602A

MCL0153-06 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	218	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 19:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 19:56	EPA 300.0	CRL
Sulfate	324	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 19:56	EPA 300.0	CRL

Wet Chemistry

pH	7.35		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:13	SM 4500-H+ B	CRL
Total Dissolved Solids	1110	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	7.19	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Barium	109	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Cobalt	2.62	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Molybdenum	70.6	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:48	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	7.16	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Barium	110	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Cobalt	2.55	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Molybdenum	68.6	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:20	EPA 200.8	CRL



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W602A

MCL0153-06 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	1.42	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:21	EPA 200.7	HRD
Calcium	134	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:20	EPA 200.7	HRD
Potassium	1.75	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:20	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:20	EPA 200.7	HRD
Magnesium	31.8	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:21	EPA 200.7	HRD
Sodium	193	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:20	EPA 200.7	HRD
Total Metals by ICP										
Boron	1.46	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:40	EPA 200.7	HRD
Calcium	141	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:39	EPA 200.7	HRD
Potassium	2.02	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:39	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:39	EPA 200.7	HRD
Magnesium	33.4	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:39	EPA 200.7	HRD
Sodium	202	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:39	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:07	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W7A

MCL0153-07 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	152	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:17	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:17	EPA 300.0	CRL
Sulfate	348	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:17	EPA 300.0	CRL

Wet Chemistry

pH	7.30		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:17	SM 4500-H+ B	CRL
Total Dissolved Solids	1060	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	1.03	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Barium	85.9	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Cobalt	0.528	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Molybdenum	48.5	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:51	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	0.994	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Barium	89.5	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Cobalt	0.542	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Molybdenum	47.6	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:24	EPA 200.8	CRL



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W7A

MCL0153-07 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	1.80	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:26	EPA 200.7	HRD
Calcium	185	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:25	EPA 200.7	HRD
Potassium	3.58	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:25	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:25	EPA 200.7	HRD
Magnesium	49.4	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:26	EPA 200.7	HRD
Sodium	108	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:25	EPA 200.7	HRD
Total Metals by ICP										
Boron	1.74	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:45	EPA 200.7	HRD
Calcium	188	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:44	EPA 200.7	HRD
Potassium	3.66	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:44	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:44	EPA 200.7	HRD
Magnesium	50.4	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:44	EPA 200.7	HRD
Sodium	109	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:44	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:09	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W14A

MCL0153-08 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	147	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:37	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:37	EPA 300.0	CRL
Sulfate	126	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:37	EPA 300.0	CRL

Wet Chemistry

pH	7.32		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:20	SM 4500-H+ B	CRL
Total Dissolved Solids	778	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	1.60	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Barium	31.5	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Molybdenum	103	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:55	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	1.71	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Barium	35.2	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Molybdenum	95.2	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:28	EPA 200.8	CRL



Amended Report

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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W14A

MCL0153-08 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Dissolved Metals by ICP										
Boron	1.58	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:31	EPA 200.7	HRD
Calcium	105	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:30	EPA 200.7	HRD
Potassium	2.72	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:30	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:30	EPA 200.7	HRD
Magnesium	23.4	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:30	EPA 200.7	HRD
Sodium	155	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:30	EPA 200.7	HRD
Total Metals by ICP										
Boron	1.50	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:50	EPA 200.7	HRD
Calcium	108	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:49	EPA 200.7	HRD
Potassium	2.79	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:49	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:49	EPA 200.7	HRD
Magnesium	23.3	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:49	EPA 200.7	HRD
Sodium	156	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:49	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:10	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W511A

MCL0153-09 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	141	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:58	EPA 300.0	CRL
Sulfate	434	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 20:58	EPA 300.0	CRL

Wet Chemistry

pH	8.21		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:23	SM 4500-H+ B	CRL
Total Dissolved Solids	1030	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	4.62	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Barium	44.9	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Chromium	2.66	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Molybdenum	161	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Antimony	0.562	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Selenium	4.87	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 8:59	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	4.49	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Barium	46.4	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Chromium	8.01	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Molybdenum	155	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Antimony	0.521	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Selenium	5.06	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:31	EPA 200.8	CRL



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Minneapolis Testing Laboratory
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W511A

MCL0153-09 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Dissolved Metals by ICP										
Boron	6.69	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:37	EPA 200.7	HRD
Calcium	165	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:35	EPA 200.7	HRD
Potassium	8.91	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:35	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:35	EPA 200.7	HRD
Magnesium	23.3	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:36	EPA 200.7	HRD
Sodium	146	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:35	EPA 200.7	HRD
Total Metals by ICP										
Boron	6.32	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:55	EPA 200.7	HRD
Calcium	165	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:54	EPA 200.7	HRD
Potassium	9.07	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:54	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:54	EPA 200.7	HRD
Magnesium	23.6	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:54	EPA 200.7	HRD
Sodium	146	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:54	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:12	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W510A

MCL0153-10 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	89.7	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:18	EPA 300.0	CRL
Sulfate	1.61	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:18	EPA 300.0	CRL

Wet Chemistry

pH	7.65		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:27	SM 4500-H+ B	CRL
Total Dissolved Solids	1100	20.0	mg/L		1	BCL0264	12/18/17 6:42	12/18/17 6:42	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	55.7	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Barium	274	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:03	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	55.7	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Barium	302	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Molybdenum	0.615	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:35	EPA 200.8	CRL



Amended Report

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1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W510A

MCL0153-10 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	6.87	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:42	EPA 200.7	HRD
Calcium	278	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:40	EPA 200.7	HRD
Potassium	2.27	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:40	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:40	EPA 200.7	HRD
Magnesium	69.5	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:41	EPA 200.7	HRD
Sodium	71.1	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:40	EPA 200.7	HRD
Total Metals by ICP										
Boron	6.64	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:00	EPA 200.7	HRD
Calcium	283	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:59	EPA 200.7	HRD
Potassium	2.43	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:59	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:59	EPA 200.7	HRD
Magnesium	70.4	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:59	EPA 200.7	HRD
Sodium	72.5	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 13:59	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:17	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W600A

MCL0153-11 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	15.8	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:38	EPA 300.0	CRL
Sulfate	2100	10.0	mg/L		10	BCL0258	12/14/17 10:46	12/15/17 7:47	EPA 300.0	CRL

Wet Chemistry

pH	6.39		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:34	SM 4500-H+ B	CRL
Total Dissolved Solids	3070	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	9.10	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Barium	31.1	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Beryllium	0.602	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Cobalt	48.2	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Molybdenum	79.8	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL
Selenium	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:14	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:07	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	9.48	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Barium	32.4	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Beryllium	1.68	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Cadmium	1.97	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Cobalt	49.1	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Chromium	0.773	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Molybdenum	71.8	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Lead	1.29	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL
Thallium	0.518	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:39	EPA 200.8	CRL



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W600A

MCL0153-11 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	15.9	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:47	EPA 200.7	HRD
Calcium	606	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:46	EPA 200.7	HRD
Potassium	19.6	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:46	EPA 200.7	HRD
Lithium	0.152	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:46	EPA 200.7	HRD
Magnesium	67.9	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:46	EPA 200.7	HRD
Sodium	85.5	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:46	EPA 200.7	HRD
Total Metals by ICP										
Boron	14.1	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:06	EPA 200.7	HRD
Calcium	574	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:04	EPA 200.7	HRD
Potassium	18.3	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:04	EPA 200.7	HRD
Lithium	0.134	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:04	EPA 200.7	HRD
Magnesium	66.8	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:05	EPA 200.7	HRD
Sodium	78.8	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:04	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:19	EPA 245.1, 7470A	HRD



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W601A

MCL0153-12 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	165	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:59	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:59	EPA 300.0	CRL
Sulfate	772	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 21:59	EPA 300.0	CRL

Wet Chemistry

pH	10.2		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:37	SM 4500-H+ B	CRL
Total Dissolved Solids	1590	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	11.7	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Barium	57.3	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Molybdenum	309	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Antimony	1.30	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL
Selenium	93.4	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:11	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	12.5	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Barium	88.2	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Cobalt	0.789	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Chromium	4.49	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Molybdenum	295	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Lead	3.20	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Antimony	1.39	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Selenium	90.2	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:43	EPA 200.8	CRL



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Minneapolis Testing Laboratory
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W601A

MCL0153-12 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	12.6	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:52	EPA 200.7	HRD
Calcium	270	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:51	EPA 200.7	HRD
Potassium	43.0	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:51	EPA 200.7	HRD
Lithium	0.254	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:51	EPA 200.7	HRD
Magnesium	0.796	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:51	EPA 200.7	HRD
Sodium	210	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 13:51	EPA 200.7	HRD
Total Metals by ICP										
Boron	12.0	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:11	EPA 200.7	HRD
Calcium	279	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:10	EPA 200.7	HRD
Potassium	45.3	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:10	EPA 200.7	HRD
Lithium	0.262	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:10	EPA 200.7	HRD
Magnesium	0.942	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:10	EPA 200.7	HRD
Sodium	217	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:10	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:21	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W603A

MCL0153-13 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	216	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 22:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 22:19	EPA 300.0	CRL
Sulfate	255	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 22:19	EPA 300.0	CRL

Wet Chemistry

pH	8.34		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:40	SM 4500-H+ B	CRL
Total Dissolved Solids	876	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	11.9	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Barium	59.4	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Molybdenum	107	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:23	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	11.7	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Barium	67.4	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Molybdenum	102	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:55	EPA 200.8	CRL



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W603A

MCL0153-13 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared		Analyzed		Method	Analyst
	Result	Limit		Qualifier	Dilution							
Dissolved Metals by ICP												
Boron	9.36	0.0500	mg/L		1	BCL0360	12/19/17	6:46	12/27/17	14:08	EPA 200.7	HRD
Calcium	116	0.500	mg/L		1	BCL0360	12/19/17	6:46	12/27/17	14:07	EPA 200.7	HRD
Potassium	11.9	0.500	mg/L		1	BCL0360	12/19/17	6:46	12/27/17	14:07	EPA 200.7	HRD
Lithium	0.116	0.0500	mg/L		1	BCL0360	12/19/17	6:46	12/27/17	14:07	EPA 200.7	HRD
Magnesium	21.8	0.500	mg/L		1	BCL0360	12/19/17	6:46	12/27/17	14:07	EPA 200.7	HRD
Sodium	160	0.500	mg/L		1	BCL0360	12/19/17	6:46	12/27/17	14:07	EPA 200.7	HRD
Total Metals by ICP												
Boron	9.04	0.0500	mg/L		1	BCL0323	12/18/17	6:06	12/21/17	14:27	EPA 200.7	HRD
Calcium	117	0.500	mg/L		1	BCL0323	12/18/17	6:06	12/21/17	14:25	EPA 200.7	HRD
Potassium	11.5	0.500	mg/L		1	BCL0323	12/18/17	6:06	12/21/17	14:25	EPA 200.7	HRD
Lithium	0.0999	0.0500	mg/L		1	BCL0323	12/18/17	6:06	12/21/17	14:25	EPA 200.7	HRD
Magnesium	22.1	0.500	mg/L		1	BCL0323	12/18/17	6:06	12/21/17	14:26	EPA 200.7	HRD
Sodium	158	0.500	mg/L		1	BCL0323	12/18/17	6:06	12/21/17	14:25	EPA 200.7	HRD
Mercury												
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18	9:26	1/3/18	15:22	EPA 245.1, 7470A	HRD



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WI-999071150
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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W604A

MCL0153-14 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	147	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 22:40	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 22:40	EPA 300.0	CRL
Sulfate	350	1.00	mg/L		1	BCL0258	12/14/17 10:46	12/14/17 22:40	EPA 300.0	CRL

Wet Chemistry

pH	8.75		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:42	SM 4500-H+ B	CRL
Total Dissolved Solids	832	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	6.20	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Barium	75.6	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Chromium	1.40	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Molybdenum	176	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Antimony	1.80	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Selenium	4.15	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:27	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	6.29	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Barium	82.7	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Chromium	1.77	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Molybdenum	177	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Antimony	1.78	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Selenium	4.03	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 9:59	EPA 200.8	CRL



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W604A

MCL0153-14 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Dissolved Metals by ICP										
Boron	3.99	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:13	EPA 200.7	HRD
Calcium	85.3	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:12	EPA 200.7	HRD
Potassium	6.67	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:12	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:12	EPA 200.7	HRD
Magnesium	21.1	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:12	EPA 200.7	HRD
Sodium	171	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:12	EPA 200.7	HRD
Total Metals by ICP										
Boron	3.99	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:42	EPA 200.7	HRD
Calcium	87.3	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:41	EPA 200.7	HRD
Potassium	6.81	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:41	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:41	EPA 200.7	HRD
Magnesium	21.7	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:41	EPA 200.7	HRD
Sodium	175	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:41	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:24	EPA 245.1, 7470A	HRD



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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Duplicate

MCL0153-15 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	146	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 12:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 12:24	EPA 300.0	CRL
Sulfate	350	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 12:24	EPA 300.0	CRL

Wet Chemistry

pH	8.78		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:45	SM 4500-H+ B	CRL
Total Dissolved Solids	824	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	6.17	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Barium	76.4	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Chromium	1.40	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Molybdenum	177	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Antimony	1.78	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Selenium	4.04	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:31	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	6.37	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Barium	84.2	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Chromium	1.67	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Molybdenum	177	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Antimony	1.86	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Selenium	4.10	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:03	EPA 200.8	CRL



Amended Report

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1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Duplicate

MCL0153-15 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	3.95	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:18	EPA 200.7	HRD
Calcium	84.1	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:17	EPA 200.7	HRD
Potassium	6.61	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:17	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:17	EPA 200.7	HRD
Magnesium	20.8	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:17	EPA 200.7	HRD
Sodium	171	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:17	EPA 200.7	HRD
Total Metals by ICP										
Boron	3.85	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:54	EPA 200.7	HRD
Calcium	84.2	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:52	EPA 200.7	HRD
Potassium	6.51	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:52	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:52	EPA 200.7	HRD
Magnesium	20.7	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:53	EPA 200.7	HRD
Sodium	168	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 14:52	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:26	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514A

MCL0153-16 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	9.75	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 12:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 12:44	EPA 300.0	CRL
Sulfate	2.85	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 12:44	EPA 300.0	CRL

Wet Chemistry

pH	7.96		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:49	SM 4500-H+ B	CRL
Total Dissolved Solids	576	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	2.88	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Barium	146	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Molybdenum	2.44	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:34	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	3.04	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Barium	154	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Molybdenum	2.32	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:07	EPA 200.8	CRL



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W514A

MCL0153-16 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Dissolved Metals by ICP										
Boron	0.137	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:24	EPA 200.7	HRD
Calcium	113	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:22	EPA 200.7	HRD
Potassium	1.37	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:22	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:22	EPA 200.7	HRD
Magnesium	84.5	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:22	EPA 200.7	HRD
Sodium	10.2	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:22	EPA 200.7	HRD
Total Metals by ICP										
Boron	0.134	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:03	EPA 200.7	HRD
Calcium	117	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:01	EPA 200.7	HRD
Potassium	1.47	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:01	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:01	EPA 200.7	HRD
Magnesium	89.2	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:02	EPA 200.7	HRD
Sodium	10.4	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:01	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:27	EPA 245.1, 7470A	HRD

Amended Report

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 Minneapolis Testing Laboratory
 1518 Chestnut Ave N
 Minneapolis, MN 55043
 Certification # MN-027-053-197
 WI-999071150
 Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W506A

MCL0153-17 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	51.0	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 13:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 13:05	EPA 300.0	CRL
Sulfate	1690	10.0	mg/L		10	BCL0266	12/14/17 13:35	12/18/17 6:26	EPA 300.0	CRL

Wet Chemistry

pH	6.82		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:52	SM 4500-H+ B	CRL
Total Dissolved Solids	2570	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:21	EPA 200.8	CRL
Barium	24.3	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL
Cadmium	3.36	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL
Cobalt	8.98	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:21	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:21	EPA 200.8	CRL
Molybdenum	33.3	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL
Selenium	< 5.00	5.00	ug/L		10	BCL0361	12/19/17 6:49	12/20/17 10:21	EPA 200.8	CRL
Thallium	1.24	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:38	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	2.88	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Barium	25.1	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Cadmium	3.58	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Cobalt	8.20	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Molybdenum	32.1	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Selenium	1.18	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL
Thallium	1.26	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:11	EPA 200.8	CRL



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W506A

MCL0153-17 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Dissolved Metals by ICP										
Boron	3.60	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:29	EPA 200.7	HRD
Calcium	624	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:27	EPA 200.7	HRD
Potassium	16.1	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:27	EPA 200.7	HRD
Lithium	0.113	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:27	EPA 200.7	HRD
Magnesium	33.7	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:28	EPA 200.7	HRD
Sodium	86.7	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:27	EPA 200.7	HRD
Total Metals by ICP										
Boron	3.55	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:08	EPA 200.7	HRD
Calcium	642	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:07	EPA 200.7	HRD
Potassium	16.6	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:07	EPA 200.7	HRD
Lithium	0.105	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:07	EPA 200.7	HRD
Magnesium	35.0	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:07	EPA 200.7	HRD
Sodium	88.9	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:07	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:29	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MCL0153-18 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	106	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 13:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 13:25	EPA 300.0	CRL
Sulfate	252	1.00	mg/L		1	BCL0266	12/14/17 13:35	12/15/17 13:25	EPA 300.0	CRL

Wet Chemistry

pH	7.57		pH Units	M_TTT	1	BCL0257	12/14/17 10:35	12/14/17 11:56	SM 4500-H+ B	CRL
Total Dissolved Solids	598	20.0	mg/L		1	BCL0326	12/18/17 11:14	12/18/17 11:14	SM 2540C	HSD

Dissolved Metals by ICPMS

Arsenic	7.55	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Barium	73.1	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Molybdenum	74.4	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0361	12/19/17 6:49	12/20/17 9:42	EPA 200.8	CRL

Total Metals by ICPMS

Arsenic	7.33	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Barium	75.9	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Molybdenum	71.3	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BCL0324	12/18/17 6:08	12/19/17 10:15	EPA 200.8	CRL



Amended Report

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Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

W605A

MCL0153-18 (Water) - Chain of Custody Number: 2125342/2125345

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Dissolved Metals by ICP										
Boron	3.02	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:34	EPA 200.7	HRD
Calcium	67.4	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:32	EPA 200.7	HRD
Potassium	6.36	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:32	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:32	EPA 200.7	HRD
Magnesium	14.0	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:33	EPA 200.7	HRD
Sodium	117	0.500	mg/L		1	BCL0360	12/19/17 6:46	12/27/17 14:32	EPA 200.7	HRD
Total Metals by ICP										
Boron	2.75	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:13	EPA 200.7	HRD
Calcium	64.5	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:12	EPA 200.7	HRD
Potassium	5.89	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:12	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:12	EPA 200.7	HRD
Magnesium	13.8	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:12	EPA 200.7	HRD
Sodium	110	0.500	mg/L		1	BCL0323	12/18/17 6:06	12/21/17 15:12	EPA 200.7	HRD
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BDA0027	1/3/18 9:26	1/3/18 15:31	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0258 - Wet Prep

Blank (BCL0258-BLK1)

Prepared & Analyzed: 12/14/2017

Chloride	<1.00	1.00	mg/L
Fluoride	<0.750	0.750	mg/L
Sulfate	<1.00	1.00	mg/L

Blank (BCL0258-BLK2)

Prepared & Analyzed: 12/14/2017

Chloride	<1.00	1.00	mg/L
Fluoride	<0.750	0.750	mg/L
Sulfate	<1.00	1.00	mg/L

LCS (BCL0258-BS1)

Prepared & Analyzed: 12/14/2017

Chloride	24.9	1.00	mg/L	25.000	99.6	90-110
Fluoride	5.14	0.750	mg/L	5.0000	103	90-110
Sulfate	104	1.00	mg/L	100.00	104	90-110

LCS (BCL0258-BS2)

Prepared & Analyzed: 12/14/2017

Chloride	25.2	1.00	mg/L	25.000	101	90-110
Fluoride	5.31	0.750	mg/L	5.0000	106	90-110
Sulfate	103	1.00	mg/L	100.00	103	90-110

LCS (BCL0258-BS3)

Prepared & Analyzed: 12/14/2017

Chloride	25.2	1.00	mg/L	25.000	101	90-110
Fluoride	5.28	0.750	mg/L	5.0000	106	90-110
Sulfate	103	1.00	mg/L	100.00	103	90-110

LCS (BCL0258-BS4)

Prepared: 12/14/2017 Analyzed: 12/15/2017

Chloride	24.9	1.00	mg/L	25.000	99.8	90-110
Fluoride	5.30	0.750	mg/L	5.0000	106	90-110
Sulfate	103	1.00	mg/L	100.00	103	90-110

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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0258 - Wet Prep

Duplicate (BCL0258-DUP1)	Source: MCL0082-01			Prepared & Analyzed: 12/14/2017						
Chloride	23.6	1.00	mg/L		23.7			0.389	20	
Fluoride	0.204	0.750	mg/L		0.199			2.48	20	
Sulfate	71.0	1.00	mg/L		71.1			0.0718	20	

Duplicate (BCL0258-DUP2)	Source: MCL0149-01			Prepared & Analyzed: 12/14/2017						
Chloride	28.2	1.00	mg/L		28.5			1.23	20	
Fluoride	0.222	0.750	mg/L		0.226			1.79	20	
Sulfate	85.4	1.00	mg/L		85.3			0.134	20	

Matrix Spike (BCL0258-MS1)	Source: MCL0082-01			Prepared & Analyzed: 12/14/2017						
Chloride	36.0	1.00	mg/L	12.500	23.7	98.2	80-120			
Fluoride	2.71	0.750	mg/L	2.5000	0.199	100	80-120			
Sulfate	121	1.00	mg/L	50.000	71.1	99.7	80-120			

Matrix Spike (BCL0258-MS2)	Source: MCL0149-01			Prepared & Analyzed: 12/14/2017						
Chloride	40.1	1.00	mg/L	12.500	28.5	93.0	80-120			
Fluoride	2.67	0.750	mg/L	2.5000	0.226	97.6	80-120			
Sulfate	134	1.00	mg/L	50.000	85.3	96.5	80-120			

Matrix Spike Dup (BCL0258-MSD1)	Source: MCL0082-01			Prepared & Analyzed: 12/14/2017						
Chloride	35.8	1.00	mg/L	12.500	23.7	96.7	80-120	0.521	20	
Fluoride	2.66	0.750	mg/L	2.5000	0.199	98.4	80-120	1.75	20	
Sulfate	120	1.00	mg/L	50.000	71.1	98.5	80-120	0.523	20	

Matrix Spike Dup (BCL0258-MSD2)	Source: MCL0149-01			Prepared & Analyzed: 12/14/2017						
Chloride	40.2	1.00	mg/L	12.500	28.5	93.8	80-120	0.246	20	
Fluoride	2.70	0.750	mg/L	2.5000	0.226	99.1	80-120	1.42	20	
Sulfate	134	1.00	mg/L	50.000	85.3	97.3	80-120	0.322	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0266 - Wet Prep

Blank (BCL0266-BLK1)				Prepared: 12/14/2017 Analyzed: 12/15/2017						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BCL0266-BS1)				Prepared: 12/14/2017 Analyzed: 12/15/2017						
Chloride	25.4	1.00	mg/L	25.000		102	90-110			
Fluoride	5.52	0.750	mg/L	5.0000		110	90-110			
Sulfate	106	1.00	mg/L	100.00		106	90-110			

LCS (BCL0266-BS2)				Prepared: 12/14/2017 Analyzed: 12/15/2017						
Chloride	25.3	1.00	mg/L	25.000		101	90-110			
Fluoride	5.35	0.750	mg/L	5.0000		107	90-110			
Sulfate	104	1.00	mg/L	100.00		104	90-110			

LCS (BCL0266-BS3)				Prepared: 12/14/2017 Analyzed: 12/18/2017						
Chloride	25.0	1.00	mg/L	25.000		100	90-110			
Fluoride	5.26	0.750	mg/L	5.0000		105	90-110			
Sulfate	103	1.00	mg/L	100.00		103	90-110			

Duplicate (BCL0266-DUP1)				Source: MCL0153-15		Prepared: 12/14/2017 Analyzed: 12/15/2017				
Chloride	146	1.00	mg/L		146			0.0966	20	
Fluoride	0.347	0.750	mg/L		0.328			5.63	20	
Sulfate	352	1.00	mg/L		350			0.427	20	

Matrix Spike (BCL0266-MS1)				Source: MCL0153-15		Prepared: 12/14/2017 Analyzed: 12/15/2017				
Chloride	157	1.00	mg/L	12.500	146	90.1	80-120			
Fluoride	2.85	0.750	mg/L	2.5000	0.328	101	80-120			
Sulfate	399	1.00	mg/L	50.000	350	97.1	80-120			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	01/22/2018 12:04

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0266 - Wet Prep

Matrix Spike Dup (BCL0266-MSD1)	Source: MCL0153-15			Prepared: 12/14/2017 Analyzed: 12/15/2017						
Chloride	157	1.00	mg/L	12.500	146	88.0	80-120	0.170	20	
Fluoride	2.91	0.750	mg/L	2.5000	0.328	103	80-120	2.01	20	
Sulfate	397	1.00	mg/L	50.000	350	94.0	80-120	0.390	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0257 - Wet Prep

LCS (BCL0257-BS1)				Prepared & Analyzed: 12/14/2017						
pH	7.04		pH Units	7.0000		101	90-110			
Duplicate (BCL0257-DUP1)				Source: MCL0153-02		Prepared & Analyzed: 12/14/2017				
pH	7.12		pH Units		7.14			0.281	20	
Duplicate (BCL0257-DUP2)				Source: MCL0153-11		Prepared & Analyzed: 12/14/2017				
pH	6.37		pH Units		6.39			0.313	20	

Batch BCL0263 - Wet Prep

Blank (BCL0263-BLK1)				Prepared & Analyzed: 12/15/2017						
Total Suspended Solids	<4.00	4.00	mg/L							
Duplicate (BCL0263-DUP1)				Source: MCL0153-02		Prepared & Analyzed: 12/15/2017				
Total Suspended Solids	<4.00	4.00	mg/L		0.400				20	

Batch BCL0264 - Wet Prep

Blank (BCL0264-BLK1)				Prepared & Analyzed: 12/18/2017						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BCL0264-DUP1)				Source: MCL0153-02		Prepared & Analyzed: 12/18/2017				
Total Dissolved Solids	2000	20.0	mg/L		1990			0.401	20	

Batch BCL0325 - Wet Prep

Blank (BCL0325-BLK1)				Prepared & Analyzed: 12/18/2017						
Total Suspended Solids	<4.00	4.00	mg/L							



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Environmental Services-Water Minneapolis 250 Marquette Plaza Minneapolis MN, 55401	Project Name/Location: Black Dog CCR Project Manager: Tedd Ronning	Reported: 01/22/2018 12:04

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0325 - Wet Prep

Duplicate (BCL0325-DUP1)	Source: MCL0153-11		Prepared & Analyzed: 12/18/2017							
Total Suspended Solids	26.5	5.00	mg/L		29.0			9.01	20	

Batch BCL0326 - Wet Prep

Blank (BCL0326-BLK1)			Prepared & Analyzed: 12/18/2017							
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BCL0326-DUP1)	Source: MCL0153-11		Prepared & Analyzed: 12/18/2017							
Total Dissolved Solids	3060	20.0	mg/L		3070			0.392	20	



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0361 - EPA 200.2, EPA 3005

Blank (BCL0361-BLK1)

Prepared: 12/19/2017 Analyzed: 12/20/2017

Cadmium	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Barium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L

LCS (BCL0361-BS1)

Prepared: 12/19/2017 Analyzed: 12/20/2017

Lead	93.7	0.500	ug/L	100.00	93.7	85-115
Chromium	97.1	0.500	ug/L	100.00	97.1	85-115
Barium	94.7	0.500	ug/L	100.00	94.7	85-115
Selenium	97.6	0.500	ug/L	100.00	97.6	85-115
Molybdenum	94.4	0.500	ug/L	100.00	94.4	85-115
Cadmium	96.0	0.500	ug/L	100.00	96.0	85-115
Arsenic	94.1	0.500	ug/L	100.00	94.1	85-115
Beryllium	94.4	0.500	ug/L	100.00	94.4	85-115
Antimony	93.5	0.500	ug/L	100.00	93.5	85-115
Thallium	94.9	0.500	ug/L	100.00	94.9	85-115
Cobalt	101	0.500	ug/L	100.00	101	85-115

Duplicate (BCL0361-DUP1)

Source: MCL0153-04

Prepared: 12/19/2017 Analyzed: 12/20/2017

Molybdenum	72.4	0.500	ug/L	72.9	0.808	20	
Chromium	0.151	0.500	ug/L	<0.500		20	
Barium	85.5	0.500	ug/L	86.7	1.36	20	
Arsenic	35.1	0.500	ug/L	34.1	2.82	20	
Beryllium	0.136	0.500	ug/L	0.0270	134	20	M_D-RL
Cadmium	0.0509	0.500	ug/L	<0.500		20	
Lead	0.0510	0.500	ug/L	0.0166	102	20	M_D-RL
Thallium	0.0903	0.500	ug/L	0.0123	152	20	M_D-RL
Antimony	0.147	0.500	ug/L	0.0645	77.9	20	M_D-RL
Cobalt	3.17	0.500	ug/L	3.30	3.76	20	
Selenium	<0.500	0.500	ug/L	<0.500		20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0361 - EPA 200.2, EPA 3005

Duplicate (BCL0361-DUP2)	Source: MCL0153-05			Prepared: 12/19/2017 Analyzed: 12/20/2017						
Cadmium	0.0368	0.500	ug/L		0.0442			18.3	20	
Barium	140	0.500	ug/L		146			4.11	20	
Arsenic	5.02	0.500	ug/L		5.23			4.16	20	
Beryllium	0.0204	0.500	ug/L		0.0147			33.0	20	M_D-RL
Molybdenum	0.227	0.500	ug/L		0.212			6.54	20	
Chromium	0.133	0.500	ug/L		<0.500				20	
Cobalt	0.133	0.500	ug/L		0.142			6.45	20	
Antimony	0.0550	0.500	ug/L		0.0684			21.7	20	M_D-RL
Lead	<0.500	0.500	ug/L		<0.500				20	
Thallium	0.0140	0.500	ug/L		0.00843			49.4	20	M_D-RL
Selenium	<0.500	0.500	ug/L		<0.500				20	

Matrix Spike (BCL0361-MS1)	Source: MCL0153-04			Prepared: 12/19/2017 Analyzed: 12/20/2017						
Lead	83.8	0.500	ug/L	100.00	0.0166	83.8	70-130			
Beryllium	87.2	0.500	ug/L	100.00	0.0270	87.2	70-130			
Cadmium	88.9	0.500	ug/L	100.00	<0.500	88.9	70-130			
Molybdenum	171	0.500	ug/L	100.00	72.9	97.9	70-130			
Antimony	96.2	0.500	ug/L	100.00	0.0645	96.1	70-130			
Arsenic	140	5.00	ug/L	100.00	34.1	105	70-130			
Barium	184	0.500	ug/L	100.00	86.7	97.6	70-130			
Selenium	107	5.00	ug/L	100.00	<5.00	107	70-130			
Thallium	88.0	0.500	ug/L	100.00	0.0123	88.0	70-130			
Chromium	105	5.00	ug/L	100.00	<5.00	105	70-130			
Cobalt	108	5.00	ug/L	100.00	3.30	105	70-130			

Matrix Spike (BCL0361-MS2)	Source: MCL0153-05			Prepared: 12/19/2017 Analyzed: 12/20/2017						
Beryllium	88.8	0.500	ug/L	100.00	0.0147	88.7	70-130			
Thallium	87.8	0.500	ug/L	100.00	0.00843	87.8	70-130			
Barium	245	0.500	ug/L	100.00	146	99.3	70-130			
Lead	83.8	0.500	ug/L	100.00	<0.500	83.8	70-130			
Arsenic	109	0.500	ug/L	100.00	5.23	104	70-130			
Molybdenum	99.4	0.500	ug/L	100.00	0.212	99.2	70-130			
Antimony	94.4	0.500	ug/L	100.00	0.0684	94.3	70-130			
Cadmium	87.6	0.500	ug/L	100.00	0.0442	87.6	70-130			
Selenium	104	0.500	ug/L	100.00	<0.500	104	70-130			
Cobalt	101	0.500	ug/L	100.00	0.142	101	70-130			
Chromium	103	0.500	ug/L	100.00	<0.500	103	70-130			



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0361 - EPA 200.2, EPA 3005

Matrix Spike Dup (BCL0361-MSD1)		Source: MCL0153-04		Prepared: 12/19/2017 Analyzed: 12/20/2017						
Selenium	105	5.00	ug/L	100.00	<5.00	105	70-130	1.21	20	
Cadmium	87.1	0.500	ug/L	100.00	<0.500	87.1	70-130	2.04	20	
Lead	82.4	0.500	ug/L	100.00	0.0166	82.4	70-130	1.65	20	
Beryllium	83.0	0.500	ug/L	100.00	0.0270	83.0	70-130	4.99	20	
Chromium	101	5.00	ug/L	100.00	<5.00	101	70-130	4.16	20	
Antimony	95.2	0.500	ug/L	100.00	0.0645	95.2	70-130	1.03	20	
Barium	185	0.500	ug/L	100.00	86.7	98.6	70-130	0.554	20	
Cobalt	105	5.00	ug/L	100.00	3.30	102	70-130	2.27	20	
Molybdenum	172	0.500	ug/L	100.00	72.9	98.7	70-130	0.510	20	
Thallium	86.8	0.500	ug/L	100.00	0.0123	86.8	70-130	1.33	20	
Arsenic	138	5.00	ug/L	100.00	34.1	103	70-130	1.49	20	

Matrix Spike Dup (BCL0361-MSD2)		Source: MCL0153-05		Prepared: 12/19/2017 Analyzed: 12/20/2017						
Arsenic	109	0.500	ug/L	100.00	5.23	104	70-130	0.193	20	
Selenium	105	0.500	ug/L	100.00	<0.500	105	70-130	0.284	20	
Beryllium	84.1	0.500	ug/L	100.00	0.0147	84.1	70-130	5.41	20	
Chromium	103	0.500	ug/L	100.00	<0.500	103	70-130	0.248	20	
Lead	83.1	0.500	ug/L	100.00	<0.500	83.1	70-130	0.735	20	
Antimony	93.2	0.500	ug/L	100.00	0.0684	93.1	70-130	1.29	20	
Thallium	87.7	0.500	ug/L	100.00	0.00843	87.7	70-130	0.0550	20	
Cobalt	101	0.500	ug/L	100.00	0.142	100	70-130	0.508	20	
Molybdenum	99.8	0.500	ug/L	100.00	0.212	99.6	70-130	0.394	20	
Barium	245	0.500	ug/L	100.00	146	99.3	70-130	0.00412	20	
Cadmium	87.2	0.500	ug/L	100.00	0.0442	87.2	70-130	0.470	20	



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0324 - EPA 200.2, EPA 3005

Blank (BCL0324-BLK1)

Prepared: 12/18/2017 Analyzed: 12/19/2017

Selenium	<0.500	0.500	ug/L
Cadmium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Barium	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L

LCS (BCL0324-BS1)

Prepared: 12/18/2017 Analyzed: 12/19/2017

Lead	96.5	0.500	ug/L	100.00	96.5	85-115
Cobalt	97.1	0.500	ug/L	100.00	97.1	85-115
Beryllium	95.0	0.500	ug/L	100.00	95.0	85-115
Antimony	95.0	0.500	ug/L	100.00	95.0	85-115
Chromium	97.4	0.500	ug/L	100.00	97.4	85-115
Cadmium	96.8	0.500	ug/L	100.00	96.8	85-115
Molybdenum	95.8	0.500	ug/L	100.00	95.8	85-115
Selenium	95.0	0.500	ug/L	100.00	95.0	85-115
Thallium	96.2	0.500	ug/L	100.00	96.2	85-115
Barium	97.5	0.500	ug/L	100.00	97.5	85-115
Arsenic	95.2	0.500	ug/L	100.00	95.2	85-115

Duplicate (BCL0324-DUP1)

Source: MCL0153-04

Prepared: 12/18/2017 Analyzed: 12/19/2017

Cadmium	<0.500	0.500	ug/L	<0.500		20
Barium	88.6	0.500	ug/L	89.7	1.21	20
Chromium	0.158	0.500	ug/L	0.135	15.5	20
Antimony	0.106	0.500	ug/L	<0.500		20
Cobalt	3.08	0.500	ug/L	3.02	1.72	20
Lead	0.0362	0.500	ug/L	<0.500		20
Molybdenum	72.4	0.500	ug/L	72.0	0.558	20
Beryllium	0.0899	0.500	ug/L	<0.500		20
Arsenic	35.7	0.500	ug/L	35.0	1.95	20
Selenium	<0.500	0.500	ug/L	<0.500		20
Thallium	0.0681	0.500	ug/L	<0.500		20



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0324 - EPA 200.2, EPA 3005

Duplicate (BCL0324-DUP2)	Source: MCL0153-05			Prepared: 12/18/2017 Analyzed: 12/19/2017						
Cadmium	<0.500	0.500	ug/L		<0.500				20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.119	0.500	ug/L		0.156			27.4	20	M_D-RL
Thallium	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	0.241	0.500	ug/L		0.260			7.41	20	
Arsenic	4.81	0.500	ug/L		4.68			2.75	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Cobalt	0.0811	0.500	ug/L		0.0798			1.55	20	
Barium	147	0.500	ug/L		147			0.184	20	
Beryllium	<0.500	0.500	ug/L		<0.500				20	
Antimony	0.0359	0.500	ug/L		<0.500				20	

Matrix Spike (BCL0324-MS1)	Source: MCL0153-04			Prepared: 12/18/2017 Analyzed: 12/19/2017						
Chromium	98.1	0.500	ug/L	100.00	0.135	97.9	70-130			
Cadmium	87.5	0.500	ug/L	100.00	<0.500	87.5	70-130			
Selenium	102	0.500	ug/L	100.00	<0.500	102	70-130			
Molybdenum	171	0.500	ug/L	100.00	72.0	98.8	70-130			
Arsenic	136	5.00	ug/L	100.00	35.0	101	70-130			
Barium	192	0.500	ug/L	100.00	89.7	102	70-130			
Cobalt	101	0.500	ug/L	100.00	3.02	98.1	70-130			
Beryllium	86.2	0.500	ug/L	100.00	<0.500	86.2	70-130			
Lead	84.6	0.500	ug/L	100.00	<0.500	84.6	70-130			
Thallium	88.0	0.500	ug/L	100.00	<0.500	88.0	70-130			
Antimony	96.1	0.500	ug/L	100.00	<0.500	96.1	70-130			

Matrix Spike (BCL0324-MS2)	Source: MCL0153-05			Prepared: 12/18/2017 Analyzed: 12/19/2017						
Thallium	90.1	0.500	ug/L	100.00	<0.500	90.1	70-130			
Beryllium	91.9	0.500	ug/L	100.00	<0.500	91.9	70-130			
Molybdenum	98.2	0.500	ug/L	100.00	0.260	97.9	70-130			
Cobalt	99.6	0.500	ug/L	100.00	0.0798	99.5	70-130			
Arsenic	111	0.500	ug/L	100.00	4.68	107	70-130			
Selenium	103	0.500	ug/L	100.00	<0.500	103	70-130			
Chromium	100	0.500	ug/L	100.00	0.156	99.8	70-130			
Barium	252	0.500	ug/L	100.00	147	105	70-130			
Cadmium	89.6	0.500	ug/L	100.00	<0.500	89.6	70-130			
Lead	86.8	0.500	ug/L	100.00	<0.500	86.8	70-130			
Antimony	96.4	0.500	ug/L	100.00	<0.500	96.4	70-130			



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0324 - EPA 200.2, EPA 3005

Matrix Spike Dup (BCL0324-MSD1)		Source: MCL0153-04		Prepared: 12/18/2017 Analyzed: 12/19/2017						
Barium	193	0.500	ug/L	100.00	89.7	103	70-130	0.600	20	
Thallium	88.4	0.500	ug/L	100.00	<0.500	88.4	70-130	0.404	20	
Cadmium	88.2	0.500	ug/L	100.00	<0.500	88.2	70-130	0.729	20	
Lead	85.5	0.500	ug/L	100.00	<0.500	85.5	70-130	1.12	20	
Molybdenum	172	0.500	ug/L	100.00	72.0	100	70-130	0.736	20	
Selenium	102	0.500	ug/L	100.00	<0.500	102	70-130	0.638	20	
Arsenic	137	5.00	ug/L	100.00	35.0	102	70-130	0.948	20	
Beryllium	86.9	0.500	ug/L	100.00	<0.500	86.9	70-130	0.808	20	
Antimony	97.1	0.500	ug/L	100.00	<0.500	97.1	70-130	0.975	20	
Cobalt	100	0.500	ug/L	100.00	3.02	97.0	70-130	1.05	20	
Chromium	97.1	0.500	ug/L	100.00	0.135	97.0	70-130	0.949	20	

Matrix Spike Dup (BCL0324-MSD2)		Source: MCL0153-05		Prepared: 12/18/2017 Analyzed: 12/19/2017						
Selenium	103	0.500	ug/L	100.00	<0.500	103	70-130	0.0763	20	
Molybdenum	100	0.500	ug/L	100.00	0.260	99.8	70-130	1.90	20	
Cobalt	99.7	0.500	ug/L	100.00	0.0798	99.6	70-130	0.0794	20	
Antimony	98.0	0.500	ug/L	100.00	<0.500	98.0	70-130	1.60	20	
Beryllium	90.6	0.500	ug/L	100.00	<0.500	90.6	70-130	1.43	20	
Thallium	91.6	0.500	ug/L	100.00	<0.500	91.6	70-130	1.59	20	
Cadmium	87.7	0.500	ug/L	100.00	<0.500	87.7	70-130	2.18	20	
Lead	87.3	0.500	ug/L	100.00	<0.500	87.3	70-130	0.627	20	
Barium	259	0.500	ug/L	100.00	147	112	70-130	2.54	20	
Chromium	99.7	0.500	ug/L	100.00	0.156	99.5	70-130	0.271	20	
Arsenic	113	0.500	ug/L	100.00	4.68	108	70-130	1.20	20	



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0360 - EPA 200.2, EPA 3005

Blank (BCL0360-BLK1)

Prepared: 12/19/2017 Analyzed: 12/27/2017

Potassium	<0.500	0.500	mg/L
Lithium	<0.0500	0.0500	mg/L
Magnesium	<0.500	0.500	mg/L
Boron	<0.0500	0.0500	mg/L
Sodium	<0.500	0.500	mg/L
Calcium	<0.500	0.500	mg/L

LCS (BCL0360-BS1)

Prepared: 12/19/2017 Analyzed: 12/27/2017

Potassium	105	0.500	mg/L	100.00	105	85-115
Lithium	1.05	0.0500	mg/L	1.0000	105	85-115
Magnesium	100	0.500	mg/L	100.00	100	85-115
Sodium	106	0.500	mg/L	100.00	106	85-115
Calcium	106	0.500	mg/L	100.00	106	85-115
Boron	0.990	0.0500	mg/L	1.0000	99.0	85-115

Duplicate (BCL0360-DUP1)

Source: MCL0153-02

Prepared: 12/19/2017 Analyzed: 12/27/2017

Calcium	341	0.500	mg/L	337	1.14	20
Boron	16.2	0.0500	mg/L	16.8	3.44	20
Potassium	3.73	0.500	mg/L	3.16	16.4	20
Lithium	0.0480	0.0500	mg/L	0.0502	4.41	20
Sodium	189	0.500	mg/L	187	0.836	20
Magnesium	72.8	0.500	mg/L	74.7	2.56	20

Duplicate (BCL0360-DUP2)

Source: MCL0153-03

Prepared: 12/19/2017 Analyzed: 12/27/2017

Magnesium	76.8	0.500	mg/L	80.3	4.50	20
Calcium	222	0.500	mg/L	232	4.47	20
Sodium	26.1	0.500	mg/L	27.1	3.83	20
Boron	0.468	0.0500	mg/L	0.483	3.21	20
Lithium	<0.0500	0.0500	mg/L	0.0342		20
Potassium	1.73	0.500	mg/L	1.33	26.8	20

M_D



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0360 - EPA 200.2, EPA 3005

Matrix Spike (BCL0360-MS1)		Source: MCL0153-02		Prepared: 12/19/2017		Analyzed: 12/27/2017				
Potassium	111	0.500	mg/L	100.00	3.16	108	70-130			
Magnesium	177	0.500	mg/L	100.00	74.7	102	70-130			
Boron	17.5	0.0500	mg/L	1.0000	16.8	65.9	70-130			M_MS
Sodium	298	0.500	mg/L	100.00	187	111	70-130			
Lithium	1.13	0.0500	mg/L	1.0000	0.0502	108	75-125			
Calcium	450	0.500	mg/L	100.00	337	113	70-130			

Matrix Spike (BCL0360-MS2)		Source: MCL0153-03		Prepared: 12/19/2017		Analyzed: 12/27/2017				
Potassium	106	0.500	mg/L	100.00	1.33	105	70-130			
Calcium	330	0.500	mg/L	100.00	232	98.0	70-130			
Magnesium	183	0.500	mg/L	100.00	80.3	103	70-130			
Lithium	1.07	0.0500	mg/L	1.0000	0.0342	104	75-125			
Sodium	131	0.500	mg/L	100.00	27.1	104	70-130			
Boron	1.53	0.0500	mg/L	1.0000	0.483	105	70-130			

Matrix Spike Dup (BCL0360-MSD1)		Source: MCL0153-02		Prepared: 12/19/2017		Analyzed: 12/27/2017				
Boron	17.9	0.0500	mg/L	1.0000	16.8	108	70-130	2.39	20	
Magnesium	182	0.500	mg/L	100.00	74.7	108	70-130	3.19	20	
Calcium	459	0.500	mg/L	100.00	337	121	70-130	1.85	20	
Sodium	304	0.500	mg/L	100.00	187	117	70-130	1.97	20	
Lithium	1.14	0.0500	mg/L	1.0000	0.0502	109	75-125	0.663	20	
Potassium	113	0.500	mg/L	100.00	3.16	110	70-130	2.00	20	

Matrix Spike Dup (BCL0360-MSD2)		Source: MCL0153-03		Prepared: 12/19/2017		Analyzed: 12/27/2017				
Sodium	135	0.500	mg/L	100.00	27.1	108	70-130	2.48	20	
Boron	1.57	0.0500	mg/L	1.0000	0.483	109	70-130	2.34	20	
Potassium	108	0.500	mg/L	100.00	1.33	107	70-130	1.97	20	
Magnesium	187	0.500	mg/L	100.00	80.3	107	70-130	2.11	20	
Calcium	338	0.500	mg/L	100.00	232	107	70-130	2.65	20	
Lithium	1.10	0.0500	mg/L	1.0000	0.0342	107	75-125	2.45	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0323 - EPA 200.2, EPA 3005

Blank (BCL0323-BLK1)

Prepared: 12/18/2017 Analyzed: 12/21/2017

Magnesium	<0.500	0.500	mg/L
Potassium	<0.500	0.500	mg/L
Sodium	<0.500	0.500	mg/L
Boron	<0.0500	0.0500	mg/L
Lithium	<0.0500	0.0500	mg/L
Calcium	<0.500	0.500	mg/L

LCS (BCL0323-BS1)

Prepared: 12/18/2017 Analyzed: 12/21/2017

Boron	1.02	0.0500	mg/L	1.0000	102	85-115
Magnesium	104	0.500	mg/L	100.00	104	85-115
Calcium	109	0.500	mg/L	100.00	109	85-115
Lithium	1.09	0.0500	mg/L	1.0000	109	85-115
Sodium	109	0.500	mg/L	100.00	109	85-115
Potassium	108	0.500	mg/L	100.00	108	85-115

Duplicate (BCL0323-DUP1)

Source: MCL0153-02

Prepared: 12/18/2017 Analyzed: 12/21/2017

Boron	17.1	0.0500	mg/L	17.5	2.64	20
Calcium	347	0.500	mg/L	339	2.28	20
Magnesium	73.6	0.500	mg/L	74.3	0.915	20
Sodium	196	0.500	mg/L	191	2.29	20
Potassium	3.74	0.500	mg/L	3.61	3.51	20
Lithium	0.0406	0.0500	mg/L	0.0388	4.58	20

Duplicate (BCL0323-DUP2)

Source: MCL0153-03

Prepared: 12/18/2017 Analyzed: 12/21/2017

Lithium	<0.0500	0.0500	mg/L	<0.0500		20
Boron	0.446	0.0500	mg/L	0.425	4.72	20
Magnesium	81.2	0.500	mg/L	81.7	0.583	20
Sodium	26.0	0.500	mg/L	26.2	0.809	20
Calcium	230	0.500	mg/L	233	0.950	20
Potassium	1.37	0.500	mg/L	1.37	0.184	20



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BCL0323 - EPA 200.2, EPA 3005

Matrix Spike (BCL0323-MS1)		Source: MCL0153-02		Prepared: 12/18/2017 Analyzed: 12/21/2017						
Sodium	304	0.500	mg/L	100.00	191	113	70-130			
Lithium	1.11	0.0500	mg/L	1.0000	0.0388	107	75-125			
Magnesium	181	0.500	mg/L	100.00	74.3	107	70-130			
Calcium	455	0.500	mg/L	100.00	339	116	70-130			
Potassium	110	0.500	mg/L	100.00	3.61	107	70-130			
Boron	18.5	0.0500	mg/L	1.0000	17.5	100	70-130			
Matrix Spike (BCL0323-MS2)		Source: MCL0153-03		Prepared: 12/18/2017 Analyzed: 12/21/2017						
Boron	1.52	0.0500	mg/L	1.0000	0.425	110	70-130			
Potassium	112	0.500	mg/L	100.00	1.37	110	70-130			
Magnesium	186	0.500	mg/L	100.00	81.7	105	70-130			
Calcium	352	0.500	mg/L	100.00	233	120	70-130			
Lithium	1.14	0.0500	mg/L	1.0000	<0.0500	114	75-125			
Sodium	138	0.500	mg/L	100.00	26.2	112	70-130			
Matrix Spike Dup (BCL0323-MSD1)		Source: MCL0153-02		Prepared: 12/18/2017 Analyzed: 12/21/2017						
Sodium	304	0.500	mg/L	100.00	191	113	70-130	0.00766	20	
Calcium	456	0.500	mg/L	100.00	339	116	70-130	0.0672	20	
Lithium	1.12	0.0500	mg/L	1.0000	0.0388	108	75-125	0.700	20	
Magnesium	181	0.500	mg/L	100.00	74.3	107	70-130	0.211	20	
Boron	18.9	0.0500	mg/L	1.0000	17.5	139	70-130	2.06	20	M_MS
Potassium	110	0.500	mg/L	100.00	3.61	107	70-130	0.0960	20	
Matrix Spike Dup (BCL0323-MSD2)		Source: MCL0153-03		Prepared: 12/18/2017 Analyzed: 12/21/2017						
Sodium	137	0.500	mg/L	100.00	26.2	111	70-130	0.999	20	
Potassium	111	0.500	mg/L	100.00	1.37	109	70-130	0.956	20	
Lithium	1.13	0.0500	mg/L	1.0000	<0.0500	113	75-125	1.20	20	
Magnesium	187	0.500	mg/L	100.00	81.7	105	70-130	0.361	20	
Boron	1.51	0.0500	mg/L	1.0000	0.425	109	70-130	0.825	20	
Calcium	350	0.500	mg/L	100.00	233	117	70-130	0.769	20	



Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		01/22/2018 12:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDA0027 - EPA 245.1, EPA 7470A

Blank (BDA0027-BLK1)				Prepared & Analyzed: 01/03/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDA0027-BS1)				Prepared & Analyzed: 01/03/2018						
Mercury	2.67	0.200	ug/L	3.0000		88.9	85-115			
Duplicate (BDA0027-DUP1)				Source: MCL0153-06		Prepared & Analyzed: 01/03/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDA0027-DUP2)				Source: MCL0153-07		Prepared & Analyzed: 01/03/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDA0027-MS1)				Source: MCL0153-06		Prepared & Analyzed: 01/03/2018				
Mercury	2.76	0.200	ug/L	3.0000	<0.200	91.9	70-130			
Matrix Spike (BDA0027-MS2)				Source: MCL0153-07		Prepared & Analyzed: 01/03/2018				
Mercury	2.91	0.200	ug/L	3.0000	<0.200	97.0	70-130			
Matrix Spike Dup (BDA0027-MSD1)				Source: MCL0153-06		Prepared & Analyzed: 01/03/2018				
Mercury	2.70	0.200	ug/L	3.0000	<0.200	89.9	70-130	2.20	20	
Matrix Spike Dup (BDA0027-MSD2)				Source: MCL0153-07		Prepared & Analyzed: 01/03/2018				
Mercury	2.71	0.200	ug/L	3.0000	<0.200	90.4	70-130	7.04	20	

Amended Report

Original Report ID: MCL0153 Xcel General Report FINAL 01 05 2018
1055 01 05 2018 0110

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
01/22/2018 12:04

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
M_D	The RPD for the sample duplicate was outside of QC acceptance limits possibly due to non-homogeneous matrix.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

March 02, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

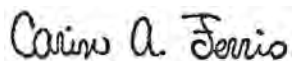
RE: Project: 18-00227, Xcel Energy - Blackd
Pace Project No.: 30243373

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on February 13, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30243373001	Field Blank	Water	02/05/18 13:00	02/13/18 10:30
30243373002	W14A	Water	02/05/18 13:50	02/13/18 10:30
30243373003	W7A	Water	02/05/18 14:40	02/13/18 10:30
30243373004	W602A	Water	02/05/18 15:40	02/13/18 10:30
30243373005	W504A	Water	02/06/18 09:50	02/13/18 10:30
30243373006	W504B	Water	02/06/18 10:30	02/13/18 10:30
30243373007	W502A	Water	02/06/18 11:05	02/13/18 10:30
30243373008	W502B	Water	02/06/18 11:45	02/13/18 10:30
30243373009	W511A	Water	02/06/18 12:30	02/13/18 10:30
30243373010	W510A	Water	02/06/18 13:30	02/13/18 10:30
30243373011	W604A	Water	02/06/18 14:30	02/13/18 10:30
30243373012	W600A	Water	02/07/18 09:35	02/13/18 10:30
30243373013	W601A	Water	02/07/18 10:30	02/13/18 10:30
30243373014	W603A	Water	02/07/18 11:30	02/13/18 10:30
30243373015	Duplicate	Water	02/07/18 11:03	02/13/18 10:30
30243373016	W605A	Water	02/07/18 12:30	02/13/18 10:30
30243373017	W506A	Water	02/07/18 13:20	02/13/18 10:30
30243373018	W514A	Water	02/07/18 14:10	02/13/18 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30243373001	Field Blank	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373002	W14A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373003	W7A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373004	W602A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373005	W504A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373006	W504B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373007	W502A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373008	W502B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373009	W511A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373010	W510A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373011	W604A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373012	W600A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373013	W601A	EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30243373014	W603A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30243373015	Duplicate	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30243373016	W605A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
30243373017	W506A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30243373018	W514A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: March 02, 2018

General Information:

18 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: March 02, 2018

General Information:

18 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: March 02, 2018

General Information:

18 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Sample: Field Blank		Lab ID: 30243373001	Collected: 02/05/18 13:00	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.237 ± 0.309 (0.509) C:NA T:92%	pCi/L	03/01/18 19:05	13982-63-3	
Radium-228	EPA 904.0	0.673 ± 0.415 (0.785) C:76% T:85%	pCi/L	02/27/18 13:03	15262-20-1	
Total Radium	Total Radium Calculation	0.910 ± 0.724 (1.29)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W14A		Lab ID: 30243373002	Collected: 02/05/18 13:50	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.300 ± 0.280 (0.369) C:NA T:90%	pCi/L	03/01/18 19:05	13982-63-3	
Radium-228	EPA 904.0	0.282 ± 0.366 (0.781) C:73% T:88%	pCi/L	02/27/18 13:03	15262-20-1	
Total Radium	Total Radium Calculation	0.582 ± 0.646 (1.15)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W7A		Lab ID: 30243373003	Collected: 02/05/18 14:40	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.171 ± 0.402 (0.745) C:NA T:80%	pCi/L	03/01/18 19:05	13982-63-3	
Radium-228	EPA 904.0	0.442 ± 0.398 (0.810) C:70% T:83%	pCi/L	02/27/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	0.613 ± 0.800 (1.56)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W602A		Lab ID: 30243373004	Collected: 02/05/18 15:40	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.312 (0.660) C:NA T:91%	pCi/L	03/01/18 19:18	13982-63-3	
Radium-228	EPA 904.0	0.898 ± 0.429 (0.750) C:78% T:86%	pCi/L	02/27/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	0.898 ± 0.741 (1.41)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W504A		Lab ID: 30243373005	Collected: 02/06/18 09:50	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.500 ± 0.350 (0.422) C:NA T:94%	pCi/L	03/01/18 19:18	13982-63-3	
Radium-228	EPA 904.0	0.891 ± 0.419 (0.718) C:79% T:85%	pCi/L	02/27/18 13:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Sample: W504A		Lab ID: 30243373005	Collected: 02/06/18 09:50	Received: 02/13/18 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.39 ± 0.769 (1.14)		pCi/L	03/02/18 14:53	7440-14-4	

Sample: W504B		Lab ID: 30243373006	Collected: 02/06/18 10:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.601 ± 0.380 (0.430) C:NA T:95%	pCi/L	03/01/18 19:18	13982-63-3	
Radium-228	EPA 904.0	1.78 ± 0.561 (0.724) C:72% T:85%	pCi/L	02/27/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	2.38 ± 0.941 (1.15)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W502A		Lab ID: 30243373007	Collected: 02/06/18 11:05	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.381 ± 0.357 (0.506) C:NA T:84%	pCi/L	03/01/18 19:18	13982-63-3	
Radium-228	EPA 904.0	1.15 ± 0.440 (0.676) C:75% T:94%	pCi/L	02/27/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	1.53 ± 0.797 (1.18)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W502B		Lab ID: 30243373008	Collected: 02/06/18 11:45	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.329 ± 0.334 (0.506) C:NA T:93%	pCi/L	03/01/18 19:18	13982-63-3	
Radium-228	EPA 904.0	1.47 ± 0.593 (0.990) C:77% T:86%	pCi/L	02/27/18 16:06	15262-20-1	
Total Radium	Total Radium Calculation	1.80 ± 0.927 (1.50)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W511A		Lab ID: 30243373009	Collected: 02/06/18 12:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.250 (0.508) C:NA T:85%	pCi/L	03/01/18 19:18	13982-63-3	
Radium-228	EPA 904.0	0.527 ± 0.430 (0.865) C:77% T:82%	pCi/L	02/27/18 16:06	15262-20-1	
Total Radium	Total Radium Calculation	0.527 ± 0.680 (1.37)	pCi/L	03/02/18 14:53	7440-14-4	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Sample: W510A		Lab ID: 30243373010	Collected: 02/06/18 13:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.047 ± 0.356 (0.743) C:NA T:96%	pCi/L	03/01/18 19:31	13982-63-3	
Radium-228	EPA 904.0	0.365 ± 0.488 (1.05) C:73% T:88%	pCi/L	02/27/18 16:06	15262-20-1	
Total Radium	Total Radium Calculation	0.365 ± 0.844 (1.79)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W604A		Lab ID: 30243373011	Collected: 02/06/18 14:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.224 ± 0.312 (0.520) C:NA T:83%	pCi/L	03/01/18 19:31	13982-63-3	
Radium-228	EPA 904.0	-0.0482 ± 0.394 (0.916) C:78% T:86%	pCi/L	02/27/18 16:06	15262-20-1	
Total Radium	Total Radium Calculation	0.224 ± 0.706 (1.44)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W600A		Lab ID: 30243373012	Collected: 02/07/18 09:35	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.288 ± 0.328 (0.517) C:NA T:93%	pCi/L	03/01/18 19:31	13982-63-3	
Radium-228	EPA 904.0	0.756 ± 0.394 (0.693) C:77% T:83%	pCi/L	02/27/18 15:02	15262-20-1	
Total Radium	Total Radium Calculation	1.04 ± 0.722 (1.21)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W601A		Lab ID: 30243373013	Collected: 02/07/18 10:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.598 ± 0.420 (0.537) C:NA T:88%	pCi/L	03/01/18 19:31	13982-63-3	
Radium-228	EPA 904.0	1.14 ± 0.428 (0.636) C:81% T:87%	pCi/L	02/27/18 15:01	15262-20-1	
Total Radium	Total Radium Calculation	1.74 ± 0.848 (1.17)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W603A		Lab ID: 30243373014	Collected: 02/07/18 11:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.441 ± 0.408 (0.594) C:NA T:90%	pCi/L	03/01/18 19:31	13982-63-3	
Radium-228	EPA 904.0	0.330 ± 0.295 (0.592) C:81% T:81%	pCi/L	02/27/18 15:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

Sample: W603A		Lab ID: 30243373014	Collected: 02/07/18 11:30	Received: 02/13/18 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.771 ± 0.703 (1.19)		pCi/L	03/02/18 14:53	7440-14-4	

Sample: Duplicate		Lab ID: 30243373015	Collected: 02/07/18 11:03	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.252 ± 0.462 (0.825) C:NA T:77%	pCi/L	03/01/18 19:31	13982-63-3	
Radium-228	EPA 904.0	0.325 ± 0.294 (0.592) C:83% T:83%	pCi/L	02/27/18 15:02	15262-20-1	
Total Radium	Total Radium Calculation	0.577 ± 0.756 (1.42)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W605A		Lab ID: 30243373016	Collected: 02/07/18 12:30	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.398 ± 0.312 (0.366) C:NA T:88%	pCi/L	03/01/18 19:57	13982-63-3	
Radium-228	EPA 904.0	1.45 ± 0.596 (0.993) C:75% T:83%	pCi/L	02/27/18 11:45	15262-20-1	
Total Radium	Total Radium Calculation	1.85 ± 0.908 (1.36)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W506A		Lab ID: 30243373017	Collected: 02/07/18 13:20	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.221 ± 0.267 (0.407) C:NA T:82%	pCi/L	03/01/18 19:45	13982-63-3	
Radium-228	EPA 904.0	0.208 ± 0.371 (0.811) C:72% T:95%	pCi/L	02/27/18 11:46	15262-20-1	
Total Radium	Total Radium Calculation	0.429 ± 0.638 (1.22)	pCi/L	03/02/18 14:53	7440-14-4	

Sample: W514A		Lab ID: 30243373018	Collected: 02/07/18 14:10	Received: 02/13/18 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.475 ± 0.404 (0.568) C:NA T:96%	pCi/L	03/01/18 19:45	13982-63-3	
Radium-228	EPA 904.0	1.26 ± 0.480 (0.722) C:75% T:86%	pCi/L	02/27/18 11:47	15262-20-1	
Total Radium	Total Radium Calculation	1.74 ± 0.884 (1.29)	pCi/L	03/02/18 14:53	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

QC Batch:	288061	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30243373001, 30243373002, 30243373003, 30243373004, 30243373005, 30243373006, 30243373007, 30243373008, 30243373009, 30243373010, 30243373011, 30243373012, 30243373013, 30243373014, 30243373015, 30243373016, 30243373017, 30243373018		

METHOD BLANK:	1411789	Matrix:	Water
Associated Lab Samples:	30243373001, 30243373002, 30243373003, 30243373004, 30243373005, 30243373006, 30243373007, 30243373008, 30243373009, 30243373010, 30243373011, 30243373012, 30243373013, 30243373014, 30243373015, 30243373016, 30243373017, 30243373018		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.046 ± 0.210 (0.496) C:NA T:96%	pCi/L	03/01/18 19:05	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

QC Batch:	288064	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30243373001, 30243373002, 30243373003, 30243373004, 30243373005, 30243373006, 30243373007, 30243373008, 30243373009, 30243373010, 30243373011, 30243373012, 30243373013, 30243373014, 30243373015, 30243373016, 30243373017, 30243373018		

METHOD BLANK:	1411792	Matrix:	Water
Associated Lab Samples:	30243373001, 30243373002, 30243373003, 30243373004, 30243373005, 30243373006, 30243373007, 30243373008, 30243373009, 30243373010, 30243373011, 30243373012, 30243373013, 30243373014, 30243373015, 30243373016, 30243373017, 30243373018		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0908 ± 0.292 (0.704) C:79% T:83%	pCi/L	02/27/18 11:45	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 18-00227, Xcel Energy - Blackd

Pace Project No.: 30243373

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: David Anderson
Copy To: Tom Halverson
Purchase Order No.:
Project Name: 18-00227, Xcel Energy - Black Dog CCR, Feb. 2018
Project Number:

Section C

Invoice Information:

Attention: Ciara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

Page: 1 of 2

2201204

REGULATORY AGENCY

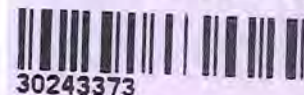
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Analysis Test ↑	Requested Analysis Filtered (Y/N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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WO# : 30243373



30243373

Pace Project No./ Lab I.D.

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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) client needs to analyze for: Radium 226+228 pCi/L combined.	David Anderson / Pace	2/3/18	0900	C. Garney	2/13/18	1030	NA	N	N	Y

(2) RA - 226 EPA 903.1
RA - 228 EPA 904.0

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: David Anderson					
SIGNATURE of SAMPLER: David Anderson	DATE Signed (MM/DD/YY): 2/7/18				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30243373

Section A

Required Client Information:

Company: Xcel Energy
 Address: c/o Pace MN Field
 Email To: _____
 Phone: _____ Fax: _____
 Requested Due Date/TAT: _____

Section B

Required Project Information:

Report To: David Anderson
 Copy To: Tom Halverson
 Purchase Order No.: _____
 Project Name: 18-00227, Xcel Energy -
 Project Number: BlackDogCCR, Feb. 2018

Section C

Invoice Information:

Attention: Ciera Ruikkie
 Company Name: Pace MN Field Services
 Address: _____
 Pace Quote Reference: Tom Halverson
 Pace Project Manager: Carin Ferris
 Pace Profile #: _____

Page: 2 of 2

2201207

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location

STATE: _____

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Analysis Test ↓	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① client needs to analyze for: Radium 226+228pCi/L combined.	David Anderson Pace	2/8/18	0900	C. Clancy	2/13/18	1030	NA	N	N	Y

② RA-226 EPA 903.1 ORIGINAL
 RA-228 EPA 904.0

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE of SAMPLER: David Anderson

DATE Signed

(MM/DD/YY): 2/7/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

30243373

Client Name: XCD Energy Project # _____Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____Tracking #: 7475 9637 7062

Label	<u>CC</u>
LIMS Login	<u>31</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ noThermometer Used NA Type of Ice: Wet Blue NoneCooler Temperature Observed Temp NA °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 2/13/18 CC

Comments:	Yes	No	N/A	
Chain of Custody Present:	☒	☐	☐	1.
Chain of Custody Filled Out:	☒	☐	☐	2.
Chain of Custody Relinquished:	☒	☐	☐	3.
Sampler Name & Signature on COC:	☒	☐	☐	4.
Sample Labels match COC:	☒	☐	☐	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	☒	☐	☐	6.
Short Hold Time Analysis (<72hr remaining):	☐	☒	☐	7.
Rush Turn Around Time Requested:	☐	☒	☐	8.
Sufficient Volume:	☒	☐	☐	9.
Correct Containers Used:	☒	☐	☐	10.
-Pace Containers Used:	☒	☐	☐	
Containers Intact:	☒	☐	☐	11.
Orthophosphate field filtered	☐	☐	☒	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered	☐	☐	☒	13.
Organic Samples checked for dechlorination:	☐	☐	☒	14.
Filtered volume received for Dissolved tests	☐	☐	☒	15.
All containers have been checked for preservation.	☒	☐	☐	16. <u>PH42</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	☒	☐	☐	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>CDC</u> Date/time of preservation _____
				Lot # of added preservative _____
Headspace in VOA Vials (>6mm):	☐	☐	☒	17.
Trip Blank Present:	☐	☐	☒	18.
Trip Blank Custody Seals Present	☐	☐	☒	
Rad Aqueous Samples Screened > 0.5 mrem/hr	☐	☒	☐	Initial when completed <u>CDC</u> Date: <u>2/13/18</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



W514B was incorrectly labeled as W514A in the field
and has been revised in EQulS to display W514B.
KAC - 08/06/2018

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

21 February 2018
Tedd Ronning
Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis, MN 55401
RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 02/08/2018 10:30. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis
Project Manager



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDB0094-01	Water	02/05/2018 13:00	02/08/2018 10:30
W14A		MDB0094-02	Water	02/05/2018 13:50	02/08/2018 10:30
W7A		MDB0094-03	Water	02/05/2018 14:40	02/08/2018 10:30
W602A		MDB0094-04	Water	02/05/2018 15:40	02/08/2018 10:30
W504A		MDB0094-05	Water	02/06/2018 9:50	02/08/2018 10:30
W504B		MDB0094-06	Water	02/06/2018 10:30	02/08/2018 10:30
W502A		MDB0094-07	Water	02/06/2018 11:05	02/08/2018 10:30
W502B		MDB0094-08	Water	02/06/2018 11:45	02/08/2018 10:30
W511A		MDB0094-09	Water	02/06/2018 12:30	02/08/2018 10:30
W510A		MDB0094-10	Water	02/06/2018 13:30	02/08/2018 10:30
W604A		MDB0094-11	Water	02/06/2018 14:30	02/08/2018 10:30
W600A		MDB0094-12	Water	02/07/2018 9:35	02/08/2018 10:30
W601A		MDB0094-13	Water	02/07/2018 10:30	02/08/2018 10:30
W603A		MDB0094-14	Water	02/07/2018 11:30	02/08/2018 10:30
Duplicate		MDB0094-15	Water	02/07/2018 11:30	02/08/2018 10:30
W605A		MDB0094-16	Water	02/07/2018 12:30	02/08/2018 10:30
W506A		MDB0094-17	Water	02/07/2018 13:20	02/08/2018 10:30
W514A		MDB0094-18	Water	02/07/2018 14:10	02/08/2018 10:30



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Field Blank

MDB0094-01 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:18	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:18	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 15:50	SM 2320B	CRL
pH	6.43		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 15:50	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:26	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:17	EPA 200.7	HRD
Calcium	< 0.500	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:16	EPA 200.7	HRD
Potassium	< 0.500	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:16	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:16	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:16	EPA 200.7	HRD
Sodium	< 0.500	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:16	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Field Blank

MDB0094-01 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:38	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W14A

MDB0094-02 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	132	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:38	EPA 300.0	CRL
Sulfate	108	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:38	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	325	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 15:57	SM 2320B	CRL
pH	7.42		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 15:57	SM 4500-H+ B	CRL
Total Dissolved Solids	698	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.15	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Barium	30.2	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Cobalt	0.603	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Chromium	0.564	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Molybdenum	108	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:30	EPA 200.8	CRL

Total Metals by ICP

Boron	1.34	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:22	EPA 200.7	HRD
Calcium	88.1	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:21	EPA 200.7	HRD
Potassium	2.54	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:21	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:21	EPA 200.7	HRD
Magnesium	21.4	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:21	EPA 200.7	HRD
Sodium	135	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:21	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W14A

MDB0094-02 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:40	EPA 245.1, 7470A	HRD



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Minneapolis, MN 55043
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W7A

MDB0094-03 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	157	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:59	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:59	EPA 300.0	CRL
Sulfate	295	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 21:59	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	288	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:10	SM 2320B	CRL
pH	7.48		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:10	SM 4500-H+ B	CRL
Total Dissolved Solids	990	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.09	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Barium	87.9	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Cobalt	0.523	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Molybdenum	52.8	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:42	EPA 200.8	CRL

Total Metals by ICP

Boron	1.61	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:37	EPA 200.7	HRD
Calcium	154	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:36	EPA 200.7	HRD
Potassium	3.09	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:36	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:36	EPA 200.7	HRD
Magnesium	43.9	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:36	EPA 200.7	HRD
Sodium	108	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:36	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W7A

MDB0094-03 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:41	EPA 245.1, 7470A	HRD



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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W602A

MDB0094-04 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	211	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 22:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 22:19	EPA 300.0	CRL
Sulfate	292	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 22:19	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	271	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:17	SM 2320B	CRL
pH	7.57		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:17	SM 4500-H+ B	CRL
Total Dissolved Solids	1070	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.09	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Barium	89.9	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Cobalt	1.99	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Molybdenum	69.1	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:46	EPA 200.8	CRL

Total Metals by ICP

Boron	1.27	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:43	EPA 200.7	HRD
Calcium	132	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:41	EPA 200.7	HRD
Potassium	1.67	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:41	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:41	EPA 200.7	HRD
Magnesium	34.2	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:42	EPA 200.7	HRD
Sodium	182	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:41	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W602A

MDB0094-04 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:43	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
02/21/2018 06:48

W504A

MDB0094-05 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	105	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 22:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 22:39	EPA 300.0	CRL
Sulfate	712	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 22:39	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	521	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:25	SM 2320B	CRL
pH	7.18		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:25	SM 4500-H+ B	CRL
Total Dissolved Solids	1780	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.20	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Barium	24.8	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Cobalt	1.47	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Chromium	0.543	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Molybdenum	46.8	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:50	EPA 200.8	CRL

Total Metals by ICP

Boron	12.4	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:48	EPA 200.7	HRD
Calcium	305	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:46	EPA 200.7	HRD
Potassium	2.31	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:47	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:47	EPA 200.7	HRD
Magnesium	78.7	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:47	EPA 200.7	HRD
Sodium	147	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:46	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W504A

MDB0094-05 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:45	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MDB0094-06 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	50.7	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 23:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 23:00	EPA 300.0	CRL
Sulfate	9.00	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 23:00	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	824	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:35	SM 2320B	CRL
pH	7.36		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:35	SM 4500-H+ B	CRL
Total Dissolved Solids	886	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.09	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Barium	358	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 10:54	EPA 200.8	CRL

Total Metals by ICP

Boron	0.409	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:53	EPA 200.7	HRD
Calcium	210	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:52	EPA 200.7	HRD
Potassium	1.30	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:52	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:52	EPA 200.7	HRD
Magnesium	78.1	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:52	EPA 200.7	HRD
Sodium	22.5	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:52	EPA 200.7	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W504B

MDB0094-06 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:46	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502A

MDB0094-07 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	95.2	1.00	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 23:41	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0217	2/12/18 10:13	2/12/18 23:41	EPA 300.0	CRL
Sulfate	1330	10.0	mg/L		10	BDB0217	2/12/18 10:13	2/12/18 23:20	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	314	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:41	SM 2320B	CRL
pH	7.44		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:41	SM 4500-H+ B	CRL
Total Dissolved Solids	2450	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	34.2	5.00	ug/L		10	BDB0214	2/12/18 8:06	2/15/18 10:58	EPA 200.8	CRL
Barium	82.1	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Cobalt	3.35	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Molybdenum	67.8	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL
Selenium	< 5.00	5.00	ug/L		10	BDB0214	2/12/18 8:06	2/15/18 10:58	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:01	EPA 200.8	CRL

Total Metals by ICP

Boron	8.23	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:58	EPA 200.7	HRD
Calcium	471	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:57	EPA 200.7	HRD
Potassium	16.2	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:57	EPA 200.7	HRD
Lithium	0.0915	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:57	EPA 200.7	HRD
Magnesium	71.9	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:57	EPA 200.7	HRD
Sodium	167	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 12:57	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W502A

MDB0094-07 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:48	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W502B

MDB0094-08 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	86.1	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 10:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 10:43	EPA 300.0	CRL
Sulfate	1240	10.0	mg/L		10	BDB0288	2/15/18 13:30	2/16/18 10:23	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	362	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:47	SM 2320B	CRL
pH	7.24		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:47	SM 4500-H+ B	CRL
Total Dissolved Solids	2320	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.92	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Barium	153	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:49	EPA 200.8	CRL

Total Metals by ICP

Boron	4.01	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:03	EPA 200.7	HRD
Calcium	482	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:02	EPA 200.7	HRD
Potassium	2.02	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:02	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:02	EPA 200.7	HRD
Magnesium	129	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:02	EPA 200.7	HRD
Sodium	67.7	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:02	EPA 200.7	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W502B

MDB0094-08 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0221	2/12/18 12:39	2/13/18 14:50	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W511A

MDB0094-09 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	132	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:04	EPA 300.0	CRL
Sulfate	264	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:04	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	175	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 16:54	SM 2320B	CRL
pH	8.23		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 16:54	SM 4500-H+ B	CRL
Total Dissolved Solids	762	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.29	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Barium	49.2	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Chromium	3.36	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Molybdenum	98.8	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Selenium	0.776	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:09	EPA 200.8	CRL

Total Metals by ICP

Boron	4.60	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:09	EPA 200.7	HRD
Calcium	105	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:07	EPA 200.7	HRD
Potassium	6.20	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:07	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:07	EPA 200.7	HRD
Magnesium	22.3	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:08	EPA 200.7	HRD
Sodium	114	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:07	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W511A

MDB0094-09 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:06	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W510A

MDB0094-10 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	90.6	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:24	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:24	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	955	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:04	SM 2320B	CRL
pH	7.65		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:04	SM 4500-H+ B	CRL
Total Dissolved Solids	1080	20.0	mg/L		1	BDB0162	2/9/18 8:11	2/9/18 8:11	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	42.2	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Barium	257	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:13	EPA 200.8	CRL

Total Metals by ICP

Boron	5.81	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:14	EPA 200.7	HRD
Calcium	249	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:12	EPA 200.7	HRD
Potassium	1.86	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:12	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:12	EPA 200.7	HRD
Magnesium	69.1	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:13	EPA 200.7	HRD
Sodium	64.1	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:12	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W510A

MDB0094-10 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:08	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W604A

MDB0094-11 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	144	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:44	EPA 300.0	CRL
Sulfate	332	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 11:44	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	72.1	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:10	SM 2320B	CRL
pH	8.82		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:10	SM 4500-H+ B	CRL
Total Dissolved Solids	818	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.20	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Barium	70.1	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Chromium	4.28	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Molybdenum	195	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Antimony	1.29	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Selenium	9.29	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/15/18 11:17	EPA 200.8	CRL

Total Metals by ICP

Boron	3.64	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:19	EPA 200.7	HRD
Calcium	78.8	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:18	EPA 200.7	HRD
Potassium	6.00	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:18	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:18	EPA 200.7	HRD
Magnesium	19.9	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:18	EPA 200.7	HRD
Sodium	147	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:18	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W604A

MDB0094-11 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:10	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W600A

MDB0094-12 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	29.6	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 12:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 12:25	EPA 300.0	CRL
Sulfate	1700	10.0	mg/L		10	BDB0288	2/15/18 13:30	2/16/18 12:05	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	60.2	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:22	SM 2320B	CRL
pH	7.23		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:22	SM 4500-H+ B	CRL
Total Dissolved Solids	2720	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	11.1	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Barium	26.5	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Cobalt	1.19	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Molybdenum	162	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 7:57	EPA 200.8	CRL

Total Metals by ICP

Boron	20.5	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:24	EPA 200.7	HRD
Calcium	573	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:23	EPA 200.7	HRD
Potassium	21.7	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:23	EPA 200.7	HRD
Lithium	0.124	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:23	EPA 200.7	HRD
Magnesium	45.5	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:23	EPA 200.7	HRD
Sodium	108	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:23	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W600A

MDB0094-12 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:12	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W601A

MDB0094-13 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	202	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 12:46	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 12:46	EPA 300.0	CRL
Sulfate	884	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 12:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	90.1	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:28	SM 2320B	CRL
pH	10.1		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:28	SM 4500-H+ B	CRL
Total Dissolved Solids	1880	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	49.4	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Barium	355	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Beryllium	4.39	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Cadmium	2.77	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Cobalt	9.35	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Chromium	45.4	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Molybdenum	174	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Lead	54.3	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Antimony	3.62	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Selenium	19.8	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL
Thallium	3.92	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:05	EPA 200.8	CRL

Total Metals by ICP

Boron	9.61	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:40	EPA 200.7	HRD
Calcium	259	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:39	EPA 200.7	HRD
Potassium	38.7	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:39	EPA 200.7	HRD
Lithium	0.255	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:39	EPA 200.7	HRD
Magnesium	5.61	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:39	EPA 200.7	HRD
Sodium	219	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:39	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W601A

MDB0094-13 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:13	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W603A

MDB0094-14 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	203	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 13:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 13:06	EPA 300.0	CRL
Sulfate	240	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 13:06	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	153	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:34	SM 2320B	CRL
pH	8.40		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:34	SM 4500-H+ B	CRL
Total Dissolved Solids	856	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	8.58	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Barium	61.6	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Molybdenum	108	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:09	EPA 200.8	CRL

Total Metals by ICP

Boron	7.84	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:45	EPA 200.7	HRD
Calcium	101	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:44	EPA 200.7	HRD
Potassium	10.8	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:44	EPA 200.7	HRD
Lithium	0.0954	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:44	EPA 200.7	HRD
Magnesium	21.9	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:44	EPA 200.7	HRD
Sodium	147	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:44	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W603A

MDB0094-14 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:15	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Duplicate

MDB0094-15 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	203	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 13:27	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 13:27	EPA 300.0	CRL
Sulfate	238	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 13:27	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	150	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:39	SM 2320B	CRL
pH	8.31		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:39	SM 4500-H+ B	CRL
Total Dissolved Solids	880	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	8.70	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Barium	62.3	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Molybdenum	110	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:13	EPA 200.8	CRL

Total Metals by ICP

Boron	8.15	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:50	EPA 200.7	HRD
Calcium	103	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:49	EPA 200.7	HRD
Potassium	10.9	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:49	EPA 200.7	HRD
Lithium	0.0963	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:49	EPA 200.7	HRD
Magnesium	22.4	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:49	EPA 200.7	HRD
Sodium	150	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:49	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Duplicate

MDB0094-15 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:20	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MDB0094-16 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	109	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 15:29	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 15:29	EPA 300.0	CRL
Sulfate	204	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 15:29	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	349	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:47	SM 2320B	CRL
pH	7.23		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:47	SM 4500-H+ B	CRL
Total Dissolved Solids	844	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	7.32	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Barium	148	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Cobalt	0.786	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Chromium	0.970	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Molybdenum	63.1	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:17	EPA 200.8	CRL

Total Metals by ICP

Boron	2.35	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:55	EPA 200.7	HRD
Calcium	124	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:54	EPA 200.7	HRD
Potassium	6.14	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:54	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:54	EPA 200.7	HRD
Magnesium	30.1	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:54	EPA 200.7	HRD
Sodium	103	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:54	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR

Project Manager: Tedd Ronning

Reported:

02/21/2018 06:48

W605A

MDB0094-16 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:22	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W506A

MDB0094-17 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	58.8	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 16:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 16:10	EPA 300.0	CRL
Sulfate	1410	10.0	mg/L		10	BDB0288	2/15/18 13:30	2/16/18 15:49	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	229	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 17:53	SM 2320B	CRL
pH	7.07		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 17:53	SM 4500-H+ B	CRL
Total Dissolved Solids	2460	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 5.00	5.00	ug/L		10	BDB0214	2/12/18 8:06	2/16/18 8:21	EPA 200.8	CRL
Barium	19.3	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL
Cadmium	4.42	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL
Cobalt	18.1	5.00	ug/L		10	BDB0214	2/12/18 8:06	2/16/18 8:21	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BDB0214	2/12/18 8:06	2/16/18 8:21	EPA 200.8	CRL
Molybdenum	41.4	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL
Selenium	< 5.00	5.00	ug/L		10	BDB0214	2/12/18 8:06	2/16/18 8:21	EPA 200.8	CRL
Thallium	0.972	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:32	EPA 200.8	CRL

Total Metals by ICP

Boron	2.27	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:00	EPA 200.7	HRD
Calcium	578	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:59	EPA 200.7	HRD
Potassium	10.3	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:59	EPA 200.7	HRD
Lithium	0.0855	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:59	EPA 200.7	HRD
Magnesium	33.2	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:00	EPA 200.7	HRD
Sodium	56.9	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 13:59	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W506A

MDB0094-17 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:24	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W514A

MDB0094-18 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	9.66	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 16:30	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 16:30	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDB0288	2/15/18 13:30	2/16/18 16:30	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	582	10.0	mg/L		1	BDB0163	2/8/18 14:14	2/8/18 18:00	SM 2320B	CRL
pH	8.09		pH Units	M_TTT	1	BDB0163	2/8/18 14:14	2/8/18 18:00	SM 4500-H+ B	CRL
Total Dissolved Solids	540	20.0	mg/L		1	BDB0212	2/12/18 9:00	2/12/18 9:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.96	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Barium	174	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Molybdenum	2.44	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDB0214	2/12/18 8:06	2/16/18 8:40	EPA 200.8	CRL

Total Metals by ICP

Boron	0.116	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:06	EPA 200.7	HRD
Calcium	89.3	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:04	EPA 200.7	HRD
Potassium	1.14	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:04	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:04	EPA 200.7	HRD
Magnesium	85.5	1.25	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:04	EPA 200.7	HRD
Sodium	9.94	0.500	mg/L		1	BDB0213	2/12/18 8:04	2/14/18 14:04	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

W514A

MDB0094-18 (Water) - Chain of Custody Number: 2201206/2201209

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDB0222	2/12/18 12:43	2/13/18 15:25	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0217 - Wet Prep

Blank (BDB0217-BLK1)				Prepared & Analyzed: 02/12/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDB0217-BLK2)				Prepared & Analyzed: 02/12/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDB0217-BS1)				Prepared & Analyzed: 02/12/2018						
Chloride	24.7	1.00	mg/L	25.000		98.8	90-110			
Fluoride	5.09	0.750	mg/L	5.0000		102	90-110			
Sulfate	100	1.00	mg/L	100.00		100	90-110			

LCS (BDB0217-BS2)				Prepared & Analyzed: 02/12/2018						
Chloride	24.8	1.00	mg/L	25.000		99.2	90-110			
Fluoride	4.93	0.750	mg/L	5.0000		98.6	90-110			
Sulfate	99.7	1.00	mg/L	100.00		99.7	90-110			

LCS (BDB0217-BS3)				Prepared: 02/12/2018 Analyzed: 02/13/2018						
Chloride	24.8	1.00	mg/L	25.000		99.2	90-110			
Fluoride	4.95	0.750	mg/L	5.0000		99.0	90-110			
Sulfate	99.3	1.00	mg/L	100.00		99.3	90-110			

Duplicate (BDB0217-DUP1)				Source: MDB0023-01		Prepared & Analyzed: 02/12/2018				
Chloride	34.4	1.00	mg/L			35.4		2.81	20	
Fluoride	0.110	0.750	mg/L			0.112		1.80	20	
Sulfate	51.5	1.00	mg/L			51.9		0.686	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0217 - Wet Prep

Duplicate (BDB0217-DUP2)		Source: MDB0069-01		Prepared & Analyzed: 02/12/2018						
Chloride	14.3	1.00	mg/L		14.3			0.0279	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	11.3	1.00	mg/L		11.3			0.107	20	

Matrix Spike (BDB0217-MS1)		Source: MDB0023-01		Prepared & Analyzed: 02/12/2018						
Chloride	46.0	1.00	mg/L	12.500	35.4	84.3	80-120			
Fluoride	2.35	0.750	mg/L	2.5000	0.112	89.6	80-120			
Sulfate	98.8	1.00	mg/L	50.000	51.9	93.8	80-120			

Matrix Spike (BDB0217-MS2)		Source: MDB0069-01		Prepared & Analyzed: 02/12/2018						
Chloride	26.6	1.00	mg/L	12.500	14.3	98.4	80-120			
Fluoride	2.41	0.750	mg/L	2.5000	<0.750	96.4	80-120			
Sulfate	60.9	1.00	mg/L	50.000	11.3	99.4	80-120			

Matrix Spike Dup (BDB0217-MSD1)		Source: MDB0023-01		Prepared & Analyzed: 02/12/2018						
Chloride	47.3	1.00	mg/L	12.500	35.4	95.1	80-120	2.90	20	
Fluoride	2.37	0.750	mg/L	2.5000	0.112	90.5	80-120	0.889	20	
Sulfate	98.9	1.00	mg/L	50.000	51.9	94.0	80-120	0.100	20	

Matrix Spike Dup (BDB0217-MSD2)		Source: MDB0069-01		Prepared & Analyzed: 02/12/2018						
Chloride	26.7	1.00	mg/L	12.500	14.3	98.6	80-120	0.124	20	
Fluoride	2.46	0.750	mg/L	2.5000	<0.750	98.5	80-120	2.13	20	
Sulfate	61.2	1.00	mg/L	50.000	11.3	99.9	80-120	0.418	20	

Batch BDB0288 - Wet Prep

Blank (BDB0288-BLK1)		Prepared: 02/15/2018 Analyzed: 02/16/2018								
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0288 - Wet Prep

Blank (BDB0288-BLK2)				Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDB0288-BS1)				Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	24.9	1.00	mg/L	25.000		99.7	90-110			
Fluoride	5.07	0.750	mg/L	5.0000		101	90-110			
Sulfate	101	1.00	mg/L	100.00		101	90-110			

LCS (BDB0288-BS2)				Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	25.0	1.00	mg/L	25.000		100	90-110			
Fluoride	4.92	0.750	mg/L	5.0000		98.5	90-110			
Sulfate	100	1.00	mg/L	100.00		100	90-110			

LCS (BDB0288-BS3)				Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	25.1	1.00	mg/L	25.000		100	90-110			
Fluoride	4.92	0.750	mg/L	5.0000		98.5	90-110			
Sulfate	100	1.00	mg/L	100.00		100	90-110			

Duplicate (BDB0288-DUP1)				Source: MDB0094-10		Prepared: 02/15/2018 Analyzed: 02/16/2018				
Chloride	90.3	1.00	mg/L		90.6			0.352	20	
Fluoride	0.202	0.750	mg/L		0.211			4.36	20	
Sulfate	0.810	1.00	mg/L		0.813			0.370	20	

Duplicate (BDB0288-DUP2)				Source: MDB0094-18		Prepared: 02/15/2018 Analyzed: 02/16/2018				
Chloride	9.62	1.00	mg/L		9.66			0.425	20	
Fluoride	0.121	0.750	mg/L		0.122			0.823	20	
Sulfate	0.456	1.00	mg/L		0.509			11.0	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0288 - Wet Prep

Matrix Spike (BDB0288-MS1)		Source: MDB0094-10		Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	101	1.00	mg/L	12.500	90.6	85.8	80-120			
Fluoride	2.37	0.750	mg/L	2.5000	0.211	86.2	80-120			
Sulfate	47.9	1.00	mg/L	50.000	0.813	94.2	80-120			
Matrix Spike (BDB0288-MS2)		Source: MDB0094-18		Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	21.5	1.00	mg/L	12.500	9.66	95.1	80-120			
Fluoride	2.40	0.750	mg/L	2.5000	0.122	91.0	80-120			
Sulfate	48.6	1.00	mg/L	50.000	0.509	96.2	80-120			
Matrix Spike Dup (BDB0288-MSD1)		Source: MDB0094-10		Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	102	1.00	mg/L	12.500	90.6	89.3	80-120	0.431	20	
Fluoride	2.47	0.750	mg/L	2.5000	0.211	90.4	80-120	4.38	20	
Sulfate	49.9	1.00	mg/L	50.000	0.813	98.2	80-120	4.10	20	
Matrix Spike Dup (BDB0288-MSD2)		Source: MDB0094-18		Prepared: 02/15/2018 Analyzed: 02/16/2018						
Chloride	21.9	1.00	mg/L	12.500	9.66	97.9	80-120	1.64	20	
Fluoride	2.51	0.750	mg/L	2.5000	0.122	95.4	80-120	4.48	20	
Sulfate	50.0	1.00	mg/L	50.000	0.509	99.0	80-120	2.84	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0162 - Wet Prep

Blank (BDB0162-BLK1)				Prepared & Analyzed: 02/09/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDB0162-DUP1)				Source: MDB0094-02		Prepared & Analyzed: 02/09/2018				
Total Dissolved Solids	680	20.0	mg/L		698			2.61	20	

Batch BDB0163 - Wet Prep

LCS (BDB0163-BS1)				Prepared & Analyzed: 02/08/2018						
pH	7.05		pH Units	7.0000		101	90-110			
Alkalinity, Total	99.4		mg/L	100.00		99.4	90-110			
Duplicate (BDB0163-DUP1)				Source: MDB0094-02		Prepared & Analyzed: 02/08/2018				
Alkalinity, Total	331	10.0	mg/L		325			1.76	20	
pH	7.49		pH Units		7.42			0.939	20	
Duplicate (BDB0163-DUP2)				Source: MDB0094-11		Prepared & Analyzed: 02/08/2018				
pH	8.85		pH Units		8.82			0.340	20	
Alkalinity, Total	73.7	10.0	mg/L		72.1			2.28	20	

Batch BDB0212 - Wet Prep

Blank (BDB0212-BLK1)				Prepared & Analyzed: 02/12/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDB0212-DUP1)				Source: MDB0094-11		Prepared & Analyzed: 02/12/2018				
Total Dissolved Solids	810	20.0	mg/L		818			0.983	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0214 - EPA 200.2, EPA 3005

Blank (BDB0214-BLK1)

Prepared: 02/12/2018 Analyzed: 02/15/2018

Lead	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Cadmium	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							

LCS (BDB0214-BS1)

Prepared: 02/12/2018 Analyzed: 02/15/2018

Molybdenum	97.4	0.500	ug/L	100.00	97.4	85-115
Beryllium	101	0.500	ug/L	100.00	101	85-115
Cobalt	101	0.500	ug/L	100.00	101	85-115
Arsenic	98.5	0.500	ug/L	100.00	98.5	85-115
Lead	98.6	0.500	ug/L	100.00	98.6	85-115
Thallium	101	0.500	ug/L	100.00	101	85-115
Barium	98.1	0.500	ug/L	100.00	98.1	85-115
Selenium	98.1	0.500	ug/L	100.00	98.1	85-115
Cadmium	98.9	0.500	ug/L	100.00	98.9	85-115
Antimony	95.0	0.500	ug/L	100.00	95.0	85-115
Chromium	103	0.500	ug/L	100.00	103	85-115

Duplicate (BDB0214-DUP1)

Source: MDB0094-04

Prepared: 02/12/2018 Analyzed: 02/15/2018

Antimony	0.141	0.500	ug/L	0.0499	95.3	20	M_D-RL
Lead	0.0686	0.500	ug/L	0.0350	64.7	20	M_D-RL
Molybdenum	68.2	0.500	ug/L	69.1	1.29	20	
Chromium	0.250	0.500	ug/L	0.234	6.60	20	
Selenium	<0.500	0.500	ug/L	<0.500		20	
Cobalt	1.98	0.500	ug/L	1.99	0.268	20	
Cadmium	0.0349	0.500	ug/L	0.0485	32.8	20	M_D-RL
Arsenic	5.97	0.500	ug/L	6.09	1.86	20	
Barium	88.4	0.500	ug/L	89.9	1.66	20	
Beryllium	0.226	0.500	ug/L	0.0250	160	20	M_D-RL
Thallium	0.0832	0.500	ug/L	0.0107	155	20	M_D-RL



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250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0214 - EPA 200.2, EPA 3005

Duplicate (BDB0214-DUP2)	Source: MDB0094-05			Prepared: 02/12/2018 Analyzed: 02/15/2018						
Thallium	0.0218	0.500	ug/L		0.0137			45.6	20	M_D-RL
Beryllium	0.0389	0.500	ug/L		0.0431			10.3	20	
Cadmium	0.0832	0.500	ug/L		0.0924			10.5	20	
Cobalt	1.43	0.500	ug/L		1.47			2.66	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Chromium	0.498	0.500	ug/L		0.543			8.68	20	
Molybdenum	47.7	0.500	ug/L		46.8			1.89	20	
Lead	0.0164	0.500	ug/L		<0.500				20	
Arsenic	2.14	0.500	ug/L		2.20			3.18	20	
Antimony	0.122	0.500	ug/L		0.111			9.33	20	
Barium	24.8	0.500	ug/L		24.8			0.344	20	

Matrix Spike (BDB0214-MS1)	Source: MDB0094-04			Prepared: 02/12/2018 Analyzed: 02/15/2018						
Arsenic	109	0.500	ug/L	100.00	6.09	103	70-130			
Barium	190	0.500	ug/L	100.00	89.9	101	70-130			
Beryllium	95.2	0.500	ug/L	100.00	0.0250	95.2	70-130			
Cobalt	104	0.500	ug/L	100.00	1.99	102	70-130			
Antimony	94.6	0.500	ug/L	100.00	0.0499	94.6	70-130			
Lead	85.9	0.500	ug/L	100.00	0.0350	85.9	70-130			
Thallium	88.5	0.500	ug/L	100.00	0.0107	88.5	70-130			
Chromium	104	0.500	ug/L	100.00	0.234	104	70-130			
Molybdenum	167	0.500	ug/L	100.00	69.1	97.6	70-130			
Selenium	95.4	0.500	ug/L	100.00	<0.500	95.4	70-130			
Cadmium	91.4	0.500	ug/L	100.00	0.0485	91.4	70-130			

Matrix Spike (BDB0214-MS2)	Source: MDB0094-05			Prepared: 02/12/2018 Analyzed: 02/15/2018						
Cadmium	90.5	0.500	ug/L	100.00	0.0924	90.4	70-130			
Molybdenum	148	0.500	ug/L	100.00	46.8	101	70-130			
Beryllium	93.9	0.500	ug/L	100.00	0.0431	93.9	70-130			
Barium	129	0.500	ug/L	100.00	24.8	104	70-130			
Cobalt	107	0.500	ug/L	100.00	1.47	105	70-130			
Thallium	91.0	0.500	ug/L	100.00	0.0137	91.0	70-130			
Lead	86.6	0.500	ug/L	100.00	<0.500	86.6	70-130			
Antimony	96.9	0.500	ug/L	100.00	0.111	96.8	70-130			
Selenium	101	0.500	ug/L	100.00	<0.500	101	70-130			
Arsenic	109	0.500	ug/L	100.00	2.20	107	70-130			
Chromium	109	0.500	ug/L	100.00	0.543	108	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0214 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDB0214-MSD1)		Source: MDB0094-04		Prepared: 02/12/2018 Analyzed: 02/15/2018						
Arsenic	112	0.500	ug/L	100.00	6.09	106	70-130	2.11	20	
Antimony	96.0	0.500	ug/L	100.00	0.0499	96.0	70-130	1.48	20	
Cobalt	108	0.500	ug/L	100.00	1.99	106	70-130	4.27	20	
Molybdenum	166	0.500	ug/L	100.00	69.1	97.2	70-130	0.213	20	
Thallium	90.6	0.500	ug/L	100.00	0.0107	90.6	70-130	2.34	20	
Barium	189	0.500	ug/L	100.00	89.9	99.5	70-130	0.584	20	
Lead	88.0	0.500	ug/L	100.00	0.0350	88.0	70-130	2.41	20	
Selenium	94.8	0.500	ug/L	100.00	<0.500	94.8	70-130	0.696	20	
Beryllium	97.5	0.500	ug/L	100.00	0.0250	97.4	70-130	2.37	20	
Chromium	107	0.500	ug/L	100.00	0.234	107	70-130	3.08	20	
Cadmium	93.8	0.500	ug/L	100.00	0.0485	93.8	70-130	2.58	20	

Matrix Spike Dup (BDB0214-MSD2)		Source: MDB0094-05		Prepared: 02/12/2018 Analyzed: 02/15/2018						
Selenium	101	0.500	ug/L	100.00	<0.500	101	70-130	0.400	20	
Molybdenum	147	0.500	ug/L	100.00	46.8	101	70-130	0.251	20	
Beryllium	93.8	0.500	ug/L	100.00	0.0431	93.7	70-130	0.157	20	
Arsenic	110	0.500	ug/L	100.00	2.20	107	70-130	0.338	20	
Antimony	97.5	0.500	ug/L	100.00	0.111	97.4	70-130	0.573	20	
Barium	130	0.500	ug/L	100.00	24.8	106	70-130	1.20	20	
Thallium	91.5	0.500	ug/L	100.00	0.0137	91.5	70-130	0.512	20	
Cadmium	89.8	0.500	ug/L	100.00	0.0924	89.7	70-130	0.715	20	
Chromium	107	0.500	ug/L	100.00	0.543	107	70-130	1.45	20	
Lead	86.7	0.500	ug/L	100.00	<0.500	86.7	70-130	0.188	20	
Cobalt	104	0.500	ug/L	100.00	1.47	102	70-130	3.08	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0213 - EPA 200.2, EPA 3005

Blank (BDB0213-BLK1)

Prepared: 02/12/2018 Analyzed: 02/14/2018

Lithium	<0.0500	0.0500	mg/L
Sodium	<0.500	0.500	mg/L
Potassium	<0.500	0.500	mg/L
Calcium	<0.500	0.500	mg/L
Magnesium	<1.25	1.25	mg/L
Boron	<0.0500	0.0500	mg/L

LCS (BDB0213-BS1)

Prepared: 02/12/2018 Analyzed: 02/14/2018

Magnesium	103	1.25	mg/L	100.00	103	85-115
Calcium	102	0.500	mg/L	100.00	102	85-115
Lithium	1.00	0.0500	mg/L	1.0000	100	85-115
Boron	1.01	0.0500	mg/L	1.0000	101	85-115
Potassium	102	0.500	mg/L	100.00	102	85-115
Sodium	103	0.500	mg/L	100.00	103	85-115

Duplicate (BDB0213-DUP1)

Source: MDB0094-02

Prepared: 02/12/2018 Analyzed: 02/14/2018

Potassium	2.74	0.500	mg/L	2.54	7.78	20
Boron	1.35	0.0500	mg/L	1.34	0.303	20
Calcium	88.0	0.500	mg/L	88.1	0.0688	20
Sodium	135	0.500	mg/L	135	0.243	20
Magnesium	21.5	1.25	mg/L	21.4	0.543	20
Lithium	<0.0500	0.0500	mg/L	<0.0500		20

Duplicate (BDB0213-DUP2)

Source: MDB0094-03

Prepared: 02/12/2018 Analyzed: 02/14/2018

Boron	1.62	0.0500	mg/L	1.61	0.122	20
Calcium	158	0.500	mg/L	154	2.53	20
Sodium	110	0.500	mg/L	108	2.52	20
Potassium	3.38	0.500	mg/L	3.09	8.80	20
Magnesium	43.9	1.25	mg/L	43.9	0.0232	20
Lithium	<0.0500	0.0500	mg/L	<0.0500		20



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		02/21/2018 06:48
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0213 - EPA 200.2, EPA 3005

Matrix Spike (BDB0213-MS1)		Source: MDB0094-02		Prepared: 02/12/2018 Analyzed: 02/14/2018						
Boron	2.36	0.0500	mg/L	1.0000	1.34	102	70-130			
Lithium	0.993	0.0500	mg/L	1.0000	<0.0500	99.3	75-125			
Potassium	103	0.500	mg/L	100.00	2.54	101	70-130			
Calcium	187	0.500	mg/L	100.00	88.1	99.2	70-130			
Magnesium	123	1.25	mg/L	100.00	21.4	102	70-130			
Sodium	234	0.500	mg/L	100.00	135	99.4	70-130			

Matrix Spike (BDB0213-MS2)		Source: MDB0094-03		Prepared: 02/12/2018 Analyzed: 02/14/2018						
Calcium	261	0.500	mg/L	100.00	154	108	70-130			
Magnesium	151	1.25	mg/L	100.00	43.9	107	70-130			
Lithium	1.02	0.0500	mg/L	1.0000	<0.0500	102	75-125			
Boron	2.70	0.0500	mg/L	1.0000	1.61	108	70-130			
Sodium	214	0.500	mg/L	100.00	108	107	70-130			
Potassium	106	0.500	mg/L	100.00	3.09	103	70-130			

Matrix Spike Dup (BDB0213-MSD1)		Source: MDB0094-02		Prepared: 02/12/2018 Analyzed: 02/14/2018						
Boron	2.41	0.0500	mg/L	1.0000	1.34	107	70-130	2.05	20	
Sodium	221	0.500	mg/L	100.00	135	86.1	70-130	5.83	20	
Magnesium	115	1.25	mg/L	100.00	21.4	93.7	70-130	6.98	20	
Lithium	0.938	0.0500	mg/L	1.0000	<0.0500	93.8	75-125	5.62	20	
Potassium	97.2	0.500	mg/L	100.00	2.54	94.7	70-130	5.89	20	
Calcium	177	0.500	mg/L	100.00	88.1	88.4	70-130	5.89	20	

Matrix Spike Dup (BDB0213-MSD2)		Source: MDB0094-03		Prepared: 02/12/2018 Analyzed: 02/14/2018						
Magnesium	149	1.25	mg/L	100.00	43.9	106	70-130	0.708	20	
Lithium	1.02	0.0500	mg/L	1.0000	<0.0500	102	75-125	0.0671	20	
Calcium	260	0.500	mg/L	100.00	154	107	70-130	0.422	20	
Potassium	106	0.500	mg/L	100.00	3.09	103	70-130	0.0561	20	
Boron	2.66	0.0500	mg/L	1.0000	1.61	104	70-130	1.58	20	
Sodium	213	0.500	mg/L	100.00	108	106	70-130	0.320	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0221 - EPA 245.1, EPA 7470A

Blank (BDB0221-BLK1)				Prepared: 02/12/2018 Analyzed: 02/13/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDB0221-BS1)				Prepared: 02/12/2018 Analyzed: 02/13/2018						
Mercury	2.77	0.200	ug/L	3.0000		92.4	85-115			
Duplicate (BDB0221-DUP1)				Source: MDB0094-07		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDB0221-DUP2)				Source: MDB0094-08		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDB0221-MS1)				Source: MDB0094-07		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	2.76	0.200	ug/L	3.0000	<0.200	92.1	70-130			
Matrix Spike (BDB0221-MS2)				Source: MDB0094-08		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	2.74	0.200	ug/L	3.0000	<0.200	91.4	70-130			
Matrix Spike Dup (BDB0221-MSD1)				Source: MDB0094-07		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	2.81	0.200	ug/L	3.0000	<0.200	93.8	70-130	1.75	20	
Matrix Spike Dup (BDB0221-MSD2)				Source: MDB0094-08		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	2.82	0.200	ug/L	3.0000	<0.200	94.2	70-130	2.96	20	

Batch BDB0222 - EPA 245.1, EPA 7470A

Blank (BDB0222-BLK1)				Prepared: 02/12/2018 Analyzed: 02/13/2018						
Mercury	<0.200	0.200	ug/L							



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDB0222 - EPA 245.1, EPA 7470A

LCS (BDB0222-BS1)				Prepared: 02/12/2018 Analyzed: 02/13/2018						
Mercury	2.78	0.200	ug/L	3.0000		92.8	85-115			
Duplicate (BDB0222-DUP1)				Source: MDB0094-09		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDB0222-MS1)				Source: MDB0094-09		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	2.90	0.200	ug/L	3.0000	<0.200	96.6	70-130			
Matrix Spike Dup (BDB0222-MSD1)				Source: MDB0094-09		Prepared: 02/12/2018 Analyzed: 02/13/2018				
Mercury	2.81	0.200	ug/L	3.0000	<0.200	93.7	70-130	3.09	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	02/21/2018 06:48

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: **Xcel Energy**
Address: **Environmental Services**
mp-7
Email To:
Phone:
Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: **Todd Ronning, Rick Rosvold**
Copy To: **Dana Pasi, Jenni Brekken (Bart)**
Purchase Order No.:
Project Name: **Black Dog CCR Baseline**
Project Number: **Feb. 2018**

Section C

Invoice Information:

Attention: **Steve Davis**
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

Page: **1** of **2**
2201206

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other							
					DATE	TIME	DATE	TIME																	
1	Field Blank	WT					2/5/18	1300	2	1															
2	W14A							1350	2	1															
3	W7A							1440	2	1															
4	W602A							1540	2	1															
5	W504A	WT					2/6/18	0950	2	1															
6	W504B							1030	2	1															
7	W502A							1105	2	1															
8	W502B							1145	2	1															
9	W511A							1230	2	1															
10	W510A							1330	2	1															
11	W604A							1430	2	1															
12	W600A	WT					2/7/18	0935	2	1															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	David Anderson Pca	2/5/18	1030	JSD/Xcel	2/8/18	1030	

ORIGINAL

9#strip: MB00508

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

David Anderson

SIGNATURE of SAMPLER:

David Anderson

DATE Signed
(MM/DD/YY):

2/7/18

Temp in °C
Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

April 12, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

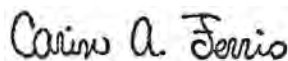
RE: Project: 18-00345, Xcel Energy - Blackd
Pace Project No.: 30247121

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on March 23, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30247121001	Field Blank	Water	03/19/18 13:40	03/23/18 10:20
30247121002	W 511A	Water	03/19/18 14:15	03/23/18 10:20
30247121003	W 510A	Water	03/19/18 15:10	03/23/18 10:20
30247121004	W 604A	Water	03/19/18 16:10	03/23/18 10:20
30247121005	W 603A	Water	03/19/18 17:00	03/23/18 10:20
30247121006	W 504A	Water	03/20/18 09:30	03/23/18 10:20
30247121007	W 504B	Water	03/20/18 10:05	03/23/18 10:20
30247121008	W 502A	Water	03/20/18 11:10	03/23/18 10:20
30247121009	Duplicate	Water	03/20/18 11:10	03/23/18 10:20
30247121010	W 502B	Water	03/20/18 11:40	03/23/18 10:20
30247121011	W 600A	Water	03/20/18 12:50	03/23/18 10:20
30247121012	W 602A	Water	03/20/18 13:40	03/23/18 10:20
30247121013	W 7A	Water	03/20/18 14:25	03/23/18 10:20
30247121014	W 14A	Water	03/20/18 15:30	03/23/18 10:20
30247121015	W 514A	Water	03/21/18 09:10	03/23/18 10:20
30247121016	W 506A	Water	03/21/18 09:50	03/23/18 10:20
30247121017	W 605A	Water	03/21/18 10:50	03/23/18 10:20
30247121018	Pond A	Water	03/21/18 11:05	03/23/18 10:20
30247121019	W 601A	Water	03/21/18 12:25	03/23/18 10:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30247121001	Field Blank	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121002	W 511A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121003	W 510A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121004	W 604A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121005	W 603A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121006	W 504A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121007	W 504B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121008	W 502A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121009	Duplicate	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121010	W 502B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121011	W 600A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121012	W 602A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121013	W 7A	EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30247121014	W 14A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30247121015	W 514A	Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121016	W 506A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
30247121017	W 605A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30247121018	Pond A	Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30247121019	W 601A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: April 12, 2018

General Information:

19 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: April 12, 2018

General Information:

19 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: April 12, 2018

General Information:

19 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Sample: Field Blank **Lab ID:** 30247121001 **Collected:** 03/19/18 13:40 **Received:** 03/23/18 10:20 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.297 ± 0.421 (0.712) C:NA T:89%	pCi/L	04/05/18 18:50	13982-63-3	
Radium-228	EPA 904.0	0.128 ± 0.415 (0.927) C:77% T:90%	pCi/L	04/05/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	0.425 ± 0.836 (1.64)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 511A **Lab ID:** 30247121002 **Collected:** 03/19/18 14:15 **Received:** 03/23/18 10:20 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.435 ± 0.474 (0.746) C:NA T:84%	pCi/L	04/05/18 18:50	13982-63-3	
Radium-228	EPA 904.0	-0.103 ± 0.471 (1.11) C:67% T:76%	pCi/L	04/05/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	0.435 ± 0.945 (1.86)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 510A **Lab ID:** 30247121003 **Collected:** 03/19/18 15:10 **Received:** 03/23/18 10:20 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.217 ± 0.453 (0.816) C:NA T:92%	pCi/L	04/05/18 18:50	13982-63-3	
Radium-228	EPA 904.0	-0.914 ± 0.522 (1.27) C:79% T:80%	pCi/L	04/05/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	0.217 ± 0.975 (2.09)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 604A **Lab ID:** 30247121004 **Collected:** 03/19/18 16:10 **Received:** 03/23/18 10:20 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.336 ± 0.492 (0.840) C:NA T:87%	pCi/L	04/05/18 18:50	13982-63-3	
Radium-228	EPA 904.0	0.466 ± 0.413 (0.845) C:80% T:91%	pCi/L	04/05/18 13:04	15262-20-1	
Total Radium	Total Radium Calculation	0.802 ± 0.905 (1.69)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 603A **Lab ID:** 30247121005 **Collected:** 03/19/18 17:00 **Received:** 03/23/18 10:20 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.348 ± 0.456 (0.759) C:NA T:88%	pCi/L	04/05/18 19:06	13982-63-3	
Radium-228	EPA 904.0	0.377 ± 0.320 (0.644) C:79% T:93%	pCi/L	04/05/18 12:35	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Sample: W 603A		Lab ID: 30247121005	Collected: 03/19/18 17:00	Received: 03/23/18 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.725 ± 0.776 (1.40)		pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 504A		Lab ID: 30247121006	Collected: 03/20/18 09:30	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.618 ± 0.555 (0.843) C:NA T:90%	pCi/L	04/05/18 19:06	13982-63-3	
Radium-228	EPA 904.0	1.08 ± 0.442 (0.693) C:75% T:89%	pCi/L	04/05/18 15:58	15262-20-1	
Total Radium	Total Radium Calculation	1.70 ± 0.997 (1.54)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 504B		Lab ID: 30247121007	Collected: 03/20/18 10:05	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.335 ± 0.467 (0.788) C:NA T:88%	pCi/L	04/05/18 19:06	13982-63-3	
Radium-228	EPA 904.0	1.21 ± 0.501 (0.790) C:73% T:81%	pCi/L	04/05/18 15:59	15262-20-1	
Total Radium	Total Radium Calculation	1.55 ± 0.968 (1.58)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 502A		Lab ID: 30247121008	Collected: 03/20/18 11:10	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.059 ± 0.419 (0.890) C:NA T:83%	pCi/L	04/05/18 19:06	13982-63-3	
Radium-228	EPA 904.0	0.588 ± 0.379 (0.713) C:76% T:83%	pCi/L	04/05/18 15:59	15262-20-1	
Total Radium	Total Radium Calculation	0.588 ± 0.798 (1.60)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: Duplicate		Lab ID: 30247121009	Collected: 03/20/18 11:10	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.356 ± 0.521 (0.890) C:NA T:89%	pCi/L	04/05/18 19:06	13982-63-3	
Radium-228	EPA 904.0	-0.0609 ± 0.525 (1.23) C:73% T:85%	pCi/L	04/05/18 19:18	15262-20-1	
Total Radium	Total Radium Calculation	0.356 ± 1.05 (2.12)	pCi/L	04/12/18 12:31	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Sample: W 502B		Lab ID: 30247121010	Collected: 03/20/18 11:40	Received: 03/23/18 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.516 ± 0.622 (1.02) C:NA T:77%		pCi/L	04/05/18 19:06	13982-63-3	
Radium-228	EPA 904.0	0.854 ± 0.550 (1.04) C:76% T:85%		pCi/L	04/05/18 19:18	15262-20-1	
Total Radium	Total Radium Calculation	1.37 ± 1.17 (2.06)		pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 600A		Lab ID: 30247121011	Collected: 03/20/18 12:50	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.609 ± 0.525 (0.780) C:NA T:91%	pCi/L	04/05/18 19:20	13982-63-3	
Radium-228	EPA 904.0	0.617 ± 0.567 (1.15) C:73% T:80%	pCi/L	04/05/18 19:18	15262-20-1	
Total Radium	Total Radium Calculation	1.23 ± 1.09 (1.93)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 602A		Lab ID: 30247121012	Collected: 03/20/18 13:40	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.168 ± 0.395 (0.887)	pCi/L	04/05/18 19:20	13982-63-3	
		C:NA T:90%				
Radium-228	EPA 904.0	0.658 ± 0.514 (1.01)	pCi/L	04/05/18 19:19	15262-20-1	
		C:76% T:86%				
Total Radium	Total Radium Calculation	0.658 ± 0.909 (1.90)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 7A		Lab ID: 30247121013	Collected: 03/20/18 14:25	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.329 ± 0.431 (0.719) C:NA T:93%	pCi/L	04/05/18 19:20	13982-63-3	
Radium-228	EPA 904.0	0.307 ± 0.431 (0.925) C:75% T:87%	pCi/L	04/05/18 18:48	15262-20-1	
Total Radium	Total Radium Calculation	0.636 ± 0.862 (1.64)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 14A		Lab ID: 30247121014	Collected: 03/20/18 15:30	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0670 ± 0.541 (1.06) C:NA T:80%	pCi/L	04/05/18 19:20	13982-63-3	
Radium-228	EPA 904.0	0.272 ± 0.296 (0.616) C:76% T:86%	pCi/L	04/05/18 13:55	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Sample: W 14A		Lab ID: 30247121014	Collected: 03/20/18 15:30	Received: 03/23/18 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.339 ± 0.837 (1.68)		pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 514A		Lab ID: 30247121015	Collected: 03/21/18 09:10	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.248 ± 0.517 (0.931) C:NA T:90%	pCi/L	04/05/18 19:20	13982-63-3	
Radium-228	EPA 904.0	0.265 ± 0.305 (0.640) C:77% T:87%	pCi/L	04/05/18 13:55	15262-20-1	
Total Radium	Total Radium Calculation	0.513 ± 0.822 (1.57)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 506A		Lab ID: 30247121016	Collected: 03/21/18 09:50	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.512 ± 0.438 (0.594) C:NA T:85%	pCi/L	04/05/18 19:20	13982-63-3	
Radium-228	EPA 904.0	0.0803 ± 0.285 (0.647) C:80% T:93%	pCi/L	04/05/18 15:41	15262-20-1	
Total Radium	Total Radium Calculation	0.592 ± 0.723 (1.24)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: W 605A		Lab ID: 30247121017	Collected: 03/21/18 10:50	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.290 ± 0.442 (0.761) C:NA T:94%	pCi/L	04/05/18 19:33	13982-63-3	
Radium-228	EPA 904.0	0.746 ± 0.364 (0.620) C:79% T:84%	pCi/L	04/05/18 13:56	15262-20-1	
Total Radium	Total Radium Calculation	1.04 ± 0.806 (1.38)	pCi/L	04/12/18 12:31	7440-14-4	

Sample: Pond A		Lab ID: 30247121018	Collected: 03/21/18 11:05	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.335 ± 0.350 (0.493) C:NA T:82%	pCi/L	04/05/18 19:33	13982-63-3	
Radium-228	EPA 904.0	0.351 ± 0.310 (0.622) C:79% T:80%	pCi/L	04/05/18 13:56	15262-20-1	
Total Radium	Total Radium Calculation	0.686 ± 0.660 (1.12)	pCi/L	04/12/18 12:31	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

Sample: W 601A		Lab ID: 30247121019	Collected: 03/21/18 12:25	Received: 03/23/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.057 ± 0.431 (0.900) C:NA T:90%	pCi/L	04/05/18 19:33	13982-63-3	
Radium-228	EPA 904.0	0.307 ± 0.299 (0.610) C:78% T:83%	pCi/L	04/05/18 13:56	15262-20-1	
Total Radium	Total Radium Calculation	0.307 ± 0.730 (1.51)	pCi/L	04/12/18 12:31	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

QC Batch:	292604	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30247121001, 30247121002, 30247121003, 30247121004, 30247121005, 30247121006, 30247121007, 30247121008, 30247121009, 30247121010, 30247121011, 30247121012, 30247121013, 30247121014, 30247121015, 30247121016, 30247121017, 30247121018, 30247121019		

METHOD BLANK:	1432109	Matrix:	Water
Associated Lab Samples:	30247121001, 30247121002, 30247121003, 30247121004, 30247121005, 30247121006, 30247121007, 30247121008, 30247121009, 30247121010, 30247121011, 30247121012, 30247121013, 30247121014, 30247121015, 30247121016, 30247121017, 30247121018, 30247121019		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.325 ± 0.302 (0.398) C:NA T:96%	pCi/L	04/05/18 18:50	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

QC Batch:	292679	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30247121001, 30247121002, 30247121003, 30247121004, 30247121005, 30247121006, 30247121007, 30247121008, 30247121009, 30247121010, 30247121011, 30247121012, 30247121013, 30247121014, 30247121015, 30247121016, 30247121017, 30247121018, 30247121019		

METHOD BLANK: 1432437 Matrix: Water

Associated Lab Samples: 30247121001, 30247121002, 30247121003, 30247121004, 30247121005, 30247121006, 30247121007, 30247121008, 30247121009, 30247121010, 30247121011, 30247121012, 30247121013, 30247121014, 30247121015, 30247121016, 30247121017, 30247121018, 30247121019

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0235 ± 0.293 (0.676) C:79% T:89%	pCi/L	04/05/18 12:35	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 18-00345, Xcel Energy - Blackd

Pace Project No.: 30247121

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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F-ALL-Q-020rev.07, 15-May-2007

Pittsburgh Lab Sample Condition Upon Receipt

30247121

Face Analytical

Client Name:

Pace MN Field Project #

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 7475 9638 5038

Label DS
LIMS Login FHCustody Seal on Cooler/Box Present: ☐ yes ☐ no Seals intact: ☐ yes ☐ no

Thermometer Used

NA

Type of Ice: Wet Blue None

Cooler Temperature Observed Temp °C Correction Factor: °C Final Temp: °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	/			100DP71	DS 3-23-18
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:					
-Includes date/time/ID Matrix: NT					
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):		/			
Rush Turn Around Time Requested:		/			
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered			/		
Hex Cr Aqueous Compliance/NPDES sample field filtered			/		
Organic Samples checked for dechlorination:			/		
Filtered volume received for Dissolved tests			/		
All containers have been checked for preservation.	/				
All containers needing preservation are found to be in compliance with EPA recommendation.	/			ph < 2	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed DS	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>8mm):			/		
Trip Blank Present:			/		
Trip Blank Custody Seals Present			/		
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed DS	Date: 3-23-18

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312



W514B was incorrectly labeled as W514A in the field
and has been revised in EQUIS to display W514B.
KAC - 08/06/2018

Minneapolis Testing Laboratory

1518 Chestnut Ave N

Minneapolis, MN 55043

Certification #MN-027-053-197

WI-999071150

Christine Keefe, Supervisor (612) 630-4506

06 April 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc: Re-issued report with lower reporting limits
for samples: Duplicate for cobalt,
chromium and W506A for arsenic,
selenium. HSD 4/6/18.

Enclosed are the results of analyses for samples received by the laboratory on 03/21/2018 13:40. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDC0258-01	Water	03/19/2018 13:40	03/21/2018 13:40
W511A		MDC0258-02	Water	03/19/2018 14:15	03/21/2018 13:40
W510A		MDC0258-03	Water	03/19/2018 15:10	03/21/2018 13:40
W604A		MDC0258-04	Water	03/19/2018 16:10	03/21/2018 13:40
W603A		MDC0258-05	Water	03/19/2018 17:00	03/21/2018 13:40
W504A		MDC0258-06	Water	03/20/2018 9:30	03/21/2018 13:40
W504B		MDC0258-07	Water	03/20/2018 10:05	03/21/2018 13:40
W502A		MDC0258-08	Water	03/20/2018 11:10	03/21/2018 13:40
Duplicate		MDC0258-09	Water	03/20/2018 11:10	03/21/2018 13:40
W502B		MDC0258-10	Water	03/20/2018 11:40	03/21/2018 13:40
W600A		MDC0258-11	Water	03/20/2018 12:50	03/21/2018 13:40
W602A		MDC0258-12	Water	03/20/2018 13:40	03/21/2018 13:40
W7A		MDC0258-13	Water	03/20/2018 14:25	03/21/2018 13:40
W14A		MDC0258-14	Water	03/20/2018 15:30	03/21/2018 13:40
W514A		MDC0258-15	Water	03/21/2018 9:10	03/21/2018 13:40
W506A		MDC0258-16	Water	03/21/2018 9:50	03/21/2018 13:40
W605A		MDC0258-17	Water	03/21/2018 10:50	03/21/2018 13:40
Pond A		MDC0258-18	Water	03/21/2018 11:05	03/21/2018 13:40
W601A		MDC0258-19	Water	03/21/2018 12:25	03/21/2018 13:40



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

Field Blank

MDC0258-01 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 17:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 17:44	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 17:44	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 9:47	SM 2320B	CRL
pH	6.53		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 9:47	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:04	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:24	EPA 200.7	HRD
Calcium	< 0.500	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:23	EPA 200.7	HRD
Potassium	< 0.500	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:23	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:23	EPA 200.7	HRD
Magnesium	< 0.500	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:23	EPA 200.7	HRD
Sodium	< 0.500	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:23	EPA 200.7	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

Field Blank

MDC0258-01 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:17	EPA 245.1, 7470A	HRD



Amended Report

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

W511A

MDC0258-02 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	132	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:04	EPA 300.0	CRL
Sulfate	233	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:04	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	175	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:00	SM 2320B	CRL
pH	8.29		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:00	SM 4500-H+ B	CRL
Total Dissolved Solids	718	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.77	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Barium	48.8	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Chromium	16.0	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Molybdenum	86.2	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Selenium	1.02	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:08	EPA 200.8	CRL

Total Metals by ICP

Boron	3.94	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:29	EPA 200.7	HRD
Calcium	106	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:27	EPA 200.7	HRD
Potassium	5.79	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:27	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:27	EPA 200.7	HRD
Magnesium	19.4	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:28	EPA 200.7	HRD
Sodium	108	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:27	EPA 200.7	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	04/06/2018 10:02

W511A

MDC0258-02 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:19	EPA 245.1, 7470A	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

W510A

MDC0258-03 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	92.1	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:24	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:24	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	919	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:09	SM 2320B	CRL
pH	7.68		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:09	SM 4500-H+ B	CRL
Total Dissolved Solids	1050	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	31.1	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Barium	242	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:20	EPA 200.8	CRL

Total Metals by ICP

Boron	5.55	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:44	EPA 200.7	HRD
Calcium	244	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:43	EPA 200.7	HRD
Potassium	2.12	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:43	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:43	EPA 200.7	HRD
Magnesium	65.9	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:43	EPA 200.7	HRD
Sodium	63.7	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:43	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W510A

MDC0258-03 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:21	EPA 245.1, 7470A	HRD



Amended Report

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1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W604A

MDC0258-04 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	140	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:45	EPA 300.0	CRL
Sulfate	333	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 18:45	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	75.4	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:15	SM 2320B	CRL
pH	8.76		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:15	SM 4500-H+ B	CRL
Total Dissolved Solids	800	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.90	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Barium	68.4	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Chromium	5.34	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Molybdenum	200	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Antimony	0.941	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Selenium	12.8	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:24	EPA 200.8	CRL

Total Metals by ICP

Boron	3.48	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:50	EPA 200.7	HRD
Calcium	82.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:48	EPA 200.7	HRD
Potassium	5.69	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:48	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:48	EPA 200.7	HRD
Magnesium	19.5	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:49	EPA 200.7	HRD
Sodium	146	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:48	EPA 200.7	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W604A

MDC0258-04 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:22	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

W603A

MDC0258-05 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	189	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:05	EPA 300.0	CRL
Sulfate	282	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:05	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	118	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:21	SM 2320B	CRL
pH	8.49		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:21	SM 4500-H+ B	CRL
Total Dissolved Solids	872	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	7.23	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Barium	58.5	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Molybdenum	155	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Selenium	0.686	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:28	EPA 200.8	CRL

Total Metals by ICP

Boron	8.41	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:55	EPA 200.7	HRD
Calcium	96.7	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:53	EPA 200.7	HRD
Potassium	11.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:54	EPA 200.7	HRD
Lithium	0.0913	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:54	EPA 200.7	HRD
Magnesium	19.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:54	EPA 200.7	HRD
Sodium	151	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:53	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W603A

MDC0258-05 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:24	EPA 245.1, 7470A	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504A

MDC0258-06 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	110	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:26	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:26	EPA 300.0	CRL
Sulfate	616	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:26	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	575	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:28	SM 2320B	CRL
pH	7.23		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:28	SM 4500-H+ B	CRL
Total Dissolved Solids	1760	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.03	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Barium	25.0	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Cobalt	1.71	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Molybdenum	29.1	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:31	EPA 200.8	CRL

Total Metals by ICP

Boron	10.6	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:00	EPA 200.7	HRD
Calcium	311	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:58	EPA 200.7	HRD
Potassium	2.08	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:58	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:58	EPA 200.7	HRD
Magnesium	80.3	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:59	EPA 200.7	HRD
Sodium	138	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 12:58	EPA 200.7	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504A

MDC0258-06 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L	1	BDC0468	3/23/18	8:41	3/23/18 14:29	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MDC0258-07 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	55.6	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:46	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:46	EPA 300.0	CRL
Sulfate	16.0	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 19:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	837	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:38	SM 2320B	CRL
pH	7.46		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:38	SM 4500-H+ B	CRL
Total Dissolved Solids	902	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.12	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Barium	359	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:35	EPA 200.8	CRL

Total Metals by ICP

Boron	0.433	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:05	EPA 200.7	HRD
Calcium	212	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:03	EPA 200.7	HRD
Potassium	1.45	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:03	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:03	EPA 200.7	HRD
Magnesium	76.0	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:04	EPA 200.7	HRD
Sodium	24.6	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:03	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MDC0258-07 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:31	EPA 245.1, 7470A	HRD



Amended Report

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Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502A

MDC0258-08 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	101	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 20:27	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 20:27	EPA 300.0	CRL
Sulfate	1410	10.0	mg/L		10	BDC0489	3/26/18 9:20	3/26/18 20:06	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	309	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:45	SM 2320B	CRL
pH	7.45		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:45	SM 4500-H+ B	CRL
Total Dissolved Solids	2620	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	30.4	5.00	ug/L		10	BDC0430	3/22/18 8:00	3/26/18 9:39	EPA 200.8	CRL
Barium	79.8	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Cobalt	3.53	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Molybdenum	65.9	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:43	EPA 200.8	CRL

Total Metals by ICP

Boron	7.87	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:10	EPA 200.7	HRD
Calcium	482	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:09	EPA 200.7	HRD
Potassium	15.4	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:09	EPA 200.7	HRD
Lithium	0.0887	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:09	EPA 200.7	HRD
Magnesium	70.0	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:09	EPA 200.7	HRD
Sodium	161	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:09	EPA 200.7	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502A

MDC0258-08 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:33	EPA 245.1, 7470A	HRD



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Minneapolis Testing Laboratory
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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Duplicate

MDC0258-09 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	101	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 21:08	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 21:08	EPA 300.0	CRL
Sulfate	1410	10.0	mg/L		10	BDC0489	3/26/18 9:20	3/26/18 20:47	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	315	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:52	SM 2320B	CRL
pH	7.45		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:52	SM 4500-H+ B	CRL
Total Dissolved Solids	2600	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	33.8	5.00	ug/L		10	BDC0430	3/22/18 8:00	3/26/18 9:47	EPA 200.8	CRL
Barium	80.2	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Molybdenum	66.6	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:51	EPA 200.8	CRL

Total Metals by ICP

Boron	8.09	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:15	EPA 200.7	HRD
Calcium	496	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:14	EPA 200.7	HRD
Potassium	16.0	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:14	EPA 200.7	HRD
Lithium	0.0919	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:14	EPA 200.7	HRD
Magnesium	70.7	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:14	EPA 200.7	HRD
Sodium	166	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:14	EPA 200.7	HRD



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Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Duplicate

MDC0258-09 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L	1	BDC0468	3/23/18	8:41	3/23/18 14:34	EPA 245.1, 7470A	HRD



Amended Report

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Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Duplicate

MDC0258-09RE1 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Total Metals by ICPMS

Cobalt	3.87	2.50	ug/L		5	BDC0430	3/22/18 8:00	4/4/18 10:15	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		5	BDC0430	3/22/18 8:00	4/4/18 10:15	EPA 200.8	CRL



Amended Report

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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502B

MDC0258-10 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	85.7	1.00	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 21:49	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0489	3/26/18 9:20	3/26/18 21:49	EPA 300.0	CRL
Sulfate	1250	10.0	mg/L		10	BDC0489	3/26/18 9:20	3/26/18 21:28	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	372	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 10:58	SM 2320B	CRL
pH	7.28		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 10:58	SM 4500-H+ B	CRL
Total Dissolved Solids	2340	20.0	mg/L		1	BDC0425	3/22/18 9:03	3/22/18 9:03	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.64	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Barium	112	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 9:55	EPA 200.8	CRL

Total Metals by ICP

Boron	3.88	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:20	EPA 200.7	HRD
Calcium	444	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:19	EPA 200.7	HRD
Potassium	2.02	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:19	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:19	EPA 200.7	HRD
Magnesium	114	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:19	EPA 200.7	HRD
Sodium	62.3	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:19	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502B

MDC0258-10 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:36	EPA 245.1, 7470A	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

W600A

MDC0258-11 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	44.9	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:16	EPA 300.0	CRL
Sulfate	1140	10.0	mg/L		10	BDC0521	3/27/18 11:51	3/27/18 14:56	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	76.4	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:10	SM 2320B	CRL
pH	7.55		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:10	SM 4500-H+ B	CRL
Total Dissolved Solids	1890	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	13.1	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Barium	22.2	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Molybdenum	148	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:07	EPA 200.8	CRL

Total Metals by ICP

Boron	18.9	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:25	EPA 200.7	HRD
Calcium	403	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:24	EPA 200.7	HRD
Potassium	15.6	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:24	EPA 200.7	HRD
Lithium	0.0875	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:24	EPA 200.7	HRD
Magnesium	21.5	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:25	EPA 200.7	HRD
Sodium	97.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:24	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W600A

MDC0258-11 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:38	EPA 245.1, 7470A	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W602A

MDC0258-12 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	211	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:37	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:37	EPA 300.0	CRL
Sulfate	282	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:37	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	283	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:18	SM 2320B	CRL
pH	7.70		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:18	SM 4500-H+ B	CRL
Total Dissolved Solids	1080	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.21	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Barium	83.7	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Cobalt	1.62	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Molybdenum	63.1	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:11	EPA 200.8	CRL

Total Metals by ICP

Boron	1.20	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:30	EPA 200.7	HRD
Calcium	134	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:29	EPA 200.7	HRD
Potassium	1.59	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:29	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:29	EPA 200.7	HRD
Magnesium	33.0	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:29	EPA 200.7	HRD
Sodium	184	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:29	EPA 200.7	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W602A

MDC0258-12 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:40	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W7A

MDC0258-13 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	194	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:57	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:57	EPA 300.0	CRL
Sulfate	203	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 15:57	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	219	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:24	SM 2320B	CRL
pH	7.72		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:24	SM 4500-H+ B	CRL
Total Dissolved Solids	866	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.969	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Barium	77.0	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Cobalt	0.589	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Molybdenum	72.7	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:14	EPA 200.8	CRL

Total Metals by ICP

Boron	2.15	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:46	EPA 200.7	HRD
Calcium	108	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:45	EPA 200.7	HRD
Potassium	3.17	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:45	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:45	EPA 200.7	HRD
Magnesium	26.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:45	EPA 200.7	HRD
Sodium	149	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:45	EPA 200.7	HRD



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
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Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	04/06/2018 10:02

W7A

MDC0258-13 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:41	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W14A

MDC0258-14 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	95.4	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 16:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 16:18	EPA 300.0	CRL
Sulfate	74.9	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 16:18	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	289	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:30	SM 2320B	CRL
pH	7.63		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:30	SM 4500-H+ B	CRL
Total Dissolved Solids	564	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.67	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Barium	19.9	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Molybdenum	80.6	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:18	EPA 200.8	CRL

Total Metals by ICP

Boron	0.839	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:51	EPA 200.7	HRD
Calcium	88.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:50	EPA 200.7	HRD
Potassium	1.99	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:50	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:50	EPA 200.7	HRD
Magnesium	17.8	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:50	EPA 200.7	HRD
Sodium	92.0	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:50	EPA 200.7	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W14A

MDC0258-14 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:43	EPA 245.1, 7470A	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

W514A

MDC0258-15 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	9.28	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 16:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 16:38	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 16:38	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	594	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:39	SM 2320B	CRL
pH	8.13		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:39	SM 4500-H+ B	CRL
Total Dissolved Solids	540	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.04	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Barium	160	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Molybdenum	2.07	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:22	EPA 200.8	CRL

Total Metals by ICP

Boron	0.107	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:56	EPA 200.7	HRD
Calcium	85.7	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:55	EPA 200.7	HRD
Potassium	1.24	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:55	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:55	EPA 200.7	HRD
Magnesium	85.0	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:55	EPA 200.7	HRD
Sodium	10.1	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 13:55	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514A

MDC0258-15 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:45	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis, MN 55043
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W506A

MDC0258-16 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	52.4	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 17:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 17:19	EPA 300.0	CRL
Sulfate	1380	10.0	mg/L		10	BDC0521	3/27/18 11:51	3/27/18 16:59	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	234	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:45	SM 2320B	CRL
pH	7.11		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:45	SM 4500-H+ B	CRL
Total Dissolved Solids	2430	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Barium	16.9	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Cadmium	5.47	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Cobalt	25.4	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Molybdenum	36.6	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL
Thallium	0.729	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 10:30	EPA 200.8	CRL

Total Metals by ICP

Boron	1.99	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:01	EPA 200.7	HRD
Calcium	576	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:00	EPA 200.7	HRD
Potassium	9.35	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:00	EPA 200.7	HRD
Lithium	0.0763	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:00	EPA 200.7	HRD
Magnesium	36.2	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:00	EPA 200.7	HRD
Sodium	51.9	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:00	EPA 200.7	HRD



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Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	04/06/2018 10:02

W506A

MDC0258-16 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:50	EPA 245.1, 7470A	HRD



Amended Report

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Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W506A

MDC0258-16RE1 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Total Metals by ICPMS

Arsenic	2.81	2.50	ug/L		5	BDC0430	3/22/18 8:00	4/4/18 10:19	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	4/4/18 10:11	EPA 200.8	CRL



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

W605A

MDC0258-17 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	130	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 17:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 17:39	EPA 300.0	CRL
Sulfate	252	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 17:39	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	48.2	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:50	SM 2320B	CRL
pH	7.73		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:50	SM 4500-H+ B	CRL
Total Dissolved Solids	650	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.75	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Barium	59.3	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Molybdenum	75.8	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:26	EPA 200.8	CRL

Total Metals by ICP

Boron	1.96	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:06	EPA 200.7	HRD
Calcium	68.6	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:05	EPA 200.7	HRD
Potassium	5.77	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:05	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:05	EPA 200.7	HRD
Magnesium	14.3	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:05	EPA 200.7	HRD
Sodium	110	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:05	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MDC0258-17 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:52	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

Pond A

MDC0258-18 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	13.1	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 18:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 18:00	EPA 300.0	CRL
Sulfate	22.2	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 18:00	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	54.9	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 11:56	SM 2320B	CRL
pH	7.67		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 11:56	SM 4500-H+ B	CRL
Total Dissolved Solids	130	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.689	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Barium	27.4	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Cobalt	0.742	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Chromium	0.683	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Molybdenum	2.05	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Lead	0.529	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Selenium	0.776	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:33	EPA 200.8	CRL

Total Metals by ICP

Boron	0.0777	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:11	EPA 200.7	HRD
Calcium	18.4	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:10	EPA 200.7	HRD
Potassium	3.14	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:10	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:10	EPA 200.7	HRD
Magnesium	5.68	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:10	EPA 200.7	HRD
Sodium	10.3	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:10	EPA 200.7	HRD



Amended Report

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Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Pond A

MDC0258-18 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst
Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:53	EPA 245.1, 7470A	HRD



Amended Report

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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W601A

MDC0258-19 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	154	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 18:20	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 18:20	EPA 300.0	CRL
Sulfate	959	1.00	mg/L		1	BDC0521	3/27/18 11:51	3/27/18 18:20	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	89.4	10.0	mg/L		1	BDC0428	3/22/18 7:27	3/22/18 12:02	SM 2320B	CRL
pH	10.3		pH Units	M_TTT	1	BDC0428	3/22/18 7:27	3/22/18 12:02	SM 4500-H+ B	CRL
Total Dissolved Solids	1980	20.0	mg/L		1	BDC0451	3/23/18 10:20	3/23/18 10:20	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	11.9	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Barium	74.3	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Cadmium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Chromium	1.71	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Molybdenum	243	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Lead	0.895	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Antimony	0.894	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Selenium	43.7	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDC0430	3/22/18 8:00	3/26/18 12:37	EPA 200.8	CRL

Total Metals by ICP

Boron	8.87	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:16	EPA 200.7	HRD
Calcium	294	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:15	EPA 200.7	HRD
Potassium	47.1	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:15	EPA 200.7	HRD
Lithium	0.348	0.0500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:15	EPA 200.7	HRD
Magnesium	0.595	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:15	EPA 200.7	HRD
Sodium	270	0.500	mg/L		1	BDC0429	3/22/18 7:57	3/26/18 14:15	EPA 200.7	HRD



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Minneapolis Testing Laboratory
1518 Chestnut Ave N
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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	04/06/2018 10:02

W601A

MDC0258-19 (Water) - Chain of Custody Number: 2201241/2201238

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDC0468	3/23/18 8:41	3/23/18 14:55	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0489 - Wet Prep

Blank (BDC0489-BLK1)				Prepared & Analyzed: 03/26/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDC0489-BLK2)				Prepared & Analyzed: 03/26/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDC0489-BS1)				Prepared & Analyzed: 03/26/2018						
Chloride	26.0	1.00	mg/L	25.000		104	90-110			
Fluoride	5.31	0.750	mg/L	5.0000		106	90-110			
Sulfate	105	1.00	mg/L	100.00		105	90-110			

LCS (BDC0489-BS2)				Prepared & Analyzed: 03/26/2018						
Chloride	24.8	1.00	mg/L	25.000		99.0	90-110			
Fluoride	5.05	0.750	mg/L	5.0000		101	90-110			
Sulfate	99.7	1.00	mg/L	100.00		99.7	90-110			

LCS (BDC0489-BS3)				Prepared & Analyzed: 03/26/2018						
Chloride	24.8	1.00	mg/L	25.000		99.2	90-110			
Fluoride	4.88	0.750	mg/L	5.0000		97.7	90-110			
Sulfate	99.8	1.00	mg/L	100.00		99.8	90-110			

Duplicate (BDC0489-DUP1)				Source: MDC0236-01		Prepared & Analyzed: 03/26/2018				
Chloride	32.7	1.00	mg/L			31.7		3.10	20	
Fluoride	0.142	0.750	mg/L			0.150		5.48	20	
Sulfate	91.4	1.00	mg/L			91.9		0.594	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0489 - Wet Prep

Duplicate (BDC0489-DUP2)		Source: MDC0236-05		Prepared & Analyzed: 03/26/2018						
Chloride	34.9	1.00	mg/L		34.9			0.126	20	
Fluoride	0.150	0.750	mg/L		0.164			8.92	20	
Sulfate	94.0	1.00	mg/L		94.0			0.0117	20	

Matrix Spike (BDC0489-MS1)		Source: MDC0236-01		Prepared & Analyzed: 03/26/2018						
Chloride	44.9	1.00	mg/L	12.500	31.7	105	80-120			
Fluoride	2.17	0.750	mg/L	2.5000	0.150	80.9	80-120			
Sulfate	140	1.00	mg/L	50.000	91.9	96.2	80-120			

Matrix Spike (BDC0489-MS2)		Source: MDC0236-05		Prepared & Analyzed: 03/26/2018						
Chloride	46.5	1.00	mg/L	12.500	34.9	92.9	80-120			
Fluoride	2.44	0.750	mg/L	2.5000	0.164	91.1	80-120			
Sulfate	141	1.00	mg/L	50.000	94.0	93.3	80-120			

Matrix Spike Dup (BDC0489-MSD1)		Source: MDC0236-01		Prepared & Analyzed: 03/26/2018						
Chloride	45.0	1.00	mg/L	12.500	31.7	106	80-120	0.160	20	
Fluoride	2.58	0.750	mg/L	2.5000	0.150	97.1	80-120	17.1	20	
Sulfate	140	1.00	mg/L	50.000	91.9	96.7	80-120	0.197	20	

Matrix Spike Dup (BDC0489-MSD2)		Source: MDC0236-05		Prepared & Analyzed: 03/26/2018						
Chloride	46.7	1.00	mg/L	12.500	34.9	94.9	80-120	0.560	20	
Fluoride	2.58	0.750	mg/L	2.5000	0.164	96.5	80-120	5.34	20	
Sulfate	142	1.00	mg/L	50.000	94.0	95.2	80-120	0.675	20	

Batch BDC0521 - Wet Prep

Blank (BDC0521-BLK1)		Prepared & Analyzed: 03/27/2018								
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0521 - Wet Prep

Blank (BDC0521-BLK2)				Prepared & Analyzed: 03/27/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDC0521-BS1)				Prepared & Analyzed: 03/27/2018						
Chloride	23.5	1.00	mg/L	25.000		93.9	90-110			
Fluoride	4.70	0.750	mg/L	5.0000		93.9	90-110			
Sulfate	95.0	1.00	mg/L	100.00		95.0	90-110			

LCS (BDC0521-BS2)				Prepared & Analyzed: 03/27/2018						
Chloride	23.9	1.00	mg/L	25.000		95.5	90-110			
Fluoride	4.66	0.750	mg/L	5.0000		93.2	90-110			
Sulfate	95.9	1.00	mg/L	100.00		95.9	90-110			

LCS (BDC0521-BS3)				Prepared: 03/27/2018 Analyzed: 03/28/2018						
Chloride	24.5	1.00	mg/L	25.000		97.9	90-110			
Fluoride	4.69	0.750	mg/L	5.0000		93.7	90-110			
Sulfate	98.3	1.00	mg/L	100.00		98.3	90-110			

Duplicate (BDC0521-DUP1)				Source: MDC0278-01		Prepared & Analyzed: 03/27/2018				
Chloride	54.6	1.00	mg/L		55.1			0.944	20	
Fluoride	0.114	0.750	mg/L		0.118			3.45	20	
Sulfate	65.6	1.00	mg/L		66.2			0.977	20	

Duplicate (BDC0521-DUP2)				Source: MDC0313-01		Prepared & Analyzed: 03/27/2018				
Chloride	18.5	1.00	mg/L		18.5			0.0433	20	
Fluoride	0.112	0.750	mg/L		0.111			0.897	20	
Sulfate	36.8	1.00	mg/L		36.8			0.00544	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0521 - Wet Prep

Matrix Spike (BDC0521-MS1)		Source: MDC0278-01		Prepared & Analyzed: 03/27/2018						
Chloride	66.1	1.00	mg/L	12.500	55.1	87.8	80-120			
Fluoride	2.42	0.750	mg/L	2.5000	0.118	92.0	80-120			
Sulfate	113	1.00	mg/L	50.000	66.2	93.1	80-120			
Matrix Spike (BDC0521-MS2)		Source: MDC0313-01		Prepared & Analyzed: 03/27/2018						
Chloride	30.5	1.00	mg/L	12.500	18.5	96.5	80-120			
Fluoride	2.44	0.750	mg/L	2.5000	0.111	93.0	80-120			
Sulfate	85.7	1.00	mg/L	50.000	36.8	98.0	80-120			
Matrix Spike Dup (BDC0521-MSD1)		Source: MDC0278-01		Prepared & Analyzed: 03/27/2018						
Chloride	66.0	1.00	mg/L	12.500	55.1	86.9	80-120	0.167	20	
Fluoride	2.30	0.750	mg/L	2.5000	0.118	87.1	80-120	5.22	20	
Sulfate	112	1.00	mg/L	50.000	66.2	91.5	80-120	0.726	20	
Matrix Spike Dup (BDC0521-MSD2)		Source: MDC0313-01		Prepared & Analyzed: 03/27/2018						
Chloride	30.7	1.00	mg/L	12.500	18.5	97.9	80-120	0.575	20	
Fluoride	2.50	0.750	mg/L	2.5000	0.111	95.7	80-120	2.67	20	
Sulfate	86.2	1.00	mg/L	50.000	36.8	98.8	80-120	0.482	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0425 - Wet Prep

Blank (BDC0425-BLK1)				Prepared & Analyzed: 03/22/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDC0425-DUP1)				Source: MDC0258-02		Prepared & Analyzed: 03/22/2018				
Total Dissolved Solids	722	20.0	mg/L		718			0.556	20	

Batch BDC0428 - Wet Prep

LCS (BDC0428-BS1)				Prepared & Analyzed: 03/22/2018						
Alkalinity, Total	102		mg/L	100.00		102	90-110			
pH	7.07		pH Units	7.0000		101	90-110			
Duplicate (BDC0428-DUP1)				Source: MDC0258-02		Prepared & Analyzed: 03/22/2018				
pH	8.17		pH Units		8.29			1.46	20	
Alkalinity, Total	164	10.0	mg/L		175			6.41	20	
Duplicate (BDC0428-DUP2)				Source: MDC0258-11		Prepared & Analyzed: 03/22/2018				
Alkalinity, Total	77.0	10.0	mg/L		76.4			0.769	20	
pH	7.53		pH Units		7.55			0.265	20	

Batch BDC0451 - Wet Prep

Blank (BDC0451-BLK1)				Prepared & Analyzed: 03/23/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDC0451-DUP1)				Source: MDC0258-11		Prepared & Analyzed: 03/23/2018				
Total Dissolved Solids	1890	20.0	mg/L		1890			0.317	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0430 - EPA 200.2, EPA 3005

Blank (BDC0430-BLK1)

Prepared: 03/22/2018 Analyzed: 03/26/2018

Antimony	<0.500	0.500	ug/L
Cadmium	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Barium	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L

LCS (BDC0430-BS1)

Prepared: 03/22/2018 Analyzed: 03/26/2018

Antimony	94.1	0.500	ug/L	100.00	94.1	85-115
Thallium	95.1	0.500	ug/L	100.00	95.1	85-115
Molybdenum	94.4	0.500	ug/L	100.00	94.4	85-115
Cadmium	97.3	0.500	ug/L	100.00	97.3	85-115
Barium	94.9	0.500	ug/L	100.00	94.9	85-115
Lead	94.6	0.500	ug/L	100.00	94.6	85-115
Beryllium	95.0	0.500	ug/L	100.00	95.0	85-115

Duplicate (BDC0430-DUP1)

Source: MDC0258-04

Prepared: 03/22/2018 Analyzed: 03/26/2018

Cadmium	0.0433	0.500	ug/L	0.0558	25.3	20	M_D-RL
Antimony	0.956	0.500	ug/L	0.941	1.56	20	
Selenium	12.4	0.500	ug/L	12.8	3.29	20	
Thallium	0.0728	0.500	ug/L	0.0415	54.8	20	M_D-RL
Molybdenum	199	0.500	ug/L	200	0.894	20	
Chromium	5.34	0.500	ug/L	5.34	0.00531	20	
Lead	0.160	0.500	ug/L	0.155	3.17	20	
Cobalt	0.245	0.500	ug/L	0.238	3.04	20	
Arsenic	4.01	0.500	ug/L	3.90	2.78	20	
Barium	67.9	0.500	ug/L	68.4	0.857	20	
Beryllium	0.0240	0.500	ug/L	0.00957	86.0	20	M_D-RL

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250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0430 - EPA 200.2, EPA 3005

Duplicate (BDC0430-DUP2)		Source: MDC0258-05		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Selenium	0.623	0.500	ug/L		0.686			9.66	20	
Cadmium	<0.500	0.500	ug/L		0.0400				20	
Chromium	0.124	0.500	ug/L		0.185			39.7	20	M_D-RL
Molybdenum	156	0.500	ug/L		155			0.425	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Antimony	0.174	0.500	ug/L		0.188			7.48	20	
Beryllium	0.00630	0.500	ug/L		0.00715			12.7	20	
Lead	0.0374	0.500	ug/L		0.0330			12.3	20	
Arsenic	6.88	0.500	ug/L		7.23			4.85	20	
Barium	56.9	0.500	ug/L		58.5			2.73	20	
Cobalt	0.262	0.500	ug/L		0.268			2.39	20	

Matrix Spike (BDC0430-MS1)		Source: MDC0258-04		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Beryllium	90.7	0.500	ug/L	100.00	0.00957	90.7	70-130			
Molybdenum	299	0.500	ug/L	100.00	200	98.3	70-130			
Antimony	102	0.500	ug/L	100.00	0.941	101	70-130			
Thallium	89.6	0.500	ug/L	100.00	0.0415	89.6	70-130			
Barium	171	0.500	ug/L	100.00	68.4	103	70-130			
Cadmium	95.7	0.500	ug/L	100.00	0.0558	95.7	70-130			
Lead	88.4	0.500	ug/L	100.00	0.155	88.2	70-130			

Matrix Spike (BDC0430-MS2)		Source: MDC0258-05		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Antimony	101	0.500	ug/L	100.00	0.188	101	70-130			
Cadmium	95.7	0.500	ug/L	100.00	0.0400	95.7	70-130			
Beryllium	89.6	0.500	ug/L	100.00	0.00715	89.6	70-130			
Barium	160	0.500	ug/L	100.00	58.5	101	70-130			
Thallium	91.0	0.500	ug/L	100.00	<0.500	91.0	70-130			
Lead	89.0	0.500	ug/L	100.00	0.0330	89.0	70-130			
Molybdenum	259	0.500	ug/L	100.00	155	103	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0430 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDC0430-MSD1)		Source: MDC0258-04			Prepared: 03/22/2018 Analyzed: 03/26/2018					
Molybdenum	298	0.500	ug/L	100.00	200	97.7	70-130	0.198	20	
Antimony	100	0.500	ug/L	100.00	0.941	99.5	70-130	1.22	20	
Barium	169	0.500	ug/L	100.00	68.4	101	70-130	1.25	20	
Cobalt	103	0.500	ug/L	100.00	0.238	102	70-130		20	
Thallium	90.2	0.500	ug/L	100.00	0.0415	90.2	70-130	0.651	20	
Beryllium	93.4	0.500	ug/L	100.00	0.00957	93.4	70-130	2.88	20	
Lead	88.5	0.500	ug/L	100.00	0.155	88.4	70-130	0.161	20	
Cadmium	96.7	0.500	ug/L	100.00	0.0558	96.7	70-130	1.04	20	
Arsenic	106	0.500	ug/L	100.00	3.90	102	70-130		20	
Chromium	107	0.500	ug/L	100.00	5.34	101	70-130		20	
Selenium	107	0.500	ug/L	100.00	12.8	94.6	70-130		20	

Matrix Spike Dup (BDC0430-MSD2)		Source: MDC0258-05			Prepared: 03/22/2018 Analyzed: 03/26/2018					
Lead	89.2	0.500	ug/L	100.00	0.0330	89.2	70-130	0.247	20	
Molybdenum	258	0.500	ug/L	100.00	155	103	70-130	0.273	20	
Arsenic	108	0.500	ug/L	100.00	7.23	101	70-130		20	
Selenium	94.1	0.500	ug/L	100.00	0.686	93.4	70-130		20	
Cobalt	100	0.500	ug/L	100.00	0.268	99.8	70-130		20	
Cadmium	95.5	0.500	ug/L	100.00	0.0400	95.5	70-130	0.215	20	
Barium	160	0.500	ug/L	100.00	58.5	101	70-130	0.0271	20	
Antimony	102	0.500	ug/L	100.00	0.188	102	70-130	0.488	20	
Chromium	99.5	0.500	ug/L	100.00	0.185	99.4	70-130		20	
Beryllium	90.0	0.500	ug/L	100.00	0.00715	90.0	70-130	0.450	20	
Thallium	91.7	0.500	ug/L	100.00	<0.500	91.7	70-130	0.840	20	



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Tedd Ronning

Reported:
04/06/2018 10:02

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0429 - EPA 200.2, EPA 3005

Blank (BDC0429-BLK1)

Prepared: 03/22/2018 Analyzed: 03/26/2018

Calcium	<0.500	0.500	mg/L
Boron	<0.0500	0.0500	mg/L
Sodium	<0.500	0.500	mg/L
Potassium	<0.500	0.500	mg/L
Lithium	<0.0500	0.0500	mg/L
Magnesium	<0.500	0.500	mg/L

LCS (BDC0429-BS1)

Prepared: 03/22/2018 Analyzed: 03/26/2018

Boron	0.981	0.0500	mg/L	1.0000	98.1	85-115
Calcium	101	0.500	mg/L	100.00	101	85-115
Sodium	102	0.500	mg/L	100.00	102	85-115
Potassium	99.3	0.500	mg/L	100.00	99.3	85-115
Lithium	0.971	0.0500	mg/L	1.0000	97.1	85-115
Magnesium	100	0.500	mg/L	100.00	100	85-115

Duplicate (BDC0429-DUP1)

Source: MDC0258-02

Prepared: 03/22/2018 Analyzed: 03/26/2018

Sodium	104	0.500	mg/L	108	3.48	20
Potassium	5.62	0.500	mg/L	5.79	3.10	20
Lithium	<0.0500	0.0500	mg/L	<0.0500		20
Boron	3.72	0.0500	mg/L	3.94	5.80	20
Magnesium	19.1	0.500	mg/L	19.4	1.82	20
Calcium	103	0.500	mg/L	106	3.12	20

Duplicate (BDC0429-DUP2)

Source: MDC0258-03

Prepared: 03/22/2018 Analyzed: 03/26/2018

Boron	5.59	0.0500	mg/L	5.55	0.872	20
Calcium	245	0.500	mg/L	244	0.501	20
Potassium	2.19	0.500	mg/L	2.12	3.08	20
Lithium	<0.0500	0.0500	mg/L	<0.0500		20
Magnesium	65.6	0.500	mg/L	65.9	0.541	20
Sodium	64.0	0.500	mg/L	63.7	0.440	20



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0429 - EPA 200.2, EPA 3005

Matrix Spike (BDC0429-MS1)		Source: MDC0258-02		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Magnesium	122	0.500	mg/L	100.00	19.4	103	70-130			
Calcium	212	0.500	mg/L	100.00	106	106	70-130			
Lithium	0.998	0.0500	mg/L	1.0000	<0.0500	99.8	75-125			
Potassium	107	0.500	mg/L	100.00	5.79	101	70-130			
Sodium	215	0.500	mg/L	100.00	108	107	70-130			
Boron	4.92	0.0500	mg/L	1.0000	3.94	98.8	70-130			

Matrix Spike (BDC0429-MS2)		Source: MDC0258-03		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Magnesium	179	0.500	mg/L	100.00	65.9	113	70-130			
Sodium	176	0.500	mg/L	100.00	63.7	113	70-130			
Potassium	108	0.500	mg/L	100.00	2.12	106	70-130			
Boron	6.68	0.0500	mg/L	1.0000	5.55	113	70-130			
Lithium	1.04	0.0500	mg/L	1.0000	<0.0500	104	75-125			
Calcium	369	0.500	mg/L	100.00	244	124	70-130			

Matrix Spike Dup (BDC0429-MSD1)		Source: MDC0258-02		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Potassium	109	0.500	mg/L	100.00	5.79	103	70-130	2.17	20	
Calcium	215	0.500	mg/L	100.00	106	109	70-130	1.32	20	
Lithium	1.02	0.0500	mg/L	1.0000	<0.0500	102	75-125	2.42	20	
Sodium	218	0.500	mg/L	100.00	108	110	70-130	1.46	20	
Boron	4.86	0.0500	mg/L	1.0000	3.94	92.4	70-130	1.30	20	
Magnesium	125	0.500	mg/L	100.00	19.4	106	70-130	2.71	20	

Matrix Spike Dup (BDC0429-MSD2)		Source: MDC0258-03		Prepared: 03/22/2018 Analyzed: 03/26/2018						
Potassium	104	0.500	mg/L	100.00	2.12	102	70-130	3.39	20	
Calcium	352	0.500	mg/L	100.00	244	107	70-130	4.72	20	
Boron	7.25	0.0500	mg/L	1.0000	5.55	170	70-130	8.14	20	M_MS
Sodium	169	0.500	mg/L	100.00	63.7	105	70-130	4.23	20	
Magnesium	171	0.500	mg/L	100.00	65.9	105	70-130	4.36	20	
Lithium	1.01	0.0500	mg/L	1.0000	<0.0500	101	75-125	2.54	20	



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		04/06/2018 10:02
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDC0468 - EPA 245.1, EPA 7470A

Blank (BDC0468-BLK1)				Prepared & Analyzed: 03/23/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDC0468-BS1)				Prepared & Analyzed: 03/23/2018						
Mercury	2.79	0.200	ug/L	3.0000		92.9	85-115			
Duplicate (BDC0468-DUP1)				Source: MDC0258-06		Prepared & Analyzed: 03/23/2018				
Mercury	<0.200	0.200	ug/L		<0.200			20		
Duplicate (BDC0468-DUP2)				Source: MDC0258-07		Prepared & Analyzed: 03/23/2018				
Mercury	<0.200	0.200	ug/L		<0.200			20		
Matrix Spike (BDC0468-MS1)				Source: MDC0258-06		Prepared & Analyzed: 03/23/2018				
Mercury	2.13	0.200	ug/L	3.0000	<0.200	70.9	70-130			
Matrix Spike (BDC0468-MS2)				Source: MDC0258-07		Prepared & Analyzed: 03/23/2018				
Mercury	2.09	0.200	ug/L	3.0000	<0.200	69.8	70-130			M_MS
Matrix Spike Dup (BDC0468-MSD1)				Source: MDC0258-06		Prepared & Analyzed: 03/23/2018				
Mercury	2.10	0.200	ug/L	3.0000	<0.200	69.9	70-130	1.34	20	M_MS
Matrix Spike Dup (BDC0468-MSD2)				Source: MDC0258-07		Prepared & Analyzed: 03/23/2018				
Mercury	2.08	0.200	ug/L	3.0000	<0.200	69.5	70-130	0.421	20	M_MS



Amended Report

Original Report ID: MDC0258 Xcel General Report FINAL 03 28 2018
1257 03 28 2018 0312

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis 250 Marquette Plaza Minneapolis MN, 55401	Project Name/Location: Black Dog CCR Project Manager: Tedd Ronning	Reported: 04/06/2018 10:02

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2
2201241

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
MP-7
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Jeff Renning, Rick Rosvold (Xcel)
Copy To: Dana Pasi, Jenni Brecken (Bart)
Purchase Order No.:
Project Name: Black Dog CCR Baseline
Project Number: march 2018

Section C

Invoice Information:

Attention: Steve Davis
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ General metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other						
					DATE	TIME	DATE	TIME																
1	Field Blank		WT				3/15/18	1340		2	1	1												
2	W 511A							1415		2	1	1												
3	W 510A							1510		2	1	1												
4	W 604A							1610		2	1	1												
5	W 603A		✓				✓	1700		2	1	1												
6	W 504A		WT				3/20/18	0930		2	1	1												
7	W 504B							1005		2	1	1												
8	W 502A							1110		2	1	1												
9	Duplicate							1110		2	1	1												
10	W 502B							1140		2	1	1												
11	W 600A							1250		2	1	1												
12	W 602A		✓				✓	1340		2	1	1												
ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION				DATE		TIME		ACCEPTED BY / AFFILIATION				DATE		TIME		SAMPLE CONDITIONS						
① Total metals (unfiltered)		David Anderson / Pace				3/21/18		1330		H/O Xcel				3/21/18		1340		✓ 						

ORIGINAL

PH Anpr: MB00508

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

David Anderson

David Anderson

DATE Signed
(MM/DD/YY):

3/20/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2

2201238

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
MP-7

Email To:

Phone:

Fax:

Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Ted Ronning, Rick Rosvold (Xcel)
Copy To: Pam Pasi, Jenni Brekken (Batt)

Purchase Order No.:

Project Name:

Project Number:

Black Dog CCR Baseline
March 2018

Section C

Invoice Information:

Attention: Steve Davis

Company Name:

Address:

Pace Quote

Reference:

Pace Project

Manager:

Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location

STATE: _____

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Codes Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓ Analysis Test ↑	General metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
						COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
① Total Metals (unfiltered)	David Anderson / Pace	3/21/18	1330	Lab: H. / Xcel	3/21/18	1340	
② Pond A sample added per Batt Engineering							

ORIGINAL

pt Steps: MB05508

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

David Anderson

SIGNATURE of SAMPLER:

David Anderson

DATE Signed (MM/DD/YY):

3/21/18

Temp in °C

14.3

Received on Ice (Y/N)

Y

Custody Sealed Cooler (Y/N)

Y

Samples Intact (Y/N)

Y

W514B was incorrectly labeled as W514A in
the field and has been revised in EQUIS to
display W514B. KAC - 08/06/2018

June 04, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

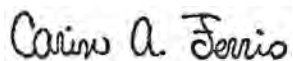
RE: Project: 18-00584,Xcel Energy-BlackDogC
Pace Project No.: 30252798

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 14, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

SAMPLE SUMMARY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30252798001	Field Blank	Water	05/08/18 08:50	05/14/18 09:50
30252798002	W 511 A	Water	05/08/18 09:25	05/14/18 09:50
30252798003	W 510 A	Water	05/08/18 10:10	05/14/18 09:50
30252798004	W 604 A	Water	05/08/18 11:00	05/14/18 09:50
30252798005	W 603 A	Water	05/08/18 11:45	05/14/18 09:50
30252798006	W 605 A	Water	05/08/18 12:40	05/14/18 09:50
30252798007	W 506 A	Water	05/08/18 13:30	05/14/18 09:50
30252798008	W 514 A	Water	05/08/18 14:10	05/14/18 09:50
30252798009	W 601 A	Water	05/08/18 15:00	05/14/18 09:50
30252798010	W 600 A	Water	05/09/18 09:00	05/14/18 09:50
30252798011	W 504 A	Water	05/09/18 09:45	05/14/18 09:50
30252798012	W 504 B	Water	05/09/18 10:25	05/14/18 09:50
30252798013	W 502 A	Water	05/09/18 11:05	05/14/18 09:50
30252798014	W 502 B	Water	05/09/18 11:40	05/14/18 09:50
30252798015	Duplicate	Water	05/09/18 11:40	05/14/18 09:50
30252798016	W 602 A	Water	05/09/18 12:30	05/14/18 09:50
30252798017	W 7 A	Water	05/09/18 13:10	05/14/18 09:50
30252798018	W 14 A	Water	05/09/18 14:00	05/14/18 09:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30252798001	Field Blank	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798002	W 511 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798003	W 510 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798004	W 604 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798005	W 603 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798006	W 605 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798007	W 506 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798008	W 514 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798009	W 601 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798010	W 600 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798011	W 504 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798012	W 504 B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798013	W 502 A	EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30252798014	W 502 B	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30252798015	Duplicate	Total Radium Calculation	RMK	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
30252798016	W 602 A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
30252798017	W 7 A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30252798018	W 14 A	Total Radium Calculation	RMK	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA

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PROJECT NARRATIVE

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: June 04, 2018

General Information:

18 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: June 04, 2018

General Information:

18 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: June 04, 2018

General Information:

18 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Sample: Field Blank **Lab ID: 30252798001** Collected: 05/08/18 08:50 Received: 05/14/18 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.169 ± 0.258 (0.415) C:NA T:92%	pCi/L	06/01/18 12:37	13982-63-3	
Radium-228	EPA 904.0	0.493 ± 0.404 (0.809) C:84% T:77%	pCi/L	05/31/18 16:10	15262-20-1	
Total Radium	Total Radium Calculation	0.662 ± 0.662 (1.22)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 511 A **Lab ID: 30252798002** Collected: 05/08/18 09:25 Received: 05/14/18 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.651 ± 0.457 (0.584) C:NA T:94%	pCi/L	06/01/18 12:37	13982-63-3	
Radium-228	EPA 904.0	-0.225 ± 0.449 (1.06) C:85% T:79%	pCi/L	05/31/18 16:10	15262-20-1	
Total Radium	Total Radium Calculation	0.651 ± 0.906 (1.64)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 510 A **Lab ID: 30252798003** Collected: 05/08/18 10:10 Received: 05/14/18 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.431 ± 0.438 (0.663) C:NA T:83%	pCi/L	06/01/18 12:37	13982-63-3	
Radium-228	EPA 904.0	0.339 ± 0.365 (0.762) C:88% T:84%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.770 ± 0.803 (1.43)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 604 A **Lab ID: 30252798004** Collected: 05/08/18 11:00 Received: 05/14/18 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.285 (0.639) C:NA T:92%	pCi/L	06/01/18 12:43	13982-63-3	
Radium-228	EPA 904.0	0.353 ± 0.411 (0.865) C:85% T:73%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.353 ± 0.696 (1.50)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 603 A **Lab ID: 30252798005** Collected: 05/08/18 11:45 Received: 05/14/18 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.262 (0.423) C:NA T:90%	pCi/L	06/01/18 12:37	13982-63-3	
Radium-228	EPA 904.0	0.417 ± 0.376 (0.766) C:86% T:85%	pCi/L	05/31/18 16:11	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Sample: W 603 A		Lab ID: 30252798005	Collected: 05/08/18 11:45	Received: 05/14/18 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.417 ± 0.638 (1.19)		pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 605 A		Lab ID: 30252798006	Collected: 05/08/18 12:40	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.258 (0.416) C:NA T:92%	pCi/L	06/01/18 12:37	13982-63-3	
Radium-228	EPA 904.0	0.261 ± 0.363 (0.778) C:80% T:84%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.261 ± 0.621 (1.19)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 506 A		Lab ID: 30252798007	Collected: 05/08/18 13:30	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.303 (0.489) C:NA T:83%	pCi/L	06/01/18 12:54	13982-63-3	
Radium-228	EPA 904.0	0.110 ± 0.290 (0.650) C:85% T:86%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.110 ± 0.593 (1.14)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 514 A		Lab ID: 30252798008	Collected: 05/08/18 14:10	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.238 ± 0.287 (0.438) C:NA T:88%	pCi/L	06/01/18 12:54	13982-63-3	
Radium-228	EPA 904.0	0.464 ± 0.424 (0.871) C:83% T:85%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.702 ± 0.711 (1.31)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 601 A		Lab ID: 30252798009	Collected: 05/08/18 15:00	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.164 ± 0.250 (0.402) C:NA T:93%	pCi/L	06/01/18 12:54	13982-63-3	
Radium-228	EPA 904.0	0.529 ± 0.377 (0.731) C:85% T:84%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.693 ± 0.627 (1.13)	pCi/L	06/04/18 15:48	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Sample: W 600 A		Lab ID: 30252798010	Collected: 05/09/18 09:00	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.351 ± 0.399 (0.629) C:NA T:87%	pCi/L	06/01/18 12:54	13982-63-3	
Radium-228	EPA 904.0	1.03 ± 0.461 (0.773) C:83% T:85%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	1.38 ± 0.860 (1.40)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 504 A		Lab ID: 30252798011	Collected: 05/09/18 09:45	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.245 ± 0.296 (0.451) C:NA T:88%	pCi/L	06/01/18 12:54	13982-63-3	
Radium-228	EPA 904.0	0.107 ± 0.334 (0.752) C:80% T:82%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.352 ± 0.630 (1.20)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 504 B		Lab ID: 30252798012	Collected: 05/09/18 10:25	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.915 ± 0.472 (0.396) C:NA T:94%	pCi/L	06/01/18 12:54	13982-63-3	
Radium-228	EPA 904.0	0.777 ± 0.434 (0.788) C:82% T:79%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	1.69 ± 0.906 (1.18)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 502 A		Lab ID: 30252798013	Collected: 05/09/18 11:05	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.372 ± 0.387 (0.577) C:NA T:87%	pCi/L	06/01/18 13:07	13982-63-3	
Radium-228	EPA 904.0	0.447 ± 0.359 (0.713) C:85% T:83%	pCi/L	05/31/18 16:12	15262-20-1	
Total Radium	Total Radium Calculation	0.819 ± 0.746 (1.29)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 502 B		Lab ID: 30252798014	Collected: 05/09/18 11:40	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.612 ± 0.505 (0.730) C:NA T:95%	pCi/L	06/01/18 13:07	13982-63-3	
Radium-228	EPA 904.0	0.913 ± 0.402 (0.648) C:79% T:90%	pCi/L	05/31/18 16:12	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

Sample: W 502 B		Lab ID: 30252798014	Collected: 05/09/18 11:40	Received: 05/14/18 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.53 ± 0.907 (1.38)		pCi/L	06/04/18 15:48	7440-14-4	

Sample: Duplicate		Lab ID: 30252798015	Collected: 05/09/18 11:40	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.541 ± 0.461 (0.647) C:NA T:89%	pCi/L	06/01/18 13:07	13982-63-3	
Radium-228	EPA 904.0	0.934 ± 0.443 (0.751) C:84% T:79%	pCi/L	05/31/18 16:12	15262-20-1	
Total Radium	Total Radium Calculation	1.48 ± 0.904 (1.40)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 602 A		Lab ID: 30252798016	Collected: 05/09/18 12:30	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.389 ± 0.395 (0.597) C:NA T:90%	pCi/L	06/01/18 13:07	13982-63-3	
Radium-228	EPA 904.0	0.133 ± 0.311 (0.693) C:82% T:86%	pCi/L	05/31/18 16:12	15262-20-1	
Total Radium	Total Radium Calculation	0.522 ± 0.706 (1.29)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 7 A		Lab ID: 30252798017	Collected: 05/09/18 13:10	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.181 ± 0.355 (0.648) C:NA T:91%	pCi/L	06/01/18 13:07	13982-63-3	
Radium-228	EPA 904.0	0.567 ± 0.422 (0.828) C:83% T:76%	pCi/L	05/31/18 16:12	15262-20-1	
Total Radium	Total Radium Calculation	0.748 ± 0.777 (1.48)	pCi/L	06/04/18 15:48	7440-14-4	

Sample: W 14 A		Lab ID: 30252798018	Collected: 05/09/18 14:00	Received: 05/14/18 09:50	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.125 ± 0.285 (0.459) C:NA T:89%	pCi/L	06/01/18 13:07	13982-63-3	
Radium-228	EPA 904.0	0.0155 ± 0.360 (0.833) C:82% T:79%	pCi/L	05/31/18 16:11	15262-20-1	
Total Radium	Total Radium Calculation	0.141 ± 0.645 (1.29)	pCi/L	06/04/18 15:48	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

QC Batch:	298551	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30252798001, 30252798002, 30252798003, 30252798004, 30252798005, 30252798006, 30252798007, 30252798008, 30252798009, 30252798010, 30252798011, 30252798012, 30252798013, 30252798014, 30252798015, 30252798016, 30252798017, 30252798018		

METHOD BLANK:	1461297	Matrix:	Water

Associated Lab Samples: 30252798001, 30252798002, 30252798003, 30252798004, 30252798005, 30252798006, 30252798007, 30252798008, 30252798009, 30252798010, 30252798011, 30252798012, 30252798013, 30252798014, 30252798015, 30252798016, 30252798017, 30252798018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.409 ± 0.308 (0.595) C:84% T:89%	pCi/L	05/31/18 16:10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

QC Batch:	298537	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30252798001, 30252798002, 30252798003, 30252798004, 30252798005, 30252798006, 30252798007, 30252798008, 30252798009, 30252798010, 30252798011, 30252798012, 30252798013, 30252798014, 30252798015, 30252798016, 30252798017, 30252798018		

METHOD BLANK:	1461267	Matrix:	Water

Associated Lab Samples: 30252798001, 30252798002, 30252798003, 30252798004, 30252798005, 30252798006, 30252798007, 30252798008, 30252798009, 30252798010, 30252798011, 30252798012, 30252798013, 30252798014, 30252798015, 30252798016, 30252798017, 30252798018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.177 ± 0.269 (0.433) C:NA T:92%	pCi/L	06/01/18 12:22	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 18-00584,Xcel Energy-BlackDogC

Pace Project No.: 30252798

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: <u>1</u> of <u>2</u>	
Company: <u>Xcel Energy</u>		Report To: <u>David Anderson</u>		Attention: <u>Claire Ruitkirk</u>		2201252	
Address: <u>c/o Pace MN Field</u>		Copy To: <u>Tom Halverson</u>		Company Name: <u>Pace MN Field Services</u>			
Email To:		Purchase Order No.:		Address:		REGULATORY AGENCY ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER _____	
Phone: Fax:		Project Name: <u>TS-00584, Xcel Energy - Black Dog CCR, May 2018</u>		Pace Quote Reference: <u>Tom Halverson</u>			
Requested Due Date/TAT:		Project Number:		Pace Project Manager: <u>Carin Ferris</u>		Site Location:	
				Pace Profile #:		STATE: _____	

Section D Required Client Information		Matrix Codes MATRIX / CODE		COLLECTED				PRESERVATIVES		ANALYSIS TEST		Requested Analysis Filtered (Y/N)		W0#: 30252798		30252798		Residual Ch		Pace Project No. / Lab I.D.			
				COMPOSITE START		COMPOSITE END/GRAB																	
				DATE	TIME	DATE	TIME																
ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	DATE	TIME	UNPRESERVED	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test	RA-226 EPA 903.1	RA-228 EPA 904.0					
1	Field Blank	WT		5/8/18	0950			2	2														
2	W 511A				0923			2	2													001	
3	W 510A				1010			2	2													002	
4	W 604A				1100			2	2													003	
5	W 603A				1145			2	2													004	
6	W 605A				1240			2	2													005	
7	W 506A				1330			2	2													006	
8	W 514A				1410			2	2													007	
9	W 601A	✓			1500			2	2													008	
10	W 600A	WT		5/9/18	0900			2	2													009	
11	W 504A				0945			2	2													010	
12	W 504B	✓			1025			2	2													011	
ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS									
(1) client needs to analyze for: Radium 226+228 pCi/L combined.		David Anderson / Pace		5/10/18		0900		P. Kelly		5-14-18		9:50		- N N Y									
(2) RA-226 EPA 903.1 RA-228 EPA 904.0																							
SAMPLER NAME AND SIGNATURE								PRINT Name of SAMPLER: <u>David Anderson</u>		SIGNATURE of SAMPLER: <u>David Anderson</u>		DATE Signed (MM/DD/YY): <u>5/9/18</u>		Temp in °C		Received on Ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples Intact (Y/N)			

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Page: 2 of 2

Invoice Information:

[illegible][illegible]

Page 17 of 18
RA-226 EPA 903.1 ORIGINAL
RA-228 EPA 904.0

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <i>David Anderson</i>					
SIGNATURE of SAMPLER: <i>David Anderson</i>	DATE Signed (MM/DD/YY): <i>5/9/18</i>				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Xcel energy

Project #

30 25 26 98

27 AM 51418

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 745 9832 6914

Label	<u>MDS</u>
LIMS Login	<u>PM</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Thermometer Used N/A

Type of Ice: Wet Blue None

Cooler Temperature Observed Temp °C Correction Factor: °C Final Temp: °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	☒	☐	☐	<u>1003071</u>	<u>PM 5-14-18</u>
Chain of Custody Filled Out:	☒	☐	☐		
Chain of Custody Relinquished:	☒	☐	☐		
Sampler Name & Signature on COC:	☒	☐	☐		
Sample Labels match COC:	☒	☐	☐		
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	☒	☐	☐		
Short Hold Time Analysis (<72hr remaining):	☒	☐	☐		
Rush Turn Around Time Requested:	☒	☐	☐		
Sufficient Volume:	☒	☐	☐		
Correct Containers Used:	☒	☐	☐		
-Pace Containers Used:	☒	☐	☐		
Containers Intact:	☒	☐	☐		
Orthophosphate field filtered	☒	☐	☐		
Hex Cr Aqueous Compliance/NPDES sample field filtered	☒	☐	☐		
Organic Samples checked for dechlorination:	☒	☐	☐		
Filtered volume received for Dissolved tests	☒	☐	☐		
All containers have been checked for preservation.	☒	☐	☐		
All containers needing preservation are found to be in compliance with EPA recommendation.	☒	☐	☐		
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>PM</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	☒	☐	☐		
Trip Blank Present:	☒	☐	☐		
Trip Blank Custody Seals Present	☒	☐	☐		
Rad Aqueous Samples Screened > 0.5 mrem/hr	☒	☐	☐	Initial when completed: <u>PM</u>	Date: <u>5-14-18</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



W514B was incorrectly labeled as W514A in the field and has been revised in EQulS to display W514B. KAC - 08/06/2018

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

04 June 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 05/10/2018 10:00. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDE0098-01	Water	05/08/2018 8:50	05/10/2018 10:00
W511A		MDE0098-02	Water	05/08/2018 9:25	05/10/2018 10:00
W510A		MDE0098-03	Water	05/08/2018 10:10	05/10/2018 10:00
W604A		MDE0098-04	Water	05/08/2018 11:00	05/10/2018 10:00
W603A		MDE0098-05	Water	05/08/2018 11:45	05/10/2018 10:00
W605A		MDE0098-06	Water	05/08/2018 12:04	05/10/2018 10:00
W506A		MDE0098-07	Water	05/08/2018 13:30	05/10/2018 10:00
W514A		MDE0098-08	Water	05/08/2018 14:10	05/10/2018 10:00
W601A		MDE0098-09	Water	05/08/2018 15:00	05/10/2018 10:00
W600A		MDE0098-10	Water	05/09/2018 9:00	05/10/2018 10:00
W504A		MDE0098-11	Water	05/09/2018 9:45	05/10/2018 10:00
W504B		MDE0098-12	Water	05/09/2018 10:25	05/10/2018 10:00
W502A		MDE0098-13	Water	05/09/2018 11:05	05/10/2018 10:00
W502B		MDE0098-14	Water	05/09/2018 11:40	05/10/2018 10:00
Duplicate		MDE0098-15	Water	05/09/2018 11:40	05/10/2018 10:00
W602A		MDE0098-16	Water	05/09/2018 12:30	05/10/2018 10:00
W7A		MDE0098-17	Water	05/09/2018 13:10	05/10/2018 10:00
W14A		MDE0098-18	Water	05/09/2018 14:00	05/10/2018 10:00



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Field Blank

MDE0098-01 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 9:23	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 9:23	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 9:23	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 11:29	SM 2320B	CRL
pH	6.59		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 11:29	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:13	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:46	EPA 200.7	HRD
Calcium	< 0.500	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:44	EPA 200.7	HRD
Potassium	< 0.500	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:44	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:44	EPA 200.7	HRD
Magnesium	< 0.500	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:45	EPA 200.7	HRD
Sodium	< 0.500	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:44	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Field Blank

MDE0098-01 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 13:50	EPA 245.1, 7470A	HRD



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Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W511A

MDE0098-02 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	33.2	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 9:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 9:44	EPA 300.0	CRL
Sulfate	1240	10.0	mg/L		10	BDE0259	5/14/18 5:46	5/14/18 12:58	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	59.8	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 11:40	SM 2320B	CRL
pH	9.33		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 11:40	SM 4500-H+ B	CRL
Total Dissolved Solids	1970	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.47	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Barium	76.9	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Cadmium	0.142	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Chromium	74.0	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Molybdenum	433	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Antimony	0.969	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Selenium	79.8	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:29	EPA 200.8	CRL

Total Metals by ICP

Boron	11.5	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:51	EPA 200.7	HRD
Calcium	468	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:50	EPA 200.7	HRD
Potassium	16.9	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:50	EPA 200.7	HRD
Lithium	0.136	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:50	EPA 200.7	HRD
Magnesium	8.21	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:50	EPA 200.7	HRD
Sodium	84.1	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 11:50	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W511A

MDE0098-02 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 13:51	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W510A

MDE0098-03 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	86.1	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:04	EPA 300.0	CRL
Sulfate	39.6	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:04	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	940	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 11:51	SM 2320B	CRL
pH	7.74		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 11:51	SM 4500-H+ B	CRL
Total Dissolved Solids	1050	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	32.6	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Barium	231	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Molybdenum	0.574	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:32	EPA 200.8	CRL

Total Metals by ICP

Boron	5.43	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:07	EPA 200.7	HRD
Calcium	257	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:05	EPA 200.7	HRD
Potassium	1.81	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:06	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:06	EPA 200.7	HRD
Magnesium	72.4	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:06	EPA 200.7	HRD
Sodium	65.3	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:05	EPA 200.7	HRD



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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W510A

MDE0098-03 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 13:53	EPA 245.1, 7470A	HRD



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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W604A

MDE0098-04 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	72.9	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:24	EPA 300.0	CRL
Sulfate	352	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:24	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	61.2	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 11:58	SM 2320B	CRL
pH	8.81		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 11:58	SM 4500-H+ B	CRL
Total Dissolved Solids	746	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.01	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Barium	49.3	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Chromium	7.57	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Molybdenum	118	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Antimony	1.86	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Selenium	38.0	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:36	EPA 200.8	CRL

Total Metals by ICP

Boron	3.99	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:12	EPA 200.7	HRD
Calcium	81.3	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:10	EPA 200.7	HRD
Potassium	5.07	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:10	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:10	EPA 200.7	HRD
Magnesium	18.4	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:11	EPA 200.7	HRD
Sodium	123	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:10	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W604A

MDE0098-04 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 13:58	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W603A

MDE0098-05 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	126	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:45	EPA 300.0	CRL
Sulfate	283	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 10:45	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	123	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:03	SM 2320B	CRL
pH	8.63		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:03	SM 4500-H+ B	CRL
Total Dissolved Solids	780	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.88	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Barium	49.2	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Molybdenum	130	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Antimony	0.589	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Selenium	1.72	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:40	EPA 200.8	CRL

Total Metals by ICP

Boron	6.85	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:17	EPA 200.7	HRD
Calcium	85.2	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:15	EPA 200.7	HRD
Potassium	11.6	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:15	EPA 200.7	HRD
Lithium	0.0992	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:15	EPA 200.7	HRD
Magnesium	16.4	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:16	EPA 200.7	HRD
Sodium	138	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:15	EPA 200.7	HRD



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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W603A

MDE0098-05 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:00	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MDE0098-06 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	124	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 11:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 11:05	EPA 300.0	CRL
Sulfate	325	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 11:05	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	112	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:09	SM 2320B	CRL
pH	7.92		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:09	SM 4500-H+ B	CRL
Total Dissolved Solids	830	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.44	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Barium	81.6	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Chromium	0.508	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Molybdenum	64.2	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Antimony	0.693	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Selenium	2.75	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:44	EPA 200.8	CRL

Total Metals by ICP

Boron	2.95	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:22	EPA 200.7	HRD
Calcium	97.6	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:20	EPA 200.7	HRD
Potassium	5.67	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:20	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:20	EPA 200.7	HRD
Magnesium	21.4	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:21	EPA 200.7	HRD
Sodium	134	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:20	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W605A

MDE0098-06 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:02	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W506A

MDE0098-07 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	68.6	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 11:46	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 11:46	EPA 300.0	CRL
Sulfate	1090	10.0	mg/L		10	BDE0259	5/14/18 5:46	5/14/18 11:26	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	252	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:15	SM 2320B	CRL
pH	7.03		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:15	SM 4500-H+ B	CRL
Total Dissolved Solids	2090	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.36	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Barium	14.8	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Cadmium	3.54	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Cobalt	14.6	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Molybdenum	22.5	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Selenium	1.09	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL
Thallium	0.649	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:52	EPA 200.8	CRL

Total Metals by ICP

Boron	1.43	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:27	EPA 200.7	HRD
Calcium	477	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:26	EPA 200.7	HRD
Potassium	7.93	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:26	EPA 200.7	HRD
Lithium	0.0537	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:26	EPA 200.7	HRD
Magnesium	35.4	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:26	EPA 200.7	HRD
Sodium	41.8	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:26	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W506A

MDE0098-07 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:03	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514A

MDE0098-08 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	8.93	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 12:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 12:06	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 12:06	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	584	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:24	SM 2320B	CRL
pH	8.09		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:24	SM 4500-H+ B	CRL
Total Dissolved Solids	544	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.35	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Barium	144	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Molybdenum	1.91	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 9:56	EPA 200.8	CRL

Total Metals by ICP

Boron	0.0975	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:32	EPA 200.7	HRD
Calcium	78.5	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:31	EPA 200.7	HRD
Potassium	1.19	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:31	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:31	EPA 200.7	HRD
Magnesium	86.5	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:31	EPA 200.7	HRD
Sodium	9.87	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:31	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W514A

MDE0098-08 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:05	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W601A

MDE0098-09 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	186	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 12:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 12:38	EPA 300.0	CRL
Sulfate	820	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 12:38	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	88.1	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:30	SM 2320B	CRL
pH	10.2		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:30	SM 4500-H+ B	CRL
Total Dissolved Solids	1800	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	13.3	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Barium	64.3	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Chromium	0.806	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Molybdenum	222	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Antimony	0.739	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Selenium	49.0	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:04	EPA 200.8	CRL

Total Metals by ICP

Boron	11.9	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:37	EPA 200.7	HRD
Calcium	283	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:36	EPA 200.7	HRD
Potassium	37.0	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:36	EPA 200.7	HRD
Lithium	0.230	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:36	EPA 200.7	HRD
Magnesium	1.28	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:36	EPA 200.7	HRD
Sodium	234	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:36	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W601A

MDE0098-09 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:07	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W600A

MDE0098-10 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	11.9	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 15:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 15:22	EPA 300.0	CRL
Sulfate	1740	10.0	mg/L		10	BDE0259	5/14/18 5:46	5/14/18 15:01	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	129	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:35	SM 2320B	CRL
pH	6.46		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:35	SM 4500-H+ B	CRL
Total Dissolved Solids	2660	20.0	mg/L		1	BDE0220	5/11/18 8:44	5/11/18 8:44	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	30.4	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Barium	16.9	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Beryllium	11.4	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Cadmium	31.1	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Cobalt	54.1	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Chromium	18.2	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Molybdenum	53.8	5.00	ug/L		10	BDE0264	5/14/18 7:45	5/15/18 10:15	EPA 200.8	CRL
Lead	18.9	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL
Thallium	0.612	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:19	EPA 200.8	CRL

Total Metals by ICP

Boron	8.39	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:42	EPA 200.7	HRD
Calcium	449	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:41	EPA 200.7	HRD
Potassium	10.9	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:41	EPA 200.7	HRD
Lithium	0.0884	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:41	EPA 200.7	HRD
Magnesium	39.9	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:41	EPA 200.7	HRD
Sodium	48.2	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:41	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W600A

MDE0098-10 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:08	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W504A

MDE0098-11 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	85.3	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 15:42	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 15:42	EPA 300.0	CRL
Sulfate	817	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 15:42	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	467	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 12:50	SM 2320B	CRL
pH	7.19		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 12:50	SM 4500-H+ B	CRL
Total Dissolved Solids	1980	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.97	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Barium	26.7	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Cobalt	1.45	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Molybdenum	24.4	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:23	EPA 200.8	CRL

Total Metals by ICP

Boron	14.3	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:47	EPA 200.7	HRD
Calcium	338	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:46	EPA 200.7	HRD
Potassium	2.37	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:46	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:46	EPA 200.7	HRD
Magnesium	79.1	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:46	EPA 200.7	HRD
Sodium	174	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:46	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W504A

MDE0098-11 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:10	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W504B

MDE0098-12 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	56.9	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 16:02	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 16:02	EPA 300.0	CRL
Sulfate	17.4	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 16:02	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	840	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:00	SM 2320B	CRL
pH	7.41		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:00	SM 4500-H+ B	CRL
Total Dissolved Solids	916	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.34	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Barium	367	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:27	EPA 200.8	CRL

Total Metals by ICP

Boron	0.461	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:53	EPA 200.7	HRD
Calcium	217	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:51	EPA 200.7	HRD
Potassium	1.10	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:51	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:51	EPA 200.7	HRD
Magnesium	78.6	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:51	EPA 200.7	HRD
Sodium	25.2	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 12:51	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W504B

MDE0098-12 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0318	5/15/18 8:37	5/15/18 14:12	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W502A

MDE0098-13 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	103	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 16:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 16:43	EPA 300.0	CRL
Sulfate	1400	10.0	mg/L		10	BDE0259	5/14/18 5:46	5/14/18 16:23	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	308	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:07	SM 2320B	CRL
pH	7.42		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:07	SM 4500-H+ B	CRL
Total Dissolved Solids	2600	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	32.1	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Barium	75.7	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Cobalt	3.68	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Molybdenum	63.6	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:35	EPA 200.8	CRL

Total Metals by ICP

Boron	7.87	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:07	EPA 200.7	HRD
Calcium	501	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:06	EPA 200.7	HRD
Potassium	16.0	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:06	EPA 200.7	HRD
Lithium	0.0900	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:06	EPA 200.7	HRD
Magnesium	70.9	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:06	EPA 200.7	HRD
Sodium	164	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:06	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W502A

MDE0098-13 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0653	5/31/18 8:29	5/31/18 14:39	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W502B

MDE0098-14 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	84.1	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 17:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 17:24	EPA 300.0	CRL
Sulfate	1190	10.0	mg/L		10	BDE0259	5/14/18 5:46	5/14/18 17:04	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	359	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:13	SM 2320B	CRL
pH	7.31		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:13	SM 4500-H+ B	CRL
Total Dissolved Solids	2270	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.61	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Barium	148	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:43	EPA 200.8	CRL

Total Metals by ICP

Boron	3.67	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:12	EPA 200.7	HRD
Calcium	445	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:11	EPA 200.7	HRD
Potassium	1.90	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:11	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:11	EPA 200.7	HRD
Magnesium	115	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:11	EPA 200.7	HRD
Sodium	62.0	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:11	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W502B

MDE0098-14 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0653	5/31/18 8:29	5/31/18 14:41	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Duplicate

MDE0098-15 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	83.8	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:05	EPA 300.0	CRL
Sulfate	1200	10.0	mg/L		10	BDE0259	5/14/18 5:46	5/14/18 17:44	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	390	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:21	SM 2320B	CRL
pH	7.31		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:21	SM 4500-H+ B	CRL
Total Dissolved Solids	2330	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.68	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Barium	147	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 10:51	EPA 200.8	CRL

Total Metals by ICP

Boron	3.78	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:18	EPA 200.7	HRD
Calcium	447	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:16	EPA 200.7	HRD
Potassium	1.88	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:16	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:16	EPA 200.7	HRD
Magnesium	117	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:17	EPA 200.7	HRD
Sodium	62.3	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:16	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Duplicate

MDE0098-15 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0653	5/31/18 8:29	5/31/18 14:43	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W602A

MDE0098-16 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	206	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:25	EPA 300.0	CRL
Sulfate	276	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:25	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	265	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:27	SM 2320B	CRL
pH	7.77		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:27	SM 4500-H+ B	CRL
Total Dissolved Solids	1040	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.68	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Barium	74.6	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Cobalt	1.64	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Molybdenum	55.5	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:02	EPA 200.8	CRL

Total Metals by ICP

Boron	1.16	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:22	EPA 200.7	HRD
Calcium	124	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:21	EPA 200.7	HRD
Potassium	1.44	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:21	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:21	EPA 200.7	HRD
Magnesium	34.5	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:22	EPA 200.7	HRD
Sodium	180	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:21	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W602A

MDE0098-16 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0653	5/31/18 8:29	5/31/18 14:44	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W7A

MDE0098-17 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	20.4	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:46	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:46	EPA 300.0	CRL
Sulfate	112	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 18:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	260	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:33	SM 2320B	CRL
pH	7.65		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:33	SM 4500-H+ B	CRL
Total Dissolved Solids	470	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.579	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Barium	78.7	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Chromium	2.50	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Molybdenum	9.74	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Selenium	0.745	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:06	EPA 200.8	CRL

Total Metals by ICP

Boron	0.100	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:28	EPA 200.7	HRD
Calcium	105	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:26	EPA 200.7	HRD
Potassium	1.86	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:26	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:26	EPA 200.7	HRD
Magnesium	29.6	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:27	EPA 200.7	HRD
Sodium	11.3	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:26	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W7A

MDE0098-17 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0653	5/31/18 8:29	5/31/18 14:46	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W14A

MDE0098-18 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	86.1	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 19:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 19:06	EPA 300.0	CRL
Sulfate	86.7	1.00	mg/L		1	BDE0259	5/14/18 5:46	5/14/18 19:06	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	315	10.0	mg/L		1	BDE0218	5/10/18 10:40	5/10/18 13:40	SM 2320B	CRL
pH	7.53		pH Units	M_TTT	1	BDE0218	5/10/18 10:40	5/10/18 13:40	SM 4500-H+ B	CRL
Total Dissolved Solids	598	20.0	mg/L		1	BDE0260	5/14/18 9:28	5/14/18 9:28	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.27	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Barium	23.8	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Molybdenum	57.7	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDE0264	5/14/18 7:45	5/15/18 11:10	EPA 200.8	CRL

Total Metals by ICP

Boron	0.757	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:32	EPA 200.7	HRD
Calcium	100	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:31	EPA 200.7	HRD
Potassium	2.10	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:31	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:31	EPA 200.7	HRD
Magnesium	18.6	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:31	EPA 200.7	HRD
Sodium	84.3	0.500	mg/L		1	BDE0263	5/14/18 7:44	5/17/18 13:31	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

W14A

MDE0098-18 (Water) - Chain of Custody Number: 2201253/2201254

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDE0653	5/31/18 8:29	5/31/18 14:48	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0259 - Wet Prep

Blank (BDE0259-BLK1)				Prepared & Analyzed: 05/14/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDE0259-BLK2)				Prepared & Analyzed: 05/14/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDE0259-BS1)				Prepared & Analyzed: 05/14/2018						
Chloride	24.4	1.00	mg/L	25.076		97.3	90-110			
Fluoride	2.54	0.750	mg/L	2.5076		101	90-110			
Sulfate	47.9	1.00	mg/L	48.144		99.4	90-110			

LCS (BDE0259-BS2)				Prepared & Analyzed: 05/14/2018						
Chloride	24.6	1.00	mg/L	25.076		98.0	90-110			
Fluoride	2.36	0.750	mg/L	2.5076		94.3	90-110			
Sulfate	47.4	1.00	mg/L	48.144		98.5	90-110			

LCS (BDE0259-BS3)				Prepared & Analyzed: 05/14/2018						
Chloride	24.8	1.00	mg/L	25.076		98.7	90-110			
Fluoride	2.36	0.750	mg/L	2.5076		94.3	90-110			
Sulfate	47.6	1.00	mg/L	48.144		99.0	90-110			

Duplicate (BDE0259-DUP1)				Source: MDE0098-08		Prepared & Analyzed: 05/14/2018				
Chloride	8.95	1.00	mg/L		8.93			0.257	20	
Fluoride	0.136	0.750	mg/L		0.133			2.23	20	
Sulfate	<1.00	1.00	mg/L		0.474				20	

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0259 - Wet Prep

Duplicate (BDE0259-DUP2)	Source: MDE0098-12			Prepared & Analyzed: 05/14/2018						
Chloride	56.7	1.00	mg/L		56.9			0.299	20	
Fluoride	0.221	0.750	mg/L		0.226			2.24	20	
Sulfate	17.3	1.00	mg/L		17.4			0.668	20	

Matrix Spike (BDE0259-MS1)	Source: MDE0098-08			Prepared & Analyzed: 05/14/2018						
Chloride	39.0	1.25	mg/L	31.345	8.93	96.0	80-120			
Fluoride	2.86	0.938	mg/L	3.1345	<0.938	91.3	80-120			
Sulfate	58.2	1.25	mg/L	60.180	<1.25	96.8	80-120			

Matrix Spike (BDE0259-MS2)	Source: MDE0098-12			Prepared & Analyzed: 05/14/2018						
Chloride	86.0	1.25	mg/L	31.345	56.9	92.9	80-120			
Fluoride	2.93	0.938	mg/L	3.1345	0.226	86.1	80-120			
Sulfate	73.8	1.25	mg/L	60.180	17.4	93.8	80-120			

Matrix Spike Dup (BDE0259-MSD1)	Source: MDE0098-08			Prepared & Analyzed: 05/14/2018						
Chloride	39.2	1.25	mg/L	31.345	8.93	96.5	80-120	0.435	20	
Fluoride	2.98	0.938	mg/L	3.1345	<0.938	95.2	80-120	4.15	20	
Sulfate	58.7	1.25	mg/L	60.180	<1.25	97.5	80-120	0.746	20	

Matrix Spike Dup (BDE0259-MSD2)	Source: MDE0098-12			Prepared & Analyzed: 05/14/2018						
Chloride	86.8	1.25	mg/L	31.345	56.9	95.2	80-120	0.842	20	
Fluoride	3.01	0.938	mg/L	3.1345	0.226	88.7	80-120	2.70	20	
Sulfate	75.1	1.25	mg/L	60.180	17.4	95.9	80-120	1.73	20	



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0218 - Wet Prep

LCS (BDE0218-BS1)				Prepared & Analyzed: 05/10/2018						
pH	7.04		pH Units	7.0000		101	90-110			
Alkalinity, Total	102		mg/L	100.00		102	90-110			
Duplicate (BDE0218-DUP1)				Source: MDE0098-02		Prepared & Analyzed: 05/10/2018				
pH	9.19		pH Units		9.33			1.51	20	
Alkalinity, Total	54.7	10.0	mg/L		59.8			8.94	20	
Duplicate (BDE0218-DUP2)				Source: MDE0098-11		Prepared & Analyzed: 05/10/2018				
Alkalinity, Total	457	10.0	mg/L		467			2.29	20	
pH	7.18		pH Units		7.19			0.139	20	

Batch BDE0220 - Wet Prep

Blank (BDE0220-BLK1)				Prepared & Analyzed: 05/11/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDE0220-DUP1)				Source: MDE0098-02		Prepared & Analyzed: 05/11/2018				
Total Dissolved Solids	1970	20.0	mg/L		1970			0.101	20	

Batch BDE0260 - Wet Prep

Blank (BDE0260-BLK1)				Prepared & Analyzed: 05/14/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDE0260-DUP1)				Source: MDE0098-11		Prepared & Analyzed: 05/14/2018				
Total Dissolved Solids	1980	20.0	mg/L		1980			0.404	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0264 - EPA 200.2, EPA 3005

Blank (BDE0264-BLK1)

Prepared: 05/14/2018 Analyzed: 05/15/2018

Molybdenum	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Chromium	<0.500	0.500	ug/L
Barium	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L

LCS (BDE0264-BS1)

Prepared: 05/14/2018 Analyzed: 05/15/2018

Antimony	102	0.500	ug/L	100.00	102	85-115
Cadmium	98.2	0.100	ug/L	100.00	98.2	85-115
Beryllium	98.9	0.500	ug/L	100.00	98.9	85-115
Selenium	97.5	0.500	ug/L	100.00	97.5	85-115
Thallium	101	0.500	ug/L	100.00	101	85-115
Lead	100	0.500	ug/L	100.00	100	85-115
Arsenic	98.2	0.500	ug/L	100.00	98.2	85-115
Molybdenum	99.6	0.500	ug/L	100.00	99.6	85-115
Barium	102	0.500	ug/L	100.00	102	85-115
Cobalt	101	0.500	ug/L	100.00	101	85-115
Chromium	100	0.500	ug/L	100.00	100	85-115

Duplicate (BDE0264-DUP1)

Source: MDE0098-04

Prepared: 05/14/2018 Analyzed: 05/15/2018

Barium	51.6	0.500	ug/L	49.3	4.61	20	
Beryllium	0.145	0.500	ug/L	0.00806	179	20	M_D-RL
Cadmium	0.0439	0.100	ug/L	<0.100		20	
Molybdenum	120	0.500	ug/L	118	1.52	20	
Lead	0.0409	0.500	ug/L	<0.500		20	
Antimony	1.91	0.500	ug/L	1.86	2.91	20	
Thallium	0.110	0.500	ug/L	0.0163	149	20	M_D-RL
Arsenic	4.34	0.500	ug/L	4.01	8.01	20	
Selenium	37.7	0.500	ug/L	38.0	0.844	20	
Cobalt	0.154	0.500	ug/L	0.154	0.234	20	
Chromium	7.42	0.500	ug/L	7.57	2.01	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0264 - EPA 200.2, EPA 3005

Duplicate (BDE0264-DUP2)	Source: MDE0098-05			Prepared: 05/14/2018 Analyzed: 05/15/2018						
Cadmium	<0.100	0.100	ug/L		0.0276				20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Molybdenum	132	0.500	ug/L		130			1.52	20	
Chromium	0.218	0.500	ug/L		0.224			2.92	20	
Cobalt	0.180	0.500	ug/L		0.179			0.682	20	
Antimony	0.623	0.500	ug/L		0.589			5.69	20	
Selenium	1.71	0.500	ug/L		1.72			0.373	20	
Arsenic	5.88	0.500	ug/L		5.88			0.0173	20	
Barium	50.4	0.500	ug/L		49.2			2.54	20	
Beryllium	0.0155	0.500	ug/L		0.00974			45.6	20	M_D-RL
Lead	0.0162	0.500	ug/L		<0.500				20	

Matrix Spike (BDE0264-MS1)	Source: MDE0098-04			Prepared: 05/14/2018 Analyzed: 05/15/2018						
Chromium	109	0.500	ug/L	100.00	7.57	101	70-130			
Beryllium	96.3	0.500	ug/L	100.00	0.00806	96.3	70-130			
Selenium	136	0.500	ug/L	100.00	38.0	97.5	70-130			
Thallium	95.0	0.500	ug/L	100.00	0.0163	95.0	70-130			
Molybdenum	226	0.500	ug/L	100.00	118	108	70-130			
Lead	92.6	0.500	ug/L	100.00	<0.500	92.6	70-130			
Cobalt	101	0.500	ug/L	100.00	0.154	101	70-130			
Cadmium	95.6	0.100	ug/L	100.00	<0.100	95.6	70-130			
Arsenic	107	0.500	ug/L	100.00	4.01	103	70-130			
Barium	155	0.500	ug/L	100.00	49.3	105	70-130			
Antimony	107	0.500	ug/L	100.00	1.86	105	70-130			

Matrix Spike (BDE0264-MS2)	Source: MDE0098-05			Prepared: 05/14/2018 Analyzed: 05/15/2018						
Cadmium	95.5	0.100	ug/L	100.00	0.0276	95.4	70-130			
Selenium	97.4	0.500	ug/L	100.00	1.72	95.7	70-130			
Molybdenum	236	0.500	ug/L	100.00	130	106	70-130			
Antimony	106	0.500	ug/L	100.00	0.589	106	70-130			
Beryllium	92.0	0.500	ug/L	100.00	0.00974	92.0	70-130			
Cobalt	99.9	0.500	ug/L	100.00	0.179	99.7	70-130			
Lead	92.8	0.500	ug/L	100.00	<0.500	92.8	70-130			
Chromium	101	0.500	ug/L	100.00	0.224	101	70-130			
Arsenic	110	0.500	ug/L	100.00	5.88	104	70-130			
Thallium	94.6	0.500	ug/L	100.00	<0.500	94.6	70-130			
Barium	157	0.500	ug/L	100.00	49.2	107	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0264 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDE0264-MSD1)		Source: MDE0098-04		Prepared: 05/14/2018 Analyzed: 05/15/2018						
Selenium	136	0.500	ug/L	100.00	38.0	97.9	70-130	0.281	20	
Barium	156	0.500	ug/L	100.00	49.3	107	70-130	1.25	20	
Cadmium	94.5	0.100	ug/L	100.00	<0.100	94.5	70-130	1.12	20	
Chromium	109	0.500	ug/L	100.00	7.57	101	70-130	0.107	20	
Cobalt	102	0.500	ug/L	100.00	0.154	102	70-130	1.42	20	
Thallium	94.4	0.500	ug/L	100.00	0.0163	94.4	70-130	0.589	20	
Antimony	106	0.500	ug/L	100.00	1.86	104	70-130	0.675	20	
Arsenic	107	0.500	ug/L	100.00	4.01	103	70-130	0.547	20	
Lead	93.1	0.500	ug/L	100.00	<0.500	93.1	70-130	0.539	20	
Molybdenum	223	0.500	ug/L	100.00	118	105	70-130	1.23	20	
Beryllium	94.6	0.500	ug/L	100.00	0.00806	94.6	70-130	1.77	20	

Matrix Spike Dup (BDE0264-MSD2)		Source: MDE0098-05		Prepared: 05/14/2018 Analyzed: 05/15/2018						
Antimony	104	0.500	ug/L	100.00	0.589	104	70-130	2.10	20	
Cadmium	93.8	0.100	ug/L	100.00	0.0276	93.7	70-130	1.80	20	
Barium	154	0.500	ug/L	100.00	49.2	105	70-130	1.54	20	
Arsenic	107	0.500	ug/L	100.00	5.88	101	70-130	2.19	20	
Molybdenum	237	0.500	ug/L	100.00	130	107	70-130	0.420	20	
Cobalt	96.9	0.500	ug/L	100.00	0.179	96.7	70-130	2.99	20	
Lead	91.0	0.500	ug/L	100.00	<0.500	91.0	70-130	2.03	20	
Chromium	98.0	0.500	ug/L	100.00	0.224	97.8	70-130	3.02	20	
Thallium	93.5	0.500	ug/L	100.00	<0.500	93.5	70-130	1.22	20	
Selenium	96.5	0.500	ug/L	100.00	1.72	94.7	70-130	0.933	20	
Beryllium	91.9	0.500	ug/L	100.00	0.00974	91.9	70-130	0.0151	20	

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0263 - EPA 200.2, EPA 3005

Blank (BDE0263-BLK1)

Prepared: 05/14/2018 Analyzed: 05/17/2018

Boron	<0.0500	0.0500	mg/L
Lithium	<0.0500	0.0500	mg/L
Magnesium	<0.500	0.500	mg/L
Sodium	<0.500	0.500	mg/L
Potassium	<0.500	0.500	mg/L
Calcium	<0.500	0.500	mg/L

LCS (BDE0263-BS1)

Prepared: 05/14/2018 Analyzed: 05/17/2018

Calcium	104	0.500	mg/L	100.00	104	85-115
Boron	1.01	0.0500	mg/L	1.0000	101	85-115
Lithium	1.00	0.0500	mg/L	1.0000	100	85-115
Sodium	105	0.500	mg/L	100.00	105	85-115
Magnesium	104	0.500	mg/L	100.00	104	85-115
Potassium	104	0.500	mg/L	100.00	104	85-115

Duplicate (BDE0263-DUP1)

Source: MDE0098-02

Prepared: 05/14/2018 Analyzed: 05/17/2018

Potassium	17.0	0.500	mg/L	16.9	0.558	20
Calcium	468	0.500	mg/L	468	0.00192	20
Sodium	84.2	0.500	mg/L	84.1	0.222	20
Lithium	0.134	0.0500	mg/L	0.136	1.06	20
Magnesium	8.17	0.500	mg/L	8.21	0.446	20
Boron	11.3	0.0500	mg/L	11.5	2.31	20

Duplicate (BDE0263-DUP2)

Source: MDE0098-03

Prepared: 05/14/2018 Analyzed: 05/17/2018

Sodium	64.6	0.500	mg/L	65.3	1.02	20
Magnesium	71.7	0.500	mg/L	72.4	1.01	20
Lithium	<0.0500	0.0500	mg/L	<0.0500		20
Potassium	1.93	0.500	mg/L	1.81	6.36	20
Calcium	255	0.500	mg/L	257	1.09	20
Boron	5.37	0.0500	mg/L	5.43	1.12	20



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/04/2018 09:14
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0263 - EPA 200.2, EPA 3005

Matrix Spike (BDE0263-MS1)		Source: MDE0098-02		Prepared: 05/14/2018 Analyzed: 05/17/2018						
Calcium	593	0.500	mg/L	100.00	468	125	70-130			
Sodium	190	0.500	mg/L	100.00	84.1	106	70-130			
Lithium	1.14	0.0500	mg/L	1.0000	0.136	100	75-125			
Potassium	121	0.500	mg/L	100.00	16.9	104	70-130			
Boron	12.7	0.0500	mg/L	1.0000	11.5	113	70-130			
Magnesium	108	0.500	mg/L	100.00	8.21	99.7	70-130			

Matrix Spike (BDE0263-MS2)		Source: MDE0098-03		Prepared: 05/14/2018 Analyzed: 05/17/2018						
Sodium	171	0.500	mg/L	100.00	65.3	105	70-130			
Boron	6.24	0.0500	mg/L	1.0000	5.43	80.4	70-130			
Lithium	1.02	0.0500	mg/L	1.0000	<0.0500	102	75-125			
Calcium	364	0.500	mg/L	100.00	257	107	70-130			
Magnesium	179	0.500	mg/L	100.00	72.4	106	70-130			
Potassium	106	0.500	mg/L	100.00	1.81	105	70-130			

Matrix Spike Dup (BDE0263-MSD1)		Source: MDE0098-02		Prepared: 05/14/2018 Analyzed: 05/17/2018						
Sodium	193	0.500	mg/L	100.00	84.1	109	70-130	1.91	20	M_MS
Calcium	601	0.500	mg/L	100.00	468	133	70-130	1.32	20	
Potassium	123	0.500	mg/L	100.00	16.9	106	70-130	1.93	20	
Magnesium	110	0.500	mg/L	100.00	8.21	102	70-130	1.93	20	
Lithium	1.16	0.0500	mg/L	1.0000	0.136	102	75-125	2.04	20	
Boron	12.6	0.0500	mg/L	1.0000	11.5	105	70-130	0.630	20	

Matrix Spike Dup (BDE0263-MSD2)		Source: MDE0098-03		Prepared: 05/14/2018 Analyzed: 05/17/2018						
Sodium	167	0.500	mg/L	100.00	65.3	102	70-130	2.17	20	
Boron	6.62	0.0500	mg/L	1.0000	5.43	119	70-130	5.98	20	
Calcium	357	0.500	mg/L	100.00	257	99.4	70-130	2.13	20	
Magnesium	173	0.500	mg/L	100.00	72.4	101	70-130	2.97	20	
Lithium	1.00	0.0500	mg/L	1.0000	<0.0500	100	75-125	2.37	20	
Potassium	104	0.500	mg/L	100.00	1.81	102	70-130	2.63	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0318 - EPA 245.1, EPA 7470A

Blank (BDE0318-BLK1)				Prepared & Analyzed: 05/15/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDE0318-BS1)				Prepared & Analyzed: 05/15/2018						
Mercury	2.83	0.200	ug/L	3.0000		94.2	85-115			
Duplicate (BDE0318-DUP1)				Source: MDE0098-06		Prepared & Analyzed: 05/15/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDE0318-DUP2)				Source: MDE0098-07		Prepared & Analyzed: 05/15/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDE0318-MS1)				Source: MDE0098-06		Prepared & Analyzed: 05/15/2018				
Mercury	2.73	0.200	ug/L	3.0000	<0.200	91.1	70-130			
Matrix Spike (BDE0318-MS2)				Source: MDE0098-07		Prepared & Analyzed: 05/15/2018				
Mercury	2.71	0.200	ug/L	3.0000	<0.200	90.3	70-130			
Matrix Spike Dup (BDE0318-MSD1)				Source: MDE0098-06		Prepared & Analyzed: 05/15/2018				
Mercury	2.70	0.200	ug/L	3.0000	<0.200	90.1	70-130	1.16	20	
Matrix Spike Dup (BDE0318-MSD2)				Source: MDE0098-07		Prepared & Analyzed: 05/15/2018				
Mercury	2.63	0.200	ug/L	3.0000	<0.200	87.8	70-130	2.82	20	

Batch BDE0653 - EPA 245.1, EPA 7470A

Blank (BDE0653-BLK1)				Prepared & Analyzed: 05/31/2018						
Mercury	<0.200	0.200	ug/L							



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDE0653 - EPA 245.1, EPA 7470A

LCS (BDE0653-BS1)				Prepared & Analyzed: 05/31/2018						
Mercury	2.84	0.200	ug/L	3.0000		94.7	85-115			
Duplicate (BDE0653-DUP1)				Source: MDE0098-13		Prepared & Analyzed: 05/31/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDE0653-MS1)				Source: MDE0098-13		Prepared & Analyzed: 05/31/2018				
Mercury	2.84	0.200	ug/L	3.0000	<0.200	94.7	70-130			
Matrix Spike Dup (BDE0653-MSD1)				Source: MDE0098-13		Prepared & Analyzed: 05/31/2018				
Mercury	2.69	0.200	ug/L	3.0000	<0.200	89.6	70-130	5.48	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/04/2018 09:14

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
MP-7
Email To:
Phone:
Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Todd Ranning, Rick Rasvold (Xcel)
Copy To: Dana Pasi, Jonni Brekken (Barr)
Purchase Order No.:
Project Name: Black Dog CCR Baseline
Project Number: May 2018

Section C

Invoice Information:

Attention: Steve Davis
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

Page: 1 of 2

2201253

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓	General Metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
① Total metals (unfiltered)	David Anderson Pace	5/10/18	0945	David Anderson	5/10/18	1000	2.4°C Y

IR Gun M400841 ORIGINAL
pH strips 4800508

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

David Anderson

David Anderson

DATE Signed
(MM/DD/YY):

5/9/18

Temp in °C

Received on
Ice (Y/N)

Custody
Sealed Cooler
(Y/N)

Samples Intact
(Y/N)



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2
2201254

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
mp-7

Email To:

Phone:

Fax:

Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Todd Ranning, Rick Rosvold (Xcel)
Copy To: Dana Pasi, Jenni Brekken (Barr)

Purchase Order No.:

Project Name:

Project Number:

Black Dog CCR Baseline
May 2018

Section C

Invoice Information:

Attention: Steve Davis

Company Name:

Address:

Pace Quote

Reference:

Pace Project

Manager:

Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location

STATE: _____

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other		General Metals																
					DATE	TIME	DATE	TIME																												
1	W 502A		WT				5/9/18	1105	2	1	1									✓																
2	W 502B							1140	2	1	1									✓																
3	Duplicate							1140	2	1	1									✓																
4	W 602A							1230	2	1	1									✓																
5	W 7A							1310	2	1	1									✓																
6	W 14A		✓					1400	2	1	1									✓																
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
(1) Total metals (unfiltered)	David Anderson/Pace	5/10/18	0945	Steve Davis	5/11/18	1000	242 Y Y

1R Gun M40084 ORIGINAL
pH strips MB00508

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

David Anderson

SIGNATURE of SAMPLER:

David Anderson

DATE Signed (MM/DD/YY):

5/9/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

July 09, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

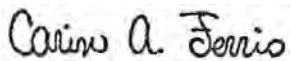
RE: Project: 18-00699, Xcel Energy- Black D
Pace Project No.: 30256332

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 18, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30256332001	Field Blank	Water	06/13/18 12:40	06/18/18 09:00
30256332002	W504A	Water	06/12/18 08:45	06/18/18 09:00
30256332003	W504B	Water	06/12/18 09:20	06/18/18 09:00
30256332004	W502A	Water	06/12/18 10:00	06/18/18 09:00
30256332005	W502B	Water	06/12/18 10:35	06/18/18 09:00
30256332006	W602A	Water	06/12/18 11:25	06/18/18 09:00
30256332007	W7A	Water	06/12/18 12:10	06/18/18 09:00
30256332008	W14A	Water	06/12/18 12:50	06/18/18 09:00
30256332009	W600A	Water	06/12/18 13:30	06/18/18 09:00
30256332010	W601A	Water	06/12/18 14:15	06/18/18 09:00
30256332011	W511A	Water	06/13/18 08:30	06/18/18 09:00
30256332012	W510A	Water	06/13/18 09:10	06/18/18 09:00
30256332013	W603A	Water	06/13/18 09:50	06/18/18 09:00
30256332014	W604A	Water	06/13/18 10:40	06/18/18 09:00
30256332015	W605A	Water	06/13/18 11:30	06/18/18 09:00
30256332016	W506A	Water	06/13/18 12:20	06/18/18 09:00
30256332017	Duplicate	Water	06/13/18 12:20	06/18/18 09:00
30256332018	W514A	Water	06/13/18 13:30	06/18/18 09:00
30256332019	W514B	Water	06/13/18 14:10	06/18/18 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30256332001	Field Blank	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332002	W504A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332003	W504B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332004	W502A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332005	W502B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332006	W602A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332007	W7A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332008	W14A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332009	W600A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332010	W601A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332011	W511A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332012	W510A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332013	W603A	EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30256332014	W604A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30256332015	W605A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332016	W506A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
30256332017	Duplicate	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30256332018	W514A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30256332019	W514B	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	KAC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: July 09, 2018

General Information:

19 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: July 09, 2018

General Information:

19 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

PROJECT NARRATIVE

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: July 09, 2018

General Information:

19 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Sample: Field Blank **Lab ID:** 30256332001 Collected: 06/13/18 12:40 Received: 06/18/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0652 ± 0.495 (0.978) C:NA T:73%	pCi/L	07/05/18 12:26	13982-63-3	
Radium-228	EPA 904.0	0.512 ± 0.463 (0.940) C:71% T:85%	pCi/L	07/06/18 13:26	15262-20-1	
Total Radium	Total Radium Calculation	0.577 ± 0.958 (1.92)	pCi/L	07/09/18 12:20	7440-14-4	

Sample: W504A **Lab ID:** 30256332002 Collected: 06/12/18 08:45 Received: 06/18/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.203 ± 0.245 (0.374) C:NA T:89%	pCi/L	07/05/18 12:42	13982-63-3	
Radium-228	EPA 904.0	-0.222 ± 0.463 (1.13) C:65% T:73%	pCi/L	07/06/18 13:26	15262-20-1	
Total Radium	Total Radium Calculation	0.203 ± 0.708 (1.50)	pCi/L	07/09/18 12:20	7440-14-4	

Sample: W504B **Lab ID:** 30256332003 Collected: 06/12/18 09:20 Received: 06/18/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.882 ± 0.536 (0.691) C:NA T:95%	pCi/L	07/05/18 12:42	13982-63-3	
Radium-228	EPA 904.0	1.02 ± 0.505 (0.857) C:66% T:83%	pCi/L	07/06/18 13:26	15262-20-1	
Total Radium	Total Radium Calculation	1.90 ± 1.04 (1.55)	pCi/L	07/09/18 12:20	7440-14-4	

Sample: W502A **Lab ID:** 30256332004 Collected: 06/12/18 10:00 Received: 06/18/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.244 ± 0.396 (0.689) C:NA T:93%	pCi/L	07/05/18 12:42	13982-63-3	
Radium-228	EPA 904.0	0.620 ± 0.570 (1.17) C:70% T:75%	pCi/L	07/06/18 13:26	15262-20-1	
Total Radium	Total Radium Calculation	0.864 ± 0.966 (1.86)	pCi/L	07/09/18 12:20	7440-14-4	

Sample: W502B **Lab ID:** 30256332005 Collected: 06/12/18 10:35 Received: 06/18/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.489 ± 0.442 (0.652) C:NA T:80%	pCi/L	07/05/18 12:57	13982-63-3	
Radium-228	EPA 904.0	0.540 ± 0.485 (0.983) C:63% T:85%	pCi/L	07/06/18 13:27	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Sample: W502B		Lab ID: 30256332005	Collected: 06/12/18 10:35	Received: 06/18/18 09:00	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.03 ± 0.927 (1.64)		pCi/L	07/09/18 12:20	7440-14-4	

Sample: W602A		Lab ID: 30256332006	Collected: 06/12/18 11:25	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0530 ± 0.275 (0.571) C:NA T:88%	pCi/L	07/05/18 12:43	13982-63-3	
Radium-228	EPA 904.0	0.502 ± 0.487 (1.00) C:66% T:84%	pCi/L	07/06/18 13:27	15262-20-1	
Total Radium	Total Radium Calculation	0.555 ± 0.762 (1.57)	pCi/L	07/09/18 12:20	7440-14-4	

Sample: W7A		Lab ID: 30256332007	Collected: 06/12/18 12:10	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.462 ± 0.338 (0.378) C:NA T:86%	pCi/L	07/05/18 12:43	13982-63-3	
Radium-228	EPA 904.0	-0.126 ± 0.371 (0.899) C:65% T:87%	pCi/L	07/06/18 13:28	15262-20-1	
Total Radium	Total Radium Calculation	0.462 ± 0.709 (1.28)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W14A		Lab ID: 30256332008	Collected: 06/12/18 12:50	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.107 ± 0.332 (0.643) C:NA T:89%	pCi/L	07/05/18 12:57	13982-63-3	
Radium-228	EPA 904.0	0.0917 ± 0.459 (1.05) C:67% T:72%	pCi/L	07/06/18 13:27	15262-20-1	
Total Radium	Total Radium Calculation	0.199 ± 0.791 (1.69)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W600A		Lab ID: 30256332009	Collected: 06/12/18 13:30	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.315 ± 0.358 (0.565) C:NA T:85%	pCi/L	07/05/18 12:57	13982-63-3	
Radium-228	EPA 904.0	0.344 ± 0.424 (0.896) C:71% T:79%	pCi/L	07/06/18 13:27	15262-20-1	
Total Radium	Total Radium Calculation	0.659 ± 0.782 (1.46)	pCi/L	07/09/18 12:30	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Sample: W601A		Lab ID: 30256332010	Collected: 06/12/18 14:15	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.388 ± 0.383 (0.582) C:NA T:89%	pCi/L	07/05/18 12:57	13982-63-3	
Radium-228	EPA 904.0	0.622 ± 0.448 (0.867) C:70% T:83%	pCi/L	07/06/18 13:27	15262-20-1	
Total Radium	Total Radium Calculation	1.01 ± 0.831 (1.45)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W511A		Lab ID: 30256332011	Collected: 06/13/18 08:30	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.103 ± 0.320 (0.621) C:NA T:87%	pCi/L	07/05/18 13:14	13982-63-3	
Radium-228	EPA 904.0	0.166 ± 0.406 (0.903) C:64% T:93%	pCi/L	07/06/18 13:27	15262-20-1	
Total Radium	Total Radium Calculation	0.269 ± 0.726 (1.52)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W510A		Lab ID: 30256332012	Collected: 06/13/18 09:10	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.535 ± 0.398 (0.524) C:NA T:93%	pCi/L	07/05/18 13:14	13982-63-3	
Radium-228	EPA 904.0	1.06 ± 0.631 (1.17) C:63% T:73%	pCi/L	07/06/18 13:28	15262-20-1	
Total Radium	Total Radium Calculation	1.60 ± 1.03 (1.69)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W603A		Lab ID: 30256332013	Collected: 06/13/18 09:50	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.170 ± 0.260 (0.418) C:NA T:81%	pCi/L	07/05/18 13:14	13982-63-3	
Radium-228	EPA 904.0	0.246 ± 0.454 (0.994) C:63% T:81%	pCi/L	07/06/18 13:28	15262-20-1	
Total Radium	Total Radium Calculation	0.416 ± 0.714 (1.41)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W604A		Lab ID: 30256332014	Collected: 06/13/18 10:40	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.477 ± 0.373 (0.439) C:NA T:75%	pCi/L	07/05/18 13:14	13982-63-3	
Radium-228	EPA 904.0	0.348 ± 0.483 (1.04) C:68% T:78%	pCi/L	07/06/18 13:28	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Sample: W604A		Lab ID: 30256332014	Collected: 06/13/18 10:40	Received: 06/18/18 09:00	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.825 ± 0.856 (1.48)		pCi/L	07/09/18 12:30	7440-14-4	

Sample: W605A		Lab ID: 30256332015	Collected: 06/13/18 11:30	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.419 ± 0.387 (0.563) C:NA T:81%	pCi/L	07/05/18 13:14	13982-63-3	
Radium-228	EPA 904.0	1.19 ± 0.680 (1.28) C:63% T:85%	pCi/L	07/06/18 13:33	15262-20-1	
Total Radium	Total Radium Calculation	1.61 ± 1.07 (1.84)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W506A		Lab ID: 30256332016	Collected: 06/13/18 12:20	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.053 ± 0.344 (0.746) C:NA T:86%	pCi/L	07/05/18 13:30	13982-63-3	
Radium-228	EPA 904.0	0.328 ± 0.639 (1.40) C:67% T:68%	pCi/L	07/06/18 13:33	15262-20-1	
Total Radium	Total Radium Calculation	0.328 ± 0.983 (2.15)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: Duplicate		Lab ID: 30256332017	Collected: 06/13/18 12:20	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.111 ± 0.254 (0.410) C:NA T:79%	pCi/L	07/05/18 13:30	13982-63-3	
Radium-228	EPA 904.0	1.23 ± 0.712 (1.35) C:65% T:81%	pCi/L	07/06/18 13:33	15262-20-1	
Total Radium	Total Radium Calculation	1.34 ± 0.966 (1.76)	pCi/L	07/09/18 12:30	7440-14-4	

Sample: W514A		Lab ID: 30256332018	Collected: 06/13/18 13:30	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.218 ± 0.339 (0.586) C:NA T:82%	pCi/L	07/05/18 13:30	13982-63-3	
Radium-228	EPA 904.0	0.845 ± 0.665 (1.34) C:63% T:81%	pCi/L	07/06/18 13:33	15262-20-1	
Total Radium	Total Radium Calculation	1.06 ± 1.00 (1.93)	pCi/L	07/09/18 12:30	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

Sample: W514B		Lab ID: 30256332019	Collected: 06/13/18 14:10	Received: 06/18/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.152 ± 0.331 (0.763) C:NA T:86%	pCi/L	07/05/18 13:51	13982-63-3	
Radium-228	EPA 904.0	0.127 ± 0.577 (1.30) C:68% T:87%	pCi/L	07/06/18 13:33	15262-20-1	
Total Radium	Total Radium Calculation	0.127 ± 0.908 (2.06)	pCi/L	07/09/18 12:30	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

QC Batch:	302949	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30256332001, 30256332002, 30256332003, 30256332004, 30256332005, 30256332006, 30256332007, 30256332008, 30256332009, 30256332010, 30256332011, 30256332012, 30256332013, 30256332014, 30256332015, 30256332016, 30256332017, 30256332018, 30256332019		

METHOD BLANK:	1482172	Matrix:	Water
Associated Lab Samples:	30256332001, 30256332002, 30256332003, 30256332004, 30256332005, 30256332006, 30256332007, 30256332008, 30256332009, 30256332010, 30256332011, 30256332012, 30256332013, 30256332014, 30256332015, 30256332016, 30256332017, 30256332018, 30256332019		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.257 ± 0.303 (0.477) C:NA T:89%	pCi/L	07/05/18 12:26	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-00699, Xcel Energy- Black D

Pace Project No.: 30256332

QC Batch:	302934	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30256332001, 30256332002, 30256332003, 30256332004, 30256332005, 30256332006, 30256332007, 30256332008, 30256332009, 30256332010, 30256332011, 30256332012, 30256332013, 30256332014, 30256332015, 30256332016, 30256332017, 30256332018, 30256332019		

METHOD BLANK:	1482145	Matrix:	Water
Associated Lab Samples:	30256332001, 30256332002, 30256332003, 30256332004, 30256332005, 30256332006, 30256332007, 30256332008, 30256332009, 30256332010, 30256332011, 30256332012, 30256332013, 30256332014, 30256332015, 30256332016, 30256332017, 30256332018, 30256332019		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.317 ± 0.406 (0.860) C:76% T:73%	pCi/L	07/06/18 13:26	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 18-00699, Xcel Energy- Black D
Pace Project No.: 30256332

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Page: 2 of 2

Invoice Information:

[illegible]

RA-228 EPA 904.0 RA-228 EPA 904.0		SAMPLER NAME AND SIGNATURE: _____ PRINT Name of SAMPLER: <u>David Anderson</u> SIGNATURE of SAMPLER: <u>David Anderson</u>		DATE Signed (MM/DD/YY): <u>6/13/18</u>	Temp in °C _____	Received on ice (Y/N) _____	Custody Sealed Cooler (Y/N) _____	Samples Intact (Y/N) _____

Pittsburgh Lab Sample Condition Upon Receipt

30256332

Face Analytical

Client Name:

PACE MN

Project #

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 747596416865

Label MJS
LIMS Login BUMCustody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noThermometer Used N/AType of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	☒	☐	☐	10D3671	MJS 6-18-18
Chain of Custody Filled Out:	☒	☐	☐		
Chain of Custody Relinquished:	☒	☐	☐		
Sampler Name & Signature on COC:	☒	☐	☐		
Sample Labels match COC:	☒	☐	☐		
-Includes date/time/ID Matrix: <u>W4</u>					
Samples Arrived within Hold Time:	☒	☐	☐		
Short Hold Time Analysis (<72hr remaining):	☐	☒	☐		
Rush Turn Around Time Requested:	☐	☒	☐		
Sufficient Volume:	☒	☐	☐		
Correct Containers Used:	☒	☐	☐		
-Pace Containers Used:	☒	☐	☐		
Containers Intact:	☒	☐	☐		
Orthophosphate field filtered	☐	☐	☒		
Hex Cr Aqueous Compliance/NPDES sample field filtered	☐	☐	☒		
Organic Samples checked for dechlorination:	☐	☐	☒		
Filtered volume received for Dissolved tests	☐	☐	☒		
All containers have been checked for preservation.	☒	☐	☐		
All containers needing preservation are found to be in compliance with EPA recommendation.	☒	☐	☐		
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>MJS</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	☐	☐	☒		
Trip Blank Present:	☐	☐	☒		
Trip Blank Custody Seals Present	☐	☐	☒		
Rad Aqueous Samples Screened > 0.5 mrem/hr	☐	☒	☐	Initial when completed <u>MJS</u>	Date: <u>6-18-18</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

29 June 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 06/14/2018 09:30. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDF0147-01	Water	06/13/2018 12:40	06/14/2018 9:30
W504A		MDF0147-02	Water	06/12/2018 8:45	06/14/2018 9:30
W504B		MDF0147-03	Water	06/12/2018 9:20	06/14/2018 9:30
W502A		MDF0147-04	Water	06/12/2018 10:00	06/14/2018 9:30
W502B		MDF0147-05	Water	06/12/2018 10:35	06/14/2018 9:30
W602A		MDF0147-06	Water	06/12/2018 11:25	06/14/2018 9:30
W7A		MDF0147-07	Water	06/12/2018 12:10	06/14/2018 9:30
W14A		MDF0147-08	Water	06/12/2018 12:50	06/14/2018 9:30
W600A		MDF0147-09	Water	06/12/2018 13:30	06/14/2018 9:30
W601A		MDF0147-10	Water	06/12/2018 14:15	06/14/2018 9:30
W511A		MDF0147-11	Water	06/13/2018 8:30	06/14/2018 9:30
W510A		MDF0147-12	Water	06/13/2018 9:10	06/14/2018 9:30
W603A		MDF0147-13	Water	06/13/2018 9:50	06/14/2018 9:30
W604A		MDF0147-14	Water	06/13/2018 10:40	06/14/2018 9:30
W605A		MDF0147-15	Water	06/13/2018 11:30	06/14/2018 9:30
W506A		MDF0147-16	Water	06/13/2018 12:20	06/14/2018 9:30
Duplicate		MDF0147-17	Water	06/13/2018 12:20	06/14/2018 9:30
W514A		MDF0147-18	Water	06/13/2018 13:30	06/14/2018 9:30
W514B		MDF0147-19	Water	06/13/2018 14:10	06/14/2018 9:30



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Field Blank

MDF0147-01 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 15:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 15:22	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 15:22	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 10:42	SM 2320B	CRL
pH	6.58		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 10:42	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:39	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:42	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:40	EPA 200.7	HRD
Potassium	< 1.50	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:40	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:40	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:40	EPA 200.7	HRD
Sodium	< 1.25	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:40	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Field Blank

MDF0147-01 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:28	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W504A

MDF0147-02 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	89.6	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 15:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 15:43	EPA 300.0	CRL
Sulfate	715	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 15:43	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	524	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 10:58	SM 2320B	CRL
pH	7.14		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 10:58	SM 4500-H+ B	CRL
Total Dissolved Solids	1950	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.24	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Barium	27.3	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Cadmium	0.120	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Cobalt	2.28	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Molybdenum	22.1	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:43	EPA 200.8	CRL

Total Metals by ICP

Boron	11.4	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:46	EPA 200.7	HRD
Calcium	330	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:45	EPA 200.7	HRD
Potassium	2.27	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:45	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:45	EPA 200.7	HRD
Magnesium	84.4	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:45	EPA 200.7	HRD
Sodium	156	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 12:45	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W504A

MDF0147-02 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:30	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MDF0147-03 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	51.3	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 16:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 16:03	EPA 300.0	CRL
Sulfate	12.7	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 16:03	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	833	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:08	SM 2320B	CRL
pH	7.33		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:08	SM 4500-H+ B	CRL
Total Dissolved Solids	952	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.60	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Barium	343	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:54	EPA 200.8	CRL

Total Metals by ICP

Boron	0.358	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:02	EPA 200.7	HRD
Calcium	219	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:01	EPA 200.7	HRD
Potassium	1.81	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:01	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:01	EPA 200.7	HRD
Magnesium	80.2	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:01	EPA 200.7	HRD
Sodium	24.5	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:01	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W504B

MDF0147-03 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:32	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W502A

MDF0147-04 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	103	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 16:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 16:44	EPA 300.0	CRL
Sulfate	1410	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/19/18 16:23	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	301	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:14	SM 2320B	CRL
pH	7.36		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:14	SM 4500-H+ B	CRL
Total Dissolved Solids	2720	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	32.7	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Barium	74.9	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Cobalt	3.46	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Molybdenum	63.8	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 8:58	EPA 200.8	CRL

Total Metals by ICP

Boron	7.94	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:07	EPA 200.7	HRD
Calcium	506	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:06	EPA 200.7	HRD
Potassium	15.7	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:06	EPA 200.7	HRD
Lithium	0.0866	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:06	EPA 200.7	HRD
Magnesium	72.3	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:06	EPA 200.7	HRD
Sodium	162	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:06	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W502A

MDF0147-04 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:33	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W502B

MDF0147-05 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	81.3	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 17:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 17:25	EPA 300.0	CRL
Sulfate	1180	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/19/18 17:04	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	375	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:21	SM 2320B	CRL
pH	7.32		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:21	SM 4500-H+ B	CRL
Total Dissolved Solids	2330	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.40	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Barium	142	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:02	EPA 200.8	CRL

Total Metals by ICP

Boron	3.56	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:12	EPA 200.7	HRD
Calcium	445	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:11	EPA 200.7	HRD
Potassium	2.31	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:11	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:11	EPA 200.7	HRD
Magnesium	117	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:11	EPA 200.7	HRD
Sodium	62.5	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:11	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W502B

MDF0147-05 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:39	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W602A

MDF0147-06 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	195	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 17:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 17:45	EPA 300.0	CRL
Sulfate	267	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 17:45	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	292	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:28	SM 2320B	CRL
pH	7.75		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:28	SM 4500-H+ B	CRL
Total Dissolved Solids	1080	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.13	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Barium	77.8	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Cobalt	1.33	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Molybdenum	59.8	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:06	EPA 200.8	CRL

Total Metals by ICP

Boron	1.13	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:17	EPA 200.7	HRD
Calcium	131	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:16	EPA 200.7	HRD
Potassium	1.91	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:16	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:16	EPA 200.7	HRD
Magnesium	32.4	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:16	EPA 200.7	HRD
Sodium	179	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:16	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W602A

MDF0147-06 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:40	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W7A

MDF0147-07 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	95.7	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 18:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 18:06	EPA 300.0	CRL
Sulfate	252	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 18:06	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	306	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:34	SM 2320B	CRL
pH	7.41		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:34	SM 4500-H+ B	CRL
Total Dissolved Solids	940	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.636	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Barium	130	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Cadmium	0.114	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Chromium	0.744	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Molybdenum	19.5	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:10	EPA 200.8	CRL

Total Metals by ICP

Boron	0.913	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:22	EPA 200.7	HRD
Calcium	166	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:21	EPA 200.7	HRD
Potassium	3.64	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:21	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:21	EPA 200.7	HRD
Magnesium	45.7	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:21	EPA 200.7	HRD
Sodium	59.6	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:21	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W7A

MDF0147-07 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:42	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W14A

MDF0147-08 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	122	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 18:26	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 18:26	EPA 300.0	CRL
Sulfate	104	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 18:26	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	289	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:40	SM 2320B	CRL
pH	7.43		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:40	SM 4500-H+ B	CRL
Total Dissolved Solids	686	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.46	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Barium	21.0	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Molybdenum	105	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:14	EPA 200.8	CRL

Total Metals by ICP

Boron	1.16	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:27	EPA 200.7	HRD
Calcium	92.8	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:26	EPA 200.7	HRD
Potassium	2.91	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:26	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:26	EPA 200.7	HRD
Magnesium	19.9	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:26	EPA 200.7	HRD
Sodium	115	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:26	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W14A

MDF0147-08 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:44	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W600A

MDF0147-09 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	11.2	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 19:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 19:07	EPA 300.0	CRL
Sulfate	1750	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/19/18 18:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	147	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:46	SM 2320B	CRL
pH	6.50		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:46	SM 4500-H+ B	CRL
Total Dissolved Solids	2860	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	34.2	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Barium	20.3	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Beryllium	2.86	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Cadmium	6.13	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Cobalt	51.3	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Chromium	38.9	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Molybdenum	42.2	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Lead	3.24	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL
Thallium	0.513	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:18	EPA 200.8	CRL

Total Metals by ICP

Boron	8.38	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:33	EPA 200.7	HRD
Calcium	532	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:31	EPA 200.7	HRD
Potassium	13.8	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:31	EPA 200.7	HRD
Lithium	0.115	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:31	EPA 200.7	HRD
Magnesium	49.9	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:31	EPA 200.7	HRD
Sodium	57.3	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:31	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W600A

MDF0147-09 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:46	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W601A

MDF0147-10 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	129	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 19:27	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 19:27	EPA 300.0	CRL
Sulfate	1150	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/20/18 6:51	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	98.1	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 11:52	SM 2320B	CRL
pH	10.2		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 11:52	SM 4500-H+ B	CRL
Total Dissolved Solids	2100	20.0	mg/L		1	BDF0288	6/18/18 8:00	6/18/18 8:00	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.66	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Barium	71.1	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Cadmium	0.144	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Chromium	2.33	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Molybdenum	323	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Antimony	1.18	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Selenium	159	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:22	EPA 200.8	CRL

Total Metals by ICP

Boron	14.3	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:38	EPA 200.7	HRD
Calcium	362	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:37	EPA 200.7	HRD
Potassium	43.5	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:37	EPA 200.7	HRD
Lithium	0.310	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:37	EPA 200.7	HRD
Magnesium	1.57	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:37	EPA 200.7	HRD
Sodium	211	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:37	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W601A

MDF0147-10 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:47	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W511A

MDF0147-11 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	49.2	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 21:50	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 21:50	EPA 300.0	CRL
Sulfate	1360	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/19/18 21:30	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	57.9	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:04	SM 2320B	CRL
pH	9.05		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:04	SM 4500-H+ B	CRL
Total Dissolved Solids	2320	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.03	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Barium	70.0	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Cadmium	0.134	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Chromium	74.5	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Molybdenum	560	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Antimony	1.01	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Selenium	81.1	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:26	EPA 200.8	CRL

Total Metals by ICP

Boron	10.5	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:43	EPA 200.7	HRD
Calcium	501	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:42	EPA 200.7	HRD
Potassium	17.6	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:42	EPA 200.7	HRD
Lithium	0.136	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:42	EPA 200.7	HRD
Magnesium	11.9	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:42	EPA 200.7	HRD
Sodium	114	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:42	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W511A

MDF0147-11 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:49	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W510A

MDF0147-12 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	89.0	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:10	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:10	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	947	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:15	SM 2320B	CRL
pH	7.67		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:15	SM 4500-H+ B	CRL
Total Dissolved Solids	1080	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	38.8	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Barium	255	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Molybdenum	0.569	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:30	EPA 200.8	CRL

Total Metals by ICP

Boron	5.39	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:48	EPA 200.7	HRD
Calcium	256	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:47	EPA 200.7	HRD
Potassium	2.16	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:47	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:47	EPA 200.7	HRD
Magnesium	69.8	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:47	EPA 200.7	HRD
Sodium	65.0	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 13:47	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W510A

MDF0147-12 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:51	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W603A

MDF0147-13 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	40.5	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:31	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:31	EPA 300.0	CRL
Sulfate	206	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:31	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	105	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:20	SM 2320B	CRL
pH	8.58		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:20	SM 4500-H+ B	CRL
Total Dissolved Solids	488	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.18	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Barium	41.9	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Molybdenum	109	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Antimony	2.12	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Selenium	19.5	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:41	EPA 200.8	CRL

Total Metals by ICP

Boron	3.17	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:04	EPA 200.7	HRD
Calcium	70.4	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:02	EPA 200.7	HRD
Potassium	6.51	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:02	EPA 200.7	HRD
Lithium	0.0683	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:02	EPA 200.7	HRD
Magnesium	20.1	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:03	EPA 200.7	HRD
Sodium	53.3	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:02	EPA 200.7	HRD



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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W603A

MDF0147-13 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:52	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W604A

MDF0147-14 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	113	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:51	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:51	EPA 300.0	CRL
Sulfate	362	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 22:51	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	59.3	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:26	SM 2320B	CRL
pH	8.82		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:26	SM 4500-H+ B	CRL
Total Dissolved Solids	826	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.61	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Barium	61.6	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Chromium	7.74	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Molybdenum	157	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Antimony	1.56	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Selenium	26.4	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:45	EPA 200.8	CRL

Total Metals by ICP

Boron	4.12	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:09	EPA 200.7	HRD
Calcium	99.7	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:08	EPA 200.7	HRD
Potassium	6.73	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:08	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:08	EPA 200.7	HRD
Magnesium	15.5	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:08	EPA 200.7	HRD
Sodium	136	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:08	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W604A

MDF0147-14 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:54	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W605A

MDF0147-15 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	84.8	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 23:12	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 23:12	EPA 300.0	CRL
Sulfate	241	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 23:12	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	98.3	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:32	SM 2320B	CRL
pH	7.92		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:32	SM 4500-H+ B	CRL
Total Dissolved Solids	640	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	7.11	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Barium	57.3	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Molybdenum	95.2	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:49	EPA 200.8	CRL

Total Metals by ICP

Boron	2.65	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:14	EPA 200.7	HRD
Calcium	69.0	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:13	EPA 200.7	HRD
Potassium	5.70	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:13	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:13	EPA 200.7	HRD
Magnesium	16.3	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:13	EPA 200.7	HRD
Sodium	103	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:13	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W605A

MDF0147-15 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 14:59	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W506A

MDF0147-16 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	86.8	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 23:53	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/19/18 23:53	EPA 300.0	CRL
Sulfate	1190	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/19/18 23:32	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	209	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:38	SM 2320B	CRL
pH	7.06		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:38	SM 4500-H+ B	CRL
Total Dissolved Solids	2270	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.76	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Barium	18.9	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Cadmium	3.60	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Cobalt	20.6	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Molybdenum	20.6	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Selenium	0.653	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL
Thallium	0.703	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:53	EPA 200.8	CRL

Total Metals by ICP

Boron	1.47	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:19	EPA 200.7	HRD
Calcium	491	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:18	EPA 200.7	HRD
Potassium	8.62	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:18	EPA 200.7	HRD
Lithium	0.0619	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:18	EPA 200.7	HRD
Magnesium	43.8	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:18	EPA 200.7	HRD
Sodium	57.1	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:18	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W506A

MDF0147-16 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 15:01	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Duplicate

MDF0147-17 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	90.5	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 0:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 0:33	EPA 300.0	CRL
Sulfate	1220	10.0	mg/L		10	BDF0332	6/19/18 11:40	6/20/18 0:13	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	204	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:43	SM 2320B	CRL
pH	7.07		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:43	SM 4500-H+ B	CRL
Total Dissolved Solids	2290	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.86	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Barium	18.8	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Cadmium	3.50	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Cobalt	19.2	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Molybdenum	20.5	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Selenium	0.556	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL
Thallium	0.696	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 9:57	EPA 200.8	CRL

Total Metals by ICP

Boron	1.50	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:24	EPA 200.7	HRD
Calcium	494	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:23	EPA 200.7	HRD
Potassium	8.67	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:23	EPA 200.7	HRD
Lithium	0.0624	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:23	EPA 200.7	HRD
Magnesium	43.2	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:23	EPA 200.7	HRD
Sodium	58.1	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:23	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Duplicate

MDF0147-17 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 15:03	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514A

MDF0147-18 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	43.8	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 0:54	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 0:54	EPA 300.0	CRL
Sulfate	62.5	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 0:54	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	390	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:51	SM 2320B	CRL
pH	7.72		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:51	SM 4500-H+ B	CRL
Total Dissolved Solids	560	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.571	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Barium	95.4	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Chromium	0.837	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Molybdenum	5.17	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Selenium	0.802	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:01	EPA 200.8	CRL

Total Metals by ICP

Boron	0.778	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:29	EPA 200.7	HRD
Calcium	88.3	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:28	EPA 200.7	HRD
Potassium	4.39	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:28	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:28	EPA 200.7	HRD
Magnesium	34.6	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:28	EPA 200.7	HRD
Sodium	56.8	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:28	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W514A

MDF0147-18 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 15:04	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514B

MDF0147-19 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	8.95	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 1:14	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 1:14	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDF0332	6/19/18 11:40	6/20/18 1:14	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	572	10.0	mg/L		1	BDF0263	6/14/18 9:52	6/14/18 12:58	SM 2320B	CRL
pH	8.13		pH Units	M_TTT	1	BDF0263	6/14/18 9:52	6/14/18 12:58	SM 4500-H+ B	CRL
Total Dissolved Solids	536	20.0	mg/L		1	BDF0320	6/19/18 9:43	6/19/18 9:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.28	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Barium	145	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Molybdenum	1.69	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDF0290	6/19/18 12:14	6/21/18 10:05	EPA 200.8	CRL

Total Metals by ICP

Boron	0.0949	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:35	EPA 200.7	HRD
Calcium	76.7	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:33	EPA 200.7	HRD
Potassium	< 1.50	1.50	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:33	EPA 200.7	HRD
Lithium	< 0.0500	0.0500	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:33	EPA 200.7	HRD
Magnesium	87.2	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:33	EPA 200.7	HRD
Sodium	9.98	1.25	mg/L		1	BDF0289	6/19/18 12:10	6/21/18 14:33	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

W514B

MDF0147-19 (Water) - Chain of Custody Number: 2202816/2202814

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDF0553	6/28/18 8:52	6/28/18 15:06	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0332 - Wet Prep

Blank (BDF0332-BLK1)				Prepared & Analyzed: 06/19/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDF0332-BLK2)				Prepared & Analyzed: 06/19/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDF0332-BS1)				Prepared & Analyzed: 06/19/2018						
Chloride	23.3	1.00	mg/L	25.076		92.8	90-110			
Fluoride	2.52	0.750	mg/L	2.5076		101	90-110			
Sulfate	45.1	1.00	mg/L	48.144		93.7	90-110			

LCS (BDF0332-BS2)				Prepared & Analyzed: 06/19/2018						
Chloride	24.6	1.00	mg/L	25.076		98.3	90-110			
Fluoride	2.65	0.750	mg/L	2.5076		106	90-110			
Sulfate	47.8	1.00	mg/L	48.144		99.3	90-110			

LCS (BDF0332-BS3)				Prepared: 06/19/2018 Analyzed: 06/20/2018						
Chloride	23.8	1.00	mg/L	25.076		95.0	90-110			
Fluoride	2.56	0.750	mg/L	2.5076		102	90-110			
Sulfate	46.0	1.00	mg/L	48.144		95.5	90-110			

LCS (BDF0332-BS4)				Prepared: 06/19/2018 Analyzed: 06/20/2018						
Chloride	24.8	1.00	mg/L	25.076		98.7	90-110			
Fluoride	2.56	0.750	mg/L	2.5076		102	90-110			
Sulfate	48.0	1.00	mg/L	48.144		99.8	90-110			



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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0332 - Wet Prep

Duplicate (BDF0332-DUP1)	Source: MDF0147-03			Prepared & Analyzed: 06/19/2018						
Chloride	49.8	1.00	mg/L		51.3			2.87	20	
Fluoride	0.241	0.750	mg/L		0.249			3.27	20	
Sulfate	12.3	1.00	mg/L		12.7			3.14	20	

Duplicate (BDF0332-DUP2)	Source: MDF0147-18			Prepared & Analyzed: 06/19/2018						
Chloride	43.9	1.00	mg/L		43.8			0.292	20	
Fluoride	0.188	0.750	mg/L		0.185			1.61	20	
Sulfate	62.0	1.00	mg/L		62.5			0.774	20	

Matrix Spike (BDF0332-MS1)	Source: MDF0147-03			Prepared & Analyzed: 06/19/2018						
Chloride	77.5	1.25	mg/L	31.345	51.3	83.6	80-120			
Fluoride	2.87	0.938	mg/L	3.1345	0.249	83.6	80-120			
Sulfate	65.9	1.25	mg/L	60.180	12.7	88.4	80-120			

Matrix Spike (BDF0332-MS2)	Source: MDF0147-18			Prepared & Analyzed: 06/19/2018						
Chloride	72.6	1.25	mg/L	31.345	43.8	92.0	80-120			
Fluoride	3.28	0.938	mg/L	3.1345	0.185	98.7	80-120			
Sulfate	118	1.25	mg/L	60.180	62.5	92.2	80-120			

Matrix Spike Dup (BDF0332-MSD1)	Source: MDF0147-03			Prepared & Analyzed: 06/19/2018						
Chloride	79.1	1.25	mg/L	31.345	51.3	88.8	80-120	2.09	20	
Fluoride	3.23	0.938	mg/L	3.1345	0.249	95.0	80-120	11.7	20	
Sulfate	68.1	1.25	mg/L	60.180	12.7	92.0	80-120	3.25	20	

Matrix Spike Dup (BDF0332-MSD2)	Source: MDF0147-18			Prepared & Analyzed: 06/19/2018						
Chloride	72.6	1.25	mg/L	31.345	43.8	91.9	80-120	0.0293	20	
Fluoride	3.32	0.938	mg/L	3.1345	0.185	100	80-120	1.33	20	
Sulfate	118	1.25	mg/L	60.180	62.5	92.0	80-120	0.0964	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0263 - Wet Prep

LCS (BDF0263-BS1)			Prepared & Analyzed: 06/14/2018							
Alkalinity, Total	102		mg/L	100.00		102	90-110			
pH	7.10		pH Units	7.0000		101	90-110			
Duplicate (BDF0263-DUP1)			Source: MDF0147-02		Prepared & Analyzed: 06/14/2018					
pH	7.11		pH Units	7.14		0.421	20			
Alkalinity, Total	515	10.0	mg/L	524		1.85	20			
Duplicate (BDF0263-DUP2)			Source: MDF0147-11		Prepared & Analyzed: 06/14/2018					
Alkalinity, Total	65.7	10.0	mg/L	57.9		12.7	20			
pH	9.09		pH Units	9.05		0.441	20			

Batch BDF0288 - Wet Prep

Blank (BDF0288-BLK1)			Prepared & Analyzed: 06/18/2018							
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDF0288-DUP1)			Source: MDF0147-02		Prepared & Analyzed: 06/18/2018					
Total Dissolved Solids	1920	20.0	mg/L	1950		1.45	20			

Batch BDF0320 - Wet Prep

Blank (BDF0320-BLK1)			Prepared & Analyzed: 06/19/2018							
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDF0320-DUP1)			Source: MDF0147-11		Prepared & Analyzed: 06/19/2018					
Total Dissolved Solids	2280	20.0	mg/L	2320		2.00	20			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0290 - EPA 200.2, EPA 3005

Blank (BDF0290-BLK1)

Prepared: 06/19/2018 Analyzed: 06/21/2018

Barium	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Cobalt	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L

LCS (BDF0290-BS1)

Prepared: 06/19/2018 Analyzed: 06/21/2018

Arsenic	102	0.500	ug/L	100.00	102	85-115
Lead	97.5	0.500	ug/L	100.00	97.5	85-115
Barium	99.4	0.500	ug/L	100.00	99.4	85-115
Molybdenum	103	0.500	ug/L	100.00	103	85-115
Cadmium	102	0.100	ug/L	100.00	102	85-115
Selenium	95.0	0.500	ug/L	100.00	95.0	85-115
Thallium	96.9	0.500	ug/L	100.00	96.9	85-115
Antimony	97.0	0.500	ug/L	100.00	97.0	85-115
Cobalt	102	0.500	ug/L	100.00	102	85-115
Chromium	102	0.500	ug/L	100.00	102	85-115
Beryllium	96.9	0.500	ug/L	100.00	96.9	85-115

Duplicate (BDF0290-DUP1)

Source: MDF0147-18

Prepared: 06/19/2018 Analyzed: 06/21/2018

Thallium	0.0938	0.500	ug/L	<0.500		20	
Selenium	0.729	0.500	ug/L	0.802	9.54	20	
Antimony	0.497	0.500	ug/L	0.348	35.3	20	M_D-RL
Lead	0.147	0.500	ug/L	0.105	33.6	20	M_D-RL
Molybdenum	5.64	0.500	ug/L	5.17	8.79	20	
Chromium	0.830	0.500	ug/L	0.837	0.904	20	
Cobalt	0.243	0.500	ug/L	0.210	14.6	20	
Cadmium	0.0885	0.100	ug/L	0.0249	112	20	M_D-RL
Beryllium	0.151	0.500	ug/L	0.0236	146	20	M_D-RL
Barium	96.4	0.500	ug/L	95.4	1.05	20	
Arsenic	0.600	0.500	ug/L	0.571	4.90	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		06/29/2018 08:30
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0290 - EPA 200.2, EPA 3005

Duplicate (BDF0290-DUP2)	Source: MDF0147-19			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Thallium	<0.500	0.500	ug/L		<0.500			20		
Selenium	0.158	0.500	ug/L		0.234			39.0	20	M_D-RL
Antimony	0.264	0.500	ug/L		0.0874			100	20	M_D-RL
Lead	0.0275	0.500	ug/L		0.0233			16.3	20	
Arsenic	2.33	0.500	ug/L		2.28			2.30	20	
Cobalt	0.131	0.500	ug/L		0.111			16.9	20	
Barium	150	0.500	ug/L		145			3.35	20	
Beryllium	0.0148	0.500	ug/L		0.0117			23.4	20	M_D-RL
Chromium	0.252	0.500	ug/L		0.196			24.9	20	M_D-RL
Cadmium	0.0382	0.100	ug/L		0.0289			27.6	20	M_D-RL
Molybdenum	1.83	0.500	ug/L		1.69			7.80	20	

Matrix Spike (BDF0290-MS1)	Source: MDF0147-18			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Molybdenum	110	0.500	ug/L	100.00	5.17	104	70-130			
Lead	90.1	0.500	ug/L	100.00	0.105	89.9	70-130			
Chromium	103	0.500	ug/L	100.00	0.837	102	70-130			
Cobalt	95.2	0.500	ug/L	100.00	0.210	95.0	70-130			
Barium	203	0.500	ug/L	100.00	95.4	108	70-130			
Arsenic	107	0.500	ug/L	100.00	0.571	106	70-130			
Thallium	93.5	0.500	ug/L	100.00	<0.500	93.5	70-130			
Cadmium	98.0	0.100	ug/L	100.00	0.0249	98.0	70-130			
Beryllium	95.1	0.500	ug/L	100.00	0.0236	95.1	70-130			
Selenium	97.9	0.500	ug/L	100.00	0.802	97.1	70-130			
Antimony	102	0.500	ug/L	100.00	0.348	102	70-130			

Matrix Spike (BDF0290-MS2)	Source: MDF0147-19			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Lead	93.0	0.500	ug/L	100.00	0.0233	93.0	70-130			
Beryllium	99.0	0.500	ug/L	100.00	0.0117	99.0	70-130			
Arsenic	106	0.500	ug/L	100.00	2.28	104	70-130			
Barium	256	0.500	ug/L	100.00	145	111	70-130			
Cobalt	97.0	0.500	ug/L	100.00	0.111	96.9	70-130			
Chromium	102	0.500	ug/L	100.00	0.196	101	70-130			
Antimony	102	0.500	ug/L	100.00	0.0874	102	70-130			
Selenium	98.4	0.500	ug/L	100.00	0.234	98.2	70-130			
Molybdenum	101	0.500	ug/L	100.00	1.69	99.6	70-130			
Thallium	94.5	0.500	ug/L	100.00	<0.500	94.5	70-130			
Cadmium	98.3	0.100	ug/L	100.00	0.0289	98.3	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0290 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDF0290-MSD1)		Source: MDF0147-18			Prepared: 06/19/2018 Analyzed: 06/21/2018					
Lead	89.5	0.500	ug/L	100.00	0.105	89.4	70-130	0.591	20	
Molybdenum	106	0.500	ug/L	100.00	5.17	100	70-130	3.72	20	
Chromium	104	0.500	ug/L	100.00	0.837	103	70-130	1.08	20	
Barium	195	0.500	ug/L	100.00	95.4	99.3	70-130	4.23	20	
Beryllium	94.0	0.500	ug/L	100.00	0.0236	94.0	70-130	1.20	20	
Selenium	99.0	0.500	ug/L	100.00	0.802	98.2	70-130	1.14	20	
Cobalt	96.5	0.500	ug/L	100.00	0.210	96.3	70-130	1.41	20	
Antimony	99.5	0.500	ug/L	100.00	0.348	99.2	70-130	2.88	20	
Arsenic	104	0.500	ug/L	100.00	0.571	104	70-130	2.00	20	
Cadmium	96.9	0.100	ug/L	100.00	0.0249	96.9	70-130	1.11	20	
Thallium	91.1	0.500	ug/L	100.00	<0.500	91.1	70-130	2.51	20	

Matrix Spike Dup (BDF0290-MSD2)		Source: MDF0147-19			Prepared: 06/19/2018 Analyzed: 06/21/2018					
Lead	89.2	0.500	ug/L	100.00	0.0233	89.2	70-130	4.17	20	
Antimony	102	0.500	ug/L	100.00	0.0874	102	70-130	0.135	20	
Thallium	91.2	0.500	ug/L	100.00	<0.500	91.2	70-130	3.51	20	
Arsenic	102	0.500	ug/L	100.00	2.28	100	70-130	3.54	20	
Selenium	93.3	0.500	ug/L	100.00	0.234	93.1	70-130	5.33	20	
Barium	254	0.500	ug/L	100.00	145	109	70-130	0.552	20	
Beryllium	100	0.500	ug/L	100.00	0.0117	100	70-130	1.01	20	
Cadmium	100	0.100	ug/L	100.00	0.0289	100	70-130	1.90	20	
Cobalt	98.0	0.500	ug/L	100.00	0.111	97.9	70-130	1.04	20	
Chromium	103	0.500	ug/L	100.00	0.196	102	70-130	1.03	20	
Molybdenum	99.8	0.500	ug/L	100.00	1.69	98.1	70-130	1.48	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0289 - EPA 200.2, EPA 3005

Blank (BDF0289-BLK1)

Prepared: 06/19/2018 Analyzed: 06/21/2018

Potassium	<1.50	1.50	mg/L							
Boron	<0.0500	0.0500	mg/L							
Lithium	<0.0500	0.0500	mg/L							
Calcium	<1.25	1.25	mg/L							
Sodium	<1.25	1.25	mg/L							
Magnesium	<1.25	1.25	mg/L							

LCS (BDF0289-BS1)

Prepared: 06/19/2018 Analyzed: 06/21/2018

Lithium	0.987	0.0500	mg/L	1.0000		98.7	85-115			
Calcium	103	1.25	mg/L	100.00		103	85-115			
Sodium	103	1.25	mg/L	100.00		103	85-115			
Boron	0.981	0.0500	mg/L	1.0000		98.1	85-115			
Magnesium	102	1.25	mg/L	100.00		102	85-115			
Potassium	99.1	1.50	mg/L	100.00		99.1	85-115			

Duplicate (BDF0289-DUP1)

Source: MDF0147-15

Prepared: 06/19/2018 Analyzed: 06/21/2018

Boron	2.66	0.0500	mg/L	2.65		0.539	20			
Lithium	0.0191	0.0500	mg/L	0.0234		20.2	20			M_D-RL
Potassium	5.92	1.50	mg/L	5.70		3.84	20			
Calcium	71.7	1.25	mg/L	69.0		3.89	20			
Magnesium	16.5	1.25	mg/L	16.3		0.983	20			
Sodium	108	1.25	mg/L	103		4.23	20			

Duplicate (BDF0289-DUP2)

Source: MDF0147-16

Prepared: 06/19/2018 Analyzed: 06/21/2018

Sodium	59.5	1.25	mg/L	57.1		4.14	20			
Magnesium	44.6	1.25	mg/L	43.8		1.82	20			
Lithium	0.0608	0.0500	mg/L	0.0619		1.85	20			
Potassium	9.37	1.50	mg/L	8.62		8.24	20			
Boron	1.55	0.0500	mg/L	1.47		5.72	20			
Calcium	511	1.25	mg/L	491		4.08	20			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0289 - EPA 200.2, EPA 3005

Matrix Spike (BDF0289-MS1)	Source: MDF0147-15			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Magnesium	118	1.25	mg/L	100.00	16.3	102	70-130			
Sodium	211	1.25	mg/L	100.00	103	108	70-130			
Calcium	175	1.25	mg/L	100.00	69.0	106	70-130			
Boron	3.65	0.0500	mg/L	1.0000	2.65	100	70-130			
Lithium	1.00	0.0500	mg/L	1.0000	0.0234	97.9	75-125			
Potassium	105	1.50	mg/L	100.00	5.70	99.1	70-130			

Matrix Spike (BDF0289-MS2)	Source: MDF0147-16			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Sodium	165	1.25	mg/L	100.00	57.1	108	70-130			
Lithium	1.08	0.0500	mg/L	1.0000	0.0619	102	75-125			
Magnesium	147	1.25	mg/L	100.00	43.8	104	70-130			
Boron	2.54	0.0500	mg/L	1.0000	1.47	107	70-130			
Potassium	111	1.50	mg/L	100.00	8.62	102	70-130			
Calcium	628	1.25	mg/L	100.00	491	138	70-130			M_MS

Matrix Spike Dup (BDF0289-MSD1)	Source: MDF0147-15			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Magnesium	118	1.25	mg/L	100.00	16.3	102	70-130	0.210	20	
Boron	3.68	0.0500	mg/L	1.0000	2.65	103	70-130	0.828	20	
Calcium	175	1.25	mg/L	100.00	69.0	106	70-130	0.113	20	
Lithium	1.00	0.0500	mg/L	1.0000	0.0234	97.7	75-125	0.172	20	
Potassium	105	1.50	mg/L	100.00	5.70	98.8	70-130	0.220	20	
Sodium	212	1.25	mg/L	100.00	103	109	70-130	0.335	20	

Matrix Spike Dup (BDF0289-MSD2)	Source: MDF0147-16			Prepared: 06/19/2018 Analyzed: 06/21/2018						
Sodium	162	1.25	mg/L	100.00	57.1	105	70-130	1.91	20	
Boron	2.53	0.0500	mg/L	1.0000	1.47	107	70-130	0.202	20	
Magnesium	147	1.25	mg/L	100.00	43.8	104	70-130	0.0667	20	
Calcium	615	1.25	mg/L	100.00	491	125	70-130	2.08	20	
Potassium	109	1.50	mg/L	100.00	8.62	101	70-130	1.64	20	
Lithium	1.07	0.0500	mg/L	1.0000	0.0619	101	75-125	1.64	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDF0553 - EPA 245.1, EPA 7470A

Blank (BDF0553-BLK1)				Prepared & Analyzed: 06/28/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDF0553-BS1)				Prepared & Analyzed: 06/28/2018						
Mercury	2.90	0.200	ug/L	3.0000		96.8	85-115			
Duplicate (BDF0553-DUP1)				Source: MDF0147-04		Prepared & Analyzed: 06/28/2018				
Mercury	<0.200	0.200	ug/L		<0.200			20		
Duplicate (BDF0553-DUP2)				Source: MDF0147-05		Prepared & Analyzed: 06/28/2018				
Mercury	<0.200	0.200	ug/L		<0.200			20		
Matrix Spike (BDF0553-MS1)				Source: MDF0147-04		Prepared & Analyzed: 06/28/2018				
Mercury	2.86	0.200	ug/L	3.0000	<0.200	95.2	70-130			
Matrix Spike (BDF0553-MS2)				Source: MDF0147-05		Prepared & Analyzed: 06/28/2018				
Mercury	2.68	0.200	ug/L	3.0000	<0.200	89.4	70-130			
Matrix Spike Dup (BDF0553-MSD1)				Source: MDF0147-04		Prepared & Analyzed: 06/28/2018				
Mercury	2.77	0.200	ug/L	3.0000	<0.200	92.4	70-130	2.96	20	
Matrix Spike Dup (BDF0553-MSD2)				Source: MDF0147-05		Prepared & Analyzed: 06/28/2018				
Mercury	2.78	0.200	ug/L	3.0000	<0.200	92.7	70-130	3.67	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	06/29/2018 08:30

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

August 14, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

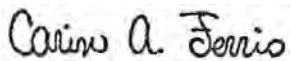
RE: Project: Xcel Energy Black Dog CCR
Pace Project No.: 30260756

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on July 30, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30260756001	Field Blank	Water	07/23/18 13:35	07/30/18 09:00
30260756002	W 504 A	Water	07/23/18 14:10	07/30/18 09:00
30260756003	W 504 B	Water	07/23/18 14:40	07/30/18 09:00
30260756004	W 511 A	Water	07/24/18 08:45	07/30/18 09:00
30260756005	W 510 A	Water	07/24/18 09:30	07/30/18 09:00
30260756006	W 14 A	Water	07/24/18 10:35	07/30/18 09:00
30260756007	W 7 A	Water	07/24/18 11:30	07/30/18 09:00
30260756008	W 602 A	Water	07/24/18 12:15	07/30/18 09:00
30260756009	W 502 A	Water	07/24/18 13:20	07/30/18 09:00
30260756010	Duplicate	Water	07/24/18 13:20	07/30/18 09:00
30260756011	W 502 B	Water	07/24/18 14:00	07/30/18 09:00
30260756012	W 600 A	Water	07/24/18 15:20	07/30/18 09:00
30260756013	W 603 A	Water	07/25/18 09:05	07/30/18 09:00
30260756014	W 604 A	Water	07/25/18 09:50	07/30/18 09:00
30260756015	W 605 A	Water	07/25/18 10:35	07/30/18 09:00
30260756016	W 601 A	Water	07/25/18 11:30	07/30/18 09:00
30260756017	W 506 A	Water	07/25/18 12:10	07/30/18 09:00
30260756018	W 514 A	Water	07/25/18 13:00	07/30/18 09:00
30260756019	W 514 B	Water	07/25/18 13:45	07/30/18 09:00
30260756020	Pond A	Water	07/25/18 14:05	07/30/18 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: XCel Energy Black Dog CCR
Pace Project No.: 30260756

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30260756001	Field Blank	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756002	W 504 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756003	W 504 B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756004	W 511 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756005	W 510 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756006	W 14 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756007	W 7 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756008	W 602 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756009	W 502 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756010	Duplicate	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756011	W 502 B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756012	W 600 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756013	W 603 A	EPA 903.1	MK1	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30260756014	W 604 A	EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30260756015	W 605 A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756016	W 601 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
30260756017	W 506 A	EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30260756018	W 514 A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30260756019	W 514 B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
30260756020	Pond A	EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: August 14, 2018

General Information:

20 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: August 14, 2018

General Information:

20 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: August 14, 2018

General Information:

20 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Sample: Field Blank **Lab ID: 30260756001** Collected: 07/23/18 13:35 Received: 07/30/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.028 ± 0.471 (0.869) C:NA T:90%	pCi/L	08/10/18 09:21	13982-63-3	
Radium-228	EPA 904.0	0.493 ± 0.348 (0.665) C:77% T:80%	pCi/L	08/09/18 12:56	15262-20-1	
Total Radium	Total Radium Calculation	0.493 ± 0.819 (1.53)	pCi/L	08/14/18 14:51	7440-14-4	

Sample: W 504 A **Lab ID: 30260756002** Collected: 07/23/18 14:10 Received: 07/30/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.232 ± 0.387 (0.625) C:NA T:88%	pCi/L	08/10/18 09:21	13982-63-3	
Radium-228	EPA 904.0	0.847 ± 0.367 (0.575) C:80% T:85%	pCi/L	08/09/18 12:56	15262-20-1	
Total Radium	Total Radium Calculation	1.08 ± 0.754 (1.20)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 504 B **Lab ID: 30260756003** Collected: 07/23/18 14:40 Received: 07/30/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.594 ± 0.735 (1.11) C:NA T:78%	pCi/L	08/10/18 09:21	13982-63-3	
Radium-228	EPA 904.0	0.871 ± 0.464 (0.841) C:74% T:84%	pCi/L	08/09/18 12:54	15262-20-1	
Total Radium	Total Radium Calculation	1.47 ± 1.20 (1.95)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 511 A **Lab ID: 30260756004** Collected: 07/24/18 08:45 Received: 07/30/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0567 ± 0.539 (0.945) C:NA T:86%	pCi/L	08/10/18 09:21	13982-63-3	
Radium-228	EPA 904.0	0.542 ± 0.395 (0.775) C:78% T:82%	pCi/L	08/09/18 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.599 ± 0.934 (1.72)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 510 A **Lab ID: 30260756005** Collected: 07/24/18 09:30 Received: 07/30/18 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0310 ± 0.628 (1.10) C:NA T:86%	pCi/L	08/10/18 09:21	13982-63-3	
Radium-228	EPA 904.0	1.41 ± 0.530 (0.821) C:74% T:85%	pCi/L	08/09/18 12:54	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Sample: W 510 A		Lab ID: 30260756005	Collected: 07/24/18 09:30	Received: 07/30/18 09:00	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.44 ± 1.16 (1.92)		pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 14 A		Lab ID: 30260756006	Collected: 07/24/18 10:35	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.332 ± 0.541 (1.07) C:NA T:86%	pCi/L	08/10/18 09:41	13982-63-3	
Radium-228	EPA 904.0	1.10 ± 0.466 (0.766) C:77% T:86%	pCi/L	08/09/18 12:54	15262-20-1	
Total Radium	Total Radium Calculation	1.10 ± 1.01 (1.84)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 7 A		Lab ID: 30260756007	Collected: 07/24/18 11:30	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.441 ± 0.599 (0.919) C:NA T:88%	pCi/L	08/10/18 09:41	13982-63-3	
Radium-228	EPA 904.0	0.311 ± 0.318 (0.660) C:78% T:92%	pCi/L	08/09/18 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.752 ± 0.917 (1.58)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 602 A		Lab ID: 30260756008	Collected: 07/24/18 12:15	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.399 ± 0.691 (1.09) C:NA T:85%	pCi/L	08/10/18 09:41	13982-63-3	
Radium-228	EPA 904.0	0.603 ± 0.440 (0.863) C:77% T:74%	pCi/L	08/09/18 12:54	15262-20-1	
Total Radium	Total Radium Calculation	1.00 ± 1.13 (1.95)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 502 A		Lab ID: 30260756009	Collected: 07/24/18 13:20	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.760 ± 0.448 (0.441) C:NA T:95%	pCi/L	08/10/18 09:41	13982-63-3	
Radium-228	EPA 904.0	0.598 ± 0.409 (0.795) C:78% T:88%	pCi/L	08/09/18 12:54	15262-20-1	
Total Radium	Total Radium Calculation	1.36 ± 0.857 (1.24)	pCi/L	08/14/18 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Sample: Duplicate		Lab ID: 30260756010	Collected: 07/24/18 13:20	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.470 ± 0.505 (0.737) C:NA T:94%	pCi/L	08/10/18 09:41	13982-63-3	
Radium-228	EPA 904.0	0.860 ± 0.444 (0.791) C:79% T:80%	pCi/L	08/09/18 12:55	15262-20-1	
Total Radium	Total Radium Calculation	1.33 ± 0.949 (1.53)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 502 B		Lab ID: 30260756011	Collected: 07/24/18 14:00	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.237 ± 0.358 (0.568) C:NA T:84%	pCi/L	08/10/18 09:41	13982-63-3	
Radium-228	EPA 904.0	0.504 ± 0.360 (0.697) C:77% T:84%	pCi/L	08/09/18 12:55	15262-20-1	
Total Radium	Total Radium Calculation	0.741 ± 0.718 (1.27)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 600 A		Lab ID: 30260756012	Collected: 07/24/18 15:20	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.556 ± 0.496 (0.665) C:NA T:88%	pCi/L	08/10/18 10:00	13982-63-3	
Radium-228	EPA 904.0	0.562 ± 0.394 (0.765) C:81% T:78%	pCi/L	08/09/18 12:55	15262-20-1	
Total Radium	Total Radium Calculation	1.12 ± 0.890 (1.43)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 603 A		Lab ID: 30260756013	Collected: 07/25/18 09:05	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.293 ± 0.515 (0.827) C:NA T:87%	pCi/L	08/10/18 10:00	13982-63-3	
Radium-228	EPA 904.0	0.360 ± 0.443 (0.941) C:75% T:77%	pCi/L	08/09/18 12:55	15262-20-1	
Total Radium	Total Radium Calculation	0.653 ± 0.958 (1.77)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 604 A		Lab ID: 30260756014	Collected: 07/25/18 09:50	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.052 ± 0.476 (0.873) C:NA T:91%	pCi/L	08/10/18 10:00	13982-63-3	
Radium-228	EPA 904.0	0.171 ± 0.355 (0.785) C:77% T:72%	pCi/L	08/09/18 12:55	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Sample: W 604 A		Lab ID: 30260756014	Collected: 07/25/18 09:50	Received: 07/30/18 09:00	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.171 ± 0.831 (1.66)		pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 605 A		Lab ID: 30260756015	Collected: 07/25/18 10:35	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.426 ± 0.639 (1.000) C:NA T:74%	pCi/L	08/10/18 10:00	13982-63-3	
Radium-228	EPA 904.0	-0.0314 ± 0.502 (1.15) C:74% T:82%	pCi/L	08/09/18 12:59	15262-20-1	
Total Radium	Total Radium Calculation	0.426 ± 1.14 (2.15)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 601 A		Lab ID: 30260756016	Collected: 07/25/18 11:30	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.402 ± 0.391 (0.520) C:NA T:87%	pCi/L	08/10/18 10:00	13982-63-3	
Radium-228	EPA 904.0	-0.146 ± 0.346 (0.823) C:81% T:87%	pCi/L	08/09/18 12:59	15262-20-1	
Total Radium	Total Radium Calculation	0.402 ± 0.737 (1.34)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 506 A		Lab ID: 30260756017	Collected: 07/25/18 12:10	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.582 ± 0.451 (0.570) C:NA T:96%	pCi/L	08/10/18 10:00	13982-63-3	
Radium-228	EPA 904.0	0.935 ± 0.466 (0.831) C:78% T:85%	pCi/L	08/09/18 12:59	15262-20-1	
Total Radium	Total Radium Calculation	1.52 ± 0.917 (1.40)	pCi/L	08/14/18 14:58	7440-14-4	

Sample: W 514 A		Lab ID: 30260756018	Collected: 07/25/18 13:00	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0576 ± 0.452 (0.812) C:NA T:85%	pCi/L	08/10/18 10:20	13982-63-3	
Radium-228	EPA 904.0	0.739 ± 0.508 (1.00) C:76% T:84%	pCi/L	08/09/18 12:59	15262-20-1	
Total Radium	Total Radium Calculation	0.797 ± 0.960 (1.81)	pCi/L	08/14/18 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

Sample: W 514 B		Lab ID: 30260756019	Collected: 07/25/18 13:45	Received: 07/30/18 09:00	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0618 ± 0.485 (0.872)		pCi/L	08/10/18 10:20	13982-63-3	
		C:NA T:84%					
Radium-228	EPA 904.0	0.940 ± 0.507 (0.933)		pCi/L	08/09/18 12:59	15262-20-1	
		C:75% T:82%					
Total Radium	Total Radium Calculation	1.00 ± 0.992 (1.81)		pCi/L	08/14/18 14:58	7440-14-4	

Sample: Pond A		Lab ID: 30260756020	Collected: 07/25/18 14:05	Received: 07/30/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.562 ± 0.586 (0.876) C:NA T:92%	pCi/L	08/14/18 09:35	13982-63-3	
Radium-228	EPA 904.0	2.18 ± 0.728 (1.03) C:75% T:70%	pCi/L	08/09/18 12:59	15262-20-1	
Total Radium	Total Radium Calculation	2.74 ± 1.31 (1.91)	pCi/L	08/14/18 14:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

QC Batch:	308023	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30260756001, 30260756002, 30260756003, 30260756004, 30260756005, 30260756006, 30260756007, 30260756008, 30260756009, 30260756010, 30260756011, 30260756012, 30260756013, 30260756014, 30260756015, 30260756016, 30260756017, 30260756018, 30260756019, 30260756020		

METHOD BLANK:	1505658	Matrix:	Water

Associated Lab Samples: 30260756001, 30260756002, 30260756003, 30260756004, 30260756005, 30260756006, 30260756007, 30260756008, 30260756009, 30260756010, 30260756011, 30260756012, 30260756013, 30260756014, 30260756015, 30260756016, 30260756017, 30260756018, 30260756019, 30260756020

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.202 ± 0.434 (0.724) C:NA T:86%	pCi/L	08/10/18 09:21	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

QC Batch:	308178	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30260756001, 30260756002, 30260756003, 30260756004, 30260756005, 30260756006, 30260756007, 30260756008, 30260756009, 30260756010, 30260756011, 30260756012, 30260756013, 30260756014, 30260756015, 30260756016, 30260756017, 30260756018, 30260756019, 30260756020		

METHOD BLANK:	1506246	Matrix:	Water
Associated Lab Samples:	30260756001, 30260756002, 30260756003, 30260756004, 30260756005, 30260756006, 30260756007, 30260756008, 30260756009, 30260756010, 30260756011, 30260756012, 30260756013, 30260756014, 30260756015, 30260756016, 30260756017, 30260756018, 30260756019, 30260756020		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.740 ± 0.360 (0.587) C:78% T:78%	pCi/L	08/09/18 12:56	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: XCel Energy Black Dog CCR

Pace Project No.: 30260756

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: David Anderson
Copy To: Tom Halverson
Purchase Order No.:
Project Name: 18-00870, Xcel Energy -
Project Number: BlackDog CCR, July 2018

Section C

Invoice Information:

Attention: Eiera Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

Page: 1 of 2

2202808

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Analysis Test ↑	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

WO#: 30260756



30260756

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① Client needs to analyze for: Radium 226+228pCi/L combined.	David Anderson Pace	7/24/18	0900	Jennifer Blum PALE	7/31/18	0900	-	N	N	Y

② RA-226 EPA 903.1
RA-228 EPA 904.0

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

David Anderson

David Anderson

DATE Signed

(MM/DD/YY):

7/24/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

Section A

Required Client Information:

Section B

Required Project Information:

Section C

Invoice Information:

Page: **2** of **2**

Company: Xcel Energy		Report To: David Anderson	Attention: Ciera Ruikkie	REGULATORY AGENCY ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER
Address: c/o Pace MN Field		Copy To: Tom Halverson	Company Name: Pace MN Field Services	
Email To:		Purchase Order No.:	Pace Quote Reference: Tom Halverson	Site Location
Phone:	Fax:	Project Name: 18-00870, Xcel Energy - Black-Dog CCR, July 2018	Pace Project Manager: Carin Ferris	STATE:
Requested Due Date/TAT:		Project Number:	Pace Profile #:	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATERIAL CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other														
					DATE	TIME	DATE	TIME																									
1	W 603A		WT				7/25/18	0945	2		2								RA-226EPA903.1												03		
2	W 604A							0950	2		2								RA-228EPA904.0												014		
3	W 605A							1035	2		2																				015		
4	W 601A							1130	2		2																				016		
5	W 506A							1210	2		2																				017		
6	W 514A							1300	2		2																				018		
7	W 514B							1345	2		2																				019		
8	Pond A							1405	2		2																				020		
9																																	
10																																	
11																																	
12																																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
① client needs to analyze for: Radium 226 + 228pCi/L combined.	David Anderson, Pace	7/26/18	0900	Jim JTBur Pace	7/26/18	0900	N Y 7/31/18

Page 18 of 19 RA-226 EPA 903.1 RA-228 EPA 904.0	SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: David Anderson					
	SIGNATURE of SAMPLER: David Anderson	DATE Signed (MM/DD/YY): 7/25/18				

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Xld Energy

Project # 30260756

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 448677866053

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used NA Type of Ice: Wet Blue None Correction Factor: °C Final Temp: °C

Cooler Temperature Observed Temp °C

Temp should be above freezing to 6°C

Label QUB
LIMS Login QUB

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	☒	☐	☐	1. <u>10D3671</u>
Chain of Custody Filled Out:	☒	☐	☐	2. <u>7/30/18 QUB</u>
Chain of Custody Relinquished:	☒	☐	☐	3. <u> </u>
Sampler Name & Signature on COC:	☒	☐	☐	4. <u> </u>
Sample Labels match COC:	☒	☐	☐	5. <u> </u>
-Includes date/time/ID Matrix: <u>WT</u>	☒	☐	☐	6. <u> </u>
Samples Arrived within Hold Time:	☒	☐	☐	7. <u> </u>
Short Hold Time Analysis (<72hr remaining):	☒	☐	☐	8. <u> </u>
Rush Turn Around Time Requested:	☒	☐	☐	9. <u> </u>
Sufficient Volume:	☒	☐	☐	10. <u> </u>
Correct Containers Used:	☒	☐	☐	11. <u> </u>
-Pace Containers Used:	☒	☐	☐	12. <u> </u>
Containers Intact:	☒	☐	☐	13. <u> </u>
Orthophosphate field filtered	☒	☐	☐	14. <u> </u>
Hex Cr Aqueous Compliance/NPDES sample field filtered	☒	☐	☐	15. <u> </u>
Organic Samples checked for dechlorination:	☒	☐	☐	16. <u>PHC2</u>
Filtered volume received for Dissolved tests	☒	☐	☐	Initial when completed <u>QUB</u> Date/time of preservation <u> </u>
All containers have been checked for preservation.	☒	☐	☐	Lot # of added preservative <u> </u>
All containers needing preservation are found to be in compliance with EPA recommendation.	☒	☐	☐	17. <u> </u>
exceptions: VOA, coliform, TOC, O&G, Phenolics	☒	☐	☐	18. <u> </u>
Headspace in VOA Vials (>6mm):	☒	☐	☐	Initial when completed <u>QUB</u> Date: <u>7/30/18</u>
Trip Blank Present:	☒	☐	☐	
Trip Blank Custody Seals Present	☒	☐	☐	
Rad Aqueous Samples Screened > 0.5 mrem/hr	☒	☐	☐	

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

08 August 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 07/26/2018 11:11. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDG0324-01	Water	07/23/2018 13:35	07/26/2018 11:11
W504A		MDG0324-02	Water	07/23/2018 14:10	07/26/2018 11:11
W504B		MDG0324-03	Water	07/23/2018 14:40	07/26/2018 11:11
W511A		MDG0324-04	Water	07/24/2018 8:45	07/26/2018 11:11
W510A		MDG0324-05	Water	07/24/2018 9:30	07/26/2018 11:11
W14A		MDG0324-06	Water	07/24/2018 10:35	07/26/2018 11:11
W7A		MDG0324-07	Water	07/24/2018 11:30	07/26/2018 11:11
W602A		MDG0324-08	Water	07/24/2018 12:15	07/26/2018 11:11
W502A		MDG0324-09	Water	07/24/2018 13:20	07/26/2018 11:11
Duplicate		MDG0324-10	Water	07/24/2018 13:20	07/26/2018 11:11
W502B		MDG0324-11	Water	07/24/2018 14:00	07/26/2018 11:11
W600A		MDG0324-12	Water	07/24/2018 15:20	07/26/2018 11:11
W603A		MDG0324-13	Water	07/25/2018 9:05	07/26/2018 11:11
W604A		MDG0324-14	Water	07/25/2018 9:50	07/26/2018 11:11
W605A		MDG0324-15	Water	07/25/2018 10:35	07/26/2018 11:11
W601A		MDG0324-16	Water	07/25/2018 11:30	07/26/2018 11:11
W506A		MDG0324-17	Water	07/25/2018 12:10	07/26/2018 11:11
W514A		MDG0324-18	Water	07/25/2018 13:00	07/26/2018 11:11
W514B		MDG0324-19	Water	07/25/2018 13:45	07/26/2018 11:11
Pond A		MDG0324-20	Water	07/25/2018 14:05	07/26/2018 11:11



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Field Blank
MDG0324-01 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 14:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 14:58	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 14:58	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 13:30	SM 2320B	CRL
pH	6.69		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 13:30	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:38	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:43	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:41	EPA 200.7	HRD
Potassium	< 1.25	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:41	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:41	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:41	EPA 200.7	HRD
Sodium	< 1.50	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:41	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Field Blank

MDG0324-01 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:18	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504A

MDG0324-02 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	96.3	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 15:18	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 15:18	EPA 300.0	CRL
Sulfate	706	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 15:18	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	531	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 13:46	SM 2320B	CRL
pH	7.18		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 13:46	SM 4500-H+ B	CRL
Total Dissolved Solids	1880	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.73	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Barium	30.5	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Cadmium	0.158	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Cobalt	2.38	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Molybdenum	25.5	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:42	EPA 200.8	CRL

Total Metals by ICP

Boron	11.2	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:48	EPA 200.7	HRD
Calcium	320	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:46	EPA 200.7	HRD
Potassium	2.16	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:46	EPA 200.7	HRD
Lithium	0.0372	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:46	EPA 200.7	HRD
Magnesium	84.4	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:47	EPA 200.7	HRD
Sodium	150	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 11:46	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W504A

MDG0324-02 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:19	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MDG0324-03 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	56.7	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 15:38	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 15:38	EPA 300.0	CRL
Sulfate	19.3	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 15:38	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	832	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 13:56	SM 2320B	CRL
pH	7.36		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 13:56	SM 4500-H+ B	CRL
Total Dissolved Solids	946	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.67	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Barium	364	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:54	EPA 200.8	CRL

Total Metals by ICP

Boron	0.369	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:04	EPA 200.7	HRD
Calcium	216	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:02	EPA 200.7	HRD
Potassium	1.52	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:02	EPA 200.7	HRD
Lithium	0.0237	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:02	EPA 200.7	HRD
Magnesium	79.0	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:02	EPA 200.7	HRD
Sodium	25.0	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:02	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W504B

MDG0324-03 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:21	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W511A

MDG0324-04 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	97.4	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 16:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 16:19	EPA 300.0	CRL
Sulfate	979	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/26/18 15:59	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	60.0	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:01	SM 2320B	CRL
pH	8.59		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:01	SM 4500-H+ B	CRL
Total Dissolved Solids	1740	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.38	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Barium	65.1	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Cadmium	0.125	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Chromium	2.21	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Molybdenum	391	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Antimony	2.85	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Selenium	29.7	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 8:58	EPA 200.8	CRL

Total Metals by ICP

Boron	9.69	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:08	EPA 200.7	HRD
Calcium	358	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:07	EPA 200.7	HRD
Potassium	14.6	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:07	EPA 200.7	HRD
Lithium	0.0985	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:07	EPA 200.7	HRD
Magnesium	14.4	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:08	EPA 200.7	HRD
Sodium	110	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:07	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W511A

MDG0324-04 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:23	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W510A

MDG0324-05 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	73.0	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 16:40	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 16:40	EPA 300.0	CRL
Sulfate	141	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 16:40	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	916	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:12	SM 2320B	CRL
pH	7.67		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:12	SM 4500-H+ B	CRL
Total Dissolved Solids	1230	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	40.0	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Barium	332	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Molybdenum	0.893	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:02	EPA 200.8	CRL

Total Metals by ICP

Boron	5.67	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:14	EPA 200.7	HRD
Calcium	265	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:12	EPA 200.7	HRD
Potassium	2.40	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:12	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:12	EPA 200.7	HRD
Magnesium	79.2	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:13	EPA 200.7	HRD
Sodium	74.3	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:12	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W510A

MDG0324-05 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:28	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W14A

MDG0324-06 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	64.3	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:00	EPA 300.0	CRL
Sulfate	67.8	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:00	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	455	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:19	SM 2320B	CRL
pH	7.26		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:19	SM 4500-H+ B	CRL
Total Dissolved Solids	682	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.71	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Barium	46.8	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Cobalt	0.613	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Molybdenum	75.4	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:05	EPA 200.8	CRL

Total Metals by ICP

Boron	0.828	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:19	EPA 200.7	HRD
Calcium	140	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:17	EPA 200.7	HRD
Potassium	3.68	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:17	EPA 200.7	HRD
Lithium	0.0237	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:17	EPA 200.7	HRD
Magnesium	22.9	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:18	EPA 200.7	HRD
Sodium	73.0	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:17	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W14A

MDG0324-06 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:29	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W7A

MDG0324-07 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	42.5	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:20	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:20	EPA 300.0	CRL
Sulfate	144	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:20	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	361	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:26	SM 2320B	CRL
pH	7.36		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:26	SM 4500-H+ B	CRL
Total Dissolved Solids	680	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.691	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Barium	131	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Chromium	0.578	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Molybdenum	12.3	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:09	EPA 200.8	CRL

Total Metals by ICP

Boron	0.427	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:24	EPA 200.7	HRD
Calcium	138	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:22	EPA 200.7	HRD
Potassium	3.77	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:22	EPA 200.7	HRD
Lithium	0.0188	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:22	EPA 200.7	HRD
Magnesium	36.7	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:23	EPA 200.7	HRD
Sodium	26.4	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:22	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W7A

MDG0324-07 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:31	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W602A

MDG0324-08 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	200	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:41	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:41	EPA 300.0	CRL
Sulfate	277	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 17:41	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	280	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:32	SM 2320B	CRL
pH	7.63		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:32	SM 4500-H+ B	CRL
Total Dissolved Solids	1070	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.47	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Barium	80.4	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Cobalt	0.860	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Molybdenum	64.5	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:13	EPA 200.8	CRL

Total Metals by ICP

Boron	1.23	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:29	EPA 200.7	HRD
Calcium	126	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:27	EPA 200.7	HRD
Potassium	2.03	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:27	EPA 200.7	HRD
Lithium	0.0238	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:27	EPA 200.7	HRD
Magnesium	32.5	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:28	EPA 200.7	HRD
Sodium	182	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:27	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W602A

MDG0324-08 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:33	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W502A

MDG0324-09 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	107	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 18:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 18:22	EPA 300.0	CRL
Sulfate	1440	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/26/18 18:01	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	297	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:39	SM 2320B	CRL
pH	7.38		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:39	SM 4500-H+ B	CRL
Total Dissolved Solids	2720	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	31.2	5.00	ug/L		10	BDG0558	7/26/18 11:47	7/27/18 10:12	EPA 200.8	CRL
Barium	76.7	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L		10	BDG0558	7/26/18 11:47	7/27/18 10:12	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BDG0558	7/26/18 11:47	7/27/18 10:12	EPA 200.8	CRL
Molybdenum	67.9	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:17	EPA 200.8	CRL

Total Metals by ICP

Boron	8.01	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:34	EPA 200.7	HRD
Calcium	508	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:32	EPA 200.7	HRD
Potassium	16.3	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:33	EPA 200.7	HRD
Lithium	0.0889	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:33	EPA 200.7	HRD
Magnesium	72.5	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:33	EPA 200.7	HRD
Sodium	160	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:32	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W502A

MDG0324-09 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:35	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Duplicate

MDG0324-10 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	106	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 19:03	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 19:03	EPA 300.0	CRL
Sulfate	1430	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/26/18 18:42	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	305	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:46	SM 2320B	CRL
pH	7.40		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:46	SM 4500-H+ B	CRL
Total Dissolved Solids	2690	20.0	mg/L		1	BDG0568	7/27/18 8:30	7/27/18 8:30	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	33.5	5.00	ug/L		10	BDG0558	7/26/18 11:47	7/27/18 10:16	EPA 200.8	CRL
Barium	75.6	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L		10	BDG0558	7/26/18 11:47	7/27/18 10:16	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BDG0558	7/26/18 11:47	7/27/18 10:16	EPA 200.8	CRL
Molybdenum	66.6	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:21	EPA 200.8	CRL

Total Metals by ICP

Boron	8.00	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:39	EPA 200.7	HRD
Calcium	507	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:38	EPA 200.7	HRD
Potassium	16.5	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:38	EPA 200.7	HRD
Lithium	0.0889	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:38	EPA 200.7	HRD
Magnesium	72.0	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:38	EPA 200.7	HRD
Sodium	160	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:38	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Duplicate

MDG0324-10 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:36	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W502B

MDG0324-11 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	83.0	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 21:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 21:25	EPA 300.0	CRL
Sulfate	1170	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/26/18 21:05	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	370	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 14:59	SM 2320B	CRL
pH	7.31		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 14:59	SM 4500-H+ B	CRL
Total Dissolved Solids	2300	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.30	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Barium	137	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:25	EPA 200.8	CRL

Total Metals by ICP

Boron	3.42	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:44	EPA 200.7	HRD
Calcium	423	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:43	EPA 200.7	HRD
Potassium	2.14	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:43	EPA 200.7	HRD
Lithium	0.0275	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:43	EPA 200.7	HRD
Magnesium	112	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:43	EPA 200.7	HRD
Sodium	59.7	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:43	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W502B

MDG0324-11 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:38	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W600A

MDG0324-12 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	13.4	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:06	EPA 300.0	CRL
Sulfate	1780	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/26/18 21:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	159	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:05	SM 2320B	CRL
pH	6.69		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:05	SM 4500-H+ B	CRL
Total Dissolved Solids	2870	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	40.6	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Barium	23.7	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Beryllium	0.717	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Cadmium	1.01	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Cobalt	39.9	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Chromium	43.1	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Molybdenum	66.5	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:29	EPA 200.8	CRL

Total Metals by ICP

Boron	10.9	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:49	EPA 200.7	HRD
Calcium	569	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:48	EPA 200.7	HRD
Potassium	18.0	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:48	EPA 200.7	HRD
Lithium	0.147	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:48	EPA 200.7	HRD
Magnesium	59.7	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:48	EPA 200.7	HRD
Sodium	62.3	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 12:48	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W600A

MDG0324-12 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:40	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W603A

MDG0324-13 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	38.0	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:27	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:27	EPA 300.0	CRL
Sulfate	197	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:27	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	104	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:11	SM 2320B	CRL
pH	8.57		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:11	SM 4500-H+ B	CRL
Total Dissolved Solids	484	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.80	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Barium	44.9	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Molybdenum	92.2	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Antimony	2.26	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Selenium	13.1	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:41	EPA 200.8	CRL

Total Metals by ICP

Boron	3.74	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:05	EPA 200.7	HRD
Calcium	64.5	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:04	EPA 200.7	HRD
Potassium	7.01	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:04	EPA 200.7	HRD
Lithium	0.0724	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:04	EPA 200.7	HRD
Magnesium	16.3	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:04	EPA 200.7	HRD
Sodium	57.8	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:04	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W603A

MDG0324-13 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDG0638	7/30/18 14:24	7/31/18 15:41	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W604A

MDG0324-14 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	56.9	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:47	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:47	EPA 300.0	CRL
Sulfate	299	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 22:47	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	81.3	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:17	SM 2320B	CRL
pH	8.67		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:17	SM 4500-H+ B	CRL
Total Dissolved Solids	644	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.57	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Barium	57.2	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Chromium	4.14	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Molybdenum	101	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Antimony	2.35	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Selenium	21.1	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:45	EPA 200.8	CRL

Total Metals by ICP

Boron	4.21	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:10	EPA 200.7	HRD
Calcium	72.6	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:09	EPA 200.7	HRD
Potassium	6.08	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:09	EPA 200.7	HRD
Lithium	0.0442	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:09	EPA 200.7	HRD
Magnesium	14.1	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:09	EPA 200.7	HRD
Sodium	96.2	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:09	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W604A

MDG0324-14 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:33	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MDG0324-15 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	63.7	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 23:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 23:07	EPA 300.0	CRL
Sulfate	240	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 23:07	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	136	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:23	SM 2320B	CRL
pH	8.03		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:23	SM 4500-H+ B	CRL
Total Dissolved Solids	606	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	8.38	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Barium	65.1	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Molybdenum	84.8	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Selenium	0.519	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:48	EPA 200.8	CRL

Total Metals by ICP

Boron	3.61	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:15	EPA 200.7	HRD
Calcium	76.9	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:14	EPA 200.7	HRD
Potassium	6.19	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:14	EPA 200.7	HRD
Lithium	0.0241	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:14	EPA 200.7	HRD
Magnesium	19.8	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:14	EPA 200.7	HRD
Sodium	86.6	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:14	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W605A

MDG0324-15 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:36	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W601A

MDG0324-16 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	143	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 23:48	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/26/18 23:48	EPA 300.0	CRL
Sulfate	1160	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/26/18 23:28	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	94.5	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:30	SM 2320B	CRL
pH	10.4		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:30	SM 4500-H+ B	CRL
Total Dissolved Solids	2130	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	9.44	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Barium	72.7	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Chromium	0.804	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Molybdenum	255	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Antimony	0.889	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Selenium	41.8	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:52	EPA 200.8	CRL

Total Metals by ICP

Boron	9.01	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:20	EPA 200.7	HRD
Calcium	312	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:19	EPA 200.7	HRD
Potassium	51.0	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:19	EPA 200.7	HRD
Lithium	0.384	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:19	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:19	EPA 200.7	HRD
Sodium	291	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:19	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W601A

MDG0324-16 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:37	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W506A

MDG0324-17 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	54.9	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 0:29	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 0:29	EPA 300.0	CRL
Sulfate	1140	10.0	mg/L		10	BDG0562	7/26/18 11:50	7/27/18 0:09	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	229	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:36	SM 2320B	CRL
pH	7.03		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:36	SM 4500-H+ B	CRL
Total Dissolved Solids	2140	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.68	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Barium	19.4	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Cadmium	4.08	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Cobalt	19.2	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Molybdenum	20.8	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Selenium	0.705	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL
Thallium	0.974	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 9:56	EPA 200.8	CRL

Total Metals by ICP

Boron	1.56	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:26	EPA 200.7	HRD
Calcium	482	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:24	EPA 200.7	HRD
Potassium	9.38	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:24	EPA 200.7	HRD
Lithium	0.0617	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:24	EPA 200.7	HRD
Magnesium	36.2	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:25	EPA 200.7	HRD
Sodium	58.0	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:24	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W506A

MDG0324-17 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:39	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514A

MDG0324-18 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	43.0	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 0:50	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 0:50	EPA 300.0	CRL
Sulfate	67.6	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 0:50	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	363	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:44	SM 2320B	CRL
pH	7.72		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:44	SM 4500-H+ B	CRL
Total Dissolved Solids	528	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.709	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Barium	73.8	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Chromium	1.68	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Molybdenum	6.97	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Selenium	2.85	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:00	EPA 200.8	CRL

Total Metals by ICP

Boron	0.829	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:31	EPA 200.7	HRD
Calcium	64.7	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:29	EPA 200.7	HRD
Potassium	4.90	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:29	EPA 200.7	HRD
Lithium	0.0201	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:29	EPA 200.7	HRD
Magnesium	35.8	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:30	EPA 200.7	HRD
Sodium	64.1	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:29	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W514A

MDG0324-18 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:41	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W514B

MDG0324-19 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	8.96	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 1:10	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 1:10	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 1:10	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	571	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:51	SM 2320B	CRL
pH	8.14		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:51	SM 4500-H+ B	CRL
Total Dissolved Solids	540	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.41	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Barium	147	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Molybdenum	1.53	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:04	EPA 200.8	CRL

Total Metals by ICP

Boron	0.105	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:36	EPA 200.7	HRD
Calcium	74.8	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:34	EPA 200.7	HRD
Potassium	1.59	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:34	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:34	EPA 200.7	HRD
Magnesium	86.6	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:35	EPA 200.7	HRD
Sodium	10.1	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:34	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

W514B

MDG0324-19 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:42	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Pond A

MDG0324-20 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	81.0	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 1:30	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 1:30	EPA 300.0	CRL
Sulfate	131	1.00	mg/L		1	BDG0562	7/26/18 11:50	7/27/18 1:30	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	70.0	10.0	mg/L		1	BDG0561	7/26/18 11:43	7/26/18 15:58	SM 2320B	CRL
pH	8.68		pH Units	M_TTT	1	BDG0561	7/26/18 11:43	7/26/18 15:58	SM 4500-H+ B	CRL
Total Dissolved Solids	424	20.0	mg/L		1	BDG0615	7/30/18 9:04	7/30/18 9:04	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.03	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Barium	94.9	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Molybdenum	8.41	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Selenium	1.55	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDG0558	7/26/18 11:47	7/27/18 10:08	EPA 200.8	CRL

Total Metals by ICP

Boron	0.360	0.0500	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:41	EPA 200.7	HRD
Calcium	45.1	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:39	EPA 200.7	HRD
Potassium	5.85	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:39	EPA 200.7	HRD
Lithium	0.0205	0.0150	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:39	EPA 200.7	HRD
Magnesium	18.0	1.25	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:39	EPA 200.7	HRD
Sodium	56.0	1.50	mg/L		1	BDG0557	7/26/18 11:45	7/27/18 13:39	EPA 200.7	HRD



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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Pond A

MDG0324-20 (Water) - Chain of Custody Number: 2202809/2202811

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDH0190	8/7/18 9:46	8/7/18 14:44	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0562 - Wet Prep

Blank (BDG0562-BLK1)				Prepared & Analyzed: 07/26/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDG0562-BLK2)				Prepared & Analyzed: 07/26/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDG0562-BS1)				Prepared & Analyzed: 07/26/2018						
Chloride	23.8	1.00	mg/L	25.076		94.7	90-110			
Fluoride	2.48	0.750	mg/L	2.5076		98.8	90-110			
Sulfate	46.0	1.00	mg/L	48.144		95.6	90-110			

LCS (BDG0562-BS2)				Prepared & Analyzed: 07/26/2018						
Chloride	24.0	1.00	mg/L	25.076		95.8	90-110			
Fluoride	2.53	0.750	mg/L	2.5076		101	90-110			
Sulfate	46.5	1.00	mg/L	48.144		96.6	90-110			

LCS (BDG0562-BS3)				Prepared: 07/26/2018 Analyzed: 07/27/2018						
Chloride	24.2	1.00	mg/L	25.076		96.5	90-110			
Fluoride	2.54	0.750	mg/L	2.5076		101	90-110			
Sulfate	46.7	1.00	mg/L	48.144		97.1	90-110			

Duplicate (BDG0562-DUP1)				Source: MDG0324-18		Prepared & Analyzed: 07/26/2018				
Chloride	42.6	1.00	mg/L		43.0			1.04	20	
Fluoride	0.192	0.750	mg/L		0.193			0.519	20	
Sulfate	67.0	1.00	mg/L		67.6			0.934	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0562 - Wet Prep

Duplicate (BDG0562-DUP2)		Source: MDG0324-19		Prepared & Analyzed: 07/26/2018						
Chloride	8.90	1.00	mg/L		8.96			0.762	20	
Fluoride	0.159	0.750	mg/L		0.164			3.10	20	
Sulfate	<1.00	1.00	mg/L		<1.00				20	

Matrix Spike (BDG0562-MS1)		Source: MDG0324-18		Prepared & Analyzed: 07/26/2018						
Chloride	72.5	1.25	mg/L	31.345	43.0	94.1	80-120			
Fluoride	3.14	0.938	mg/L	3.1345	0.193	94.0	80-120			
Sulfate	125	1.25	mg/L	60.180	67.6	94.6	80-120			

Matrix Spike (BDG0562-MS2)		Source: MDG0324-19		Prepared & Analyzed: 07/26/2018						
Chloride	38.8	1.25	mg/L	31.345	8.96	95.1	80-120			
Fluoride	3.13	0.938	mg/L	3.1345	0.164	94.5	80-120			
Sulfate	57.5	1.25	mg/L	60.180	<1.25	95.5	80-120			

Matrix Spike Dup (BDG0562-MSD1)		Source: MDG0324-18		Prepared & Analyzed: 07/26/2018						
Chloride	72.3	1.25	mg/L	31.345	43.0	93.5	80-120	0.274	20	
Fluoride	3.24	0.938	mg/L	3.1345	0.193	97.3	80-120	3.25	20	
Sulfate	124	1.25	mg/L	60.180	67.6	94.1	80-120	0.228	20	

Matrix Spike Dup (BDG0562-MSD2)		Source: MDG0324-19		Prepared & Analyzed: 07/26/2018						
Chloride	39.3	1.25	mg/L	31.345	8.96	96.8	80-120	1.33	20	
Fluoride	3.30	0.938	mg/L	3.1345	0.164	99.9	80-120	5.30	20	
Sulfate	58.7	1.25	mg/L	60.180	<1.25	97.5	80-120	2.12	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0561 - Wet Prep

LCS (BDG0561-BS1)			Prepared & Analyzed: 07/26/2018							
Alkalinity, Total	101		mg/L	100.00		101	90-110			
pH	7.06		pH Units	7.0000		101	90-110			

LCS (BDG0561-BS2)			Prepared & Analyzed: 07/26/2018							
Alkalinity, Total	102		mg/L	100.00		102	90-110			
pH	7.06		pH Units	7.0000		101	90-110			

Duplicate (BDG0561-DUP1)			Source: MDG0324-02		Prepared & Analyzed: 07/26/2018					
Alkalinity, Total	537	10.0	mg/L		531			1.15	20	
pH	7.14		pH Units		7.18			0.559	20	

Duplicate (BDG0561-DUP2)			Source: MDG0324-11		Prepared & Analyzed: 07/26/2018					
Alkalinity, Total	369	10.0	mg/L		370			0.227	20	
pH	7.32		pH Units		7.31			0.137	20	

Batch BDG0568 - Wet Prep

Blank (BDG0568-BLK1)			Prepared & Analyzed: 07/27/2018							
Total Dissolved Solids	<20.0	20.0	mg/L							

Duplicate (BDG0568-DUP1)			Source: MDG0324-02		Prepared & Analyzed: 07/27/2018					
Total Dissolved Solids	1880	20.0	mg/L		1880			0.319	20	

Batch BDG0615 - Wet Prep

Blank (BDG0615-BLK1)			Prepared & Analyzed: 07/30/2018							
Total Dissolved Solids	<20.0	20.0	mg/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0615 - Wet Prep

Duplicate (BDG0615-DUP1)	Source: MDG0324-11		Prepared & Analyzed: 07/30/2018							
Total Dissolved Solids	2290	20.0	mg/L		2300			0.348	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0558 - EPA 200.2, EPA 3005

Blank (BDG0558-BLK1)

Prepared: 07/26/2018 Analyzed: 07/27/2018

Arsenic	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Lead	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Chromium	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							

LCS (BDG0558-BS1)

Prepared: 07/26/2018 Analyzed: 07/27/2018

Lead	97.0	0.500	ug/L	100.00		97.0	85-115			
Arsenic	97.8	0.500	ug/L	100.00		97.8	85-115			
Antimony	95.6	0.500	ug/L	100.00		95.6	85-115			
Chromium	100	0.500	ug/L	100.00		100	85-115			
Barium	97.0	0.500	ug/L	100.00		97.0	85-115			
Cobalt	98.5	0.500	ug/L	100.00		98.5	85-115			
Molybdenum	97.7	0.500	ug/L	100.00		97.7	85-115			
Cadmium	97.5	0.100	ug/L	100.00		97.5	85-115			
Thallium	97.6	0.500	ug/L	100.00		97.6	85-115			
Beryllium	98.8	0.500	ug/L	100.00		98.8	85-115			
Selenium	97.2	0.500	ug/L	100.00		97.2	85-115			

Duplicate (BDG0558-DUP1)

Source: MDG0324-04

Prepared: 07/26/2018 Analyzed: 07/27/2018

Arsenic	5.61	0.500	ug/L	5.38		4.28	20			
Selenium	29.8	0.500	ug/L	29.7		0.550	20			
Lead	0.0584	0.500	ug/L	0.0227		88.0	20		M_D-RL	
Thallium	0.187	0.500	ug/L	0.105		56.1	20		M_D-RL	
Barium	67.6	0.500	ug/L	65.1		3.65	20			
Beryllium	0.144	0.500	ug/L	0.0365		119	20		M_D-RL	
Molybdenum	403	0.500	ug/L	391		3.17	20			
Chromium	2.36	0.500	ug/L	2.21		6.73	20			
Cadmium	0.165	0.100	ug/L	0.125		27.5	20		M_D	
Cobalt	0.248	0.500	ug/L	0.241		3.01	20			
Antimony	2.59	0.500	ug/L	2.85		9.77	20			



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250 Marquette Plaza		08/08/2018 10:04
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0558 - EPA 200.2, EPA 3005

Duplicate (BDG0558-DUP2)		Source: MDG0324-05		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Molybdenum	0.848	0.500	ug/L		0.893			5.15	20	
Selenium	<0.500	0.500	ug/L		<0.500				20	
Cadmium	0.0704	0.100	ug/L		0.0341			69.4	20	M_D-RL
Cobalt	0.386	0.500	ug/L		0.415			7.20	20	
Chromium	0.486	0.500	ug/L		0.478			1.66	20	
Beryllium	0.0319	0.500	ug/L		0.0310			2.83	20	
Barium	334	0.500	ug/L		332			0.588	20	
Arsenic	39.8	0.500	ug/L		40.0			0.451	20	
Lead	0.0965	0.500	ug/L		0.103			6.97	20	
Antimony	0.0706	0.500	ug/L		0.0544			26.1	20	M_D-RL
Thallium	<0.500	0.500	ug/L		<0.500				20	

Matrix Spike (BDG0558-MS1)		Source: MDG0324-04		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Barium	166	0.500	ug/L	100.00	65.1	101	70-130			
Beryllium	85.5	0.500	ug/L	100.00	0.0365	85.4	70-130			
Arsenic	112	0.500	ug/L	100.00	5.38	106	70-130			
Antimony	98.8	0.500	ug/L	100.00	2.85	95.9	70-130			
Molybdenum	494	0.500	ug/L	100.00	391	103	70-130			
Selenium	129	0.500	ug/L	100.00	29.7	99.0	70-130			
Cobalt	102	0.500	ug/L	100.00	0.241	102	70-130			
Cadmium	94.6	0.100	ug/L	100.00	0.125	94.4	70-130			
Lead	83.4	0.500	ug/L	100.00	0.0227	83.3	70-130			
Thallium	86.7	0.500	ug/L	100.00	0.105	86.6	70-130			
Chromium	105	0.500	ug/L	100.00	2.21	103	70-130			

Matrix Spike (BDG0558-MS2)		Source: MDG0324-05		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Barium	436	0.500	ug/L	100.00	332	104	70-130			
Lead	83.8	0.500	ug/L	100.00	0.103	83.6	70-130			
Beryllium	91.8	0.500	ug/L	100.00	0.0310	91.7	70-130			
Chromium	110	0.500	ug/L	100.00	0.478	110	70-130			
Arsenic	143	0.500	ug/L	100.00	40.0	103	70-130			
Molybdenum	104	0.500	ug/L	100.00	0.893	103	70-130			
Thallium	87.3	0.500	ug/L	100.00	<0.500	87.3	70-130			
Selenium	96.0	0.500	ug/L	100.00	<0.500	96.0	70-130			
Cobalt	105	0.500	ug/L	100.00	0.415	105	70-130			
Antimony	97.8	0.500	ug/L	100.00	0.0544	97.7	70-130			
Cadmium	96.9	0.100	ug/L	100.00	0.0341	96.9	70-130			



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0558 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDG0558-MSD1)		Source: MDG0324-04		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Lead	84.0	0.500	ug/L	100.00	0.0227	84.0	70-130	0.797	20	
Antimony	99.6	0.500	ug/L	100.00	2.85	96.7	70-130	0.788	20	
Thallium	87.8	0.500	ug/L	100.00	0.105	87.7	70-130	1.29	20	
Molybdenum	516	0.500	ug/L	100.00	391	125	70-130	4.29	20	
Selenium	129	0.500	ug/L	100.00	29.7	99.7	70-130	0.550	20	
Cadmium	94.5	0.100	ug/L	100.00	0.125	94.4	70-130	0.0695	20	
Beryllium	86.0	0.500	ug/L	100.00	0.0365	85.9	70-130	0.595	20	
Chromium	111	0.500	ug/L	100.00	2.21	108	70-130	4.90	20	
Arsenic	115	0.500	ug/L	100.00	5.38	110	70-130	3.27	20	
Barium	170	0.500	ug/L	100.00	65.1	105	70-130	2.82	20	
Cobalt	105	0.500	ug/L	100.00	0.241	105	70-130	2.46	20	

Matrix Spike Dup (BDG0558-MSD2)		Source: MDG0324-05		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Arsenic	145	0.500	ug/L	100.00	40.0	105	70-130	1.62	20	
Lead	84.1	0.500	ug/L	100.00	0.103	84.0	70-130	0.388	20	
Beryllium	96.3	0.500	ug/L	100.00	0.0310	96.3	70-130	4.82	20	
Antimony	96.5	0.500	ug/L	100.00	0.0544	96.4	70-130	1.33	20	
Cadmium	95.6	0.100	ug/L	100.00	0.0341	95.6	70-130	1.35	20	
Barium	441	0.500	ug/L	100.00	332	109	70-130	1.08	20	
Molybdenum	102	0.500	ug/L	100.00	0.893	101	70-130	2.04	20	
Selenium	97.8	0.500	ug/L	100.00	<0.500	97.8	70-130	1.80	20	
Chromium	111	0.500	ug/L	100.00	0.478	110	70-130	0.593	20	
Thallium	87.7	0.500	ug/L	100.00	<0.500	87.7	70-130	0.473	20	
Cobalt	106	0.500	ug/L	100.00	0.415	106	70-130	1.12	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0557 - EPA 200.2, EPA 3005

Blank (BDG0557-BLK1)

Prepared: 07/26/2018 Analyzed: 07/27/2018

Magnesium	<1.25	1.25	mg/L
Lithium	<0.0150	0.0150	mg/L
Calcium	<1.25	1.25	mg/L
Sodium	<1.50	1.50	mg/L
Boron	<0.0500	0.0500	mg/L
Potassium	<1.25	1.25	mg/L

LCS (BDG0557-BS1)

Prepared: 07/26/2018 Analyzed: 07/27/2018

Boron	1.01	0.0500	mg/L	1.0000	101	85-115
Calcium	102	1.25	mg/L	100.00	102	85-115
Sodium	101	1.50	mg/L	100.00	101	85-115
Lithium	0.975	0.0150	mg/L	1.0000	97.5	85-115
Magnesium	101	1.25	mg/L	100.00	101	85-115
Potassium	99.3	1.25	mg/L	100.00	99.3	85-115

Duplicate (BDG0557-DUP1)

Source: MDG0324-02

Prepared: 07/26/2018 Analyzed: 07/27/2018

Boron	11.4	0.0500	mg/L	11.2	1.80	20
Magnesium	83.9	1.25	mg/L	84.4	0.614	20
Sodium	151	1.50	mg/L	150	0.686	20
Calcium	322	1.25	mg/L	320	0.612	20
Lithium	0.0362	0.0150	mg/L	0.0372	2.67	20
Potassium	2.34	1.25	mg/L	2.16	7.62	20

Duplicate (BDG0557-DUP2)

Source: MDG0324-03

Prepared: 07/26/2018 Analyzed: 07/27/2018

Sodium	24.8	1.50	mg/L	25.0	0.803	20
Lithium	0.0240	0.0150	mg/L	0.0237	0.900	20
Potassium	1.59	1.25	mg/L	1.52	5.04	20
Calcium	214	1.25	mg/L	216	1.03	20
Boron	0.377	0.0500	mg/L	0.369	2.10	20
Magnesium	78.5	1.25	mg/L	79.0	0.585	20



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0557 - EPA 200.2, EPA 3005

Matrix Spike (BDG0557-MS1)		Source: MDG0324-02		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Magnesium	189	1.25	mg/L	100.00	84.4	104	70-130			
Sodium	258	1.50	mg/L	100.00	150	108	70-130			
Boron	12.3	0.0500	mg/L	1.0000	11.2	113	70-130			
Calcium	434	1.25	mg/L	100.00	320	114	70-130			
Lithium	1.04	0.0150	mg/L	1.0000	0.0372	101	75-125			
Potassium	105	1.25	mg/L	100.00	2.16	103	70-130			

Matrix Spike (BDG0557-MS2)		Source: MDG0324-03		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Sodium	126	1.50	mg/L	100.00	25.0	101	70-130			
Calcium	317	1.25	mg/L	100.00	216	101	70-130			
Magnesium	182	1.25	mg/L	100.00	79.0	103	70-130			
Lithium	1.01	0.0150	mg/L	1.0000	0.0237	98.9	75-125			
Potassium	102	1.25	mg/L	100.00	1.52	100	70-130			
Boron	1.44	0.0500	mg/L	1.0000	0.369	107	70-130			

Matrix Spike Dup (BDG0557-MSD1)		Source: MDG0324-02		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Sodium	256	1.50	mg/L	100.00	150	107	70-130	0.481	20	
Boron	12.2	0.0500	mg/L	1.0000	11.2	100	70-130	1.05	20	
Potassium	105	1.25	mg/L	100.00	2.16	102	70-130	0.136	20	
Magnesium	186	1.25	mg/L	100.00	84.4	102	70-130	1.56	20	
Calcium	431	1.25	mg/L	100.00	320	111	70-130	0.712	20	
Lithium	1.04	0.0150	mg/L	1.0000	0.0372	101	75-125	0.0478	20	

Matrix Spike Dup (BDG0557-MSD2)		Source: MDG0324-03		Prepared: 07/26/2018 Analyzed: 07/27/2018						
Calcium	312	1.25	mg/L	100.00	216	95.7	70-130	1.79	20	
Magnesium	180	1.25	mg/L	100.00	79.0	101	70-130	0.838	20	
Sodium	124	1.50	mg/L	100.00	25.0	99.5	70-130	1.21	20	
Lithium	1.00	0.0150	mg/L	1.0000	0.0237	97.9	75-125	0.970	20	
Potassium	101	1.25	mg/L	100.00	1.52	99.8	70-130	0.697	20	
Boron	1.43	0.0500	mg/L	1.0000	0.369	106	70-130	0.610	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDG0638 - EPA 245.1, EPA 7470A

Blank (BDG0638-BLK1)				Prepared: 07/30/2018 Analyzed: 07/31/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDG0638-BS1)				Prepared: 07/30/2018 Analyzed: 07/31/2018						
Mercury	2.83	0.200	ug/L	3.0000		94.2	85-115			
Duplicate (BDG0638-DUP1)				Source: MDG0324-06		Prepared: 07/30/2018 Analyzed: 07/31/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDG0638-DUP2)				Source: MDG0324-07		Prepared: 07/30/2018 Analyzed: 07/31/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDG0638-MS1)				Source: MDG0324-06		Prepared: 07/30/2018 Analyzed: 07/31/2018				
Mercury	2.76	0.200	ug/L	3.0000	<0.200	92.0	70-130			
Matrix Spike (BDG0638-MS2)				Source: MDG0324-07		Prepared: 07/30/2018 Analyzed: 07/31/2018				
Mercury	2.72	0.200	ug/L	3.0000	<0.200	90.6	70-130			
Matrix Spike Dup (BDG0638-MSD1)				Source: MDG0324-06		Prepared: 07/30/2018 Analyzed: 07/31/2018				
Mercury	2.69	0.200	ug/L	3.0000	<0.200	89.6	70-130	2.66	20	
Matrix Spike Dup (BDG0638-MSD2)				Source: MDG0324-07		Prepared: 07/30/2018 Analyzed: 07/31/2018				
Mercury	2.66	0.200	ug/L	3.0000	<0.200	88.5	70-130	2.34	20	

Batch BDH0190 - EPA 245.1, EPA 7470A

Blank (BDH0190-BLK1)				Prepared & Analyzed: 08/07/2018						
Mercury	<0.200	0.200	ug/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDH0190 - EPA 245.1, EPA 7470A										
LCS (BDH0190-BS1)				Prepared & Analyzed: 08/07/2018						
Mercury	2.69	0.200	ug/L	3.0000		89.7	85-115			
Duplicate (BDH0190-DUP1)				Source: MDG0324-14		Prepared & Analyzed: 08/07/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDH0190-DUP2)				Source: MDG0324-15		Prepared & Analyzed: 08/07/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDH0190-MS1)				Source: MDG0324-14		Prepared & Analyzed: 08/07/2018				
Mercury	2.67	0.200	ug/L	3.0000	<0.200	88.9	70-130			
Matrix Spike (BDH0190-MS2)				Source: MDG0324-15		Prepared & Analyzed: 08/07/2018				
Mercury	2.66	0.200	ug/L	3.0000	<0.200	88.8	70-130			
Matrix Spike Dup (BDH0190-MSD1)				Source: MDG0324-14		Prepared & Analyzed: 08/07/2018				
Mercury	2.61	0.200	ug/L	3.0000	<0.200	86.9	70-130	2.23	20	
Matrix Spike Dup (BDH0190-MSD2)				Source: MDG0324-15		Prepared & Analyzed: 08/07/2018				
Mercury	2.75	0.200	ug/L	3.0000	<0.200	91.7	70-130	3.24	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	08/08/2018 10:04

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
M_D	The RPD for the sample duplicate was outside of QC acceptance limits possibly due to non-homogeneous matrix.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: **2** of **2**
2202811

Section A

Required Client Information:

Company: **Xcel Energy**
Address: **Environmental Services**

Email To:

Phone:

Fax:

Requested Due Date/TAT:

Section B

Required Project Information:

Report To: **Tedd Ronning, Rick Rosvold (Xcel)**
Copy To: **Jenni Brekken, Dana Pasi (Bart)**

Purchase Order No.:

Project Name:

Project Number:

Black Dog CCR Baseline
July 2018

Section C

Invoice Information:

Attention: **Steve Davis**

Company Name:

Address:

Pace Quote:

Reference:

Pace Project:

Manager:

Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Analysis Test ↑	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
① Total metals (unfiltered)	David Anderson / Pace	7/26/18	1115	David Anderson	7/26/18	1124	4.9°C	Y
② Pond A sample added per Jenni Brekken								

IR Gun M400841

ORIGINAL

pH strips MB00508

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

David Anderson

David Anderson

DATE Signed (MM/DD/YY):

7/25/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

September 28, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

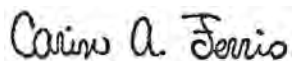
RE: Project: 18-01019, Xcel Energy-BD CCR
Pace Project No.: 30265295

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 17, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30265295001	Field Blank	Water	09/10/18 13:00	09/17/18 09:00
30265295002	W504 A	Water	09/10/18 13:40	09/17/18 09:00
30265295003	W504 B	Water	09/10/18 14:25	09/17/18 09:00
30265295004	W510 A	Water	09/11/18 09:10	09/17/18 09:00
30265295005	W511 A	Water	09/11/18 10:05	09/17/18 09:00
30265295006	W14 A	Water	09/11/18 11:30	09/17/18 09:00
30265295007	W7A	Water	09/11/18 12:20	09/17/18 09:00
30265295008	W602 A	Water	09/11/18 13:10	09/17/18 09:00
30265295009	W502 A	Water	09/11/18 13:50	09/17/18 09:00
30265295010	W502 B	Water	09/11/18 14:35	09/17/18 09:00
30265295011	Duplicate	Water	09/11/18 14:35	09/17/18 09:00
30265295012	W603 A	Water	09/12/18 09:30	09/17/18 09:00
30265295013	W604 A	Water	09/12/18 10:25	09/17/18 09:00
30265295014	W605 A	Water	09/12/18 11:10	09/17/18 09:00
30265295015	W601 A	Water	09/12/18 12:30	09/17/18 09:00
30265295016	W506 A	Water	09/12/18 13:15	09/17/18 09:00
30265295017	W514 A	Water	09/12/18 14:05	09/17/18 09:00
30265295018	W514 B	Water	09/12/18 14:45	09/17/18 09:00
30265295019	W600 A	Water	09/12/18 15:35	09/17/18 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30265295001	Field Blank	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295002	W504 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295003	W504 B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295004	W510 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295005	W511 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295006	W14 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295007	W7A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295008	W602 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295009	W502 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295010	W502 B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295011	Duplicate	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295012	W603 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295013	W604 A	EPA 903.1	MK1	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30265295014	W605 A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295015	W601 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30265295016	W506 A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
30265295017	W514 A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30265295018	W514 B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30265295019	W600 A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: September 28, 2018

General Information:

19 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: September 28, 2018

General Information:

19 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: September 28, 2018

General Information:

19 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Sample: Field Blank **Lab ID:** 30265295001 **Collected:** 09/10/18 13:00 **Received:** 09/17/18 09:00 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.438 ± 0.710 (1.24) C:NA T:67%	pCi/L	09/27/18 18:55	13982-63-3	
Radium-228	EPA 904.0	0.544 ± 0.348 (0.633) C:72% T:74%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.982 ± 1.06 (1.87)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W504 A **Lab ID:** 30265295002 **Collected:** 09/10/18 13:40 **Received:** 09/17/18 09:00 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0611 ± 0.397 (0.801) C:NA T:90%	pCi/L	09/27/18 18:55	13982-63-3	
Radium-228	EPA 904.0	0.553 ± 0.359 (0.668) C:68% T:82%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.614 ± 0.756 (1.47)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W504 B **Lab ID:** 30265295003 **Collected:** 09/10/18 14:25 **Received:** 09/17/18 09:00 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.535 ± 0.621 (1.00) C:NA T:72%	pCi/L	09/27/18 18:55	13982-63-3	
Radium-228	EPA 904.0	0.469 ± 0.366 (0.719) C:71% T:80%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	1.00 ± 0.987 (1.72)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W510 A **Lab ID:** 30265295004 **Collected:** 09/11/18 09:10 **Received:** 09/17/18 09:00 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.369 ± 0.523 (0.885) C:NA T:83%	pCi/L	09/27/18 18:55	13982-63-3	
Radium-228	EPA 904.0	0.561 ± 0.380 (0.726) C:70% T:85%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.930 ± 0.903 (1.61)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W511 A **Lab ID:** 30265295005 **Collected:** 09/11/18 10:05 **Received:** 09/17/18 09:00 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.329 ± 0.559 (0.987) C:NA T:78%	pCi/L	09/27/18 18:55	13982-63-3	
Radium-228	EPA 904.0	0.520 ± 0.360 (0.689) C:71% T:84%	pCi/L	09/25/18 12:27	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Sample: W511 A		Lab ID: 30265295005	Collected: 09/11/18 10:05	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.849 ± 0.919 (1.68)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W14 A		Lab ID: 30265295006	Collected: 09/11/18 11:30	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.479 (0.980) C:NA T:84%	pCi/L	09/27/18 19:08	13982-63-3	
Radium-228	EPA 904.0	0.445 ± 0.321 (0.614) C:71% T:84%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	0.445 ± 0.800 (1.59)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W7A		Lab ID: 30265295007	Collected: 09/11/18 12:20	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.071 ± 0.459 (0.995) C:NA T:75%	pCi/L	09/27/18 19:08	13982-63-3	
Radium-228	EPA 904.0	0.312 ± 0.371 (0.782) C:72% T:79%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	0.312 ± 0.830 (1.78)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W602 A		Lab ID: 30265295008	Collected: 09/11/18 13:10	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.215 ± 0.545 (1.01) C:NA T:76%	pCi/L	09/27/18 19:08	13982-63-3	
Radium-228	EPA 904.0	0.381 ± 0.327 (0.654) C:70% T:85%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	0.596 ± 0.872 (1.66)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W502 A		Lab ID: 30265295009	Collected: 09/11/18 13:50	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.377 ± 0.524 (0.885) C:NA T:88%	pCi/L	09/27/18 19:08	13982-63-3	
Radium-228	EPA 904.0	0.427 ± 0.272 (0.492) C:76% T:88%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	0.804 ± 0.796 (1.38)	pCi/L	09/28/18 10:55	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Sample: W502 B		Lab ID: 30265295010	Collected: 09/11/18 14:35	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.134 ± 0.491 (0.943) C:NA T:86%	pCi/L	09/27/18 19:08	13982-63-3	
Radium-228	EPA 904.0	1.22 ± 0.422 (0.557) C:74% T:86%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	1.35 ± 0.913 (1.50)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: Duplicate		Lab ID: 30265295011	Collected: 09/11/18 14:35	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.448 ± 0.550 (0.897) C:NA T:71%	pCi/L	09/27/18 19:08	13982-63-3	
Radium-228	EPA 904.0	0.577 ± 0.385 (0.726) C:69% T:79%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	1.03 ± 0.935 (1.62)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W603 A		Lab ID: 30265295012	Collected: 09/12/18 09:30	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0652 ± 0.424 (0.854) C:NA T:82%	pCi/L	09/27/18 19:22	13982-63-3	
Radium-228	EPA 904.0	0.643 ± 0.385 (0.715) C:73% T:85%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.708 ± 0.809 (1.57)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W604 A		Lab ID: 30265295013	Collected: 09/12/18 10:25	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.188 ± 0.476 (0.883) C:NA T:88%	pCi/L	09/27/18 19:22	13982-63-3	
Radium-228	EPA 904.0	0.466 ± 0.419 (0.855) C:71% T:81%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.654 ± 0.895 (1.74)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W605 A		Lab ID: 30265295014	Collected: 09/12/18 11:10	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.294 ± 0.540 (0.964) C:NA T:85%	pCi/L	09/27/18 19:22	13982-63-3	
Radium-228	EPA 904.0	1.37 ± 0.492 (0.721) C:72% T:87%	pCi/L	09/25/18 12:27	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Sample: W605 A		Lab ID: 30265295014	Collected: 09/12/18 11:10	Received: 09/17/18 09:00	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.66 ± 1.03 (1.69)		pCi/L	09/28/18 10:55	7440-14-4	

Sample: W601 A		Lab ID: 30265295015	Collected: 09/12/18 12:30	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.458 (0.968) C:NA T:78%	pCi/L	09/27/18 19:22	13982-63-3	
Radium-228	EPA 904.0	0.645 ± 0.433 (0.832) C:74% T:76%	pCi/L	09/25/18 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.645 ± 0.891 (1.80)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W506 A		Lab ID: 30265295016	Collected: 09/12/18 13:15	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.433 ± 0.568 (0.946) C:NA T:78%	pCi/L	09/27/18 19:22	13982-63-3	
Radium-228	EPA 904.0	0.555 ± 0.404 (0.794) C:72% T:85%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	0.988 ± 0.972 (1.74)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W514 A		Lab ID: 30265295017	Collected: 09/12/18 14:05	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.631 ± 0.584 (0.889) C:NA T:84%	pCi/L	09/27/18 19:22	13982-63-3	
Radium-228	EPA 904.0	0.650 ± 0.405 (0.759) C:70% T:81%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	1.28 ± 0.989 (1.65)	pCi/L	09/28/18 10:55	7440-14-4	

Sample: W514 B		Lab ID: 30265295018	Collected: 09/12/18 14:45	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.316 ± 0.481 (0.827) C:NA T:85%	pCi/L	09/27/18 19:35	13982-63-3	
Radium-228	EPA 904.0	0.655 ± 0.413 (0.781) C:68% T:86%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	0.971 ± 0.894 (1.61)	pCi/L	09/28/18 10:55	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

Sample: W600 A		Lab ID: 30265295019	Collected: 09/12/18 15:35	Received: 09/17/18 09:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.217 ± 0.550 (1.02) C:NA T:76%	pCi/L	09/27/18 19:35	13982-63-3	
Radium-228	EPA 904.0	1.72 ± 0.566 (0.765) C:71% T:81%	pCi/L	09/25/18 12:28	15262-20-1	
Total Radium	Total Radium Calculation	1.94 ± 1.12 (1.79)	pCi/L	09/28/18 10:55	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

QC Batch:	313426	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30265295001, 30265295002, 30265295003, 30265295004, 30265295005, 30265295006, 30265295007, 30265295008, 30265295009, 30265295010, 30265295011, 30265295012, 30265295013, 30265295014, 30265295015, 30265295016, 30265295017, 30265295018, 30265295019		

METHOD BLANK: 1530231 Matrix: Water

Associated Lab Samples: 30265295001, 30265295002, 30265295003, 30265295004, 30265295005, 30265295006, 30265295007, 30265295008, 30265295009, 30265295010, 30265295011, 30265295012, 30265295013, 30265295014, 30265295015, 30265295016, 30265295017, 30265295018, 30265295019

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.435 ± 0.289 (0.543) C:81% T:88%	pCi/L	09/25/18 12:28	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01019, Xcel Energy-BD CCR

Pace Project No.: 30265295

QC Batch:	313424	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30265295001, 30265295002, 30265295003, 30265295004, 30265295005, 30265295006, 30265295007, 30265295008, 30265295009, 30265295010, 30265295011, 30265295012, 30265295013, 30265295014, 30265295015, 30265295016, 30265295017, 30265295018, 30265295019		

METHOD BLANK:	1530223	Matrix:	Water
Associated Lab Samples:	30265295001, 30265295002, 30265295003, 30265295004, 30265295005, 30265295006, 30265295007, 30265295008, 30265295009, 30265295010, 30265295011, 30265295012, 30265295013, 30265295014, 30265295015, 30265295016, 30265295017, 30265295018, 30265295019		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.412 ± 0.384 (0.506) C:NA T:80%	pCi/L	09/27/18 18:55	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: 18-01019, Xcel Energy-BD CCR
Pace Project No.: 30265295

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To: _____
Phone: _____ Fax: _____
Requested Due Date/TAT: _____

Section B

Required Project Information:

Report To: David Anderson
Copy To: Tom Halverson
Purchase Order No.: _____
Project Name: 18-01019, Xcel Energy -
Project Number: Black Dog CCR, Sept. 2018

Section C

Invoice Information:

Attention: Ciera Rujkkie
Company Name: Pace MN Field Services
Address: _____
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #: _____

Page: 1 of 2

2299801

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location

STATE: _____

ITEM #	Section D Required Client Information		Matrix Codes MATRIX / CODE		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Y/N	Requested Analysis Filtered (Y/N)																																																																																																																																																																																																																																																																																																																																	
	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Drinking Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄			HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test ↓	RA-226EPA903.1		RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904.0	RA-228EPA904

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
① Client needs to analyze for: Radium 226+228pCi/L combined.	David Anderson / Pace	9/13/18	1000	Emily Ryp	9-17-18	0900	N/A	N	Y

Page 17 of 19

RA-226 EPA 903.1	SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
RA-228 EPA 904.0 ORIGINAL	PRINT Name of SAMPLER: David Anderson					
	SIGNATURE of SAMPLER: David Anderson	DATE Signed (MM/DD/YY): 9/12/18				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

30265295

Section A

Required Client Information:

Company: Xcel Energy
Address: c/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: David Anderson
Copy To: Tom Halverson
Purchase Order No.:
Project Name: 18-01019, Xcel Energy -
Project Number: Black Dog CCR, Sept. 26/18

Section C

Invoice Information:

Attention: Ciera Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

Page: 2 of 2

2299804

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Analysis Test ↓	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① client needs to analyze for: Radium 226+228pCi/L combined.	David Anderson	9/13/18	1000	Emily Kr	9/17/18	0900	N/A	N	N	N

② RA-226 EPA 903.1
RA-228 EPA 904.0
ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE of SAMPLER: David Anderson

DATE Signed (MM/DD/YY): 9/12/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Pace MN

Project # 30265295

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 448677885221

Label	<u>ET</u>
LIMS Login	<u>ET</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	☒	☐	☐	<u>10D4671</u>	<u>ET 9-17-18</u>
Chain of Custody Filled Out:	☒	☐	☐		
Chain of Custody Relinquished:	☒	☐	☐		
Sampler Name & Signature on COC:	☒	☐	☐		
Sample Labels match COC:	☒	☐	☐		
-Includes date/time/ID Matrix: <u>WT</u>	☒	☐	☐		
Samples Arrived within Hold Time:	☒	☐	☐		
Short Hold Time Analysis (<72hr remaining):	☒	☐	☐		
Rush Turn Around Time Requested:	☒	☐	☐		
Sufficient Volume:	☒	☐	☐		
Correct Containers Used:	☒	☐	☐		
-Pace Containers Used:	☒	☐	☐		
Containers Intact:	☒	☐	☐		
Orthophosphate field filtered	☒	☐	☐		
Hex Cr Aqueous Compliance/NPDES sample field filtered	☒	☐	☐		
Organic Samples checked for dechlorination:	☒	☐	☐		
Filtered volume received for Dissolved tests	☒	☐	☐		
All containers have been checked for preservation.	☒	☐	☐		
All containers needing preservation are found to be in compliance with EPA recommendation.	☒	☐	☐	<u>PHCZ</u>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>ET</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	☒	☐	☐		
Trip Blank Present:	☒	☐	☐		
Trip Blank Custody Seals Present	☒	☐	☐		
Rad Aqueous Samples Screened > 0.5 mrem/hr	☒	☐	☐	Initial when completed: <u>ET</u>	Date: <u>9-17-18</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

26 September 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 09/13/2018 10:40. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDI0152-01	Water	09/10/2018 13:00	09/13/2018 10:40
W504A		MDI0152-02	Water	09/10/2018 13:40	09/13/2018 10:40
W504B		MDI0152-03	Water	09/10/2018 14:25	09/13/2018 10:40
W510A		MDI0152-04	Water	09/11/2018 9:10	09/13/2018 10:40
W511A		MDI0152-05	Water	09/11/2018 10:05	09/13/2018 10:40
W14A		MDI0152-06	Water	09/11/2018 11:30	09/13/2018 10:40
W7A		MDI0152-07	Water	09/11/2018 12:20	09/13/2018 10:40
W602A		MDI0152-08	Water	09/11/2018 13:10	09/13/2018 10:40
W502A		MDI0152-09	Water	09/11/2018 13:50	09/13/2018 10:40
W502B		MDI0152-10	Water	09/11/2018 14:35	09/13/2018 10:40
Duplicate		MDI0152-11	Water	09/11/2018 14:35	09/13/2018 10:40
W603A		MDI0152-12	Water	09/12/2018 9:30	09/13/2018 10:40
W604A		MDI0152-13	Water	09/12/2018 10:25	09/13/2018 10:40
W605A		MDI0152-14	Water	09/12/2018 11:10	09/13/2018 10:40
W601A		MDI0152-15	Water	09/12/2018 12:30	09/13/2018 10:40
W506A		MDI0152-16	Water	09/12/2018 13:15	09/13/2018 10:40
W514A		MDI0152-17	Water	09/12/2018 14:05	09/13/2018 10:40
W514B		MDI0152-18	Water	09/12/2018 14:45	09/13/2018 10:40
W600A		MDI0152-19	Water	09/12/2018 15:35	09/13/2018 10:40



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Field Blank

MDI0152-01 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 10:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 10:25	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 10:25	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 13:34	SM 2320B	CRL
pH	7.35		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 13:34	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:12	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:48	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:46	EPA 200.7	HRD
Potassium	< 1.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:46	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:46	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:47	EPA 200.7	HRD
Sodium	< 1.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:46	EPA 200.7	HRD



Minneapolis Testing Laboratory
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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Field Blank

MDI0152-01 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:08	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504A

MDI0152-02 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	58.2	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 10:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 10:45	EPA 300.0	CRL
Sulfate	785	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 10:45	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	378	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 13:49	SM 2320B	CRL
pH	7.16		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 13:49	SM 4500-H+ B	CRL
Total Dissolved Solids	1820	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.96	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Barium	26.9	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:17	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Cobalt	1.54	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Molybdenum	57.6	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:16	EPA 200.8	CRL

Total Metals by ICP

Boron	14.8	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:53	EPA 200.7	HRD
Calcium	327	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:51	EPA 200.7	HRD
Potassium	3.81	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:52	EPA 200.7	HRD
Lithium	0.0414	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:52	EPA 200.7	HRD
Magnesium	76.5	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:52	EPA 200.7	HRD
Sodium	177	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 11:51	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W504A

MDI0152-02 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:10	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W504B

MDI0152-03 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	52.5	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 11:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 11:06	EPA 300.0	CRL
Sulfate	14.0	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 11:06	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	826	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 13:59	SM 2320B	CRL
pH	7.34		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 13:59	SM 4500-H+ B	CRL
Total Dissolved Solids	954	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.09	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Barium	349	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:35	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:28	EPA 200.8	CRL

Total Metals by ICP

Boron	0.393	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:09	EPA 200.7	HRD
Calcium	229	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:07	EPA 200.7	HRD
Potassium	1.32	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:07	EPA 200.7	HRD
Lithium	0.0182	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:07	EPA 200.7	HRD
Magnesium	83.2	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:07	EPA 200.7	HRD
Sodium	26.0	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:07	EPA 200.7	HRD



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Minneapolis, MN 55043
Certification # MN-027-053-197
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W504B

MDI0152-03 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:11	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W510A

MDI0152-04 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	74.2	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 11:26	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 11:26	EPA 300.0	CRL
Sulfate	5.73	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 11:26	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	1100	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:11	SM 2320B	CRL
pH	7.56		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:11	SM 4500-H+ B	CRL
Total Dissolved Solids	1220	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	53.3	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Barium	344	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:39	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Chromium	0.721	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:32	EPA 200.8	CRL

Total Metals by ICP

Boron	6.72	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:13	EPA 200.7	HRD
Calcium	292	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:12	EPA 200.7	HRD
Potassium	2.94	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:12	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:12	EPA 200.7	HRD
Magnesium	88.4	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:12	EPA 200.7	HRD
Sodium	78.9	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:12	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W510A

MDI0152-04 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:13	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W511A

MDI0152-05 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	122	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:07	EPA 300.0	CRL
Sulfate	461	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:07	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	119	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:17	SM 2320B	CRL
pH	8.09		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:17	SM 4500-H+ B	CRL
Total Dissolved Solids	1050	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.35	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Barium	46.9	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:43	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Chromium	2.32	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Molybdenum	161	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Antimony	0.629	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Selenium	1.23	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:36	EPA 200.8	CRL

Total Metals by ICP

Boron	6.45	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:19	EPA 200.7	HRD
Calcium	195	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:17	EPA 200.7	HRD
Potassium	11.3	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:17	EPA 200.7	HRD
Lithium	0.0514	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:17	EPA 200.7	HRD
Magnesium	23.8	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:18	EPA 200.7	HRD
Sodium	137	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:17	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W511A

MDI0152-05 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:15	EPA 245.1, 7470A	HRD



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 Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W14A

MDI0152-06 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	101	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:27	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:27	EPA 300.0	CRL
Sulfate	95.9	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:27	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	356	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:24	SM 2320B	CRL
pH	7.34		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:24	SM 4500-H+ B	CRL
Total Dissolved Solids	684	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.80	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Barium	37.5	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:47	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Cobalt	1.31	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Molybdenum	105	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:40	EPA 200.8	CRL

Total Metals by ICP

Boron	1.37	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:24	EPA 200.7	HRD
Calcium	107	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:22	EPA 200.7	HRD
Potassium	3.06	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:22	EPA 200.7	HRD
Lithium	0.0168	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:22	EPA 200.7	HRD
Magnesium	20.4	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:23	EPA 200.7	HRD
Sodium	116	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:22	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W14A

MDI0152-06 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:16	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W7A

MDI0152-07 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	142	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:48	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:48	EPA 300.0	CRL
Sulfate	200	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 12:48	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	282	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:30	SM 2320B	CRL
pH	7.46		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:30	SM 4500-H+ B	CRL
Total Dissolved Solids	858	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.15	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Barium	93.7	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:51	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Chromium	0.620	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Molybdenum	63.8	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:44	EPA 200.8	CRL

Total Metals by ICP

Boron	2.16	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:28	EPA 200.7	HRD
Calcium	134	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:27	EPA 200.7	HRD
Potassium	4.14	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:28	EPA 200.7	HRD
Lithium	0.0182	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:28	EPA 200.7	HRD
Magnesium	34.5	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:28	EPA 200.7	HRD
Sodium	129	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:27	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W7A

MDI0152-07 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:18	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W602A

MDI0152-08 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	199	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 13:08	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 13:08	EPA 300.0	CRL
Sulfate	281	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 13:08	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	282	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:36	SM 2320B	CRL
pH	7.60		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:36	SM 4500-H+ B	CRL
Total Dissolved Solids	1080	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.30	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Barium	79.0	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Cobalt	1.17	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Molybdenum	70.6	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:47	EPA 200.8	CRL

Total Metals by ICP

Boron	1.43	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:33	EPA 200.7	HRD
Calcium	140	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:32	EPA 200.7	HRD
Potassium	1.76	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:32	EPA 200.7	HRD
Lithium	0.0197	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:32	EPA 200.7	HRD
Magnesium	34.0	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:33	EPA 200.7	HRD
Sodium	200	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:32	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W602A

MDI0152-08 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:20	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W502A

MDI0152-09 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	99.3	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 13:49	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 13:49	EPA 300.0	CRL
Sulfate	1410	10.0	mg/L		10	BDI0313	9/17/18 12:39	9/18/18 13:28	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	315	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:44	SM 2320B	CRL
pH	7.42		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:44	SM 4500-H+ B	CRL
Total Dissolved Solids	2660	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	34.6	5.00	ug/L		10	BDI0258	9/13/18 11:54	9/17/18 10:43	EPA 200.8	CRL
Barium	77.0	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 8:58	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L		10	BDI0258	9/13/18 11:54	9/17/18 10:43	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BDI0258	9/13/18 11:54	9/17/18 10:43	EPA 200.8	CRL
Molybdenum	68.5	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:51	EPA 200.8	CRL

Total Metals by ICP

Boron	9.12	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:38	EPA 200.7	HRD
Calcium	548	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:37	EPA 200.7	HRD
Potassium	18.2	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:37	EPA 200.7	HRD
Lithium	0.0900	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:37	EPA 200.7	HRD
Magnesium	75.4	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:37	EPA 200.7	HRD
Sodium	169	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:37	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W502A

MDI0152-09 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:25	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W502B

MDI0152-10 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	81.8	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 14:30	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 14:30	EPA 300.0	CRL
Sulfate	1160	10.0	mg/L		10	BDI0313	9/17/18 12:39	9/18/18 14:09	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	376	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 14:50	SM 2320B	CRL
pH	7.26		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 14:50	SM 4500-H+ B	CRL
Total Dissolved Solids	2400	20.0	mg/L		1	BDI0261	9/14/18 8:56	9/14/18 8:56	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.27	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Barium	133	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:02	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:55	EPA 200.8	CRL

Total Metals by ICP

Boron	3.65	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:43	EPA 200.7	HRD
Calcium	468	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:42	EPA 200.7	HRD
Potassium	2.03	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:43	EPA 200.7	HRD
Lithium	0.0259	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:43	EPA 200.7	HRD
Magnesium	121	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:43	EPA 200.7	HRD
Sodium	65.6	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:42	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W502B

MDI0152-10 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:27	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Duplicate

MDI0152-11 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	82.3	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 16:53	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 16:53	EPA 300.0	CRL
Sulfate	1160	10.0	mg/L		10	BDI0313	9/17/18 12:39	9/18/18 16:32	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	385	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:06	SM 2320B	CRL
pH	7.28		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:06	SM 4500-H+ B	CRL
Total Dissolved Solids	2260	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.37	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Barium	133	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:06	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 9:59	EPA 200.8	CRL

Total Metals by ICP

Boron	3.64	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:48	EPA 200.7	HRD
Calcium	470	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:47	EPA 200.7	HRD
Potassium	2.02	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:48	EPA 200.7	HRD
Lithium	0.0264	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:48	EPA 200.7	HRD
Magnesium	122	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:48	EPA 200.7	HRD
Sodium	65.8	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:47	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Duplicate

MDI0152-11 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:28	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W603A

MDI0152-12 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	67.9	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:13	EPA 300.0	CRL
Sulfate	305	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:13	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	77.4	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:12	SM 2320B	CRL
pH	8.77		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:12	SM 4500-H+ B	CRL
Total Dissolved Solids	670	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.81	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Barium	67.9	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:10	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Molybdenum	223	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Antimony	3.05	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Selenium	26.7	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:03	EPA 200.8	CRL

Total Metals by ICP

Boron	4.89	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:53	EPA 200.7	HRD
Calcium	85.4	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:52	EPA 200.7	HRD
Potassium	9.34	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:52	EPA 200.7	HRD
Lithium	0.0714	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:52	EPA 200.7	HRD
Magnesium	19.1	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:52	EPA 200.7	HRD
Sodium	96.8	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 12:52	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W603A

MDI0152-12 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:30	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W604A

MDI0152-13 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	88.4	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:33	EPA 300.0	CRL
Sulfate	337	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:33	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	67.6	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:18	SM 2320B	CRL
pH	8.76		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:18	SM 4500-H+ B	CRL
Total Dissolved Solids	764	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.78	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Barium	66.2	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:22	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Chromium	5.69	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Molybdenum	154	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Antimony	2.02	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Selenium	20.3	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:16	EPA 200.8	CRL

Total Metals by ICP

Boron	5.26	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:09	EPA 200.7	HRD
Calcium	88.2	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:08	EPA 200.7	HRD
Potassium	8.44	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:08	EPA 200.7	HRD
Lithium	0.0481	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:08	EPA 200.7	HRD
Magnesium	13.8	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:08	EPA 200.7	HRD
Sodium	138	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:08	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W604A

MDI0152-13 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:32	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MDI0152-14 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	69.7	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:54	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:54	EPA 300.0	CRL
Sulfate	246	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 17:54	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	63.8	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:24	SM 2320B	CRL
pH	7.97		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:24	SM 4500-H+ B	CRL
Total Dissolved Solids	568	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.62	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Barium	56.5	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:26	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Molybdenum	123	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:20	EPA 200.8	CRL

Total Metals by ICP

Boron	3.81	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:14	EPA 200.7	HRD
Calcium	64.1	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:13	EPA 200.7	HRD
Potassium	7.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:13	EPA 200.7	HRD
Lithium	0.0179	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:13	EPA 200.7	HRD
Magnesium	16.1	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:13	EPA 200.7	HRD
Sodium	102	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:13	EPA 200.7	HRD



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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W605A

MDI0152-14 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:34	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W601A

MDI0152-15 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	124	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 18:35	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 18:35	EPA 300.0	CRL
Sulfate	1240	10.0	mg/L		10	BDI0313	9/17/18 12:39	9/18/18 18:14	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	107	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:32	SM 2320B	CRL
pH	10.4		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:32	SM 4500-H+ B	CRL
Total Dissolved Solids	2280	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	7.70	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Barium	85.6	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:30	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Chromium	0.919	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Molybdenum	307	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Antimony	0.885	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Selenium	127	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:23	EPA 200.8	CRL

Total Metals by ICP

Boron	11.9	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:19	EPA 200.7	HRD
Calcium	407	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:18	EPA 200.7	HRD
Potassium	63.1	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:18	EPA 200.7	HRD
Lithium	0.418	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:18	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:19	EPA 200.7	HRD
Sodium	296	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:18	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W601A

MDI0152-15 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:35	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W506A

MDI0152-16 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	54.4	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:16	EPA 300.0	CRL
Sulfate	1340	10.0	mg/L		10	BDI0313	9/17/18 12:39	9/18/18 18:55	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	188	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:37	SM 2320B	CRL
pH	6.98		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:37	SM 4500-H+ B	CRL
Total Dissolved Solids	544	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.83	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Barium	21.9	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:34	EPA 200.8	CRL
Cadmium	5.37	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Cobalt	21.4	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Molybdenum	22.9	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Selenium	0.549	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL
Thallium	1.05	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:27	EPA 200.8	CRL

Total Metals by ICP

Boron	3.28	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:24	EPA 200.7	HRD
Calcium	598	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:23	EPA 200.7	HRD
Potassium	12.1	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:24	EPA 200.7	HRD
Lithium	0.0820	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:24	EPA 200.7	HRD
Magnesium	37.7	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:24	EPA 200.7	HRD
Sodium	67.6	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:23	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W506A

MDI0152-16 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:37	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		09/26/2018 13:57
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W514A

MDI0152-17 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	38.2	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:36	EPA 300.0	CRL
Sulfate	59.6	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:36	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	393	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:45	SM 2320B	CRL
pH	7.80		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:45	SM 4500-H+ B	CRL
Total Dissolved Solids	2350	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.01	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Barium	77.0	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:37	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Chromium	0.933	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Molybdenum	6.13	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Selenium	2.97	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:31	EPA 200.8	CRL

Total Metals by ICP

Boron	0.867	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:29	EPA 200.7	HRD
Calcium	74.9	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:28	EPA 200.7	HRD
Potassium	6.11	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:28	EPA 200.7	HRD
Lithium	0.0210	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:28	EPA 200.7	HRD
Magnesium	41.4	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:28	EPA 200.7	HRD
Sodium	77.7	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:28	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W514A

MDI0152-17 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0298	9/17/18 9:21	9/17/18 14:39	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W514B

MDI0152-18 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	8.92	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:56	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 19:56	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	539	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:52	SM 2320B	CRL
pH	8.09		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:52	SM 4500-H+ B	CRL
Total Dissolved Solids	492	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.45	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Barium	170	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:41	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Molybdenum	1.74	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:35	EPA 200.8	CRL

Total Metals by ICP

Boron	0.116	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:35	EPA 200.7	HRD
Calcium	70.5	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:33	EPA 200.7	HRD
Potassium	< 1.25	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:33	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:33	EPA 200.7	HRD
Magnesium	92.6	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:33	EPA 200.7	HRD
Sodium	10.5	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:33	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W514B

MDI0152-18 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0472	9/25/18 9:10	9/25/18 14:52	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W600A

MDI0152-19 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	24.7	1.00	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 20:37	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDI0313	9/17/18 12:39	9/18/18 20:37	EPA 300.0	CRL
Sulfate	1770	10.0	mg/L		10	BDI0313	9/17/18 12:39	9/18/18 20:17	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	122	10.0	mg/L		1	BDI0259	9/13/18 11:57	9/13/18 15:58	SM 2320B	CRL
pH	6.82		pH Units	M_TTT	1	BDI0259	9/13/18 11:57	9/13/18 15:58	SM 4500-H+ B	CRL
Total Dissolved Solids	2890	20.0	mg/L		1	BDI0293	9/17/18 9:06	9/17/18 9:06	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	39.1	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Barium	26.6	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/18/18 9:45	EPA 200.8	CRL
Cadmium	0.635	0.100	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Cobalt	23.5	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Chromium	8.37	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Molybdenum	84.1	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDI0258	9/13/18 11:54	9/17/18 10:39	EPA 200.8	CRL

Total Metals by ICP

Boron	15.1	0.0500	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:40	EPA 200.7	HRD
Calcium	654	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:38	EPA 200.7	HRD
Potassium	23.9	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:38	EPA 200.7	HRD
Lithium	0.170	0.0150	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:38	EPA 200.7	HRD
Magnesium	62.2	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:38	EPA 200.7	HRD
Sodium	84.6	1.25	mg/L		1	BDI0257	9/13/18 11:51	9/14/18 13:38	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

W600A

MDI0152-19 (Water) - Chain of Custody Number: 2299802/2299803

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDI0472	9/25/18 9:10	9/25/18 14:55	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0313 - Wet Prep

Blank (BDI0313-BLK1)				Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDI0313-BLK2)				Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDI0313-BS1)				Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	23.7	1.00	mg/L	25.076		94.7	90-110			
Fluoride	2.29	0.750	mg/L	2.5076		91.1	90-110			
Sulfate	45.3	1.00	mg/L	48.144		94.1	90-110			

LCS (BDI0313-BS2)				Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	24.3	1.00	mg/L	25.076		97.1	90-110			
Fluoride	2.47	0.750	mg/L	2.5076		98.3	90-110			
Sulfate	46.6	1.00	mg/L	48.144		96.7	90-110			

LCS (BDI0313-BS3)				Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	24.3	1.00	mg/L	25.076		96.8	90-110			
Fluoride	2.39	0.750	mg/L	2.5076		95.5	90-110			
Sulfate	46.0	1.00	mg/L	48.144		95.6	90-110			

Duplicate (BDI0313-DUP1)				Source: MDI0152-17		Prepared: 09/17/2018 Analyzed: 09/18/2018				
Chloride	37.6	1.00	mg/L		38.2			1.78	20	
Fluoride	0.156	0.750	mg/L		0.170			8.59	20	
Sulfate	58.4	1.00	mg/L		59.6			2.10	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0313 - Wet Prep

Duplicate (BDI0313-DUP2)		Source: MDI0152-18		Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	8.80	1.00	mg/L		8.92			1.39	20	
Fluoride	0.125	0.750	mg/L		0.123			1.61	20	
Sulfate	0.500	1.00	mg/L		0.507			1.39	20	

Matrix Spike (BDI0313-MS1)		Source: MDI0152-17		Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	67.9	1.25	mg/L	31.345	38.2	94.7	80-120			
Fluoride	2.90	0.938	mg/L	3.1345	0.170	86.9	80-120			
Sulfate	116	1.25	mg/L	60.180	59.6	93.6	80-120			

Matrix Spike (BDI0313-MS2)		Source: MDI0152-18		Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	39.1	1.25	mg/L	31.345	8.92	96.2	80-120			
Fluoride	3.03	0.938	mg/L	3.1345	<0.938	96.6	80-120			
Sulfate	57.4	1.25	mg/L	60.180	<1.25	95.4	80-120			

Matrix Spike Dup (BDI0313-MSD1)		Source: MDI0152-17		Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	67.9	1.25	mg/L	31.345	38.2	94.6	80-120	0.0497	20	
Fluoride	3.17	0.938	mg/L	3.1345	0.170	95.7	80-120	9.07	20	
Sulfate	116	1.25	mg/L	60.180	59.6	93.6	80-120	0.00103	20	

Matrix Spike Dup (BDI0313-MSD2)		Source: MDI0152-18		Prepared: 09/17/2018 Analyzed: 09/18/2018						
Chloride	39.2	1.25	mg/L	31.345	8.92	96.5	80-120	0.294	20	
Fluoride	3.13	0.938	mg/L	3.1345	<0.938	99.9	80-120	3.37	20	
Sulfate	57.7	1.25	mg/L	60.180	<1.25	95.9	80-120	0.619	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0259 - Wet Prep

LCS (BDI0259-BS1)		Prepared & Analyzed: 09/13/2018								
pH	7.11		pH Units	7.0000		102	90-110			
Alkalinity, Total	101		mg/L	100.00		101	90-110			

LCS (BDI0259-BS2)		Prepared & Analyzed: 09/13/2018								
pH	7.10		pH Units	7.0000		101	90-110			
Alkalinity, Total	102		mg/L	100.00		102	90-110			

Duplicate (BDI0259-DUP1)		Source: MDI0145-01		Prepared & Analyzed: 09/13/2018						
pH	7.72		pH Units		7.87			1.92	20	
Alkalinity, Total	157	10.0	mg/L		161			2.38	20	

Duplicate (BDI0259-DUP2)		Source: MDI0152-02		Prepared & Analyzed: 09/13/2018						
pH	7.14		pH Units		7.16			0.280	20	
Alkalinity, Total	388	10.0	mg/L		378			2.45	20	

Duplicate (BDI0259-DUP3)		Source: MDI0152-11		Prepared & Analyzed: 09/13/2018						
Alkalinity, Total	380	10.0	mg/L		385			1.35	20	
pH	7.26		pH Units		7.28			0.275	20	

Batch BDI0261 - Wet Prep

Blank (BDI0261-BLK1)		Prepared & Analyzed: 09/14/2018								
Total Dissolved Solids	<20.0	20.0	mg/L							

Duplicate (BDI0261-DUP1)		Source: MDI0152-02		Prepared & Analyzed: 09/14/2018						
Total Dissolved Solids	1840	20.0	mg/L		1820			1.20	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0293 - Wet Prep

Blank (BDI0293-BLK1)				Prepared & Analyzed: 09/17/2018						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDI0293-DUP1)				Source: MDI0152-11		Prepared & Analyzed: 09/17/2018				
Total Dissolved Solids	2300	20.0	mg/L		2260			1.75	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0258 - EPA 200.2, EPA 3005

Blank (BDI0258-BLK1)

Prepared: 09/13/2018 Analyzed: 09/17/2018

Chromium	<0.500	0.500	ug/L							
Cobalt	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Arsenic	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							

Blank (BDI0258-BLK2)

Prepared: 09/13/2018 Analyzed: 09/18/2018

Beryllium	<0.500	0.500	ug/L							

LCS (BDI0258-BS1)

Prepared: 09/13/2018 Analyzed: 09/17/2018

Arsenic	98.3	0.500	ug/L	100.00		98.3	85-115			
Cadmium	97.6	0.100	ug/L	100.00		97.6	85-115			
Barium	98.4	0.500	ug/L	100.00		98.4	85-115			
Cobalt	98.4	0.500	ug/L	100.00		98.4	85-115			
Thallium	100	0.500	ug/L	100.00		100	85-115			
Selenium	97.9	0.500	ug/L	100.00		97.9	85-115			
Antimony	97.7	0.500	ug/L	100.00		97.7	85-115			
Lead	99.4	0.500	ug/L	100.00		99.4	85-115			
Molybdenum	99.3	0.500	ug/L	100.00		99.3	85-115			
Chromium	101	0.500	ug/L	100.00		101	85-115			

LCS (BDI0258-BS2)

Prepared: 09/13/2018 Analyzed: 09/18/2018

Beryllium	100	0.500	ug/L	100.00		100	85-115			



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Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0258 - EPA 200.2, EPA 3005

Duplicate (BDI0258-DUP1)		Source: MDI0152-04		Prepared: 09/13/2018 Analyzed: 09/17/2018						
Selenium	<0.500	0.500	ug/L		<0.500			20		
Thallium	<0.500	0.500	ug/L		<0.500			20		
Antimony	0.0618	0.500	ug/L		0.0324			62.3	20	M_D-RL
Lead	0.0583	0.500	ug/L		0.0435			29.0	20	M_D-RL
Molybdenum	0.340	0.500	ug/L		0.303			11.5	20	
Chromium	0.623	0.500	ug/L		0.721			14.5	20	
Cobalt	0.421	0.500	ug/L		0.373			12.3	20	
Barium	342	0.500	ug/L		344			0.541	20	
Cadmium	<0.100	0.100	ug/L		<0.100				20	
Arsenic	53.4	0.500	ug/L		53.3			0.262	20	

Duplicate (BDI0258-DUP2)		Source: MDI0152-05		Prepared: 09/13/2018 Analyzed: 09/17/2018						
Lead	0.0580	0.500	ug/L		0.0550			5.44	20	
Barium	47.8	0.500	ug/L		46.9			1.87	20	
Arsenic	3.41	0.500	ug/L		3.35			1.85	20	
Chromium	2.48	0.500	ug/L		2.32			6.76	20	
Cobalt	0.0993	0.500	ug/L		0.0882			11.8	20	
Antimony	0.680	0.500	ug/L		0.629			7.80	20	
Selenium	1.14	0.500	ug/L		1.23			7.61	20	
Thallium	0.0691	0.500	ug/L		0.0611			12.4	20	
Cadmium	0.0308	0.100	ug/L		0.0245			22.7	20	M_D-RL
Molybdenum	155	0.500	ug/L		161			3.60	20	

Duplicate (BDI0258-DUP3)		Source: MDI0152-04		Prepared: 09/13/2018 Analyzed: 09/18/2018						
Beryllium	0.0612	0.500	ug/L		0.0331			59.6	20	M_D-RL

Duplicate (BDI0258-DUP4)		Source: MDI0152-05		Prepared: 09/13/2018 Analyzed: 09/18/2018						
Beryllium	0.0220	0.500	ug/L		0.0191			13.8	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0258 - EPA 200.2, EPA 3005

Matrix Spike (BDI0258-MS1)		Source: MDI0152-04		Prepared: 09/13/2018 Analyzed: 09/17/2018						
Cadmium	90.4	0.100	ug/L	100.00	<0.100	90.4	70-130			
Selenium	91.9	0.500	ug/L	100.00	<0.500	91.9	70-130			
Barium	437	0.500	ug/L	100.00	344	92.6	70-130			
Antimony	95.8	0.500	ug/L	100.00	0.0324	95.8	70-130			
Arsenic	151	0.500	ug/L	100.00	53.3	97.9	70-130			
Lead	86.3	0.500	ug/L	100.00	0.0435	86.3	70-130			
Thallium	88.7	0.500	ug/L	100.00	<0.500	88.7	70-130			
Cobalt	99.9	0.500	ug/L	100.00	0.373	99.5	70-130			
Molybdenum	98.8	0.500	ug/L	100.00	0.303	98.5	70-130			
Chromium	104	0.500	ug/L	100.00	0.721	103	70-130			

Matrix Spike (BDI0258-MS2)		Source: MDI0152-05		Prepared: 09/13/2018 Analyzed: 09/17/2018						
Barium	148	0.500	ug/L	100.00	46.9	101	70-130			
Selenium	98.1	0.500	ug/L	100.00	1.23	96.8	70-130			
Antimony	101	0.500	ug/L	100.00	0.629	101	70-130			
Arsenic	105	0.500	ug/L	100.00	3.35	102	70-130			
Lead	89.0	0.500	ug/L	100.00	0.0550	88.9	70-130			
Cadmium	95.8	0.100	ug/L	100.00	0.0245	95.8	70-130			
Thallium	91.5	0.500	ug/L	100.00	0.0611	91.4	70-130			
Chromium	102	0.500	ug/L	100.00	2.32	99.9	70-130			
Molybdenum	260	0.500	ug/L	100.00	161	98.6	70-130			
Cobalt	97.7	0.500	ug/L	100.00	0.0882	97.6	70-130			

Matrix Spike (BDI0258-MS3)		Source: MDI0152-04		Prepared: 09/13/2018 Analyzed: 09/18/2018						
Beryllium	94.1	0.500	ug/L	100.00	0.0331	94.1	70-130			

Matrix Spike (BDI0258-MS4)		Source: MDI0152-05		Prepared: 09/13/2018 Analyzed: 09/18/2018						
Beryllium	93.2	0.500	ug/L	100.00	0.0191	93.2	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0258 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDI0258-MSD1)		Source: MDI0152-04		Prepared: 09/13/2018 Analyzed: 09/17/2018						
Molybdenum	103	0.500	ug/L	100.00	0.303	103	70-130	4.12	20	
Lead	89.2	0.500	ug/L	100.00	0.0435	89.2	70-130	3.31	20	
Cobalt	103	0.500	ug/L	100.00	0.373	103	70-130	3.31	20	
Selenium	94.7	0.500	ug/L	100.00	<0.500	94.7	70-130	3.00	20	
Thallium	92.1	0.500	ug/L	100.00	<0.500	92.1	70-130	3.81	20	
Arsenic	154	0.500	ug/L	100.00	53.3	101	70-130	1.81	20	
Chromium	108	0.500	ug/L	100.00	0.721	107	70-130	3.54	20	
Barium	452	0.500	ug/L	100.00	344	108	70-130	3.55	20	
Cadmium	96.2	0.100	ug/L	100.00	<0.100	96.2	70-130	6.26	20	
Antimony	98.8	0.500	ug/L	100.00	0.0324	98.7	70-130	3.04	20	

Matrix Spike Dup (BDI0258-MSD2)		Source: MDI0152-05		Prepared: 09/13/2018 Analyzed: 09/17/2018						
Thallium	92.2	0.500	ug/L	100.00	0.0611	92.1	70-130	0.726	20	
Chromium	104	0.500	ug/L	100.00	2.32	102	70-130	1.57	20	
Cobalt	100	0.500	ug/L	100.00	0.0882	100	70-130	2.62	20	
Antimony	102	0.500	ug/L	100.00	0.629	101	70-130	0.777	20	
Arsenic	107	0.500	ug/L	100.00	3.35	104	70-130	2.06	20	
Cadmium	96.9	0.100	ug/L	100.00	0.0245	96.9	70-130	1.09	20	
Molybdenum	258	0.500	ug/L	100.00	161	97.3	70-130	0.536	20	
Barium	149	0.500	ug/L	100.00	46.9	102	70-130	0.894	20	
Lead	88.8	0.500	ug/L	100.00	0.0550	88.8	70-130	0.202	20	
Selenium	98.1	0.500	ug/L	100.00	1.23	96.8	70-130	0.00195	20	

Matrix Spike Dup (BDI0258-MSD3)		Source: MDI0152-04		Prepared: 09/13/2018 Analyzed: 09/18/2018						
Beryllium	98.2	0.500	ug/L	100.00	0.0331	98.1	70-130	4.23	20	

Matrix Spike Dup (BDI0258-MSD4)		Source: MDI0152-05		Prepared: 09/13/2018 Analyzed: 09/18/2018						
Beryllium	92.8	0.500	ug/L	100.00	0.0191	92.8	70-130	0.466	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0257 - EPA 200.2, EPA 3005

Blank (BDI0257-BLK1)

Prepared: 09/13/2018 Analyzed: 09/14/2018

Sodium	<1.25	1.25	mg/L
Magnesium	<1.25	1.25	mg/L
Lithium	<0.0150	0.0150	mg/L
Boron	<0.0500	0.0500	mg/L
Calcium	<1.25	1.25	mg/L
Potassium	<1.25	1.25	mg/L

LCS (BDI0257-BS1)

Prepared: 09/13/2018 Analyzed: 09/14/2018

Boron	1.03	0.0500	mg/L	1.0000	103	85-115
Calcium	110	1.25	mg/L	100.00	110	85-115
Potassium	109	1.25	mg/L	100.00	109	85-115
Magnesium	108	1.25	mg/L	100.00	108	85-115
Sodium	110	1.25	mg/L	100.00	110	85-115
Lithium	1.05	0.0150	mg/L	1.0000	105	85-115

Duplicate (BDI0257-DUP1)

Source: MDI0152-02

Prepared: 09/13/2018 Analyzed: 09/14/2018

Sodium	172	1.25	mg/L	177	2.72	20
Magnesium	73.5	1.25	mg/L	76.5	4.02	20
Boron	14.7	0.0500	mg/L	14.8	0.737	20
Calcium	318	1.25	mg/L	327	2.75	20
Potassium	3.59	1.25	mg/L	3.81	5.90	20
Lithium	0.0401	0.0150	mg/L	0.0414	3.29	20

Duplicate (BDI0257-DUP2)

Source: MDI0152-03

Prepared: 09/13/2018 Analyzed: 09/14/2018

Sodium	26.7	1.25	mg/L	26.0	2.60	20
Magnesium	82.4	1.25	mg/L	83.2	0.900	20
Lithium	0.0180	0.0150	mg/L	0.0182	0.986	20
Potassium	1.26	1.25	mg/L	1.32	5.07	20
Calcium	234	1.25	mg/L	229	2.54	20
Boron	0.387	0.0500	mg/L	0.393	1.50	20



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0257 - EPA 200.2, EPA 3005

Matrix Spike (BDI0257-MS1)		Source: MDI0152-02		Prepared: 09/13/2018 Analyzed: 09/14/2018						
Calcium	442	1.25	mg/L	100.00	327	115	70-130			
Magnesium	188	1.25	mg/L	100.00	76.5	112	70-130			
Sodium	290	1.25	mg/L	100.00	177	113	70-130			
Lithium	1.14	0.0150	mg/L	1.0000	0.0414	110	75-125			
Potassium	119	1.25	mg/L	100.00	3.81	115	70-130			
Boron	16.2	0.0500	mg/L	1.0000	14.8	139	70-130			M_MS

Matrix Spike (BDI0257-MS2)		Source: MDI0152-03		Prepared: 09/13/2018 Analyzed: 09/14/2018						
Potassium	114	1.25	mg/L	100.00	1.32	113	70-130			
Sodium	136	1.25	mg/L	100.00	26.0	110	70-130			
Magnesium	193	1.25	mg/L	100.00	83.2	110	70-130			
Lithium	1.10	0.0150	mg/L	1.0000	0.0182	108	75-125			
Boron	1.42	0.0500	mg/L	1.0000	0.393	103	70-130			
Calcium	338	1.25	mg/L	100.00	229	110	70-130			

Matrix Spike Dup (BDI0257-MSD1)		Source: MDI0152-02		Prepared: 09/13/2018 Analyzed: 09/14/2018						
Sodium	286	1.25	mg/L	100.00	177	109	70-130	1.33	20	
Magnesium	185	1.25	mg/L	100.00	76.5	108	70-130	1.83	20	
Lithium	1.13	0.0150	mg/L	1.0000	0.0414	108	75-125	0.973	20	
Calcium	435	1.25	mg/L	100.00	327	108	70-130	1.61	20	
Potassium	118	1.25	mg/L	100.00	3.81	114	70-130	1.30	20	
Boron	16.0	0.0500	mg/L	1.0000	14.8	122	70-130	1.02	20	

Matrix Spike Dup (BDI0257-MSD2)		Source: MDI0152-03		Prepared: 09/13/2018 Analyzed: 09/14/2018						
Potassium	123	1.25	mg/L	100.00	1.32	122	70-130	7.33	20	
Magnesium	208	1.25	mg/L	100.00	83.2	125	70-130	7.33	20	
Calcium	363	1.25	mg/L	100.00	229	135	70-130	7.11	20	M_MS
Sodium	145	1.25	mg/L	100.00	26.0	119	70-130	6.76	20	
Boron	1.49	0.0500	mg/L	1.0000	0.393	109	70-130	4.38	20	
Lithium	1.18	0.0150	mg/L	1.0000	0.0182	116	75-125	6.97	20	



Minneapolis Testing Laboratory
 1518 Chestnut Ave N
 Minneapolis, MN 55043
 Certification # MN-027-053-197
 WI-999071150
 Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0298 - EPA 245.1, EPA 7470A

Blank (BDI0298-BLK1)				Prepared & Analyzed: 09/17/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDI0298-BS1)				Prepared & Analyzed: 09/17/2018						
Mercury	2.75	0.200	ug/L	3.0000		91.5	85-115			
Duplicate (BDI0298-DUP1)				Source: MDI0145-01		Prepared & Analyzed: 09/17/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDI0298-DUP2)				Source: MDI0145-02		Prepared & Analyzed: 09/17/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDI0298-MS1)				Source: MDI0145-01		Prepared & Analyzed: 09/17/2018				
Mercury	2.70	0.200	ug/L	3.0000	<0.200	90.1	70-130			
Matrix Spike (BDI0298-MS2)				Source: MDI0145-02		Prepared & Analyzed: 09/17/2018				
Mercury	2.57	0.200	ug/L	3.0000	<0.200	85.5	70-130			
Matrix Spike Dup (BDI0298-MSD1)				Source: MDI0145-01		Prepared & Analyzed: 09/17/2018				
Mercury	2.60	0.200	ug/L	3.0000	<0.200	86.6	70-130	3.96	20	
Matrix Spike Dup (BDI0298-MSD2)				Source: MDI0145-02		Prepared & Analyzed: 09/17/2018				
Mercury	2.63	0.200	ug/L	3.0000	<0.200	87.5	70-130	2.31	20	

Batch BDI0472 - EPA 245.1, EPA 7470A

Blank (BDI0472-BLK1)				Prepared & Analyzed: 09/25/2018						
Mercury	<0.200	0.200	ug/L							



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDI0472 - EPA 245.1, EPA 7470A

LCS (BDI0472-BS1)				Prepared & Analyzed: 09/25/2018						
Mercury	2.71	0.200	ug/L	3.0000		90.2	85-115			
Duplicate (BDI0472-DUP1)				Source: MDI0152-18		Prepared & Analyzed: 09/25/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDI0472-MS1)				Source: MDI0152-18		Prepared & Analyzed: 09/25/2018				
Mercury	2.70	0.200	ug/L	3.0000	<0.200	90.0	70-130			
Matrix Spike Dup (BDI0472-MSD1)				Source: MDI0152-18		Prepared & Analyzed: 09/25/2018				
Mercury	2.63	0.200	ug/L	3.0000	<0.200	87.6	70-130	2.72	20	

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	09/26/2018 13:57

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2
2299802

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Todd Ronning, Rick Rasvold (Xcel)
Copy To: Jenni Brekken, Dana Pasi (Bart)
Purchase Order No.:
Project Name: Black Dog CCR Baseline
Project Number: Sept. 2018

Section C

Invoice Information:

Attention: Steve Davis
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① Total Metals (unfiltered)	David Anderson / Pace	9/13/18	1040	W / Xcel	9/13/18	1040				

PH strips: MD00402
ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: David Anderson

SIGNATURE of SAMPLER: David Anderson

DATE Signed
(MM/DD/YY): 9/12/18

Temp in °C

Received on
Ice (Y/N)

Custody
Sealed Cooler
(Y/N)

Samples Intact
(Y/N)



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2
2299803

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services

Email To:

Phone:

Fax:

Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Tedd Pomning, Rick Rosvold (Xcel)
Copy To: Jenni Brekken, Dana Pasi (Barr)

Purchase Order No.:

Project Name:

Project Number:

Section C

Invoice Information:

Attention: Steve Davis
Company Name:

Address:

Pace Quote Reference:

Pace Project Manager:

Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test	General metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
						COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other								
						DATE	TIME	DATE	TIME																		
1		W 604 A		WT							2	1															
2		W 605 A									2	1															
3		W 601 A									2	1															
4		W 506 A									2	1															
5		W 514 A									2	1															
6		W 514 B									2	1															
7		W 600 A									2	1															
8																											
9																											
10																											
11																											
12																											
ADDITIONAL COMMENTS						RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS									
(1) total metals, unfiltered						David Anderson / Pace		9/13/18		1040		W / Xcel		9/13/18		1040		Temp in °C Received on Ice (Y/N) Custody Sealed Cooler (Y/N) Samples Intact (Y/N)									
pH strips: MD00002						SAMPLER NAME AND SIGNATURE														Temp in °C		Received on Ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples Intact (Y/N)	
ORIGINAL						PRINT Name of SAMPLER: David Anderson														DATE Signed (MM/DD/YY): 9-12-18							
						SIGNATURE of SAMPLER: David Anderson																					

October 17, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

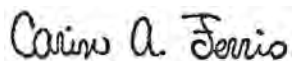
RE: Project: 18-01178, XcelEnergy-BlackDog
Pace Project No.: 30267075

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30267075001	W 600A	Water	10/01/18 13:15	10/04/18 09:20
30267075002	W 601A	Water	10/01/18 14:00	10/04/18 09:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30267075001	W 600A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30267075002	W 601A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: October 17, 2018

General Information:

2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: October 17, 2018

General Information:

2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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PROJECT NARRATIVE

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: October 17, 2018

General Information:

2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

Sample: W 600A		Lab ID: 30267075001	Collected: 10/01/18 13:15	Received: 10/04/18 09:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.210 ± 0.357 (0.630) C:NA T:94%		pCi/L	10/16/18 20:23	13982-63-3	
Radium-228	EPA 904.0	1.09 ± 0.587 (1.09) C:72% T:77%		pCi/L	10/12/18 11:03	15262-20-1	
Total Radium	Total Radium Calculation	1.30 ± 0.944 (1.72)		pCi/L	10/17/18 12:05	7440-14-4	

Sample: W 601A		Lab ID: 30267075002	Collected: 10/01/18 14:00	Received: 10/04/18 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.503 ± 0.496 (0.755) C:NA T:83%	pCi/L	10/16/18 20:23	13982-63-3	
Radium-228	EPA 904.0	0.129 ± 0.368 (0.823) C:78% T:82%	pCi/L	10/12/18 11:04	15262-20-1	
Total Radium	Total Radium Calculation	0.632 ± 0.864 (1.58)	pCi/L	10/17/18 12:05	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

QC Batch:	315727	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30267075001, 30267075002		

METHOD BLANK:	1541354	Matrix:	Water

Associated Lab Samples: 30267075001, 30267075002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.113 ± 0.351 (0.679) C:NA T:85%	pCi/L	10/16/18 19:51	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

QC Batch:	315728	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30267075001, 30267075002		

METHOD BLANK:	1541355	Matrix:	Water
Associated Lab Samples:	30267075001, 30267075002		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.473 ± 0.381 (0.757) C:73% T:81%	pCi/L	10/12/18 11:03	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: 18-01178, XcelEnergy-BlackDog

Pace Project No.: 30267075

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Section A

Required Client Information:

Company: **Xcel Energy**
Address: **E/o Pace MN Field**
Email To:
Phone:
Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: **David Anderson**
Copy To: **Tom Halverson**
Purchase Order No.:
Project Name: **18-01178, Xcel Energy -**
Project Number: **Black Dog CCR, Re-0ct-01**

Attention: **Clara Ruitkic**
Company Name: **Pace MN Field Services**
Address:
Pace Quote Reference: **Tom Halverson**
Pace Project Manager: **Carla Fennis**
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information		Matrix Codes MATRIX / CODE		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	SAMPLE ID (A-Z, 0-9 / .-) Sample IDs MUST BE UNIQUE		Drinking Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	COMPOSITE START			COMPOSITE END/GRAB		Unpreserved	H ₂ SO ₄			HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① Client needs to analyze for: Radium 226+228pCi/l combined.	David Anderson / Pace	10/2/18	1045	Holm	10/4/18	920	-	N	N	Y

② RA-226 EPA 903.1
RA-228 EPA 904.0

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: **David Anderson**
SIGNATURE of SAMPLER: **David Anderson**
DATE Signed (MM/DD/YY): **10/1/18**

Temp in °C
Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Xcel energy

Project # 30267075

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7475 9395 10500

Label	<u>MS</u>
LIMS Login	<u>MS</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	☒	☐	☐	<u>10D4671</u>	<u>BZH 10/4/18</u>
Chain of Custody Filled Out:	☒	☐	☐		
Chain of Custody Relinquished:	☒	☐	☐		
Sampler Name & Signature on COC:	☒	☐	☐		
Sample Labels match COC:	☒	☐	☐		
-Includes date/time/ID Matrix: <u>NT</u>					
Samples Arrived within Hold Time:	☒	☐	☐		
Short Hold Time Analysis (<72hr remaining):	☒	☐	☐		
Rush Turn Around Time Requested:	☒	☐	☐		
Sufficient Volume:	☒	☐	☐		
Correct Containers Used:	☒	☐	☐		
-Pace Containers Used:	☒	☐	☐		
Containers Intact:	☒	☐	☐		
Orthophosphate field filtered	☒	☐	☐		
Hex Cr Aqueous Compliance/NPDES sample field filtered	☒	☐	☐		
Organic Samples checked for dechlorination:	☒	☐	☐		
Filtered volume received for Dissolved tests	☒	☐	☐		
All containers have been checked for preservation.	☒	☐	☐		
All containers needing preservation are found to be in compliance with EPA recommendation.	☒	☐	☐	<u>PHL2</u>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>BZH</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	☒	☐	☐		
Trip Blank Present:	☒	☐	☐		
Trip Blank Custody Seals Present	☒	☐	☐		
Rad Aqueous Samples Screened > 0.5 mrem/hr	☒	☐	☐	Initial when completed: <u>BZH</u>	Date: <u>10/4/18</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

19 October 2018
Tedd Ronning
Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis, MN 55401
RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 10/02/2018 12:30. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis
Project Manager



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
W600A		MDJ0014-01	Water	10/01/2018 13:15	10/02/2018 12:30
W601A		MDJ0014-02	Water	10/01/2018 14:00	10/02/2018 12:30



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

W600A

MDJ0014-01 (Water) - Chain of Custody Number: 1845923

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	30.6	1.00	mg/L		1	BDJ0198	10/9/18 6:01	10/9/18 14:44	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0198	10/9/18 6:01	10/9/18 14:44	EPA 300.0	CRL
Sulfate	1510	10.0	mg/L		10	BDJ0198	10/9/18 6:01	10/9/18 14:23	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	153	10.0	mg/L		1	BDJ0049	10/2/18 12:53	10/2/18 14:07	SM 2320B	CRL
pH	6.57		pH Units	M_TTT	1	BDJ0049	10/2/18 12:53	10/2/18 14:07	SM 4500-H+ B	CRL
Total Dissolved Solids	2410	20.0	mg/L		1	BDJ0146	10/5/18 8:41	10/5/18 8:41	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	51.0	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Barium	23.9	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Beryllium	0.595	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Cadmium	0.181	0.100	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Cobalt	40.1	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Chromium	2.45	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Molybdenum	21.5	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL
Thallium	0.790	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:04	EPA 200.8	CRL

Total Metals by ICP

Boron	4.26	0.0500	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 13:59	EPA 200.7	HRD
Calcium	518	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 13:57	EPA 200.7	HRD
Potassium	10.8	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 13:58	EPA 200.7	HRD
Lithium	0.0839	0.0150	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 13:58	EPA 200.7	HRD
Magnesium	39.0	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 13:58	EPA 200.7	HRD
Sodium	48.8	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 13:57	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

W600A

MDJ0014-01 (Water) - Chain of Custody Number: 1845923

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDJ0079	10/3/18 9:07	10/3/18 15:29	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

W601A

MDJ0014-02 (Water) - Chain of Custody Number: 1845923

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	148	1.00	mg/L		1	BDJ0198	10/9/18 6:01	10/9/18 17:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0198	10/9/18 6:01	10/9/18 17:07	EPA 300.0	CRL
Sulfate	1200	10.0	mg/L		10	BDJ0198	10/9/18 6:01	10/9/18 16:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	101	10.0	mg/L		1	BDJ0049	10/2/18 12:53	10/2/18 14:14	SM 2320B	CRL
pH	10.5		pH Units	M_TTT	1	BDJ0049	10/2/18 12:53	10/2/18 14:14	SM 4500-H+ B	CRL
Total Dissolved Solids	2170	20.0	mg/L		1	BDJ0146	10/5/18 8:41	10/5/18 8:41	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	10.9	5.00	ug/L		10	BDJ0201	10/9/18 7:42	10/13/18 10:32	EPA 200.8	CRL
Barium	77.8	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL
Cadmium	< 1.00	1.00	ug/L		10	BDJ0201	10/9/18 7:42	10/13/18 10:32	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L		10	BDJ0201	10/9/18 7:42	10/13/18 10:32	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L		10	BDJ0201	10/9/18 7:42	10/13/18 10:32	EPA 200.8	CRL
Molybdenum	243	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL
Antimony	0.878	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL
Selenium	31.1	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0201	10/9/18 7:42	10/13/18 10:08	EPA 200.8	CRL

Total Metals by ICP

Boron	10.2	0.0500	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 14:04	EPA 200.7	HRD
Calcium	332	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 14:03	EPA 200.7	HRD
Potassium	52.0	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 14:03	EPA 200.7	HRD
Lithium	0.362	0.0150	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 14:03	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 14:03	EPA 200.7	HRD
Sodium	290	1.25	mg/L		1	BDJ0200	10/9/18 7:38	10/17/18 14:03	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

W601A

MDJ0014-02 (Water) - Chain of Custody Number: 1845923

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDJ0114	10/4/18 5:47	10/4/18 10:35	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0198 - Wet Prep

Blank (BDJ0198-BLK1)				Prepared & Analyzed: 10/09/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDJ0198-BLK2)				Prepared & Analyzed: 10/09/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDJ0198-BS1)				Prepared & Analyzed: 10/09/2018						
Chloride	24.6	1.00	mg/L	25.076		98.1	90-110			
Fluoride	2.68	0.750	mg/L	2.5076		107	90-110			
Sulfate	47.8	1.00	mg/L	48.144		99.3	90-110			

LCS (BDJ0198-BS2)				Prepared & Analyzed: 10/09/2018						
Chloride	24.0	1.00	mg/L	25.076		95.9	90-110			
Fluoride	2.70	0.750	mg/L	2.5076		108	90-110			
Sulfate	46.5	1.00	mg/L	48.144		96.6	90-110			

LCS (BDJ0198-BS3)				Prepared & Analyzed: 10/09/2018						
Chloride	23.9	1.00	mg/L	25.076		95.3	90-110			
Fluoride	2.59	0.750	mg/L	2.5076		103	90-110			
Sulfate	46.3	1.00	mg/L	48.144		96.3	90-110			

Duplicate (BDJ0198-DUP1)				Source: MDJ0037-01		Prepared & Analyzed: 10/09/2018				
Chloride	13.7	1.00	mg/L		13.9			1.65	20	
Fluoride	0.118	0.750	mg/L		0.116			1.71	20	
Sulfate	44.3	1.00	mg/L		44.7			0.818	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0198 - Wet Prep

Duplicate (BDJ0198-DUP2)	Source: MDJ0037-03			Prepared & Analyzed: 10/09/2018						
Chloride	28.0	1.00	mg/L		28.0			0.239	20	
Fluoride	0.229	0.750	mg/L		0.236			3.01	20	
Sulfate	41.6	1.00	mg/L		41.5			0.298	20	

Matrix Spike (BDJ0198-MS1)	Source: MDJ0037-01			Prepared & Analyzed: 10/09/2018						
Chloride	44.2	1.25	mg/L	31.345	13.9	96.5	80-120			
Fluoride	3.35	0.938	mg/L	3.1345	<0.938	107	80-120			
Sulfate	103	1.25	mg/L	60.180	44.7	97.1	80-120			

Matrix Spike (BDJ0198-MS2)	Source: MDJ0037-03			Prepared & Analyzed: 10/09/2018						
Chloride	58.6	1.25	mg/L	31.345	28.0	97.9	80-120			
Fluoride	3.62	0.938	mg/L	3.1345	0.236	108	80-120			
Sulfate	101	1.25	mg/L	60.180	41.5	98.8	80-120			

Matrix Spike Dup (BDJ0198-MSD1)	Source: MDJ0037-01			Prepared & Analyzed: 10/09/2018						
Chloride	44.4	1.25	mg/L	31.345	13.9	97.3	80-120	0.578	20	
Fluoride	3.47	0.938	mg/L	3.1345	<0.938	111	80-120	3.37	20	
Sulfate	104	1.25	mg/L	60.180	44.7	98.1	80-120	0.571	20	

Matrix Spike Dup (BDJ0198-MSD2)	Source: MDJ0037-03			Prepared & Analyzed: 10/09/2018						
Chloride	58.5	1.25	mg/L	31.345	28.0	97.5	80-120	0.207	20	
Fluoride	3.65	0.938	mg/L	3.1345	0.236	109	80-120	0.997	20	
Sulfate	101	1.25	mg/L	60.180	41.5	98.3	80-120	0.264	20	

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0049 - Wet Prep

LCS (BDJ0049-BS1)		Prepared & Analyzed: 10/02/2018								
pH	7.08		pH Units	7.0000		101	90-110			
Alkalinity, Total	101		mg/L	100.00		101	90-110			
LCS (BDJ0049-BS2)		Prepared & Analyzed: 10/02/2018								
Alkalinity, Total	105		mg/L	100.00		105	90-110			
pH	7.13		pH Units	7.0000		102	90-110			
LCS (BDJ0049-BS3)		Prepared: 10/02/2018 Analyzed: 10/03/2018								
Alkalinity, Total	100		mg/L	100.00		100	90-110			
Duplicate (BDJ0049-DUP1)		Source: MDJ0012-01		Prepared & Analyzed: 10/02/2018						
pH	7.61		pH Units		7.67			0.785	20	
Alkalinity, Total	319	10.0	mg/L		323			1.47	20	

Batch BDJ0146 - Wet Prep

Blank (BDJ0146-BLK1)		Prepared & Analyzed: 10/05/2018								
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDJ0146-DUP1)		Source: MDJ0012-01		Prepared & Analyzed: 10/05/2018						
Total Dissolved Solids	562	20.0	mg/L		564			0.355	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0201 - EPA 200.2, EPA 3005

Blank (BDJ0201-BLK1)

Prepared: 10/09/2018 Analyzed: 10/13/2018

Selenium	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Barium	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L

LCS (BDJ0201-BS1)

Prepared: 10/09/2018 Analyzed: 10/13/2018

Thallium	96.0	0.500	ug/L	100.00	96.0	85-115
Selenium	101	0.500	ug/L	100.00	101	85-115
Molybdenum	102	0.500	ug/L	100.00	102	85-115
Cobalt	104	0.500	ug/L	100.00	104	85-115
Arsenic	101	0.500	ug/L	100.00	101	85-115
Chromium	104	0.500	ug/L	100.00	104	85-115
Beryllium	99.3	0.500	ug/L	100.00	99.3	85-115
Cadmium	105	0.100	ug/L	100.00	105	85-115
Barium	99.5	0.500	ug/L	100.00	99.5	85-115
Lead	97.2	0.500	ug/L	100.00	97.2	85-115
Antimony	97.8	0.500	ug/L	100.00	97.8	85-115

Duplicate (BDJ0201-DUP1)

Source: MDJ0014-01

Prepared: 10/09/2018 Analyzed: 10/13/2018

Lead	0.0959	0.500	ug/L	0.0941	1.83	20	
Arsenic	54.2	0.500	ug/L	51.0	6.13	20	
Barium	24.7	0.500	ug/L	23.9	3.55	20	
Thallium	0.789	0.500	ug/L	0.790	0.0515	20	
Selenium	<0.500	0.500	ug/L	<0.500		20	
Antimony	0.0804	0.500	ug/L	0.110	30.7	20	M_D-RL
Molybdenum	22.2	0.500	ug/L	21.5	3.20	20	
Chromium	2.64	0.500	ug/L	2.45	7.18	20	
Cobalt	44.8	0.500	ug/L	40.1	11.0	20	
Cadmium	0.161	0.100	ug/L	0.181	11.6	20	
Beryllium	0.615	0.500	ug/L	0.595	3.32	20	



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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0201 - EPA 200.2, EPA 3005

Matrix Spike (BDJ0201-MS1)	Source: MDJ0014-01			Prepared: 10/09/2018 Analyzed: 10/13/2018						
Cobalt	141	0.500	ug/L	100.00	40.1	101	70-130			
Molybdenum	121	0.500	ug/L	100.00	21.5	99.6	70-130			
Cadmium	96.3	0.100	ug/L	100.00	0.181	96.2	70-130			
Lead	84.4	0.500	ug/L	100.00	0.0941	84.3	70-130			
Antimony	95.7	0.500	ug/L	100.00	0.110	95.6	70-130			
Barium	130	0.500	ug/L	100.00	23.9	106	70-130			
Chromium	101	0.500	ug/L	100.00	2.45	98.6	70-130			
Arsenic	152	0.500	ug/L	100.00	51.0	101	70-130			
Beryllium	85.9	0.500	ug/L	100.00	0.595	85.4	70-130			
Thallium	89.2	0.500	ug/L	100.00	0.790	88.4	70-130			
Selenium	100	0.500	ug/L	100.00	<0.500	100	70-130			

Matrix Spike Dup (BDJ0201-MSD1)	Source: MDJ0014-01			Prepared: 10/09/2018 Analyzed: 10/13/2018						
Antimony	99.3	0.500	ug/L	100.00	0.110	99.2	70-130	3.73	20	
Lead	86.8	0.500	ug/L	100.00	0.0941	86.7	70-130	2.87	20	
Molybdenum	122	0.500	ug/L	100.00	21.5	100	70-130	0.382	20	
Selenium	99.6	0.500	ug/L	100.00	<0.500	99.6	70-130	0.360	20	
Chromium	98.0	0.500	ug/L	100.00	2.45	95.5	70-130	3.09	20	
Cobalt	136	0.500	ug/L	100.00	40.1	95.4	70-130	3.96	20	
Cadmium	97.9	0.100	ug/L	100.00	0.181	97.7	70-130	1.58	20	
Beryllium	85.6	0.500	ug/L	100.00	0.595	85.0	70-130	0.460	20	
Barium	131	0.500	ug/L	100.00	23.9	107	70-130	1.04	20	
Arsenic	155	0.500	ug/L	100.00	51.0	104	70-130	1.99	20	
Thallium	92.4	0.500	ug/L	100.00	0.790	91.6	70-130	3.56	20	



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0200 - EPA 200.2, EPA 3005

Blank (BDJ0200-BLK1)

Prepared: 10/09/2018 Analyzed: 10/17/2018

Boron	<0.0500	0.0500	mg/L
Sodium	<1.25	1.25	mg/L
Magnesium	<1.25	1.25	mg/L
Potassium	<1.25	1.25	mg/L
Lithium	<0.0150	0.0150	mg/L
Calcium	<1.25	1.25	mg/L

LCS (BDJ0200-BS1)

Prepared: 10/09/2018 Analyzed: 10/17/2018

Sodium	104	1.25	mg/L	100.00	104	85-115
Lithium	0.991	0.0150	mg/L	1.0000	99.1	85-115
Magnesium	105	1.25	mg/L	100.00	105	85-115
Boron	1.02	0.0500	mg/L	1.0000	102	85-115
Calcium	104	1.25	mg/L	100.00	104	85-115
Potassium	102	1.25	mg/L	100.00	102	85-115

Duplicate (BDJ0200-DUP1)

Source: MDJ0034-02

Prepared: 10/09/2018 Analyzed: 10/17/2018

Lithium	0.0291	0.0150	mg/L	0.0279	4.02	20
Magnesium	34.7	1.25	mg/L	32.8	5.47	20
Potassium	4.23	1.25	mg/L	3.98	6.11	20
Sodium	12.0	1.25	mg/L	11.5	4.41	20
Calcium	90.9	1.25	mg/L	86.7	4.65	20
Boron	0.0855	0.0500	mg/L	0.104	19.9	20

Duplicate (BDJ0200-DUP2)

Source: MDJ0035-01

Prepared: 10/09/2018 Analyzed: 10/17/2018

Sodium	12.4	1.25	mg/L	12.4	0.127	20
Calcium	109	1.25	mg/L	109	0.0703	20
Lithium	0.0404	0.0150	mg/L	0.0407	0.738	20
Boron	0.0846	0.0500	mg/L	0.0939	10.4	20
Magnesium	42.3	1.25	mg/L	42.0	0.591	20
Potassium	4.54	1.25	mg/L	4.48	1.32	20



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0200 - EPA 200.2, EPA 3005

Matrix Spike (BDJ0200-MS1)		Source: MDJ0034-02		Prepared: 10/09/2018 Analyzed: 10/17/2018						
Sodium	117	1.25	mg/L	100.00	11.5	105	70-130			
Lithium	1.03	0.0150	mg/L	1.0000	0.0279	100	75-125			
Magnesium	142	1.25	mg/L	100.00	32.8	109	70-130			
Calcium	198	1.25	mg/L	100.00	86.7	111	70-130			
Potassium	108	1.25	mg/L	100.00	3.98	104	70-130			
Boron	1.11	0.0500	mg/L	1.0000	0.104	101	70-130			
Matrix Spike (BDJ0200-MS2)		Source: MDJ0035-01		Prepared: 10/09/2018 Analyzed: 10/17/2018						
Lithium	1.04	0.0150	mg/L	1.0000	0.0407	99.5	75-125			
Sodium	116	1.25	mg/L	100.00	12.4	104	70-130			
Calcium	217	1.25	mg/L	100.00	109	108	70-130			
Magnesium	149	1.25	mg/L	100.00	42.0	107	70-130			
Boron	1.13	0.0500	mg/L	1.0000	0.0939	103	70-130			
Potassium	108	1.25	mg/L	100.00	4.48	103	70-130			
Matrix Spike Dup (BDJ0200-MSD1)		Source: MDJ0034-02		Prepared: 10/09/2018 Analyzed: 10/17/2018						
Lithium	1.04	0.0150	mg/L	1.0000	0.0279	101	75-125	0.770	20	
Magnesium	142	1.25	mg/L	100.00	32.8	109	70-130	0.395	20	
Sodium	118	1.25	mg/L	100.00	11.5	106	70-130	0.538	20	
Boron	1.15	0.0500	mg/L	1.0000	0.104	104	70-130	3.02	20	
Calcium	199	1.25	mg/L	100.00	86.7	112	70-130	0.497	20	
Potassium	109	1.25	mg/L	100.00	3.98	105	70-130	0.533	20	
Matrix Spike Dup (BDJ0200-MSD2)		Source: MDJ0035-01		Prepared: 10/09/2018 Analyzed: 10/17/2018						
Magnesium	150	1.25	mg/L	100.00	42.0	108	70-130	0.347	20	
Boron	1.14	0.0500	mg/L	1.0000	0.0939	104	70-130	0.850	20	
Calcium	217	1.25	mg/L	100.00	109	108	70-130	0.309	20	
Potassium	107	1.25	mg/L	100.00	4.48	103	70-130	0.381	20	
Sodium	116	1.25	mg/L	100.00	12.4	104	70-130	0.287	20	
Lithium	1.03	0.0150	mg/L	1.0000	0.0407	99.2	75-125	0.363	20	



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0079 - EPA 245.1, EPA 7470A

Blank (BDJ0079-BLK1)				Prepared & Analyzed: 10/03/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDJ0079-BS1)				Prepared & Analyzed: 10/03/2018						
Mercury	2.74	0.200	ug/L	3.0000		91.5	85-115			
Duplicate (BDJ0079-DUP1)				Source: MDI0346-07		Prepared & Analyzed: 10/03/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDJ0079-DUP2)				Source: MDI0346-08		Prepared & Analyzed: 10/03/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDJ0079-MS1)				Source: MDI0346-07		Prepared & Analyzed: 10/03/2018				
Mercury	2.82	0.200	ug/L	3.0000	<0.200	94.2	70-130			
Matrix Spike (BDJ0079-MS2)				Source: MDI0346-08		Prepared & Analyzed: 10/03/2018				
Mercury	2.71	0.200	ug/L	3.0000	<0.200	90.2	70-130			
Matrix Spike Dup (BDJ0079-MSD1)				Source: MDI0346-07		Prepared & Analyzed: 10/03/2018				
Mercury	2.85	0.200	ug/L	3.0000	<0.200	95.0	70-130	0.860	20	
Matrix Spike Dup (BDJ0079-MSD2)				Source: MDI0346-08		Prepared & Analyzed: 10/03/2018				
Mercury	2.82	0.200	ug/L	3.0000	<0.200	93.8	70-130	3.98	20	

Batch BDJ0114 - EPA 245.1, EPA 7470A

Blank (BDJ0114-BLK1)				Prepared & Analyzed: 10/04/2018						
Mercury	<0.200	0.200	ug/L							



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0114 - EPA 245.1, EPA 7470A

LCS (BDJ0114-BS1)				Prepared & Analyzed: 10/04/2018						
Mercury	2.62	0.200	ug/L	3.0000		87.3	85-115			
Duplicate (BDJ0114-DUP1)				Source: MDJ0014-02		Prepared & Analyzed: 10/04/2018				
Mercury	<0.200	0.200	ug/L	<0.200					20	
Duplicate (BDJ0114-DUP2)				Source: MDJ0037-01		Prepared & Analyzed: 10/04/2018				
Mercury	<0.200	0.200	ug/L	<0.200					20	
Matrix Spike (BDJ0114-MS1)				Source: MDJ0014-02		Prepared & Analyzed: 10/04/2018				
Mercury	2.69	0.200	ug/L	3.0000	<0.200	89.6	70-130			
Matrix Spike (BDJ0114-MS2)				Source: MDJ0037-01		Prepared & Analyzed: 10/04/2018				
Mercury	2.60	0.200	ug/L	3.0000	<0.200	86.8	70-130			
Matrix Spike Dup (BDJ0114-MSD1)				Source: MDJ0014-02		Prepared & Analyzed: 10/04/2018				
Mercury	2.72	0.200	ug/L	3.0000	<0.200	90.5	70-130	1.03	20	
Matrix Spike Dup (BDJ0114-MSD2)				Source: MDJ0037-01		Prepared & Analyzed: 10/04/2018				
Mercury	2.69	0.200	ug/L	3.0000	<0.200	89.7	70-130	3.25	20	



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	10/19/2018 07:47

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

November 13, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

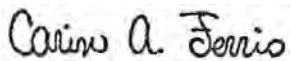
RE: Project: 18-01305, Xcel Energy-BlackDog
Pace Project No.: 30269834

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on October 29, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30269834001	Field Blank	Water	10/23/18 08:45	10/29/18 09:35
30269834002	W510A	Water	10/23/18 09:30	10/29/18 09:35
30269834003	W511A	Water	10/23/18 10:15	10/29/18 09:35
30269834004	W14A	Water	10/23/18 11:10	10/29/18 09:35
30269834005	W7A	Water	10/23/18 11:50	10/29/18 09:35
30269834006	W602A	Water	10/23/18 12:40	10/29/18 09:35
30269834007	W502A	Water	10/23/18 13:40	10/29/18 09:35
30269834008	W502B	Water	10/23/18 14:15	10/29/18 09:35
30269834009	W504A	Water	10/23/18 15:00	10/29/18 09:35
30269834010	W504B	Water	10/23/18 15:35	10/29/18 09:35
30269834011	W514A	Water	10/24/18 09:10	10/29/18 09:35
30269834012	W514B	Water	10/24/18 09:50	10/29/18 09:35
30269834013	W506A	Water	10/24/18 10:50	10/29/18 09:35
30269834014	Duplicate	Water	10/24/18 10:50	10/29/18 09:35
30269834015	W603A	Water	10/24/18 12:00	10/29/18 09:35
30269834016	W604A	Water	10/24/18 12:50	10/29/18 09:35
30269834017	W605A	Water	10/24/18 13:40	10/29/18 09:35
30269834018	W601A	Water	10/24/18 14:40	10/29/18 09:35
30269834019	W600A	Water	10/24/18 15:30	10/29/18 09:35

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30269834001	Field Blank	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834002	W510A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834003	W511A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834004	W14A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834005	W7A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834006	W602A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834007	W502A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834008	W502B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834009	W504A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834010	W504B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834011	W514A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834012	W514B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834013	W506A	EPA 903.1	MK1	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30269834014	Duplicate	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30269834015	W603A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834016	W604A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
30269834017	W605A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
30269834018	W601A	Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30269834019	W600A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA

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PROJECT NARRATIVE

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: November 13, 2018

General Information:

19 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: November 13, 2018

General Information:

19 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: November 13, 2018

General Information:

19 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Sample: Field Blank		Lab ID: 30269834001	Collected: 10/23/18 08:45	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.242 ± 0.369 (0.594) C:NA T:89%	pCi/L	11/09/18 20:38	13982-63-3	
Radium-228	EPA 904.0	0.210 ± 0.309 (0.664) C:79% T:85%	pCi/L	11/07/18 11:57	15262-20-1	
Total Radium	Total Radium Calculation	0.452 ± 0.678 (1.26)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W510A		Lab ID: 30269834002	Collected: 10/23/18 09:30	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.785 ± 0.616 (0.857) C:NA T:95%	pCi/L	11/09/18 20:54	13982-63-3	
Radium-228	EPA 904.0	0.560 ± 0.384 (0.733) C:76% T:87%	pCi/L	11/07/18 11:57	15262-20-1	
Total Radium	Total Radium Calculation	1.35 ± 1.000 (1.59)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W511A		Lab ID: 30269834003	Collected: 10/23/18 10:15	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.586 ± 0.816 (1.38) C:NA T:75%	pCi/L	11/09/18 20:54	13982-63-3	
Radium-228	EPA 904.0	0.179 ± 0.329 (0.722) C:73% T:78%	pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	0.765 ± 1.15 (2.10)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W14A		Lab ID: 30269834004	Collected: 10/23/18 11:10	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.079 ± 0.464 (1.03) C:NA T:89%	pCi/L	11/09/18 20:54	13982-63-3	
Radium-228	EPA 904.0	0.449 ± 0.324 (0.618) C:71% T:90%	pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	0.449 ± 0.788 (1.65)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W7A		Lab ID: 30269834005	Collected: 10/23/18 11:50	Received: 10/29/18 09:35	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.304 ± 0.517 (0.913) C:NA T:92%		pCi/L	11/09/18 20:54	13982-63-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Sample: W7A		Lab ID: 30269834005	Collected: 10/23/18 11:50	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	0.427 ± 0.384 (0.777) C:73% T:81%	pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	0.731 ± 0.901 (1.69)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W602A		Lab ID: 30269834006	Collected: 10/23/18 12:40	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.300 ± 0.551 (0.982) C:NA T:92%	pCi/L	11/09/18 20:54	13982-63-3	
Radium-228	EPA 904.0	0.385 ± 0.345 (0.696) C:74% T:85%	pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	0.685 ± 0.896 (1.68)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W502A		Lab ID: 30269834007	Collected: 10/23/18 13:40	Received: 10/29/18 09:35	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.609 ± 0.707 (1.14) C:NA T:77%		pCi/L	11/09/18 20:54	13982-63-3	
Radium-228	EPA 904.0	0.588 ± 0.358 (0.640) C:73% T:78%		pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	1.20 ± 1.07 (1.78)		pCi/L	11/13/18 11:39	7440-14-4	

Sample: W502B		Lab ID: 30269834008	Collected: 10/23/18 14:15	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.818 ± 0.723 (1.07) C:NA T:91%	pCi/L	11/09/18 21:09	13982-63-3	
Radium-228	EPA 904.0	0.395 ± 0.336 (0.671) C:80% T:83%	pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	1.21 ± 1.06 (1.74)	pCi/L	11/13/18 11:39	7440-14-4	

Sample: W504A		Lab ID: 30269834009	Collected: 10/23/18 15:00	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.663 ± 0.693 (1.09) C:NA T:86%	pCi/L	11/09/18 21:09	13982-63-3	
Radium-228	EPA 904.0	0.441 ± 0.357 (0.707) C:77% T:84%	pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	1.10 ± 1.05 (1.80)	pCi/L	11/13/18 11:39	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Sample: W504B		Lab ID: 30269834010	Collected: 10/23/18 15:35	Received: 10/29/18 09:35	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.650 ± 0.680 (1.07) C:NA T:88%		pCi/L	11/09/18 21:09	13982-63-3	
Radium-228	EPA 904.0	0.764 ± 0.343 (0.538) C:77% T:90%		pCi/L	11/07/18 11:58	15262-20-1	
Total Radium	Total Radium Calculation	1.41 ± 1.02 (1.61)		pCi/L	11/13/18 12:07	7440-14-4	

Sample: W514A		Lab ID: 30269834011	Collected: 10/24/18 09:10	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.087 ± 0.453 (1.05) C:NA T:79%	pCi/L	11/09/18 21:09	13982-63-3	
Radium-228	EPA 904.0	0.392 ± 0.368 (0.748) C:77% T:76%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	0.392 ± 0.821 (1.80)	pCi/L	11/13/18 12:07	7440-14-4	

Sample: W514B		Lab ID: 30269834012	Collected: 10/24/18 09:50	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.36 ± 0.800 (0.961) C:NA T:92%	pCi/L	11/09/18 21:09	13982-63-3	
Radium-228	EPA 904.0	0.0688 ± 0.310 (0.707) C:79% T:85%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	1.43 ± 1.11 (1.67)	pCi/L	11/13/18 12:07	7440-14-4	

Sample: W506A		Lab ID: 30269834013	Collected: 10/24/18 10:50	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.560 ± 0.650 (1.05) C:NA T:89%	pCi/L	11/09/18 21:09	13982-63-3	
Radium-228	EPA 904.0	0.543 ± 0.344 (0.639) C:79% T:81%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	1.10 ± 0.994 (1.69)	pCi/L	11/13/18 12:07	7440-14-4	

Sample: Duplicate		Lab ID: 30269834014	Collected: 10/24/18 10:50	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.546 (1.13) C:NA T:90%	pCi/L	11/09/18 21:24	13982-63-3	
Radium-228	EPA 904.0	0.511 ± 0.329 (0.607) C:79% T:81%	pCi/L	11/07/18 15:25	15262-20-1	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Sample: Duplicate		Lab ID: 30269834014	Collected: 10/24/18 10:50	Received: 10/29/18 09:35	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.511 ± 0.875 (1.74)		pCi/L	11/13/18 12:07	7440-14-4	

Sample: W603A		Lab ID: 30269834015	Collected: 10/24/18 12:00	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.230 ± 0.713 (1.38) C:NA T:64%	pCi/L	11/09/18 21:24	13982-63-3	
Radium-228	EPA 904.0	0.154 ± 0.349 (0.775) C:78% T:74%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	0.384 ± 1.06 (2.16)	pCi/L	11/13/18 12:07	7440-14-4	

Sample: W604A		Lab ID: 30269834016	Collected: 10/24/18 12:50	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.480 (1.01) C:NA T:93%	pCi/L	11/09/18 21:24	13982-63-3	
Radium-228	EPA 904.0	0.0665 ± 0.314 (0.719) C:80% T:75%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	0.0665 ± 0.794 (1.73)	pCi/L	11/13/18 12:07	7440-14-4	

Sample: W605A		Lab ID: 30269834017	Collected: 10/24/18 13:40	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.630 ± 0.582 (0.848) C:NA T:88%	pCi/L	11/09/18 21:24	13982-63-3	
Radium-228	EPA 904.0	0.867 ± 0.358 (0.529) C:77% T:88%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	1.50 ± 0.940 (1.38)	pCi/L	11/13/18 12:07	7440-14-4	

Sample: W601A		Lab ID: 30269834018	Collected: 10/24/18 14:40	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.698 ± 0.645 (0.939) C:NA T:83%	pCi/L	11/09/18 21:24	13982-63-3	
Radium-228	EPA 904.0	0.452 ± 0.359 (0.707) C:74% T:84%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	1.15 ± 1.00 (1.65)	pCi/L	11/13/18 12:07	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

Sample: W600A		Lab ID: 30269834019	Collected: 10/24/18 15:30	Received: 10/29/18 09:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.373 ± 0.449 (0.686) C:NA T:74%	pCi/L	11/09/18 21:24	13982-63-3	
Radium-228	EPA 904.0	0.423 ± 0.381 (0.770) C:79% T:73%	pCi/L	11/07/18 15:25	15262-20-1	
Total Radium	Total Radium Calculation	0.796 ± 0.830 (1.46)	pCi/L	11/13/18 12:07	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

QC Batch:	318789	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30269834001, 30269834002, 30269834003, 30269834004, 30269834005, 30269834006, 30269834007, 30269834008, 30269834009, 30269834010, 30269834011, 30269834012, 30269834013, 30269834014, 30269834015, 30269834016, 30269834017, 30269834018, 30269834019		

METHOD BLANK:	1554898	Matrix:	Water
Associated Lab Samples:	30269834001, 30269834002, 30269834003, 30269834004, 30269834005, 30269834006, 30269834007, 30269834008, 30269834009, 30269834010, 30269834011, 30269834012, 30269834013, 30269834014, 30269834015, 30269834016, 30269834017, 30269834018, 30269834019		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.288 ± 0.448 (0.776) C:NA T:94%	pCi/L	11/09/18 20:38	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

QC Batch:	318798	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30269834001, 30269834002, 30269834003, 30269834004, 30269834005, 30269834006, 30269834007, 30269834008, 30269834009, 30269834010, 30269834011, 30269834012, 30269834013, 30269834014, 30269834015, 30269834016, 30269834017, 30269834018, 30269834019		

METHOD BLANK:	1554913	Matrix:	Water
Associated Lab Samples:	30269834001, 30269834002, 30269834003, 30269834004, 30269834005, 30269834006, 30269834007, 30269834008, 30269834009, 30269834010, 30269834011, 30269834012, 30269834013, 30269834014, 30269834015, 30269834016, 30269834017, 30269834018, 30269834019		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0498 ± 0.295 (0.700) C:82% T:88%	pCi/L	11/07/18 11:57	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 18-01305, Xcel Energy-BlackDog

Pace Project No.: 30269834

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



30269834

Section A

Required Client Information:

Company: Xcel Energy
Address: E/o Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: David Anderson
Copy To: Tom Halverson
Purchase Order No.:
Project Name: 18-01305 Xcel Energy -
Project Number: Black Dog CCR, Oct. 2018

Section C

Invoice Information:

Attention: Clara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Ferris
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N ↑	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① Client needs to analyze for: Radium 226 & 228 pCi/L combined.	David Anderson	10/25/18	1150	Brian Munn	10/27/18	0935	N/A	N	N	Y

② RA-226 EPA 903.1
RA-228 EPA 904.0

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

10/24/18

Temp in °C

Received on ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples intact (Y/N)

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name:

Xcel Energy

Project #

30269834

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 4486 7789 7545

Label ET

LIMS Login ET

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: - °C Final Temp: - °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	/			10D4671	BLM 10-29-18
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:	/				
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):		/			
Rush Turn Around Time Requested:		/			
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered			/		
Hex Cr Aqueous Compliance/NPDES sample field filtered			/		
Organic Samples checked for dechlorination:			/		
Filtered volume received for Dissolved tests	/				
All containers have been checked for preservation.	/				
All containers needing preservation are found to be in compliance with EPA recommendation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics <u>BM 10-29-18</u>				Initial when completed <u>BLM</u>	Date/time of preservation <u>10-29-18 1955</u>
				Lot # of added preservative <u>DL18-1162</u>	
Headspace in VOA Vials (>6mm):			/		
Trip Blank Present:			/		
Trip Blank Custody Seals Present			/		
Rad Aqueous Samples Screened > 0.5 mrem/hr		/		Initial when completed <u>BLM</u>	Date: <u>10-29-18</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

09 November 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 10/25/2018 10:55. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



Minneapolis Testing Laboratory
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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MDJ0313-01	Water	10/23/2018 8:45	10/25/2018 10:55
W510A		MDJ0313-02	Water	10/23/2018 9:30	10/25/2018 10:55
W511A		MDJ0313-03	Water	10/23/2018 10:15	10/25/2018 10:55
W14A		MDJ0313-04	Water	10/23/2018 11:10	10/25/2018 10:55
W7A		MDJ0313-05	Water	10/23/2018 11:50	10/25/2018 10:55
W602A		MDJ0313-06	Water	10/23/2018 12:40	10/25/2018 10:55
W502A		MDJ0313-07	Water	10/23/2018 13:40	10/25/2018 10:55
W502B		MDJ0313-08	Water	10/23/2018 14:15	10/25/2018 10:55
W504A		MDJ0313-09	Water	10/23/2018 15:00	10/25/2018 10:55
W504B		MDJ0313-10	Water	10/23/2018 15:35	10/25/2018 10:55
W514A		MDJ0313-11	Water	10/24/2018 9:10	10/25/2018 10:55
W514B		MDJ0313-12	Water	10/24/2018 9:50	10/25/2018 10:55
W506A		MDJ0313-13	Water	10/24/2018 10:50	10/25/2018 10:55
Duplicate		MDJ0313-14	Water	10/24/2018 10:50	10/25/2018 10:55
W603A		MDJ0313-15	Water	10/24/2018 12:00	10/25/2018 10:55
W604A		MDJ0313-16	Water	10/24/2018 12:50	10/25/2018 10:55
W605A		MDJ0313-17	Water	10/24/2018 13:40	10/25/2018 10:55
W601A		MDJ0313-18	Water	10/24/2018 14:40	10/25/2018 10:55
W600A		MDJ0313-19	Water	10/24/2018 15:30	10/25/2018 10:55



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Field Blank

MDJ0313-01 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 14:52	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 14:52	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 14:52	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:01	SM 2320B	CRL
pH	6.96		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:01	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Barium	< 1.00	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:32	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:34	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:33	EPA 200.7	HRD
Potassium	< 1.25	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:33	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:33	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:33	EPA 200.7	HRD
Sodium	< 1.25	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:33	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Field Blank

MDJ0313-01 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte			Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution	Batch				

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:24	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W510A

MDJ0313-02 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	76.8	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 15:12	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 15:12	EPA 300.0	CRL
Sulfate	22.2	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 15:12	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	1120	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:25	SM 2320B	CRL
pH	7.58		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:25	SM 4500-H+ B	CRL
Total Dissolved Solids	1260	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	48.9	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Barium	391	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:36	EPA 200.8	CRL

Total Metals by ICP

Boron	6.52	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:39	EPA 200.7	HRD
Calcium	305	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:38	EPA 200.7	HRD
Potassium	2.89	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:38	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:38	EPA 200.7	HRD
Magnesium	84.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:38	EPA 200.7	HRD
Sodium	77.8	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:38	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W510A

MDJ0313-02 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:26	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W511A

MDJ0313-03 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	221	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 15:53	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 15:53	EPA 300.0	CRL
Sulfate	384	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 15:53	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	120	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:31	SM 2320B	CRL
pH	8.00		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:31	SM 4500-H+ B	CRL
Total Dissolved Solids	1070	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.67	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Barium	61.6	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Chromium	18.7	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Molybdenum	90.7	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Antimony	4.91	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Selenium	1.82	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:47	EPA 200.8	CRL

Total Metals by ICP

Boron	6.89	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:55	EPA 200.7	HRD
Calcium	142	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:53	EPA 200.7	HRD
Potassium	12.8	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:53	EPA 200.7	HRD
Lithium	0.0454	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:53	EPA 200.7	HRD
Magnesium	34.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:54	EPA 200.7	HRD
Sodium	157	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:53	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W511A

MDJ0313-03 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:28	EPA 245.1, 7470A	HRD



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WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W14A

MDJ0313-04 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	74.8	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:13	EPA 300.0	CRL
Sulfate	107	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:13	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	422	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:39	SM 2320B	CRL
pH	7.28		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:39	SM 4500-H+ B	CRL
Total Dissolved Solids	708	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.96	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Barium	48.7	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Molybdenum	67.1	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:51	EPA 200.8	CRL

Total Metals by ICP

Boron	1.09	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:00	EPA 200.7	HRD
Calcium	127	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:58	EPA 200.7	HRD
Potassium	3.03	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:58	EPA 200.7	HRD
Lithium	0.0199	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:58	EPA 200.7	HRD
Magnesium	23.4	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:59	EPA 200.7	HRD
Sodium	101	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 12:58	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W14A

MDJ0313-04 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:33	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W7A

MDJ0313-05 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	98.4	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:34	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:34	EPA 300.0	CRL
Sulfate	283	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:34	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	313	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:45	SM 2320B	CRL
pH	7.36		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:45	SM 4500-H+ B	CRL
Total Dissolved Solids	922	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.764	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Barium	135	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Chromium	0.607	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Molybdenum	24.0	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:55	EPA 200.8	CRL

Total Metals by ICP

Boron	1.22	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:05	EPA 200.7	HRD
Calcium	163	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:03	EPA 200.7	HRD
Potassium	3.69	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:03	EPA 200.7	HRD
Lithium	0.0191	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:03	EPA 200.7	HRD
Magnesium	45.4	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:04	EPA 200.7	HRD
Sodium	71.5	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:03	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W7A

MDJ0313-05 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:34	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W602A

MDJ0313-06 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	203	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:54	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:54	EPA 300.0	CRL
Sulfate	292	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 16:54	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	289	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:51	SM 2320B	CRL
pH	7.64		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:51	SM 4500-H+ B	CRL
Total Dissolved Solids	1100	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.78	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Barium	86.7	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Cobalt	1.00	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Molybdenum	67.3	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 8:59	EPA 200.8	CRL

Total Metals by ICP

Boron	1.36	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:10	EPA 200.7	HRD
Calcium	129	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:08	EPA 200.7	HRD
Potassium	2.11	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:08	EPA 200.7	HRD
Lithium	0.0228	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:08	EPA 200.7	HRD
Magnesium	32.8	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:09	EPA 200.7	HRD
Sodium	189	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:08	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W602A

MDJ0313-06 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:36	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W502A

MDJ0313-07 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	94.5	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 17:35	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 17:35	EPA 300.0	CRL
Sulfate	1420	10.0	mg/L		10	BDJ0730	10/29/18 11:38	10/29/18 17:14	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	335	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 14:59	SM 2320B	CRL
pH	7.32		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 14:59	SM 4500-H+ B	CRL
Total Dissolved Solids	2640	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	36.8	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Barium	81.2	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Cobalt	3.75	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Molybdenum	67.8	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:03	EPA 200.8	CRL

Total Metals by ICP

Boron	9.01	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:15	EPA 200.7	HRD
Calcium	508	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:13	EPA 200.7	HRD
Potassium	17.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:13	EPA 200.7	HRD
Lithium	0.0848	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:14	EPA 200.7	HRD
Magnesium	72.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:14	EPA 200.7	HRD
Sodium	157	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:13	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W502A

MDJ0313-07 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:38	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W502B

MDJ0313-08 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	83.4	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:16	EPA 300.0	CRL
Sulfate	1190	10.0	mg/L		10	BDJ0730	10/29/18 11:38	10/29/18 17:55	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	387	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:05	SM 2320B	CRL
pH	7.23		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:05	SM 4500-H+ B	CRL
Total Dissolved Solids	2250	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.49	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Barium	146	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Chromium	0.718	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:07	EPA 200.8	CRL

Total Metals by ICP

Boron	3.57	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:20	EPA 200.7	HRD
Calcium	442	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:18	EPA 200.7	HRD
Potassium	2.15	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:19	EPA 200.7	HRD
Lithium	0.0240	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:19	EPA 200.7	HRD
Magnesium	113	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:19	EPA 200.7	HRD
Sodium	60.6	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:18	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W502B

MDJ0313-08 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:40	EPA 245.1, 7470A	HRD



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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W504A

MDJ0313-09 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	84.0	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:36	EPA 300.0	CRL
Sulfate	710	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:36	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	505	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:12	SM 2320B	CRL
pH	7.17		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:12	SM 4500-H+ B	CRL
Total Dissolved Solids	1820	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.06	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Barium	31.0	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Cobalt	2.29	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Molybdenum	35.9	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:11	EPA 200.8	CRL

Total Metals by ICP

Boron	11.9	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:25	EPA 200.7	HRD
Calcium	315	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:24	EPA 200.7	HRD
Potassium	2.71	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:24	EPA 200.7	HRD
Lithium	0.0358	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:24	EPA 200.7	HRD
Magnesium	80.2	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:24	EPA 200.7	HRD
Sodium	150	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:24	EPA 200.7	HRD



Minneapolis Testing Laboratory
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Certification # MN-027-053-197
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W504A

MDJ0313-09 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:41	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W504B

MDJ0313-10 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	60.1	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:57	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:57	EPA 300.0	CRL
Sulfate	21.8	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 18:57	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	841	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:22	SM 2320B	CRL
pH	7.38		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:22	SM 4500-H+ B	CRL
Total Dissolved Solids	930	20.0	mg/L		1	BDJ0689	10/26/18 9:01	10/26/18 9:01	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.48	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Barium	367	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:15	EPA 200.8	CRL

Total Metals by ICP

Boron	0.446	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:30	EPA 200.7	HRD
Calcium	215	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:28	EPA 200.7	HRD
Potassium	1.41	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:28	EPA 200.7	HRD
Lithium	0.0209	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:28	EPA 200.7	HRD
Magnesium	78.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:29	EPA 200.7	HRD
Sodium	26.9	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:28	EPA 200.7	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W504B

MDJ0313-10 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:43	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W514A

MDJ0313-11 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	36.6	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 20:59	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 20:59	EPA 300.0	CRL
Sulfate	89.6	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 20:59	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	414	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:38	SM 2320B	CRL
pH	7.58		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:38	SM 4500-H+ B	CRL
Total Dissolved Solids	604	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	0.541	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Barium	96.8	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Chromium	0.822	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Molybdenum	7.46	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Selenium	4.53	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:19	EPA 200.8	CRL

Total Metals by ICP

Boron	1.21	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:35	EPA 200.7	HRD
Calcium	86.4	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:34	EPA 200.7	HRD
Potassium	5.60	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:34	EPA 200.7	HRD
Lithium	0.0182	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:34	EPA 200.7	HRD
Magnesium	42.9	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:34	EPA 200.7	HRD
Sodium	64.3	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:34	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W514A

MDJ0313-11 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:45	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W514B

MDJ0313-12 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	11.0	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 21:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 21:19	EPA 300.0	CRL
Sulfate	6.83	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 21:19	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	700	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:47	SM 2320B	CRL
pH	7.82		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:47	SM 4500-H+ B	CRL
Total Dissolved Solids	674	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.61	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Barium	214	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Molybdenum	1.48	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:23	EPA 200.8	CRL

Total Metals by ICP

Boron	0.116	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:40	EPA 200.7	HRD
Calcium	133	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:39	EPA 200.7	HRD
Potassium	1.51	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:39	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:39	EPA 200.7	HRD
Magnesium	83.7	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:39	EPA 200.7	HRD
Sodium	10.5	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:39	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W514B

MDJ0313-12 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:46	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W506A

MDJ0313-13 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	36.3	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 22:00	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 22:00	EPA 300.0	CRL
Sulfate	858	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 22:00	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	226	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:53	SM 2320B	CRL
pH	6.96		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:53	SM 4500-H+ B	CRL
Total Dissolved Solids	1690	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.42	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Barium	20.4	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Cadmium	3.92	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Cobalt	10.9	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Molybdenum	18.7	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Selenium	0.564	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL
Thallium	0.982	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:34	EPA 200.8	CRL

Total Metals by ICP

Boron	1.78	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:56	EPA 200.7	HRD
Calcium	342	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:54	EPA 200.7	HRD
Potassium	7.78	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:54	EPA 200.7	HRD
Lithium	0.0553	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:54	EPA 200.7	HRD
Magnesium	41.5	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:55	EPA 200.7	HRD
Sodium	42.6	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:54	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W506A

MDJ0313-13 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:48	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Duplicate

MDJ0313-14 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	35.7	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 22:41	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 22:41	EPA 300.0	CRL
Sulfate	840	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 22:41	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	227	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 15:59	SM 2320B	CRL
pH	6.95		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 15:59	SM 4500-H+ B	CRL
Total Dissolved Solids	1660	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.31	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Barium	20.4	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Cadmium	3.96	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Cobalt	10.6	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Molybdenum	19.0	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Selenium	0.555	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL
Thallium	1.02	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:38	EPA 200.8	CRL

Total Metals by ICP

Boron	1.77	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:00	EPA 200.7	HRD
Calcium	343	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:59	EPA 200.7	HRD
Potassium	7.94	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:59	EPA 200.7	HRD
Lithium	0.0527	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:59	EPA 200.7	HRD
Magnesium	41.0	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:00	EPA 200.7	HRD
Sodium	42.8	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 13:59	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Duplicate

MDJ0313-14 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:53	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W603A

MDJ0313-15 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	97.6	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:02	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:02	EPA 300.0	CRL
Sulfate	358	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:02	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	51.0	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 16:04	SM 2320B	CRL
pH	9.00		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 16:04	SM 4500-H+ B	CRL
Total Dissolved Solids	796	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.72	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Barium	64.7	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Molybdenum	244	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Antimony	1.94	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Selenium	14.9	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:42	EPA 200.8	CRL

Total Metals by ICP

Boron	7.67	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:06	EPA 200.7	HRD
Calcium	76.2	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:04	EPA 200.7	HRD
Potassium	18.7	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:04	EPA 200.7	HRD
Lithium	0.134	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:04	EPA 200.7	HRD
Magnesium	10.4	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:05	EPA 200.7	HRD
Sodium	140	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:04	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W603A

MDJ0313-15 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:55	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W604A

MDJ0313-16 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	93.0	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:22	EPA 300.0	CRL
Sulfate	362	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:22	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	61.0	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 16:10	SM 2320B	CRL
pH	8.74		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 16:10	SM 4500-H+ B	CRL
Total Dissolved Solids	782	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.60	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Barium	72.1	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Chromium	2.13	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Molybdenum	152	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Antimony	2.00	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Selenium	15.7	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:46	EPA 200.8	CRL

Total Metals by ICP

Boron	5.21	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:11	EPA 200.7	HRD
Calcium	90.0	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:10	EPA 200.7	HRD
Potassium	8.60	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:10	EPA 200.7	HRD
Lithium	0.0527	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:10	EPA 200.7	HRD
Magnesium	12.5	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:10	EPA 200.7	HRD
Sodium	125	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:10	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W604A

MDJ0313-16 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:57	EPA 245.1, 7470A	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		11/09/2018 08:33
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

W605A

MDJ0313-17 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	41.5	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:42	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:42	EPA 300.0	CRL
Sulfate	190	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/29/18 23:42	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	126	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 16:17	SM 2320B	CRL
pH	8.12		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 16:17	SM 4500-H+ B	CRL
Total Dissolved Solids	474	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.76	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Barium	56.8	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Molybdenum	77.1	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:50	EPA 200.8	CRL

Total Metals by ICP

Boron	2.55	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:16	EPA 200.7	HRD
Calcium	67.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:15	EPA 200.7	HRD
Potassium	5.26	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:15	EPA 200.7	HRD
Lithium	0.0162	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:15	EPA 200.7	HRD
Magnesium	16.3	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:15	EPA 200.7	HRD
Sodium	59.1	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:15	EPA 200.7	HRD



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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W605A

MDJ0313-17 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 15:58	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W601A

MDJ0313-18 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	143	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/30/18 0:23	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/30/18 0:23	EPA 300.0	CRL
Sulfate	1220	10.0	mg/L		10	BDJ0730	10/29/18 11:38	10/30/18 0:03	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	106	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 16:24	SM 2320B	CRL
pH	10.4		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 16:24	SM 4500-H+ B	CRL
Total Dissolved Solids	2190	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	9.30	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Barium	78.9	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Molybdenum	220	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Antimony	0.940	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Selenium	30.6	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:54	EPA 200.8	CRL

Total Metals by ICP

Boron	9.66	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:21	EPA 200.7	HRD
Calcium	326	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:20	EPA 200.7	HRD
Potassium	49.3	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:20	EPA 200.7	HRD
Lithium	0.356	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:20	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:20	EPA 200.7	HRD
Sodium	281	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:20	EPA 200.7	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W601A

MDJ0313-18 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 16:00	EPA 245.1, 7470A	HRD



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1518 Chestnut Ave N
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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W600A

MDJ0313-19 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	28.4	1.00	mg/L		1	BDJ0730	10/29/18 11:38	10/30/18 1:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDJ0730	10/29/18 11:38	10/30/18 1:04	EPA 300.0	CRL
Sulfate	1340	10.0	mg/L		10	BDJ0730	10/29/18 11:38	10/30/18 0:44	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	85.4	10.0	mg/L		1	BDJ0660	10/25/18 13:03	10/25/18 16:29	SM 2320B	CRL
pH	6.36		pH Units	M_TTT	1	BDJ0660	10/25/18 13:03	10/25/18 16:29	SM 4500-H+ B	CRL
Total Dissolved Solids	2130	20.0	mg/L		1	BDJ0711	10/29/18 8:58	10/29/18 8:58	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	22.7	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Barium	20.0	1.00	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Beryllium	0.543	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Cadmium	0.347	0.100	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Cobalt	40.0	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Chromium	2.36	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Molybdenum	2.01	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL
Thallium	0.670	0.500	ug/L		1	BDJ0659	10/25/18 12:52	10/30/18 9:58	EPA 200.8	CRL

Total Metals by ICP

Boron	1.29	0.0500	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:27	EPA 200.7	HRD
Calcium	440	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:25	EPA 200.7	HRD
Potassium	4.99	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:25	EPA 200.7	HRD
Lithium	0.0250	0.0150	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:25	EPA 200.7	HRD
Magnesium	23.6	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:25	EPA 200.7	HRD
Sodium	39.6	1.25	mg/L		1	BDJ0658	10/25/18 12:50	10/30/18 14:25	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

W600A

MDJ0313-19 (Water) - Chain of Custody Number: 1845916/1845915

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0160	11/7/18 8:55	11/7/18 16:02	EPA 245.1, 7470A	HRD



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0730 - Wet Prep

Blank (BDJ0730-BLK1)				Prepared & Analyzed: 10/29/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BDJ0730-BLK2)				Prepared & Analyzed: 10/29/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDJ0730-BS1)				Prepared & Analyzed: 10/29/2018						
Chloride	24.6	1.00	mg/L	25.000		98.3	90-110			
Fluoride	2.67	0.750	mg/L	2.5000		107	90-110			
Sulfate	47.6	1.00	mg/L	48.000		99.1	90-110			

LCS (BDJ0730-BS2)				Prepared & Analyzed: 10/29/2018						
Chloride	24.9	1.00	mg/L	25.000		99.5	90-110			
Fluoride	2.72	0.750	mg/L	2.5000		109	90-110			
Sulfate	48.2	1.00	mg/L	48.000		100	90-110			

LCS (BDJ0730-BS3)				Prepared: 10/29/2018 Analyzed: 10/30/2018						
Chloride	25.0	1.00	mg/L	25.000		100	90-110			
Fluoride	2.61	0.750	mg/L	2.5000		104	90-110			
Sulfate	48.2	1.00	mg/L	48.000		100	90-110			

Duplicate (BDJ0730-DUP1)				Source: MDJ0313-11		Prepared & Analyzed: 10/29/2018				
Chloride	35.9	1.00	mg/L			36.6		1.84	20	
Fluoride	0.190	0.750	mg/L			0.208		9.05	20	
Sulfate	88.1	1.00	mg/L			89.6		1.68	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0730 - Wet Prep

Duplicate (BDJ0730-DUP2)	Source: MDJ0313-12			Prepared & Analyzed: 10/29/2018						
Chloride	11.0	1.00	mg/L		11.0			0.0727	20	
Fluoride	0.192	0.750	mg/L		0.193			0.519	20	
Sulfate	6.85	1.00	mg/L		6.83			0.322	20	

Matrix Spike (BDJ0730-MS1)	Source: MDJ0313-11			Prepared & Analyzed: 10/29/2018						
Chloride	66.3	1.25	mg/L	31.250	36.6	94.9	80-120			
Fluoride	3.05	0.938	mg/L	3.1250	0.208	91.1	80-120			
Sulfate	146	1.25	mg/L	60.000	89.6	94.4	80-120			

Matrix Spike (BDJ0730-MS2)	Source: MDJ0313-12			Prepared & Analyzed: 10/29/2018						
Chloride	41.9	1.25	mg/L	31.250	11.0	99.0	80-120			
Fluoride	3.46	0.938	mg/L	3.1250	0.193	105	80-120			
Sulfate	66.7	1.25	mg/L	60.000	6.83	99.8	80-120			

Matrix Spike Dup (BDJ0730-MSD1)	Source: MDJ0313-11			Prepared & Analyzed: 10/29/2018						
Chloride	66.6	1.25	mg/L	31.250	36.6	96.2	80-120	0.574	20	
Fluoride	3.53	0.938	mg/L	3.1250	0.208	106	80-120	14.4	20	
Sulfate	147	1.25	mg/L	60.000	89.6	95.7	80-120	0.517	20	

Matrix Spike Dup (BDJ0730-MSD2)	Source: MDJ0313-12			Prepared & Analyzed: 10/29/2018						
Chloride	42.2	1.25	mg/L	31.250	11.0	99.7	80-120	0.535	20	
Fluoride	3.45	0.938	mg/L	3.1250	0.193	104	80-120	0.253	20	
Sulfate	67.0	1.25	mg/L	60.000	6.83	100	80-120	0.443	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0660 - Wet Prep

LCS (BDJ0660-BS1)			Prepared & Analyzed: 10/25/2018							
Alkalinity, Total	101		mg/L	100.00		101	90-110			
pH	7.08		pH Units	7.0000		101	90-110			
LCS (BDJ0660-BS2)			Prepared & Analyzed: 10/25/2018							
Alkalinity, Total	101		mg/L	100.00		101	90-110			
pH	7.07		pH Units	7.0000		101	90-110			
Duplicate (BDJ0660-DUP1)			Source: MDJ0313-02		Prepared & Analyzed: 10/25/2018					
Alkalinity, Total	1120	10.0	mg/L		1120			0.608	20	
pH	7.55		pH Units		7.58			0.397	20	
Duplicate (BDJ0660-DUP2)			Source: MDJ0313-11		Prepared & Analyzed: 10/25/2018					
pH	7.57		pH Units		7.58			0.132	20	
Alkalinity, Total	418	10.0	mg/L		414			0.870	20	

Batch BDJ0689 - Wet Prep

Blank (BDJ0689-BLK1)			Prepared & Analyzed: 10/26/2018							
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BDJ0689-DUP1)			Source: MDJ0313-02		Prepared & Analyzed: 10/26/2018					
Total Dissolved Solids	1260	20.0	mg/L		1260			0.318	20	

Batch BDJ0711 - Wet Prep

Blank (BDJ0711-BLK1)			Prepared & Analyzed: 10/29/2018							
Total Dissolved Solids	<20.0	20.0	mg/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0711 - Wet Prep

Duplicate (BDJ0711-DUP1)	Source: MDJ0313-11		Prepared & Analyzed: 10/29/2018							
Total Dissolved Solids	588	20.0	mg/L		604			2.68	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		11/09/2018 08:33
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0659 - EPA 200.2, EPA 3005

Blank (BDJ0659-BLK1)

Prepared: 10/25/2018 Analyzed: 10/30/2018

Chromium	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Antimony	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Barium	<1.00	1.00	ug/L

LCS (BDJ0659-BS1)

Prepared: 10/25/2018 Analyzed: 10/30/2018

Molybdenum	93.6	0.500	ug/L	100.00	93.6	85-115
Cadmium	95.7	0.100	ug/L	100.00	95.7	85-115
Lead	97.2	0.500	ug/L	100.00	97.2	85-115
Beryllium	100	0.500	ug/L	100.00	100	85-115
Barium	105	1.00	ug/L	100.00	105	85-115
Arsenic	94.5	0.500	ug/L	100.00	94.5	85-115
Selenium	101	0.500	ug/L	100.00	101	85-115
Chromium	101	0.500	ug/L	100.00	101	85-115
Thallium	97.5	0.500	ug/L	100.00	97.5	85-115
Antimony	97.9	0.500	ug/L	100.00	97.9	85-115
Cobalt	96.1	0.500	ug/L	100.00	96.1	85-115

Duplicate (BDJ0659-DUP1)

Source: MDJ0313-04

Prepared: 10/25/2018 Analyzed: 10/30/2018

Barium	45.8	1.00	ug/L	48.7	6.00	20	
Selenium	0.350	0.500	ug/L	0.347	0.637	20	
Thallium	0.0660	0.500	ug/L	<0.500		20	
Antimony	0.211	0.500	ug/L	0.151	33.4	20	M_D-RL
Arsenic	1.92	0.500	ug/L	1.96	2.39	20	
Beryllium	0.109	0.500	ug/L	<0.500		20	
Cadmium	0.0486	0.100	ug/L	0.0452	7.21	20	
Chromium	0.258	0.500	ug/L	0.278	7.44	20	
Lead	0.0487	0.500	ug/L	0.0180	92.3	20	M_D-RL
Molybdenum	65.6	0.500	ug/L	67.1	2.25	20	
Cobalt	0.220	0.500	ug/L	0.208	5.72	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		11/09/2018 08:33
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0659 - EPA 200.2, EPA 3005

Duplicate (BDJ0659-DUP2)	Source: MDJ0313-05			Prepared: 10/25/2018 Analyzed: 10/30/2018						
Selenium	0.241	0.500	ug/L		0.245			1.44	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Arsenic	0.825	0.500	ug/L		0.764			7.70	20	
Beryllium	0.0103	0.500	ug/L		<0.500				20	
Cadmium	0.0380	0.100	ug/L		0.0550			36.5	20	M_D-RL
Cobalt	0.273	0.500	ug/L		0.277			1.40	20	
Lead	0.0440	0.500	ug/L		0.0380			14.5	20	
Chromium	0.615	0.500	ug/L		0.607			1.30	20	
Molybdenum	23.2	0.500	ug/L		24.0			3.48	20	
Antimony	0.152	0.500	ug/L		0.130			15.7	20	
Barium	141	1.00	ug/L		135			3.90	20	

Matrix Spike (BDJ0659-MS1)	Source: MDJ0313-04			Prepared: 10/25/2018 Analyzed: 10/30/2018						
Barium	154	1.00	ug/L	100.00	48.7	105	70-130			
Antimony	97.2	0.500	ug/L	100.00	0.151	97.0	70-130			
Beryllium	95.9	0.500	ug/L	100.00	<0.500	95.9	70-130			
Selenium	98.9	0.500	ug/L	100.00	0.347	98.6	70-130			
Cobalt	102	0.500	ug/L	100.00	0.208	102	70-130			
Cadmium	94.1	0.100	ug/L	100.00	0.0452	94.1	70-130			
Molybdenum	161	0.500	ug/L	100.00	67.1	94.3	70-130			
Lead	85.4	0.500	ug/L	100.00	0.0180	85.3	70-130			
Chromium	105	0.500	ug/L	100.00	0.278	105	70-130			
Thallium	88.2	0.500	ug/L	100.00	<0.500	88.2	70-130			
Arsenic	101	0.500	ug/L	100.00	1.96	99.2	70-130			

Matrix Spike (BDJ0659-MS2)	Source: MDJ0313-05			Prepared: 10/25/2018 Analyzed: 10/30/2018						
Barium	240	1.00	ug/L	100.00	135	105	70-130			
Arsenic	105	0.500	ug/L	100.00	0.764	104	70-130			
Thallium	91.0	0.500	ug/L	100.00	<0.500	91.0	70-130			
Chromium	107	0.500	ug/L	100.00	0.607	106	70-130			
Selenium	102	0.500	ug/L	100.00	0.245	102	70-130			
Cobalt	102	0.500	ug/L	100.00	0.277	102	70-130			
Antimony	95.1	0.500	ug/L	100.00	0.130	95.0	70-130			
Beryllium	89.9	0.500	ug/L	100.00	<0.500	89.9	70-130			
Molybdenum	124	0.500	ug/L	100.00	24.0	100	70-130			
Lead	87.9	0.500	ug/L	100.00	0.0380	87.8	70-130			
Cadmium	93.7	0.100	ug/L	100.00	0.0550	93.7	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0659 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDJ0659-MSD1)		Source: MDJ0313-04		Prepared: 10/25/2018 Analyzed: 10/30/2018						
Cadmium	95.4	0.100	ug/L	100.00	0.0452	95.3	70-130	1.33	20	
Chromium	104	0.500	ug/L	100.00	0.278	104	70-130	0.764	20	
Thallium	86.3	0.500	ug/L	100.00	<0.500	86.3	70-130	2.18	20	
Barium	150	1.00	ug/L	100.00	48.7	101	70-130	2.90	20	
Cobalt	102	0.500	ug/L	100.00	0.208	102	70-130	0.443	20	
Selenium	99.4	0.500	ug/L	100.00	0.347	99.1	70-130	0.528	20	
Molybdenum	171	0.500	ug/L	100.00	67.1	103	70-130	5.48	20	
Arsenic	103	0.500	ug/L	100.00	1.96	101	70-130	2.03	20	
Antimony	97.9	0.500	ug/L	100.00	0.151	97.8	70-130	0.797	20	
Lead	83.9	0.500	ug/L	100.00	0.0180	83.9	70-130	1.74	20	
Beryllium	94.8	0.500	ug/L	100.00	<0.500	94.8	70-130	1.09	20	

Matrix Spike Dup (BDJ0659-MSD2)		Source: MDJ0313-05		Prepared: 10/25/2018 Analyzed: 10/30/2018						
Chromium	105	0.500	ug/L	100.00	0.607	105	70-130	1.33	20	
Barium	239	1.00	ug/L	100.00	135	104	70-130	0.236	20	
Antimony	93.2	0.500	ug/L	100.00	0.130	93.1	70-130	2.03	20	
Thallium	86.8	0.500	ug/L	100.00	<0.500	86.8	70-130	4.71	20	
Selenium	98.5	0.500	ug/L	100.00	0.245	98.3	70-130	3.76	20	
Cadmium	93.7	0.100	ug/L	100.00	0.0550	93.7	70-130	0.0170	20	
Cobalt	102	0.500	ug/L	100.00	0.277	102	70-130	0.0432	20	
Beryllium	92.6	0.500	ug/L	100.00	<0.500	92.6	70-130	2.90	20	
Lead	84.1	0.500	ug/L	100.00	0.0380	84.1	70-130	4.35	20	
Molybdenum	124	0.500	ug/L	100.00	24.0	100	70-130	0.184	20	
Arsenic	103	0.500	ug/L	100.00	0.764	102	70-130	2.03	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0658 - EPA 200.2, EPA 3005

Blank (BDJ0658-BLK1)

Prepared: 10/25/2018 Analyzed: 10/30/2018

Sodium	<1.25	1.25	mg/L
Calcium	<1.25	1.25	mg/L
Magnesium	<1.25	1.25	mg/L
Boron	<0.0500	0.0500	mg/L
Potassium	<1.25	1.25	mg/L
Lithium	<0.0150	0.0150	mg/L

LCS (BDJ0658-BS1)

Prepared: 10/25/2018 Analyzed: 10/30/2018

Calcium	102	1.25	mg/L	100.00	102	85-115
Boron	0.991	0.0500	mg/L	1.0000	99.1	85-115
Sodium	102	1.25	mg/L	100.00	102	85-115
Lithium	0.996	0.0150	mg/L	1.0000	99.6	85-115
Magnesium	103	1.25	mg/L	100.00	103	85-115
Potassium	100	1.25	mg/L	100.00	100	85-115

Duplicate (BDJ0658-DUP1)

Source: MDJ0313-02

Prepared: 10/25/2018 Analyzed: 10/30/2018

Magnesium	84.3	1.25	mg/L	84.1	0.270	20	
Calcium	304	1.25	mg/L	305	0.414	20	
Sodium	77.4	1.25	mg/L	77.8	0.455	20	
Boron	6.48	0.0500	mg/L	6.52	0.675	20	
Lithium	0.0127	0.0150	mg/L	0.00883	36.1	20	M_D-RL
Potassium	2.95	1.25	mg/L	2.89	2.01	20	

Duplicate (BDJ0658-DUP2)

Source: MDJ0313-03

Prepared: 10/25/2018 Analyzed: 10/30/2018

Magnesium	34.5	1.25	mg/L	34.1	1.07	20	
Calcium	144	1.25	mg/L	142	0.932	20	
Boron	6.98	0.0500	mg/L	6.89	1.38	20	
Potassium	12.9	1.25	mg/L	12.8	1.11	20	
Lithium	0.0442	0.0150	mg/L	0.0454	2.77	20	
Sodium	158	1.25	mg/L	157	0.875	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDJ0658 - EPA 200.2, EPA 3005

Matrix Spike (BDJ0658-MS1)		Source: MDJ0313-02		Prepared: 10/25/2018 Analyzed: 10/30/2018						
Boron	7.50	0.0500	mg/L	1.0000	6.52	98.2	70-130			
Calcium	414	1.25	mg/L	100.00	305	109	70-130			
Potassium	105	1.25	mg/L	100.00	2.89	103	70-130			
Lithium	1.03	0.0150	mg/L	1.0000	0.00883	102	70-130			
Magnesium	191	1.25	mg/L	100.00	84.1	107	70-130			
Sodium	184	1.25	mg/L	100.00	77.8	106	70-130			

Matrix Spike (BDJ0658-MS2)		Source: MDJ0313-03		Prepared: 10/25/2018 Analyzed: 10/30/2018						
Boron	8.18	0.0500	mg/L	1.0000	6.89	129	70-130			
Calcium	252	1.25	mg/L	100.00	142	110	70-130			
Potassium	115	1.25	mg/L	100.00	12.8	102	70-130			
Magnesium	139	1.25	mg/L	100.00	34.1	105	70-130			
Lithium	1.05	0.0150	mg/L	1.0000	0.0454	101	70-130			
Sodium	268	1.25	mg/L	100.00	157	111	70-130			

Matrix Spike Dup (BDJ0658-MSD1)		Source: MDJ0313-02		Prepared: 10/25/2018 Analyzed: 10/30/2018						
Lithium	1.04	0.0150	mg/L	1.0000	0.00883	103	70-130	0.270	20	
Sodium	185	1.25	mg/L	100.00	77.8	107	70-130	0.187	20	
Magnesium	192	1.25	mg/L	100.00	84.1	108	70-130	0.756	20	
Potassium	106	1.25	mg/L	100.00	2.89	103	70-130	0.379	20	
Calcium	415	1.25	mg/L	100.00	305	110	70-130	0.222	20	
Boron	7.61	0.0500	mg/L	1.0000	6.52	109	70-130	1.45	20	

Matrix Spike Dup (BDJ0658-MSD2)		Source: MDJ0313-03		Prepared: 10/25/2018 Analyzed: 10/30/2018						
Boron	8.35	0.0500	mg/L	1.0000	6.89	146	70-130	2.07	20	M_MS
Calcium	257	1.25	mg/L	100.00	142	114	70-130	1.76	20	
Lithium	1.07	0.0150	mg/L	1.0000	0.0454	102	70-130	1.46	20	
Magnesium	142	1.25	mg/L	100.00	34.1	108	70-130	2.34	20	
Sodium	272	1.25	mg/L	100.00	157	115	70-130	1.69	20	
Potassium	117	1.25	mg/L	100.00	12.8	104	70-130	1.31	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0160 - EPA 245.1, EPA 7470A

Blank (BDK0160-BLK1)				Prepared & Analyzed: 11/07/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDK0160-BS1)				Prepared & Analyzed: 11/07/2018						
Mercury	2.69	0.200	ug/L	3.0000		89.8	85-115			
Duplicate (BDK0160-DUP1)				Source: MDJ0313-06		Prepared & Analyzed: 11/07/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BDK0160-DUP2)				Source: MDJ0313-07		Prepared & Analyzed: 11/07/2018				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BDK0160-MS1)				Source: MDJ0313-06		Prepared & Analyzed: 11/07/2018				
Mercury	2.58	0.200	ug/L	3.0000	<0.200	86.0	70-130			
Matrix Spike (BDK0160-MS2)				Source: MDJ0313-07		Prepared & Analyzed: 11/07/2018				
Mercury	2.54	0.200	ug/L	3.0000	<0.200	84.8	70-130			
Matrix Spike Dup (BDK0160-MSD1)				Source: MDJ0313-06		Prepared & Analyzed: 11/07/2018				
Mercury	2.48	0.200	ug/L	3.0000	<0.200	82.6	70-130	4.02	20	
Matrix Spike Dup (BDK0160-MSD2)				Source: MDJ0313-07		Prepared & Analyzed: 11/07/2018				
Mercury	2.59	0.200	ug/L	3.0000	<0.200	86.4	70-130	1.90	20	



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/09/2018 08:33

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: **1** of **2**
1845916

Section A

Required Client Information:

Company: **Xcel Energy**
Address: **Environmental Services**
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: **Ted Ronning, Pk Rsvold (Xcel)**
Copy To: **Jenni Brekken, Dana Pasi (Bart)**
Purchase Order No.:
Project Name: **Black Dog CCR Baseline**
Project Number: **Oct. 2018**

Section C

Invoice Information:

Attention: **Steve Davis**
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Drinking Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	General metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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IR Gun M400841
pH strip M400402

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

David Anderson

David Anderson

DATE Signed

(MM/DD/YY):

10/24/18

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2
1845915

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
Email To:
Phone:
Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Todd Renning, Rick Rasvold (Xcel)
Copy To: Jenni Brekken, Dana Pasi (Xcel)
Purchase Order No.:
Project Name: Black Dog CCR Baseline
Project Number: OCT. 2018

Section C

Invoice Information:

Attention: Steve Davis
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB, C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓	Y/N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
(1) total metals (unfiltered)	David Anderson Pace	10/25/18	1045	David Anderson	10/25/18	1055	2,20

IR Gun 41400341
pH strip MDOX102

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

David Anderson

David Anderson

DATE Signed (MM/DD/YY):

10/24/18

Temp in °C
Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

December 07, 2018

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

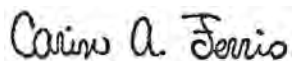
RE: Project: 18-01389, Xcel Energy-BlackDog
Pace Project No.: 30271771

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 15, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30271771001	W 601 A	Water	11/12/18 14:10	11/15/18 10:15
30271771002	W 600 A	Water	11/12/18 15:00	11/15/18 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30271771001	W 601 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30271771002	W 600 A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: December 07, 2018

General Information:

2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: December 07, 2018

General Information:

2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: December 07, 2018

General Information:

2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

Sample: W 601 A		Lab ID: 30271771001	Collected: 11/12/18 14:10	Received: 11/15/18 10:15	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.326 ± 0.453 (0.766) C:NA T:91%		pCi/L	12/06/18 20:58	13982-63-3	
Radium-228	EPA 904.0	0.225 ± 0.371 (0.808) C:82% T:91%		pCi/L	12/05/18 16:22	15262-20-1	
Total Radium	Total Radium Calculation	0.551 ± 0.824 (1.57)		pCi/L	12/07/18 12:59	7440-14-4	

Sample: W 600 A		Lab ID: 30271771002	Collected: 11/12/18 15:00	Received: 11/15/18 10:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Sample collection dates and times were not present on the sample containers.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.462 ± 0.484 (0.757) C:NA T:92%	pCi/L	12/06/18 20:58	13982-63-3	
Radium-228	EPA 904.0	0.592 ± 0.428 (0.837) C:82% T:80%	pCi/L	12/05/18 16:22	15262-20-1	
Total Radium	Total Radium Calculation	1.05 ± 0.912 (1.59)	pCi/L	12/07/18 12:59	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

QC Batch:	321151	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30271771001, 30271771002		

METHOD BLANK:	1566303	Matrix:	Water
Associated Lab Samples:	30271771001, 30271771002		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.710 ± 0.426 (0.787) C:77% T:82%	pCi/L	12/05/18 16:22	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

QC Batch:	321138	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30271771001, 30271771002		

METHOD BLANK:	1566284	Matrix:	Water
Associated Lab Samples:	30271771001, 30271771002		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.119 ± 0.271 (0.437) C:NA T:88%	pCi/L	12/06/18 20:58	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 18-01389, Xcel Energy-BlackDog

Pace Project No.: 30271771

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name:

Xcel Energy

Project #

30271771

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 448 677901541

Label ET
LIMS Login ET

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp °C Correction Factor: °C Final Temp: °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	/			1002981	ET 11-15-18
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:		/			
-Includes date/time/ID		/			
Matrix: WT		/			
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):	/				
Rush Turn Around Time Requested:	/				
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered	/				
Hex Cr Aqueous Compliance/NPDES sample field filtered	/				
Organic Samples checked for dechlorination:	/				
Filtered volume received for Dissolved tests	/				
All containers have been checked for preservation.	/				
All containers needing preservation are found to be in compliance with EPA recommendation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed ET	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	/				
Trip Blank Present:	/				
Trip Blank Custody Seals Present	/				
Rad Aqueous Samples Screened > 0.5 mrem/hr	/			Initial when completed ET	Date: 11-15-18

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Supervisor (612) 630-4506

27 November 2018

Tedd Ronning

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 11/14/2018 14:30. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



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Minneapolis, MN 55043
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WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
W601A		MDK0180-01	Water	11/12/2018 14:10	11/14/2018 14:30
W600A		MDK0180-02	Water	11/12/2018 15:00	11/14/2018 14:30



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

W601A

MDK0180-01 (Water) - Chain of Custody Number: 1845959

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	126	1.00	mg/L		1	BDK0443	11/19/18 11:52	11/19/18 15:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDK0443	11/19/18 11:52	11/19/18 15:39	EPA 300.0	CRL
Sulfate	1180	10.0	mg/L		10	BDK0443	11/19/18 11:52	11/19/18 15:19	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	114	10.0	mg/L		1	BDK0367	11/15/18 10:30	11/15/18 14:48	SM 2320B	CRL
pH	10.3		pH Units	M_TTT	1	BDK0367	11/15/18 10:30	11/15/18 14:48	SM 4500-H+ B	CRL
Total Dissolved Solids	2180	20.0	mg/L		1	BDK0383	11/16/18 8:31	11/16/18 8:31	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	11.8	5.00	ug/L		10	BDK0437	11/19/18 9:27	11/20/18 8:24	EPA 200.8	CRL
Barium	74.2	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L	M_DIL	10	BDK0437	11/19/18 9:27	11/20/18 8:24	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L	M_DIL	10	BDK0437	11/19/18 9:27	11/20/18 8:24	EPA 200.8	CRL
Molybdenum	255	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Antimony	1.16	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Selenium	70.9	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:51	EPA 200.8	CRL

Total Metals by ICP

Boron	15.7	0.0500	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:00	EPA 200.7	HRD
Calcium	385	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 13:58	EPA 200.7	HRD
Potassium	51.3	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 13:58	EPA 200.7	HRD
Lithium	0.349	0.0150	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 13:58	EPA 200.7	HRD
Magnesium	1.59	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 13:59	EPA 200.7	HRD
Sodium	272	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 13:58	EPA 200.7	HRD



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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

W601A

MDK0180-01 (Water) - Chain of Custody Number: 1845959

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0547	11/26/18 9:18	11/26/18 15:10	EPA 245.1, 7470A	HRD



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Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

W600A

MDK0180-02 (Water) - Chain of Custody Number: 1845959

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	22.8	1.00	mg/L		1	BDK0443	11/19/18 11:52	11/19/18 16:20	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BDK0443	11/19/18 11:52	11/19/18 16:20	EPA 300.0	CRL
Sulfate	1610	10.0	mg/L		10	BDK0443	11/19/18 11:52	11/19/18 16:00	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	90.7	10.0	mg/L		1	BDK0367	11/15/18 10:30	11/15/18 14:54	SM 2320B	CRL
pH	6.53		pH Units	M_TTT	1	BDK0367	11/15/18 10:30	11/15/18 14:54	SM 4500-H+ B	CRL
Total Dissolved Solids	2590	20.0	mg/L		1	BDK0383	11/16/18 8:31	11/16/18 8:31	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	37.4	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Barium	24.6	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Cadmium	0.515	0.100	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Cobalt	34.6	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Chromium	3.21	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Molybdenum	29.9	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL
Thallium	0.725	0.500	ug/L		1	BDK0437	11/19/18 9:27	11/20/18 7:55	EPA 200.8	CRL

Total Metals by ICP

Boron	8.18	0.0500	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:05	EPA 200.7	HRD
Calcium	575	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:03	EPA 200.7	HRD
Potassium	13.0	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:04	EPA 200.7	HRD
Lithium	0.0990	0.0150	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:04	EPA 200.7	HRD
Magnesium	47.6	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:04	EPA 200.7	HRD
Sodium	56.4	1.25	mg/L		1	BDK0436	11/19/18 9:24	11/26/18 14:03	EPA 200.7	HRD



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Certification # MN-027-053-197
WI-999071150

Christine Keefe, Supervisor (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

W600A

MDK0180-02 (Water) - Chain of Custody Number: 1845959

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BDK0547	11/26/18 9:18	11/26/18 15:12	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0443 - Wet Prep

Blank (BDK0443-BLK1)				Prepared & Analyzed: 11/19/2018						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BDK0443-BS1)				Prepared & Analyzed: 11/19/2018						
Chloride	24.2	1.00	mg/L	25.000		96.6	90-110			
Fluoride	2.43	0.750	mg/L	2.5000		97.2	90-110			
Sulfate	46.4	1.00	mg/L	48.000		96.7	90-110			

LCS (BDK0443-BS2)				Prepared & Analyzed: 11/19/2018						
Chloride	24.3	1.00	mg/L	25.000		97.4	90-110			
Fluoride	2.60	0.750	mg/L	2.5000		104	90-110			
Sulfate	46.6	1.00	mg/L	48.000		97.1	90-110			

Duplicate (BDK0443-DUP1)				Source: MDK0211-05		Prepared & Analyzed: 11/19/2018				
Chloride	8.37	1.00	mg/L		8.51			1.66	20	
Fluoride	<0.750	0.750	mg/L		<0.750				20	
Sulfate	309	1.00	mg/L		312			0.844	20	

Matrix Spike (BDK0443-MS1)				Source: MDK0211-05		Prepared & Analyzed: 11/19/2018				
Chloride	38.2	1.25	mg/L	31.250	8.51	94.9	80-120			
Fluoride	2.82	0.938	mg/L	3.1250	<0.938	90.2	80-120			
Sulfate	366	1.25	mg/L	60.000	312	89.7	80-120			

Matrix Spike Dup (BDK0443-MSD1)				Source: MDK0211-05		Prepared & Analyzed: 11/19/2018				
Chloride	38.2	1.25	mg/L	31.250	8.51	94.9	80-120	0.0197	20	
Fluoride	3.07	0.938	mg/L	3.1250	<0.938	98.3	80-120	8.57	20	
Sulfate	366	1.25	mg/L	60.000	312	90.0	80-120	0.0458	20	

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0367 - Wet Prep

LCS (BDK0367-BS1)		Prepared & Analyzed: 11/15/2018								
pH	7.06		pH Units	4.0000		177	90-110			
Alkalinity, Total	109		mg/L	100.00		109	90-110			

LCS (BDK0367-BS2)		Prepared & Analyzed: 11/15/2018								
pH	7.06		pH Units	4.0000		177	90-110			
Alkalinity, Total	106		mg/L	100.00		106	90-110			

Duplicate (BDK0367-DUP1)		Source: MDK0179-02		Prepared & Analyzed: 11/15/2018						
pH	7.42		pH Units		7.44			0.269	20	
Alkalinity, Total	429	10.0	mg/L		439			2.23	20	

Duplicate (BDK0367-DUP2)		Source: MDK0179-11		Prepared & Analyzed: 11/15/2018						
Alkalinity, Total	408	10.0	mg/L		408			0.189	20	
pH	7.46		pH Units		7.48			0.268	20	

Batch BDK0383 - Wet Prep

Blank (BDK0383-BLK1)		Prepared & Analyzed: 11/16/2018								
Total Dissolved Solids	<20.0	20.0	mg/L							

Duplicate (BDK0383-DUP1)		Source: MDK0179-02		Prepared & Analyzed: 11/16/2018						
Total Dissolved Solids	754	20.0	mg/L		758			0.529	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0437 - EPA 200.2, EPA 3005

Blank (BDK0437-BLK1)

Prepared: 11/19/2018 Analyzed: 11/20/2018

Barium	<0.500	0.500	ug/L
Cobalt	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Lead	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L
Selenium	<0.500	0.500	ug/L

LCS (BDK0437-BS1)

Prepared: 11/19/2018 Analyzed: 11/20/2018

Lead	93.1	0.500	ug/L	100.00	93.1	85-115
Cadmium	102	0.100	ug/L	100.00	102	85-115
Beryllium	96.2	0.500	ug/L	100.00	96.2	85-115
Chromium	97.9	0.500	ug/L	100.00	97.9	85-115
Cobalt	97.5	0.500	ug/L	100.00	97.5	85-115
Barium	99.8	0.500	ug/L	100.00	99.8	85-115
Molybdenum	97.3	0.500	ug/L	100.00	97.3	85-115
Selenium	95.4	0.500	ug/L	100.00	95.4	85-115
Thallium	93.5	0.500	ug/L	100.00	93.5	85-115
Antimony	99.9	0.500	ug/L	100.00	99.9	85-115
Arsenic	97.4	0.500	ug/L	100.00	97.4	85-115

Duplicate (BDK0437-DUP1)

Source: MDK0154-01

Prepared: 11/19/2018 Analyzed: 11/20/2018

Chromium	0.952	0.500	ug/L	0.842	12.3	20	
Thallium	0.0943	0.500	ug/L	<0.500		20	
Molybdenum	0.280	0.500	ug/L	0.162	53.4	20	M_D-RL
Cadmium	<0.100	0.100	ug/L	<0.100		20	
Selenium	0.138	0.500	ug/L	0.245	55.9	20	M_D-RL
Arsenic	0.678	0.500	ug/L	0.674	0.626	20	
Lead	0.307	0.500	ug/L	0.235	26.4	20	M_D-RL
Antimony	0.103	0.500	ug/L	0.0240	125	20	M_D-RL
Beryllium	0.177	0.500	ug/L	0.0119	175	20	M_D-RL
Barium	18.0	0.500	ug/L	16.9	6.20	20	
Cobalt	0.249	0.500	ug/L	0.235	5.77	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		11/27/2018 12:41
Minneapolis MN, 55401	Project Manager: Tedd Ronning	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0437 - EPA 200.2, EPA 3005

Duplicate (BDK0437-DUP2)	Source: MDK0154-03			Prepared: 11/19/2018 Analyzed: 11/20/2018						
Cadmium	0.0230	0.100	ug/L		0.0313			30.5	20	M_D-RL
Beryllium	0.0271	0.500	ug/L		0.0219			21.3	20	M_D-RL
Cobalt	0.244	0.500	ug/L		0.246			0.896	20	
Chromium	2.00	0.500	ug/L		1.89			5.56	20	
Arsenic	1.06	0.500	ug/L		1.12			5.62	20	
Thallium	<0.500	0.500	ug/L		<0.500				20	
Antimony	0.377	0.500	ug/L		0.384			1.96	20	
Lead	12.5	0.500	ug/L		12.4			1.06	20	
Molybdenum	0.835	0.500	ug/L		0.840			0.531	20	
Selenium	0.213	0.500	ug/L		0.262			20.8	20	M_D-RL
Barium	48.2	0.500	ug/L		49.3			2.31	20	

Matrix Spike (BDK0437-MS1)	Source: MDK0154-01			Prepared: 11/19/2018 Analyzed: 11/20/2018						
Cadmium	96.5	0.100	ug/L	100.00	<0.100	96.5	70-130			
Arsenic	96.1	0.500	ug/L	100.00	0.674	95.4	70-130			
Barium	115	0.500	ug/L	100.00	16.9	98.2	70-130			
Cobalt	97.5	0.500	ug/L	100.00	0.235	97.2	70-130			
Antimony	97.9	0.500	ug/L	100.00	0.0240	97.8	70-130			
Chromium	97.0	0.500	ug/L	100.00	0.842	96.2	70-130			
Thallium	93.9	0.500	ug/L	100.00	<0.500	93.9	70-130			
Selenium	95.7	0.500	ug/L	100.00	0.245	95.5	70-130			
Molybdenum	95.3	0.500	ug/L	100.00	0.162	95.1	70-130			
Lead	92.8	0.500	ug/L	100.00	0.235	92.5	70-130			
Beryllium	97.3	0.500	ug/L	100.00	0.0119	97.3	70-130			

Matrix Spike (BDK0437-MS2)	Source: MDK0154-03			Prepared: 11/19/2018 Analyzed: 11/20/2018						
Cadmium	103	0.100	ug/L	100.00	0.0313	103	70-130			
Selenium	99.0	0.500	ug/L	100.00	0.262	98.8	70-130			
Thallium	94.0	0.500	ug/L	100.00	<0.500	94.0	70-130			
Antimony	100	0.500	ug/L	100.00	0.384	99.6	70-130			
Arsenic	103	0.500	ug/L	100.00	1.12	102	70-130			
Lead	104	0.500	ug/L	100.00	12.4	92.0	70-130			
Barium	146	0.500	ug/L	100.00	49.3	96.3	70-130			
Molybdenum	97.0	0.500	ug/L	100.00	0.840	96.1	70-130			
Cobalt	97.2	0.500	ug/L	100.00	0.246	97.0	70-130			
Chromium	100	0.500	ug/L	100.00	1.89	98.4	70-130			
Beryllium	95.7	0.500	ug/L	100.00	0.0219	95.7	70-130			



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0437 - EPA 200.2, EPA 3005

Matrix Spike Dup (BDK0437-MSD1)		Source: MDK0154-01		Prepared: 11/19/2018 Analyzed: 11/20/2018						
Cobalt	98.0	0.500	ug/L	100.00	0.235	97.8	70-130	0.569	20	
Thallium	95.7	0.500	ug/L	100.00	<0.500	95.7	70-130	1.88	20	
Arsenic	99.7	0.500	ug/L	100.00	0.674	99.1	70-130	3.76	20	
Molybdenum	97.3	0.500	ug/L	100.00	0.162	97.1	70-130	2.05	20	
Selenium	99.5	0.500	ug/L	100.00	0.245	99.2	70-130	3.81	20	
Antimony	97.7	0.500	ug/L	100.00	0.0240	97.7	70-130	0.124	20	
Barium	116	0.500	ug/L	100.00	16.9	99.4	70-130	1.03	20	
Chromium	98.3	0.500	ug/L	100.00	0.842	97.4	70-130	1.29	20	
Cadmium	101	0.100	ug/L	100.00	<0.100	101	70-130	4.75	20	
Beryllium	94.5	0.500	ug/L	100.00	0.0119	94.5	70-130	2.93	20	
Lead	95.9	0.500	ug/L	100.00	0.235	95.7	70-130	3.34	20	

Matrix Spike Dup (BDK0437-MSD2)		Source: MDK0154-03		Prepared: 11/19/2018 Analyzed: 11/20/2018						
Selenium	97.6	0.500	ug/L	100.00	0.262	97.4	70-130	1.42	20	
Antimony	98.1	0.500	ug/L	100.00	0.384	97.7	70-130	1.89	20	
Cobalt	102	0.500	ug/L	100.00	0.246	102	70-130	4.73	20	
Barium	147	0.500	ug/L	100.00	49.3	98.1	70-130	1.25	20	
Chromium	100	0.500	ug/L	100.00	1.89	98.6	70-130	0.166	20	
Beryllium	94.2	0.500	ug/L	100.00	0.0219	94.1	70-130	1.66	20	
Molybdenum	97.2	0.500	ug/L	100.00	0.840	96.4	70-130	0.239	20	
Cadmium	98.7	0.100	ug/L	100.00	0.0313	98.6	70-130	3.90	20	
Arsenic	101	0.500	ug/L	100.00	1.12	99.9	70-130	2.27	20	
Lead	108	0.500	ug/L	100.00	12.4	95.4	70-130	3.28	20	
Thallium	95.2	0.500	ug/L	100.00	<0.500	95.2	70-130	1.30	20	



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Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0436 - EPA 200.2, EPA 3005

Blank (BDK0436-BLK1)

Prepared: 11/19/2018 Analyzed: 11/26/2018

Magnesium	<1.25	1.25	mg/L
Lithium	<0.0150	0.0150	mg/L
Potassium	<1.25	1.25	mg/L
Calcium	<1.25	1.25	mg/L
Boron	<0.0500	0.0500	mg/L
Sodium	<1.25	1.25	mg/L

LCS (BDK0436-BS1)

Prepared: 11/19/2018 Analyzed: 11/26/2018

Calcium	114	1.25	mg/L	100.00	114	85-115
Potassium	113	1.25	mg/L	100.00	113	85-115
Boron	1.09	0.0500	mg/L	1.0000	109	85-115
Lithium	1.10	0.0150	mg/L	1.0000	110	85-115
Magnesium	113	1.25	mg/L	100.00	113	85-115
Sodium	115	1.25	mg/L	100.00	115	85-115

Duplicate (BDK0436-DUP1)

Source: MDK0176-01

Prepared: 11/19/2018 Analyzed: 11/26/2018

Potassium	4.23	1.25	mg/L	4.25	0.360	20
Sodium	24.0	1.25	mg/L	23.9	0.354	20
Lithium	0.0574	0.0150	mg/L	0.0585	1.82	20
Calcium	142	1.25	mg/L	141	0.902	20
Boron	0.0997	0.0500	mg/L	0.0997	0.0184	20
Magnesium	65.5	1.25	mg/L	64.8	1.14	20

Duplicate (BDK0436-DUP2)

Source: MDK0176-03

Prepared: 11/19/2018 Analyzed: 11/26/2018

Boron	0.0585	0.0500	mg/L	0.0558	4.63	20
Potassium	3.35	1.25	mg/L	3.23	3.51	20
Calcium	96.0	1.25	mg/L	94.8	1.27	20
Magnesium	45.5	1.25	mg/L	44.8	1.59	20
Sodium	253	1.25	mg/L	250	1.12	20
Lithium	0.0266	0.0150	mg/L	0.0264	0.710	20



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0436 - EPA 200.2, EPA 3005

Matrix Spike (BDK0436-MS1)		Source: MDK0176-01		Prepared: 11/19/2018 Analyzed: 11/26/2018						
Sodium	137	1.25	mg/L	100.00	23.9	113	70-130			
Magnesium	180	1.25	mg/L	100.00	64.8	115	70-130			
Boron	1.22	0.0500	mg/L	1.0000	0.0997	112	70-130			
Potassium	116	1.25	mg/L	100.00	4.25	112	70-130			
Lithium	1.14	0.0150	mg/L	1.0000	0.0585	108	70-130			
Calcium	259	1.25	mg/L	100.00	141	118	70-130			
Matrix Spike (BDK0436-MS2)		Source: MDK0176-03		Prepared: 11/19/2018 Analyzed: 11/26/2018						
Calcium	206	1.25	mg/L	100.00	94.8	111	70-130			
Lithium	1.10	0.0150	mg/L	1.0000	0.0264	107	70-130			
Sodium	364	1.25	mg/L	100.00	250	113	70-130			
Potassium	114	1.25	mg/L	100.00	3.23	111	70-130			
Boron	1.16	0.0500	mg/L	1.0000	0.0558	111	70-130			
Magnesium	159	1.25	mg/L	100.00	44.8	114	70-130			
Matrix Spike Dup (BDK0436-MSD1)		Source: MDK0176-01		Prepared: 11/19/2018 Analyzed: 11/26/2018						
Magnesium	178	1.25	mg/L	100.00	64.8	113	70-130	1.32	20	
Sodium	135	1.25	mg/L	100.00	23.9	111	70-130	1.79	20	
Potassium	114	1.25	mg/L	100.00	4.25	110	70-130	1.56	20	
Calcium	254	1.25	mg/L	100.00	141	114	70-130	1.91	20	
Boron	1.21	0.0500	mg/L	1.0000	0.0997	111	70-130	0.748	20	
Lithium	1.12	0.0150	mg/L	1.0000	0.0585	107	70-130	1.72	20	
Matrix Spike Dup (BDK0436-MSD2)		Source: MDK0176-03		Prepared: 11/19/2018 Analyzed: 11/26/2018						
Potassium	112	1.25	mg/L	100.00	3.23	109	70-130	2.00	20	
Calcium	201	1.25	mg/L	100.00	94.8	106	70-130	2.57	20	
Boron	1.13	0.0500	mg/L	1.0000	0.0558	107	70-130	2.79	20	
Lithium	1.08	0.0150	mg/L	1.0000	0.0264	105	70-130	2.31	20	
Sodium	354	1.25	mg/L	100.00	250	104	70-130	2.59	20	
Magnesium	153	1.25	mg/L	100.00	44.8	108	70-130	3.75	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BDK0547 - EPA 245.1, EPA 7470A

Blank (BDK0547-BLK1)				Prepared & Analyzed: 11/26/2018						
Mercury	<0.200	0.200	ug/L							
LCS (BDK0547-BS1)				Prepared & Analyzed: 11/26/2018						
Mercury	2.60	0.200	ug/L	3.0000		86.7	85-115			
Duplicate (BDK0547-DUP1)				Source: MDK0180-01		Prepared & Analyzed: 11/26/2018				
Mercury	<0.200	0.200	ug/L		<0.200			20		
Matrix Spike (BDK0547-MS1)				Source: MDK0180-01		Prepared & Analyzed: 11/26/2018				
Mercury	2.65	0.200	ug/L	3.0000	<0.200	88.3	70-130			
Matrix Spike Dup (BDK0547-MSD1)				Source: MDK0180-01		Prepared & Analyzed: 11/26/2018				
Mercury	2.67	0.200	ug/L	3.0000	<0.200	89.0	70-130	0.775	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Tedd Ronning	11/27/2018 12:41

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
M_DIL	Sample was diluted. The MDL and MRL were raised due to the dilution.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Appendix B

Data Quality Control / Quality Assurance Review

Appendix B: Data Quality Assurance / Quality Control Review

A review of the quality control data was conducted to assess the validity of the analytical results for the groundwater samples collected during the CCR baseline monitoring (2017-2018) and closure verification events (2019) at the Black Dog Generating Plant (Plant or Site) located in Burnsville, Minnesota. The samples were collected and analyzed for the parameters listed in Appendices III and IV of the CCR Rule. Groundwater samples were also analyzed for additional parameters (e.g., major cations and anions) to verify the appropriateness of the monitoring network. This review was performed in accordance with Barr Engineering's Standard Operating Procedures (SOPs) for data evaluation, which are based on *The National Functional Guidelines for Organic and Inorganic Data Review* (USEPA, 2008 and 2010). The majority of the analyses were performed by Xcel Energy's Minneapolis Testing Laboratory (Xcel Minneapolis) located in Minneapolis, Minnesota with the radium analysis performed by Pace located in Greensburg, Pennsylvania.

Both field sampling and laboratory analytical procedures were examined in the review of the sampling event. Field sampling procedures were examined utilizing field blank samples and field (masked) duplicate sample analyses. Laboratory procedures were evaluated utilizing technical holding times, preservation, method blank samples, accuracy data, precision data, and data package completeness.

Field sampling procedures

A field blank sample was collected during each of the eight baseline monitoring and two closure verification events. The field blank collected with the samples for the December 11th, 2017 event had a detection of radium 226 and the following sample detections were qualified (b) as potential false positive detections: W504B, W602A, W14A, W601A, and W604A. No other target compounds were detected above the reporting limits (RLs) in the field blank samples.

Field (masked) duplicate sample results were evaluated by calculating the Relative Percent Difference (RPD) values for compounds where both the native and field duplicate sample had concentrations reported above the RL. The RPD formula is as follows:

$$RPD = \frac{|S - D|}{(S + D) / 2} \times 100$$

Where: RPD = relative percent difference
 S = original sample result
 D = duplicate sample result

A field duplicate pair was collected during each of the eight baseline monitoring and two closure verification events and the data is shown in Table B-1. The acceptance criteria used for the field duplicate samples data precision (30% RPD) was based on Barr's SOPs for routine data evaluation. The field duplicate data met the RPD criteria for precision.

The field parameters were also reviewed for each event. There were three instances where the turbidity was significantly elevated (< 50 NTU) and the associated sample data (W600A - May 8 and June 12, 2018 and W601A - February 7, 2018) was rejected (**) based on this. As discussed in the report, these sample locations were resampled in order to have a complete baseline dataset.

Laboratory Procedures

Technical holding times and preservation were evaluated for each sample and target parameter based on United States Environmental Protection Agency (USEPA) and method recommendations. The technical holding times were within these recommendations for all of the analyses, and the groundwater samples arrived at the laboratory at the correct temperatures and with the correct chemical preservatives.

Method blanks were analyzed by the laboratory for each parameter. The method blank tested with the samples for the July 23-25, 2018 event had a detection of radium 228 and the following sample detections were qualified (b) as potential false positive detections: W504A, W504B, W14A, W510A, and the W50A Field Duplicate. No other target compounds were detected above the RL in the method blank samples.

The accuracy and precision data review included evaluation of laboratory control spike (LCS), matrix spike (MS), matrix spike duplicate (MSD), and laboratory duplicate samples. Accuracy was evaluated by comparing laboratory percent recoveries from LCS, MS, and MSD samples to laboratory acceptance criteria. Precision was evaluated by calculating the RPD of the MS/MSD and laboratory duplicate sample pairs.

The LCS samples displayed acceptable accuracy when compared to the laboratory acceptance criteria in the majority of instances. The LCS tested for laboratory pH with the samples included in laboratory work order MDK0180, had a percent recovery that exceeded the laboratory acceptance criteria and the associated samples results taken on November 12, 2018 (W600A and W601A) were qualified (*) as estimated. Also, an LCS associated with the closure work order MEE0179 analysis of fluoride had an LCS that was only slightly above acceptance recovery (by one percent) and no data was qualified based on this slight deviation. The remaining LCS samples displayed accuracy within laboratory acceptance limits.

The laboratory included MS/MSD samples tested from project and non-project samples in each work order. Only the MS/MSD samples taken from project samples were evaluated compared to project data. In instances

where a duplicate accuracy sample was analyzed (MSD), the associated sample data results were not qualified if only the RPD or one of the percent recoveries were outside acceptance criteria. In addition, where MS recoveries failed acceptance criteria and the native sample concentration was significantly greater than the spike added (greater than four times), the spike recovery could not be accurately evaluated, therefore the criteria did not apply and acceptance of the sample results were based on the acceptable LCS data. The MS/MSDs displayed accuracy and/or precision within laboratory acceptance criteria or the deviation was considered minor (less than five percent).

The laboratory included laboratory duplicate samples tested from project and non-project samples in each work order. Only the duplicate samples taken from project samples were evaluated compared to project data. The calculated RPD was compared against the laboratory criteria. Only duplicate pairs that were detected significantly above the RL (greater than five times) were evaluated as the RPD is exaggerated from results close to the RL. All of the evaluated laboratory duplicate data met the RPD criteria for precision.

Data completeness was evaluated by comparing the analyses requested with the data package as received. There were multiple events where the sample location was labeled incorrectly as W514A on the COCs and associated laboratory reports when the correct location should have been W514B; the laboratory reports have been revised to note the correction and the EQulS database and associated tables reflect the correct sample location of W514B. Neither of these wells are in the monitoring network and the project result were unaffected.

Conclusion

The data are deemed acceptable for the purposes of this project with the qualifications assigned during the data evaluation process.

References

- United States Environmental Protection Agency (USEPA), 2008. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. EPA QA/R-5. 2008
- United States Environmental Protection Agency (USEPA), 2010. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review*. EPA QA/R-5. 2010

Table B-1
2017-2019 CCR Groundwater Data- Duplicate Comparison
Black Dog Generating Plant
Burnsville, MN

Location			W502A			W502A			W502A		
Sample Date			03/20/2018			07/24/2018			03/13/2019		
Sample Type			N	FD	RPD	N	FD	RPD	N	FD	RPD
Parameter	Units	Parameter List									
Field Parameters											
Dissolved oxygen	mg/l	Field	0.2	--	NA	0.1	--	NA	0.7	--	NA
pH	pH units	Field	7.2	--	NA	7.0	--	NA	7.2	--	NA
Redox (oxidation potential)	mV	Field	-68	--	NA	-61	--	NA	-83	--	NA
Specific conductance @ 25 °C	umhos/cm	Field	3020	--	NA	3020	--	NA	2740	--	NA
Temperature	deg C	Field	9.5	--	NA	13.0	--	NA	8.5	--	NA
Turbidity	NTU	Field	1.4	--	NA	3.5	--	NA	2.1	--	NA
Cations/Anions											
Alkalinity, total, as CaCO3	mg/l	Cations/Anions	309	315	1.9 %	297	305	2.7 %	331	322	2.8 %
Magnesium	mg/l	Cations/Anions	70.0	70.7	1.0%	72.5	72.0	0.69 %	70.0	69.6	0.57 %
Potassium	mg/l	Cations/Anions	15.4	16.0	3.8 %	16.3	16.5	1.2 %	15.0	14.7	2.0 %
Sodium	mg/l	Cations/Anions	161	166	3.1 %	160	160	0.0%	142	141	0.71 %
Chloride	mg/l	Appendix III, Cations/Anions	101	101	0.0%	107	106	0.94 %	94.8	94.9	0.11 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	1410	1410	0.0%	1440	1430	0.70 %	1470	1480	0.68 %
Appendix III Parameters											
Boron	mg/l	Appendix III	7.87	8.09	2.8 %	8.01	8.00	0.12 %	8.34	8.39	0.60 %
Calcium	mg/l	Appendix III	482	496	2.9 %	508	507	0.20 %	490	486	0.82 %
pH	pH units	Field	7.45	7.45	0.0%	7.38	7.40	0.27 %	7.43	7.45	0.27 %
Solids, total dissolved	mg/l	Appendix III	2620	2600	0.77 %	2720	2690	1.1 %	2630	2610	0.76 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Chloride	mg/l	Appendix III, Cations/Anions	101	101	0.0%	107	106	0.94 %	94.8	94.9	0.11 %
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	1410	1410	0.0%	1440	1430	0.70 %	1470	1480	0.68 %
Appendix IV Parameters											
Antimony	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Arsenic	ug/l	Appendix IV	30.4	33.8	11 %	31.2	33.5	7.1 %	37.3	37.5	0.53 %
Barium	ug/l	Appendix IV	79.8	80.2	0.50 %	76.7	75.6	1.4 %	80.4	80.2	0.25 %
Beryllium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Cadmium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.100	< 0.100	NA	< 0.100	< 0.100	NA
Chromium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 5.00	< 5.00	NA	< 0.500	< 0.500	NA
Cobalt	ug/l	Appendix IV	3.53	3.87	9.2 %	< 5.00	< 5.00	NA	3.89	4.02	3.3 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Lead	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Lithium	mg/l	Appendix IV	0.0887	0.0919	3.5 %	0.0889	0.0889	0.0%	0.0797	0.0777	2.5 %
Mercury	ug/l	Appendix IV	< 0.200	< 0.200	NA	< 0.200	< 0.200	NA	< 0.200	< 0.200	NA
Molybdenum	ug/l	Appendix IV	65.9	66.6	1.1 %	67.9	66.6	1.9 %	63.9	63.6	0.47 %
Selenium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Thallium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Radium 226	pCi/l		-0.059 +/- 0.419 ND	0.356 +/- 0.521 ND	NA	0.760 +/- 0.448	0.470 +/- 0.505 ND	NA	0.610 +/- 0.446	0.352 +/- 0.547 ND	NA
Radium 228	pCi/l		0.588 +/- 0.379 ND	-0.0609 +/- 0.525 ND	NA	0.598 +/- 0.409 ND	0.860 +/- 0.444	NA	1.80 +/- 0.658 b	0.666 +/- 0.513 ND	NA
Radium, combined (226+228), Barr Calculation	pCi/l	Appendix IV	0.588 +/- 0.380 ND	0.356 +/- 0.520 ND	NA	1.36 +/- 0.610 q	1.33 +/- 0.670 q	2.2%	0.610 +/- 0.45	1.02 +/- 0.75 ND	NA

%RPD = | (N - FD) / (N + FD) / 2 | X 100

Where: N = 1st Value

FD = 2nd Value

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Table B-1
2017-2019 CCR Groundwater Data- Duplicate Comparison
Black Dog Generating Plant
Burnsville, MN

Location			W502B			W502B			W502B		
Sample Date			05/09/2018			09/11/2018			05/15/2019		
Sample Type			N	FD	RPD	N	FD	RPD	N	FD	RPD
Parameter	Units	Parameter List									
Field Parameters											
Dissolved oxygen	mg/l	Field	0.2	--	NA	0.3	--	NA	0.3	--	NA
pH	pH units	Field	7.4	--	NA	7.6	--	NA	7.3	--	NA
Redox (oxidation potential)	mV	Field	-167	--	NA	-53	--	NA	-178	--	NA
Specific conductance @ 25 °C	umhos/cm	Field	2710	--	NA	2330	--	NA	2100	--	NA
Temperature	deg C	Field	11.0	--	NA	13.5	--	NA	11.0	--	NA
Turbidity	NTU	Field	5.8	--	NA	4.4	--	NA	5.7	--	NA
Cations/Anions											
Alkalinity, total, as CaCO3	mg/l	Cations/Anions	359	390	8.3 %	376	385	2.4 %	394	396	0.51 %
Magnesium	mg/l	Cations/Anions	115	117	1.7 %	121	122	0.82 %	107	108	0.93 %
Potassium	mg/l	Cations/Anions	1.90	1.88	1.1 %	2.03	2.02	0.49 %	1.88	1.90	1.1 %
Sodium	mg/l	Cations/Anions	62.0	62.3	0.48 %	65.6	65.8	0.30 %	57.8	58.0	0.35 %
Chloride	mg/l	Appendix III, Cations/Anions	84.1	83.8	0.36 %	81.8	82.3	0.61 %	83.2	83.6	0.48 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	1190	1200	0.84 %	1160	1160	0.0%	1150	1150	0.0%
Appendix III Parameters											
Boron	mg/l	Appendix III	3.67	3.78	3.0 %	3.65	3.64	0.27 %	3.51	3.54	0.85 %
Calcium	mg/l	Appendix III	445	447	0.45 %	468	470	0.43 %	412	412	0.0%
pH	pH units	Field	7.31	7.31	0.0%	7.26	7.28	0.28 %	7.31	7.32	0.14 %
Solids, total dissolved	mg/l	Appendix III	2270	2330	2.6 %	2400	2260	6.0 %	2200	2200	0.0%
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Chloride	mg/l	Appendix III, Cations/Anions	84.1	83.8	0.36 %	81.8	82.3	0.61 %	83.2	83.6	0.48 %
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	1190	1200	0.84 %	1160	1160	0.0%	1150	1150	0.0%
Appendix IV Parameters											
Antimony	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Arsenic	ug/l	Appendix IV	4.61	4.68	1.5 %	4.27	4.37	2.3 %	4.80	4.93	2.7 %
Barium	ug/l	Appendix IV	148	147	0.68 %	133	133	0.0%	141	146	3.5 %
Beryllium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Cadmium	ug/l	Appendix IV	< 0.100	< 0.100	NA	< 0.100	< 0.100	NA	< 0.100	< 0.100	NA
Chromium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Cobalt	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Lead	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Lithium	mg/l	Appendix IV	< 0.0500	< 0.0500	NA	0.0259	0.0264	1.9 %	0.0247	0.0239	3.3 %
Mercury	ug/l	Appendix IV	< 0.200	< 0.200	NA	< 0.200	< 0.200	NA	< 0.200	< 0.200	NA
Molybdenum	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Selenium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Thallium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Radium 226	pCi/l		0.612 +/- 0.505 ND	0.541 +/- 0.461 ND	NA	0.134 +/- 0.491 ND	0.448 +/- 0.550 ND	NA	0.463 +/- 0.428 ND	0.631 +/- 0.435	NA
Radium 228	pCi/l		0.913 +/- 0.402	0.934 +/- 0.443	2.3%	1.22 +/- 0.422	0.577 +/- 0.385 ND	NA	0.409 +/- 0.622 ND	0.792 +/- 0.653 ND	NA
Radium, combined (226+228), Barr Calculation	pCi/l	Appendix IV	1.53 +/- 0.650	1.48 +/- 0.640	3.3%	1.35 +/- 0.650 q	1.03 +/- 0.670 ND	NA	0.872 +/- 0.76 ND	1.42 +/- 0.78 q	NA

%RPD = | (N - FD) / (N + FD) / 2 | X 100

Where: N = 1st Value

FD = 2nd Value

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Table B-1
2017-2019 CCR Groundwater Data- Duplicate Comparison
Black Dog Generating Plant
Burnsville, MN

Location			W506A			W506A			W603A		
Sample Date			06/13/2018			10/24/2018			02/07/2018		
Sample Type			N	FD	RPD	N	FD	RPD	N	FD	RPD
Parameter	Units	Parameter List									
Field Parameters											
Dissolved oxygen	mg/l	Field	1.6	--	NA	0.2	--	NA	0.3	--	NA
pH	pH units	Field	6.6	--	NA	7.0	--	NA	7.8	--	NA
Redox (oxidation potential)	mV	Field	-5	--	NA	236	--	NA	120	--	NA
Specific conductance @ 25 °C	umhos/cm	Field	2420	--	NA	1820	--	NA	1420	--	NA
Temperature	deg C	Field	9.5	--	NA	15.0	--	NA	10.0	--	NA
Turbidity	NTU	Field	3.3	--	NA	4.8	--	NA	1.5	--	NA
Cations/Anions											
Alkalinity, total, as CaCO3	mg/l	Cations/Anions	209	204	2.4 %	226	227	0.44 %	153	150	2.0 %
Magnesium	mg/l	Cations/Anions	43.8	43.2	1.4 %	41.5	41.0	1.2 %	21.9	22.4	2.3 %
Potassium	mg/l	Cations/Anions	8.62	8.67	0.58 %	7.78	7.94	2.0 %	10.8	10.9	0.92 %
Sodium	mg/l	Cations/Anions	57.1	58.1	1.7 %	42.6	42.8	0.47 %	147	150	2.0 %
Chloride	mg/l	Appendix III, Cations/Anions	86.8	90.5	4.2 %	36.3	35.7	1.7 %	203	203	0.0%
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	1190	1220	2.5 %	858	840	2.1 %	240	238	0.84 %
Appendix III Parameters											
Boron	mg/l	Appendix III	1.47	1.50	2.0 %	1.78	1.77	0.56 %	7.84	8.15	3.9 %
Calcium	mg/l	Appendix III	491	494	0.61 %	342	343	0.29 %	101	103	2.0 %
pH	pH units	Field	7.06	7.07	0.14 %	6.96	6.95	0.14 %	8.40	8.31	1.1 %
Solids, total dissolved	mg/l	Appendix III	2270	2290	0.88 %	1690	1660	1.8 %	856	880	2.8 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Chloride	mg/l	Appendix III, Cations/Anions	86.8	90.5	4.2 %	36.3	35.7	1.7 %	203	203	0.0%
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	1190	1220	2.5 %	858	840	2.1 %	240	238	0.84 %
Appendix IV Parameters											
Antimony	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Arsenic	ug/l	Appendix IV	4.76	4.86	2.1 %	1.42	1.31	8.1 %	8.58	8.70	1.4 %
Barium	ug/l	Appendix IV	18.9	18.8	0.53 %	20.4	20.4	0.0%	61.6	62.3	1.1 %
Beryllium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Cadmium	ug/l	Appendix IV	3.60	3.50	2.8 %	3.92	3.96	1.0 %	< 0.500	< 0.500	NA
Chromium	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Cobalt	ug/l	Appendix IV	20.6	19.2	7.0 %	10.9	10.6	2.8 %	< 0.500	< 0.500	NA
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA	< 0.750	< 0.750	NA
Lead	ug/l	Appendix IV	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA	< 0.500	< 0.500	NA
Lithium	mg/l	Appendix IV	0.0619	0.0624	0.80 %	0.0553	0.0527	4.8 %	0.0954	0.0963	0.94 %
Mercury	ug/l	Appendix IV	< 0.200	< 0.200	NA	< 0.200	< 0.200	NA	< 0.200	< 0.200	NA
Molybdenum	ug/l	Appendix IV	20.6	20.5	0.49 %	18.7	19.0	1.6 %	108	110	1.8 %
Selenium	ug/l	Appendix IV	0.653	0.556	16 %	0.564	0.555	1.6 %	< 0.500	< 0.500	NA
Thallium	ug/l	Appendix IV	0.703	0.696	1.0 %	0.982	1.02	3.8 %	< 0.500	< 0.500	NA
Radium 226	pCi/l		-0.053 +/- 0.344 ND	0.111 +/- 0.254 ND	NA	0.560 +/- 0.650 ND	0 +/- 0.546 ND	NA	0.441 +/- 0.408 ND	0.252 +/- 0.462 ND	NA
Radium 228	pCi/l		0.328 +/- 0.639 ND	1.23 +/- 0.712 ND	NA	0.543 +/- 0.344 ND	0.511 +/- 0.329 ND	NA	0.330 +/- 0.295 ND	0.325 +/- 0.294 ND	NA
Radium, combined (226+228), Barr Calculation	pCi/l	Appendix IV	0.328 +/- 0.640 ND	1.34 +/- 0.760 ND	NA	1.10 +/- 0.740 ND	0.511 +/- 0.640 ND	NA	0.577 +/- 0.550 ND	0.771 +/- 0.500 ND	NA

%RPD = | (N - FD) / (N + FD) / 2 | X 100

Where: N = 1st Value

FD = 2nd Value

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Table B-1
2017-2019 CCR Groundwater Data- Duplicate Comparison
Black Dog Generating Plant
Burnsville, MN

Location			W604A		
Sample Date			12/13/2017		
Sample Type			N	FD	RPD
Parameter	Units	Parameter List			
Field Parameters					
Dissolved oxygen	mg/l	Field	1.3	--	NA
pH	pH units	Field	7.6	--	NA
Redox (oxidation potential)	mV	Field	-52	--	NA
Specific conductance @ 25 °C	umhos/cm	Field	1340	--	NA
Temperature	deg C	Field	11.5	--	NA
Turbidity	NTU	Field	9.8	--	NA
Cations/Anions					
Alkalinity, total, as CaCO3	mg/l	Cations/Anions	--	--	NA
Magnesium	mg/l	Cations/Anions	21.7	20.7	4.7 %
Potassium	mg/l	Cations/Anions	6.81	6.51	4.5 %
Sodium	mg/l	Cations/Anions	175	168	4.1 %
Chloride	mg/l	Appendix III, Cations/Anions	147	146	0.68 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	350	350	0.0%
Appendix III Parameters					
Boron	mg/l	Appendix III	3.99	3.85	3.6 %
Calcium	mg/l	Appendix III	87.3	84.2	3.6 %
pH	pH units	Field	8.75	8.78	0.34 %
Solids, total dissolved	mg/l	Appendix III	832	824	0.97 %
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA
Chloride	mg/l	Appendix III, Cations/Anions	147	146	0.68 %
Sulfate, as SO4	mg/l	Appendix III, Cations/Anions	350	350	0.0%
Appendix IV Parameters					
Antimony	ug/l	Appendix IV	1.78	1.86	4.4 %
Arsenic	ug/l	Appendix IV	6.29	6.37	1.3 %
Barium	ug/l	Appendix IV	82.7	84.2	1.8 %
Beryllium	ug/l	Appendix IV	< 0.500	< 0.500	NA
Cadmium	ug/l	Appendix IV	< 0.500	< 0.500	NA
Chromium	ug/l	Appendix IV	1.77	1.67	5.8 %
Cobalt	ug/l	Appendix IV	< 0.500	< 0.500	NA
Fluoride	mg/l	Appendix III, Appendix IV	< 0.750	< 0.750	NA
Lead	ug/l	Appendix IV	< 0.500	< 0.500	NA
Lithium	mg/l	Appendix IV	< 0.0500	< 0.0500	NA
Mercury	ug/l	Appendix IV	< 0.200	< 0.200	NA
Molybdenum	ug/l	Appendix IV	177	177	0.0%
Selenium	ug/l	Appendix IV	4.03	4.10	1.7 %
Thallium	ug/l	Appendix IV	< 0.500	< 0.500	NA
Radium 226	pCi/l		0.494 +/- 0.346 b	-0.134 +/- 0.233	349%
Radium 228	pCi/l		0.571 +/- 0.447	0.0504 +/- 0.537	170 %
Radium, combined (226+228), Barr Calculation	pCi/l	Appendix IV	1.07 +/- 0.570 q	0.0504 +/- 0.540 ND	NA

%RPD = | (N - FD) / (N + FD) / 2 | X 100

Where: N = 1st Value

FD = 2nd Value

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Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
NA	NA (not applicable) indicates that the RPD calculation is not applicable
ND	Not detected.
b	Potential false positive value based on blank data validation procedures. Concentrations identified as potential false positive are excluded from calculations.
q	The combined radium result includes both detected and not detected values.

Appendix C

Development of Groundwater Protection Standards

Technical Memorandum

To: Project File
From: Denise Levitan and Jennifer Brekken
Subject: Development of Groundwater Protection Standards
Date: July 2019
Project: Black Dog Generating Plant, Burnsville, Minnesota

Statistical analyses were conducted using the Sanitas software package (version 9.6, produced by Sanitas Technologies of Loveland, CO). The Sanitas software is set up to conduct statistical analyses according to the U.S. Environmental Protection Agency (EPA)'s 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance* (Unified Guidance; EPA 530/R-09-007). The statistical analyses also followed the CCR Groundwater Statistical Analysis Plan (Barr, 2019c).

The background data (Table C-1) were loaded into Sanitas for statistical analyses. Unless otherwise specified, an alpha of 0.05 was used in statistical tests.

The normality of the pooled data from the seven background wells was assessed by the Shapiro-Francia test (Unified Guidance, Chapter 10). The results of the normality testing in combination with the fraction of data below analytical reporting limits (Table C-2) were used to determine whether parametric or non-parametric methods would be used. None of the pooled background datasets were determined to fit a normal distribution, so non-parametric methods were used for subsequent statistical analysis.

Outlier testing was conducted on pooled data from the seven background wells using the Tukey hinge screening method with an interquartile range multiplier of 3 (Unified Guidance, Chapter 12). Values less than three times the median and values below analytical reporting limits were not included as outliers. For suspected outliers identified in the pooled background data, individual well-parameter datasets were then evaluated using Dixon's test (for normally distributed datasets, based on the Shapiro-Wilk test) or the Tukey screening method (for non-normally distributed datasets). Values that were identified as outliers in both the pooled data screening and the well-parameter pair datasets were individually evaluated using professional judgement to determine whether the values should remain in the background dataset. Values that were identified as outliers in both the pooled data screening and the well-parameter pair datasets were individually evaluated for data quality issues and shifts in groundwater population (Barr 2019c). The values included two chromium samples from W600A (43.1 µg/L on July 24, 2018, and 8.37 µg/L on September 12, 2018). No data quality issues were identified for these samples, and no trend or shift was identified in the data. Therefore, consistent with the CCR Groundwater Statistical Analysis Plan (Barr, 2019c), no statistical outliers were removed from the background dataset.

Interwell prediction limits were used to calculate background concentrations. Prediction limits were calculated assuming two statistical evaluations per year with 15 appendix IV constituents in 5 downgradient wells to yield an annual false positive rate of 0.1 or a per-event false positive rate of 0.05 (40 CFR 257.93(g)(2)).

For datasets with less than 15% of observations below laboratory reporting limits, one-half the detection limit was substituted for non-detect values. For datasets with between 15% and 50% of observations below laboratory reporting limits, the Kaplan-Meier method was used for non-detect values. For datasets with greater than 50% of observations below laboratory reporting limits, non-parametric statistical methods were used (Unified Guidance, Chapter 15). No evaluation or correction for seasonality was done because the dataset included less than three years of data (Unified Guidance, Chapter 14).

None of the pooled background datasets follow a normal or log-normal distribution, so the non-parametric prediction limit of the highest value from the pooled background data was used (Unified Guidance, Chapter 18).

The upper prediction limit of the pooled background data for each appendix IV constituent was compared to the maximum contaminant level (MCL) or the levels listed in §257.95(h)(2) (regional screening level, RSL). The higher of the background concentration and the MCL or RSL was set as the Groundwater Protection Standard (Table C-3).

The statistical outliers described above are below the upper prediction limits, MCL, and/or RSLs and do not affect the GWPS.

Tables:

Table C-1: Background Data

Table C-2: Normality Test Results

Table C-3: CCR Groundwater Protection Standard Development

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W502A 12/12/2017 N	W502A 2/06/2018 N	W502A 3/20/2018 N	W502A 5/09/2018 N	W502A 6/12/2018 N	W502A 7/24/2018 N	W502A 9/11/2018 N	W502A 10/23/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic	ug/l	35.0	34.2	30.4	32.1	32.7	31.2	34.6	36.8
Barium	ug/l	89.7	82.1	79.8	75.7	74.9	76.7	77.0	81.2
Beryllium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium	ug/l	< 0.500	< 0.500	< 0.500	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Chromium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 5.00	< 5.00	< 0.500
Cobalt	ug/l	3.02	3.35	3.53	3.68	3.46	< 5.00	< 5.00	3.75
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	0.0938	0.0915	0.0887	0.0900	0.0866	0.0889	0.0900	0.0848
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	72.0	67.8	65.9	63.6	63.8	67.9	68.5	67.8
Selenium	ug/l	< 0.500	< 5.00	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Thallium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Radium 226	pCi/l	0.274 +/- 0.312	0.381 +/- 0.357 ND	-0.059 +/- 0.419 ND	0.372 +/- 0.387 ND	0.244 +/- 0.396 ND	0.760 +/- 0.448	0.377 +/- 0.524 ND	0.609 +/- 0.707 ND
Radium 228	pCi/l	1.70 +/- 0.608	1.15 +/- 0.440	0.588 +/- 0.379 ND	0.447 +/- 0.359 ND	0.620 +/- 0.570 ND	0.598 +/- 0.409 ND	0.427 +/- 0.272 ND	0.588 +/- 0.358 ND
Radium, combined (226+228), Calculation	pCi/l	1.97 +/- 0.680 q	1.53 +/- 0.570 q	0.588 +/- 0.380 ND	0.819 +/- 0.530 ND	0.864 +/- 0.690 ND	1.36 +/- 0.610 q	0.804 +/- 0.590 ND	1.20 +/- 0.790 ND

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W502B 12/12/2017 N	W502B 2/06/2018 N	W502B 3/20/2018 N	W502B 5/09/2018 N	W502B 6/12/2018 N	W502B 7/24/2018 N	W502B 9/11/2018 N	W502B 10/23/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic	ug/l	4.68	4.92	3.64	4.61	4.40	4.30	4.27	4.49
Barium	ug/l	147	153	112	148	142	137	133	146
Beryllium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium	ug/l	< 0.500	< 0.500	< 0.500	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Chromium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	0.718
Cobalt	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	0.0275	0.0259	0.0240
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Selenium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Thallium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Radium 226	pCi/l	0.442 +/- 0.378	0.329 +/- 0.334 ND	0.516 +/- 0.622 ND	0.612 +/- 0.505 ND	0.489 +/- 0.442 ND	0.237 +/- 0.358 ND	0.134 +/- 0.491 ND	0.818 +/- 0.723 ND
Radium 228	pCi/l	0.519 +/- 0.406	1.47 +/- 0.593	0.854 +/- 0.550 ND	0.913 +/- 0.402	0.540 +/- 0.485 ND	0.504 +/- 0.360 ND	1.22 +/- 0.422	0.395 +/- 0.336 ND
Radium, combined (226+228), Calculation	pCi/l	0.961 +/- 0.550 ND	1.80 +/- 0.680 q	1.37 +/- 0.830 ND	1.53 +/- 0.650	1.03 +/- 0.660 ND	0.741 +/- 0.510 ND	1.35 +/- 0.650 q	1.21 +/- 0.800 ND

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W504A 12/11/2017 N	W504A 2/06/2018 N	W504A 3/20/2018 N	W504A 5/09/2018 N	W504A 6/12/2018 N	W504A 7/23/2018 N	W504A 9/10/2018 N	W504A 10/23/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic	ug/l	1.16	2.20	3.03	2.97	4.24	4.73	2.96	6.06
Barium	ug/l	24.5	24.8	25.0	26.7	27.3	30.5	26.9	31.0
Beryllium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium	ug/l	< 0.500	< 0.500	< 0.500	< 0.100	0.120	0.158	< 0.100	< 0.100
Chromium	ug/l	< 0.500	0.543	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cobalt	ug/l	0.850	1.47	1.71	1.45	2.28	2.38	1.54	2.29
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	0.0372	0.0414	0.0358
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	72.1	46.8	29.1	24.4	22.1	25.5	57.6	35.9
Selenium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Thallium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Radium 226	pCi/l	0.290 +/- 0.330	0.500 +/- 0.350	0.618 +/- 0.555 ND	0.245 +/- 0.296 ND	0.203 +/- 0.245 ND	0.232 +/- 0.387 ND	0.0611 +/- 0.397 ND	0.663 +/- 0.693 ND
Radium 228	pCi/l	0.123 +/- 0.426	0.891 +/- 0.419	1.08 +/- 0.442	0.107 +/- 0.334 ND	-0.222 +/- 0.463 ND	0.847 +/- 0.367	0.553 +/- 0.359 ND	0.441 +/- 0.357 ND
Radium, combined (226+228), Calculation	pCi/l	0.413 +/- 0.540 ND	1.39 +/- 0.550	1.70 +/- 0.710 q	0.352 +/- 0.450 ND	0.203 +/- 0.250 ND	1.08 +/- 0.530 q	0.614 +/- 0.540 ND	1.10 +/- 0.780 ND

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W504B 12/11/2017 N	W504B 2/06/2018 N	W504B 3/20/2018 N	W504B 5/09/2018 N	W504B 6/12/2018 N	W504B 7/23/2018 N	W504B 9/10/2018 N	W504B 10/23/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic	ug/l	4.53	5.09	4.12	4.34	4.60	4.67	4.09	3.48
Barium	ug/l	372	358	359	367	343	364	349	367
Beryllium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium	ug/l	< 0.500	< 0.500	< 0.500	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Chromium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cobalt	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	0.0237	0.0182	0.0209
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Selenium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Thallium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Radium 226	pCi/l	0.921 +/- 0.473 b	0.601 +/- 0.380	0.335 +/- 0.467 ND	0.915 +/- 0.472	0.882 +/- 0.536	0.594 +/- 0.735 ND	0.535 +/- 0.621 ND	0.650 +/- 0.680 ND
Radium 228	pCi/l	0.375 +/- 0.427	1.78 +/- 0.561	1.21 +/- 0.501	0.777 +/- 0.434 ND	1.02 +/- 0.505	0.871 +/- 0.464	0.469 +/- 0.366 ND	0.764 +/- 0.343
Radium, combined (226+228), Calculation	pCi/l	1.30 +/- 0.640 q	2.38 +/- 0.680	1.55 +/- 0.680 q	1.69 +/- 0.640	1.90 +/- 0.740	1.46 +/- 0.870 q	1.00 +/- 0.720 ND	1.41 +/- 0.760 q

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W506A 12/13/2017 N	W506A 2/07/2018 N	W506A 3/21/2018 N	W506A 5/08/2018 N	W506A 6/13/2018 N	W506A 7/25/2018 N	W506A 9/12/2018 N	W506A 10/24/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic	ug/l	2.88	< 5.00	2.81	2.36	4.76	2.68	1.83	1.42
Barium	ug/l	25.1	19.3	16.9	14.8	18.9	19.4	21.9	20.4
Beryllium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium	ug/l	3.58	4.42	5.47	3.54	3.60	4.08	5.37	3.92
Chromium	ug/l	< 0.500	< 5.00	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cobalt	ug/l	8.20	18.1	25.4	14.6	20.6	19.2	21.4	10.9
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	0.105	0.0855	0.0763	0.0537	0.0619	0.0617	0.0820	0.0553
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	32.1	41.4	36.6	22.5	20.6	20.8	22.9	18.7
Selenium	ug/l	1.18	< 5.00	< 0.500	1.09	0.653	0.705	0.549	0.564
Thallium	ug/l	1.26	0.972	0.729	0.649	0.703	0.974	1.05	0.982
Radium 226	pCi/l	0.0507 +/- 0.231	0.221 +/- 0.267 ND	0.512 +/- 0.438 ND	0 +/- 0.303 ND	-0.053 +/- 0.344 ND	0.582 +/- 0.451	0.433 +/- 0.568 ND	0.560 +/- 0.650 ND
Radium 228	pCi/l	0.468 +/- 0.376	0.208 +/- 0.371 ND	0.0803 +/- 0.285 ND	0.110 +/- 0.290 ND	0.328 +/- 0.639 ND	0.935 +/- 0.466	0.555 +/- 0.404 ND	0.543 +/- 0.344 ND
Radium, combined (226+228), Calculation	pCi/l	0.519 +/- 0.440 ND	0.429 +/- 0.460 ND	0.592 +/- 0.520 ND	0.110 +/- 0.420 ND	0.328 +/- 0.640 ND	1.52 +/- 0.650	0.988 +/- 0.700 ND	1.10 +/- 0.740 ND

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W600A 12/13/2017 N	W600A 2/07/2018 N	W600A 3/20/2018 N	W600A 7/24/2018 N	W600A 9/12/2018 N	W600A 10/01/2018 N	W600A 10/24/2018 N	W600A 11/12/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Arsenic	ug/l	9.48	11.1	13.1	40.6	39.1	51.0	22.7	37.4
Barium	ug/l	32.4	26.5	22.2	23.7	26.6	23.9	20.0	24.6
Beryllium	ug/l	1.68	< 0.500	< 0.500	0.717	< 0.500	0.595	0.543	< 0.500
Cadmium	ug/l	1.97	< 0.500	< 0.500	1.01	0.635	0.181	0.347	0.515
Chromium	ug/l	0.773	< 0.500	< 0.500	43.1	8.37	2.45	2.36	3.21
Cobalt	ug/l	49.1	1.19	< 0.500	39.9	23.5	40.1	40.0	34.6
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	1.29	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	0.134	0.124	0.0875	0.147	0.170	0.0839	0.0250	0.0990
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	71.8	162	148	66.5	84.1	21.5	2.01	29.9
Selenium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Thallium	ug/l	0.518	< 0.500	< 0.500	< 0.500	< 0.500	0.790	0.670	0.725
Radium 226	pCi/l	0.245 +/- 0.348	0.288 +/- 0.328 ND	0.609 +/- 0.525 ND	0.556 +/- 0.496 ND	0.217 +/- 0.550 ND	0.210 +/- 0.357 ND	0.373 +/- 0.449 ND	0.462 +/- 0.484 ND
Radium 228	pCi/l	0.140 +/- 0.338	0.756 +/- 0.394	0.617 +/- 0.567 ND	0.562 +/- 0.394 ND	1.72 +/- 0.566	1.09 +/- 0.587	0.423 +/- 0.381 ND	0.592 +/- 0.428 ND
Radium, combined (226+228), Calculation	pCi/l	0.385 +/- 0.490 ND	1.04 +/- 0.510 q	1.23 +/- 0.770 ND	1.12 +/- 0.630 ND	1.94 +/- 0.790 q	1.30 +/- 0.690 q	0.796 +/- 0.590 ND	1.05 +/- 0.650 ND

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W601A 12/13/2017 N	W601A 3/21/2018 N	W601A 5/08/2018 N	W601A 6/12/2018 N	W601A 7/25/2018 N	W601A 9/12/2018 N	W601A 10/01/2018 N	W601A 10/24/2018 N
Parameter	Units								
Appendix IV Parameters									
Antimony	ug/l	1.39	0.894	0.739	1.18	0.889	0.885	0.878	0.940
Arsenic	ug/l	12.5	11.9	13.3	6.66	9.44	7.70	10.9	9.30
Barium	ug/l	88.2	74.3	64.3	71.1	72.7	85.6	77.8	78.9
Beryllium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Cadmium	ug/l	< 0.500	< 0.500	< 0.100	0.144	< 0.100	< 0.100	< 1.00	< 0.100
Chromium	ug/l	4.49	1.71	0.806	2.33	0.804	0.919	< 5.00	< 0.500
Cobalt	ug/l	0.789	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 5.00	< 0.500
Fluoride	mg/l	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750
Lead	ug/l	3.20	0.895	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Lithium	mg/l	0.262	0.348	0.230	0.310	0.384	0.418	0.362	0.356
Mercury	ug/l	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Molybdenum	ug/l	295	243	222	323	255	307	243	220
Selenium	ug/l	90.2	43.7	49.0	159	41.8	127	31.1	30.6
Thallium	ug/l	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Radium 226	pCi/l	0.639 +/- 0.381 b	-0.057 +/- 0.431 ND	0.164 +/- 0.250 ND	0.388 +/- 0.383 ND	0.402 +/- 0.391 ND	0 +/- 0.458 ND	0.503 +/- 0.496 ND	0.698 +/- 0.645 ND
Radium 228	pCi/l	0.399 +/- 0.399	0.307 +/- 0.299 ND	0.529 +/- 0.377 ND	0.622 +/- 0.448 ND	-0.146 +/- 0.346 ND	0.645 +/- 0.433 ND	0.129 +/- 0.368 ND	0.452 +/- 0.359 ND
Radium, combined (226+228), Calculation	pCi/l	1.04 +/- 0.550 q	0.307 +/- 0.300 ND	0.693 +/- 0.450 ND	1.01 +/- 0.590 ND	0.402 +/- 0.390 ND	0.645 +/- 0.630 ND	0.632 +/- 0.620 ND	1.15 +/- 0.740 ND

Table C-1
CCR Baseline Groundwater Data - Background Wells
Black Dog Generating Plant
Burnsville, MN

Location Date Sample Type		W601A 11/12/2018 N
Parameter	Units	
Appendix IV Parameters		
Antimony	ug/l	1.16
Arsenic	ug/l	11.8
Barium	ug/l	74.2
Beryllium	ug/l	< 0.500
Cadmium	ug/l	< 0.100
Chromium	ug/l	< 5.00
Cobalt	ug/l	< 5.00
Fluoride	mg/l	< 0.750
Lead	ug/l	< 0.500
Lithium	mg/l	0.349
Mercury	ug/l	< 0.200
Molybdenum	ug/l	255
Selenium	ug/l	70.9
Thallium	ug/l	< 0.500
Radium 226	pCi/l	0.326 +/- 0.453 ND
Radium 228	pCi/l	0.225 +/- 0.371 ND
Radium, combined (226+228), Calculation	pCi/l	0.551 +/- 0.590 ND

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
ND	Not detected.
*	Estimated value, QA/QC criteria not met.
b	Radium 228 result is a potential false positive value based on blank data validation procedures. Concentrations identified as potential false positive are excluded from calculations. Combined Radium result is the same as the Radium 226 result.
q	The combined radium result includes both detected and not detected values.

Table C-2
CCR Background Groundwater Goodness-of-Fit
Black Dog Generating Plant
Burnsville, MN

Appendix IV Parameters	%ND	Calculated W	Critical W	Normal	Calculated W	Critical W	Log-Normal
Antimony	84.2	n/a	n/a	n/a	n/a	n/a	n/a
Arsenic	1.754	0.7416	0.961	No	0.9314	0.961	No
Barium	0	0.7118	0.961	No	0.9189	0.961	No
Beryllium	92.98	n/a	n/a	n/a	n/a	n/a	n/a
Cadmium	70.18	n/a	n/a	n/a	n/a	n/a	n/a
Chromium	75.44	n/a	n/a	n/a	n/a	n/a	n/a
Cobalt	47.37	0.6344	0.961	No	0.8596	0.961	No
Fluoride	100	n/a	n/a	n/a	n/a	n/a	n/a
Lead	94.74	n/a	n/a	n/a	n/a	n/a	n/a
Lithium	26.32	0.7054	0.961	No	0.9348	0.961	No
Mercury	100	n/a	n/a	n/a	n/a	n/a	n/a
Molybdenum	28.07	0.7427	0.961	No	0.8386	0.961	No
Selenium	73.68	n/a	n/a	n/a	n/a	n/a	n/a
Thallium	78.95	n/a	n/a	n/a	n/a	n/a	n/a
Radium, combined (226+228), Barr Calculation	63.16	n/a	n/a	n/a	n/a	n/a	n/a

Notes:

ND: Non-Detect

W: Shapiro-Francia test statistic

n/a: normality not assessed for data with >50% NDs

Table C-3
CCR Groundwater Protection Standard Development
Black Dog Generating Plant
Burnsville, MN

Parameter	Units	EPA Maximum Contaminant Levels	RSL	Upper Prediction Limit	Groundwater Protection Standard
Appendix IV Parameters					
Antimony	ug/l	6		1.39	6 MCL
Arsenic	ug/l	10		51	51 UPL
Barium	ug/l	2000		372	2000 MCL
Beryllium	ug/l	4		1.68	4 MCL
Cadmium	ug/l	5		5.47	5.47 UPL
Chromium	ug/l	100		43.1	100 MCL
Cobalt	ug/l		6	49.1	49.1 UPL
Fluoride	mg/l	4		0.75	4 MCL
Lead	ug/l	15 TT(12)	15	3.2	15 MCL
Lithium	mg/l		0.04	0.418	0.418 UPL
Mercury	ug/l	2		0.2	2 MCL
Molybdenum	ug/l		100	323	323 UPL
Selenium	ug/l	50		159	159 UPL
Thallium	ug/l	2		1.26	2 MCL
Radium 226	pCi/l	5 (13)		--	--
Radium 228	pCi/l	5 (13)		--	--
Radium, combined (226+228), Barr Calculation	pCi/l	5		2.38	5 MCL

Notes:

MCL	Maximum contaminant level
UPL	Background Upper Prediction Limit. Upper Tolerance Limit and Upper Prediction Limit are equal because distribution is nonparametric
RSL	EPA Regional Screening Level, health based standard to be used per CCR Rule (§257.95(h) as modified by Amendments to the National Minimum Criteria (Phase One, Part One), July 30, 2018).
TT(12)	MCL is based on a treatment technique; lead action level 0.015 mg/l.
(13)	Based on the criteria for combined radium 226 and 228.

Appendix D

Closure Monitoring Data

April 03, 2019

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

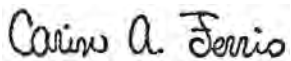
RE: Project: 19-01745, Xcel Energy-Black Dog
Pace Project No.: 30284353

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Harry S. Davis III, Xcel Energy
Charles A. Donkers, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30284353001	Field Blank	Water	03/12/19 09:00	03/15/19 09:30
30284353002	W 603A	Water	03/12/19 09:35	03/15/19 09:30
30284353003	W 604A	Water	03/12/19 10:15	03/15/19 09:30
30284353004	W 605A	Water	03/12/19 11:15	03/15/19 09:30
30284353005	W 506A	Water	03/12/19 12:00	03/15/19 09:30
30284353006	W 601A	Water	03/12/19 13:30	03/15/19 09:30
30284353007	W 600A	Water	03/12/19 14:35	03/15/19 09:30
30284353008	W 7A	Water	03/13/19 09:40	03/15/19 09:30
30284353009	W 602A	Water	03/13/19 10:30	03/15/19 09:30
30284353010	W 502A	Water	03/13/19 11:30	03/15/19 09:30
30284353011	Duplicate	Water	03/13/19 11:30	03/15/19 09:30
30284353012	W502B	Water	03/13/19 12:10	03/15/19 09:30
30284353013	W 504A	Water	03/13/19 13:10	03/15/19 09:30
30284353014	W 504B	Water	03/13/19 13:45	03/15/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30284353001	Field Blank	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353002	W 603A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353003	W 604A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353004	W 605A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353005	W 506A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353006	W 601A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353007	W 600A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353008	W 7A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353009	W 602A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353010	W 502A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353011	Duplicate	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353012	W502B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
30284353013	W 504A	EPA 903.1	MK1	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30284353014	W 504B	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: April 03, 2019

General Information:

14 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: April 03, 2019

General Information:

14 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: April 03, 2019

General Information:

14 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Sample: Field Blank **Lab ID: 30284353001** Collected: 03/12/19 09:00 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0648 ± 0.421 (0.849) C:NA T:97%	pCi/L	03/28/19 20:37	13982-63-3	
Radium-228	EPA 904.0	0.991 ± 0.434 (0.719) C:76% T:94%	pCi/L	04/02/19 16:03	15262-20-1	
Total Radium	Total Radium Calculation	1.06 ± 0.855 (1.57)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 603A **Lab ID: 30284353002** Collected: 03/12/19 09:35 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.571 ± 0.563 (0.857) C:NA T:86%	pCi/L	03/28/19 20:37	13982-63-3	
Radium-228	EPA 904.0	0.847 ± 0.461 (0.843) C:76% T:86%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.42 ± 1.02 (1.70)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 604A **Lab ID: 30284353003** Collected: 03/12/19 10:15 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.173 ± 0.635 (1.22) C:NA T:79%	pCi/L	03/28/19 20:37	13982-63-3	
Radium-228	EPA 904.0	0.253 ± 0.352 (0.756) C:74% T:94%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.426 ± 0.987 (1.98)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 605A **Lab ID: 30284353004** Collected: 03/12/19 11:15 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.216 ± 0.425 (1.02) C:NA T:89%	pCi/L	03/28/19 20:37	13982-63-3	
Radium-228	EPA 904.0	0.736 ± 0.461 (0.862) C:74% T:73%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.736 ± 0.886 (1.88)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 506A **Lab ID: 30284353005** Collected: 03/12/19 12:00 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.274 ± 0.315 (0.186) C:NA T:86%	pCi/L	03/28/19 20:37	13982-63-3	
Radium-228	EPA 904.0	0.547 ± 0.418 (0.832) C:76% T:87%	pCi/L	04/02/19 16:04	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Sample: W 506A		Lab ID: 30284353005	Collected: 03/12/19 12:00	Received: 03/15/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.821 ± 0.733 (1.02)		pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 601A		Lab ID: 30284353006	Collected: 03/12/19 13:30	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.0680 ± 0.442 (0.891) C:NA T:89%	pCi/L	03/28/19 20:50	13982-63-3	
Radium-228	EPA 904.0	0.456 ± 0.392 (0.793) C:72% T:93%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.524 ± 0.834 (1.68)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 600A		Lab ID: 30284353007	Collected: 03/12/19 14:35	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.077 ± 0.402 (0.930) C:NA T:77%	pCi/L	03/28/19 20:50	13982-63-3	
Radium-228	EPA 904.0	1.08 ± 0.494 (0.835) C:73% T:84%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.08 ± 0.896 (1.77)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 7A		Lab ID: 30284353008	Collected: 03/13/19 09:40	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.324 ± 0.383 (0.602) C:NA T:92%	pCi/L	03/28/19 20:50	13982-63-3	
Radium-228	EPA 904.0	0.0840 ± 0.381 (0.866) C:73% T:81%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.408 ± 0.764 (1.47)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 602A		Lab ID: 30284353009	Collected: 03/13/19 10:30	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.262 ± 0.364 (0.608) C:NA T:95%	pCi/L	03/28/19 20:50	13982-63-3	
Radium-228	EPA 904.0	0.762 ± 0.381 (0.670) C:74% T:105%	pCi/L	04/02/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 0.745 (1.28)	pCi/L	04/03/19 15:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Sample: W 502A		Lab ID: 30284353010	Collected: 03/13/19 11:30	Received: 03/15/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.610 ± 0.446 (0.498) C:NA T:91%		pCi/L	03/28/19 20:50	13982-63-3	
Radium-228	EPA 904.0	1.80 ± 0.658 (1.04) C:75% T:86%		pCi/L	04/02/19 15:59	15262-20-1	
Total Radium	Total Radium Calculation	2.41 ± 1.10 (1.54)		pCi/L	04/03/19 15:58	7440-14-4	

Sample: Duplicate		Lab ID: 30284353011	Collected: 03/13/19 11:30	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.352 ± 0.547 (0.947) C:NA T:73%	pCi/L	03/28/19 20:50	13982-63-3	
Radium-228	EPA 904.0	0.666 ± 0.513 (1.03) C:73% T:80%	pCi/L	04/02/19 15:59	15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 1.06 (1.98)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W502B		Lab ID: 30284353012	Collected: 03/13/19 12:10	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.291 ± 0.572 (1.03) C:NA T:87%	pCi/L	03/28/19 21:02	13982-63-3	
Radium-228	EPA 904.0	1.06 ± 0.574 (1.06) C:72% T:80%	pCi/L	04/02/19 15:59	15262-20-1	
Total Radium	Total Radium Calculation	1.35 ± 1.15 (2.09)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 504A		Lab ID: 30284353013	Collected: 03/13/19 13:10	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.222 ± 0.481 (1.11) C:NA T:89%	pCi/L	03/28/19 21:02	13982-63-3	
Radium-228	EPA 904.0	0.341 ± 0.489 (1.05) C:70% T:85%	pCi/L	04/02/19 15:59	15262-20-1	
Total Radium	Total Radium Calculation	0.341 ± 0.970 (2.16)	pCi/L	04/03/19 15:58	7440-14-4	

Sample: W 504B		Lab ID: 30284353014	Collected: 03/13/19 13:45	Received: 03/15/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.807 ± 0.539 (0.668) C:NA T:98%	pCi/L	03/28/19 21:02	13982-63-3	
Radium-228	EPA 904.0	0.604 ± 0.489 (0.995) C:75% T:93%	pCi/L	04/02/19 15:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

Sample: W 504B		Lab ID: 30284353014	Collected: 03/13/19 13:45	Received: 03/15/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.41 ± 1.03 (1.66)		pCi/L	04/03/19 15:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

QC Batch:	334212	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30284353001, 30284353002, 30284353003, 30284353004, 30284353005, 30284353006, 30284353007, 30284353008, 30284353009, 30284353010, 30284353011, 30284353012, 30284353013, 30284353014		

METHOD BLANK:	1626555	Matrix:	Water
Associated Lab Samples:	30284353001, 30284353002, 30284353003, 30284353004, 30284353005, 30284353006, 30284353007, 30284353008, 30284353009, 30284353010, 30284353011, 30284353012, 30284353013, 30284353014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.447 ± 0.341 (0.671) C:78% T:92%	pCi/L	04/02/19 16:07	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL - RADIOCHEMISTRY

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

QC Batch:	334202	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30284353001, 30284353002, 30284353003, 30284353004, 30284353005, 30284353006, 30284353007, 30284353008, 30284353009, 30284353010, 30284353011, 30284353012, 30284353013, 30284353014		

METHOD BLANK:	1626544	Matrix:	Water
Associated Lab Samples:	30284353001, 30284353002, 30284353003, 30284353004, 30284353005, 30284353006, 30284353007, 30284353008, 30284353009, 30284353010, 30284353011, 30284353012, 30284353013, 30284353014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.137 ± 0.381 (0.899) C:NA T:88%	pCi/L	03/28/19 20:37	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 19-01745,Xcel Energy-Black Dog

Pace Project No.: 30284353

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Xcel Energy
Address: 200 Pace MN Field
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: David Anderson
Copy To: Tom Halverson
Purchase Order No.:
Project Name: 19-01745, Xcel Energy -
Project Number: Black Dog CCR, March 2019

Section C

Invoice Information:

Attention: Ciara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Cabin Ferris
Pace Profile #:

Page: 1 of 2

2286821

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE:

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Codes Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Y/N	Requested Analysis Filtered (Y/N)										Resid.	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
						COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol			Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
① Client needs to analyze for: Radium 226+228 PC/L Combined.	David Anderson/Pace	3/14/19	1145	Emily	3-15-19	0930	N/A	N	N	Y

② RA-226 EPA 903.1
RA-228 EPA 904.0
ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: David Anderson
SIGNATURE of SAMPLER: David Anderson
DATE Signed (MM/DD/YY): 3/13/19

Temp in °C
Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

Pittsburgh Lab Sample Condition Upon Receipt



Client Name:

Xcel Energy

Project #

30284353

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 4638 0195 3252

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ no

Thermometer Used N/A

Type of Ice: Wet Blue None

Cooler Temperature Observed Temp °C Correction Factor: °C Final Temp: °C

Temp should be above freezing to 6°C

Label	ET
LIMS Login	ET

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	/			1. 10D3581
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: WT				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):	/			7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
All containers needing preservation are found to be in compliance with EPA recommendation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed ET Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed ET Date: 3-15-19

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

15 May 2019

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc: Removed analysis per client request. HSD
5/15/19

Enclosed are the results of analyses for samples received by the laboratory on 03/14/2019 10:50. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MEC0098-01	Water	03/12/2019 9:00	03/14/2019 10:50
W603A		MEC0098-02	Water	03/12/2019 9:35	03/14/2019 10:50
W604A		MEC0098-03	Water	03/12/2019 10:15	03/14/2019 10:50
W605A		MEC0098-04	Water	03/12/2019 11:15	03/14/2019 10:50
W506A		MEC0098-05	Water	03/12/2019 12:00	03/14/2019 10:50
W601A		MEC0098-06	Water	03/12/2019 13:30	03/14/2019 10:50
W600A		MEC0098-07	Water	03/12/2019 14:35	03/14/2019 10:50
W7A		MEC0098-08	Water	03/13/2019 9:40	03/14/2019 10:50
W602A		MEC0098-09	Water	03/13/2019 10:30	03/14/2019 10:50
W502A		MEC0098-10	Water	03/13/2019 11:30	03/14/2019 10:50
Duplicate		MEC0098-11	Water	03/13/2019 11:30	03/14/2019 10:50
W502B		MEC0098-12	Water	03/13/2019 12:10	03/14/2019 10:50
W504A		MEC0098-13	Water	03/13/2019 13:10	03/14/2019 10:50
W504B		MEC0098-14	Water	03/13/2019 13:45	03/14/2019 10:50

Amended Report

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0851

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Field Blank

MEC0098-01 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 10:43	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 10:43	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 10:43	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 14:48	SM 2320B	CRL
pH	6.69		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 14:48	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BEC0246	3/15/19 8:36	3/15/19 8:36	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:18	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:24	EPA 200.7	HRD
Calcium	< 1.50	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:22	EPA 200.7	HRD
Potassium	< 1.50	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:22	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:22	EPA 200.7	HRD
Magnesium	< 1.50	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:23	EPA 200.7	HRD
Sodium	< 1.50	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:22	EPA 200.7	HRD



Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

Field Blank

MEC0098-01 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:05	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W603A

MEC0098-02 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	69.6	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:04	EPA 300.0	CRL
Sulfate	261	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:04	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	40.5	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 14:54	SM 2320B	CRL
pH	9.07		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 14:54	SM 4500-H+ B	CRL
Total Dissolved Solids	542	20.0	mg/L		1	BEC0246	3/15/19 8:36	3/15/19 8:36	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.18	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Barium	42.8	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Molybdenum	158	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Antimony	1.21	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Selenium	1.42	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:30	EPA 200.8	CRL

Total Metals by ICP

Boron	5.30	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:39	EPA 200.7	HRD
Calcium	57.5	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:38	EPA 200.7	HRD
Potassium	13.5	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:38	EPA 200.7	HRD
Lithium	0.109	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:38	EPA 200.7	HRD
Magnesium	7.61	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:38	EPA 200.7	HRD
Sodium	90.4	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:38	EPA 200.7	HRD



Amended Report

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0851

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W603A

MEC0098-02 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:07	EPA 245.1, 7470A	HRD

Amended Report

 Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
 0851

 Minneapolis Testing Laboratory
 1518 Chestnut Ave N
 Minneapolis, MN 55043
 Certification # MN-027-053-197
 WI-999071150
 Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W604A

MEC0098-03 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	59.5	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:24	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:24	EPA 300.0	CRL
Sulfate	265	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:24	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	64.6	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:06	SM 2320B	CRL
pH	8.98		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:06	SM 4500-H+ B	CRL
Total Dissolved Solids	544	20.0	mg/L		1	BEC0246	3/15/19 8:36	3/15/19 8:36	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.56	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Barium	46.1	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Molybdenum	122	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Antimony	0.845	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Selenium	6.54	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:34	EPA 200.8	CRL

Total Metals by ICP

Boron	3.39	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:45	EPA 200.7	HRD
Calcium	67.4	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:43	EPA 200.7	HRD
Potassium	5.33	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:43	EPA 200.7	HRD
Lithium	0.0291	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:43	EPA 200.7	HRD
Magnesium	12.7	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:44	EPA 200.7	HRD
Sodium	82.7	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:43	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W604A

MEC0098-03 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:08	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W605A

MEC0098-04 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	65.4	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:45	EPA 300.0	CRL
Sulfate	247	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 11:45	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	66.2	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:11	SM 2320B	CRL
pH	8.08		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:11	SM 4500-H+ B	CRL
Total Dissolved Solids	520	20.0	mg/L		1	BEC0246	3/15/19 8:36	3/15/19 8:36	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.69	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Barium	49.8	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Molybdenum	88.8	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:38	EPA 200.8	CRL

Total Metals by ICP

Boron	2.35	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:50	EPA 200.7	HRD
Calcium	63.7	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:48	EPA 200.7	HRD
Potassium	4.70	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:48	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:48	EPA 200.7	HRD
Magnesium	14.5	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:49	EPA 200.7	HRD
Sodium	78.2	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:48	EPA 200.7	HRD



Amended Report

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0851

Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W605A

MEC0098-04 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:14	EPA 245.1, 7470A	HRD



Amended Report

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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W506A

MEC0098-05 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	25.7	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 12:25	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 12:25	EPA 300.0	CRL
Sulfate	550	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 12:25	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	132	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:17	SM 2320B	CRL
pH	7.16		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:17	SM 4500-H+ B	CRL
Total Dissolved Solids	1020	20.0	mg/L		1	BEC0246	3/15/19 8:36	3/15/19 8:36	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.38	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Barium	11.1	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Cadmium	1.98	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Cobalt	5.20	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Molybdenum	30.6	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:41	EPA 200.8	CRL

Total Metals by ICP

Boron	2.75	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:54	EPA 200.7	HRD
Calcium	223	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:53	EPA 200.7	HRD
Potassium	7.30	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:53	EPA 200.7	HRD
Lithium	0.0626	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:53	EPA 200.7	HRD
Magnesium	17.2	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:54	EPA 200.7	HRD
Sodium	33.8	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:53	EPA 200.7	HRD



Amended Report

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Christine Keefe, Manager (612) 630-4506

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W506A

MEC0098-05 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:15	EPA 245.1, 7470A	HRD



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W601A

MEC0098-06 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	139	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 13:06	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 13:06	EPA 300.0	CRL
Sulfate	1130	10.0	mg/L		10	BEC0244	3/15/19 5:54	3/15/19 12:46	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	114	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:24	SM 2320B	CRL
pH	10.6		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:24	SM 4500-H+ B	CRL
Total Dissolved Solids	1890	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	10.0	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Barium	59.0	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Chromium	0.638	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Molybdenum	279	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Antimony	0.868	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Selenium	33.6	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:45	EPA 200.8	CRL

Total Metals by ICP

Boron	8.19	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:00	EPA 200.7	HRD
Calcium	276	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:58	EPA 200.7	HRD
Potassium	43.8	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:58	EPA 200.7	HRD
Lithium	0.334	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:58	EPA 200.7	HRD
Magnesium	< 1.50	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:59	EPA 200.7	HRD
Sodium	269	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 14:58	EPA 200.7	HRD



Amended Report

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Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W601A

MEC0098-06 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:17	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W600A

MEC0098-07 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	26.6	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 13:47	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 13:47	EPA 300.0	CRL
Sulfate	1880	10.0	mg/L		10	BEC0244	3/15/19 5:54	3/15/19 13:27	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	115	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:29	SM 2320B	CRL
pH	6.92		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:29	SM 4500-H+ B	CRL
Total Dissolved Solids	2860	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	37.4	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Barium	26.1	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Cadmium	0.126	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Cobalt	4.34	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Chromium	0.631	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Molybdenum	76.4	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:49	EPA 200.8	CRL

Total Metals by ICP

Boron	14.3	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:05	EPA 200.7	HRD
Calcium	575	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:04	EPA 200.7	HRD
Potassium	22.6	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:04	EPA 200.7	HRD
Lithium	0.247	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:04	EPA 200.7	HRD
Magnesium	82.2	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:04	EPA 200.7	HRD
Sodium	59.1	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:04	EPA 200.7	HRD



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Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W600A

MEC0098-07 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:19	EPA 245.1, 7470A	HRD



Amended Report

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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W7A

MEC0098-08 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	142	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 14:07	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 14:07	EPA 300.0	CRL
Sulfate	196	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 14:07	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	246	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:35	SM 2320B	CRL
pH	7.66		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:35	SM 4500-H+ B	CRL
Total Dissolved Solids	778	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.29	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Barium	52.8	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Cadmium	0.123	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Molybdenum	81.2	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:53	EPA 200.8	CRL

Total Metals by ICP

Boron	1.95	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:10	EPA 200.7	HRD
Calcium	86.2	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:09	EPA 200.7	HRD
Potassium	3.18	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:09	EPA 200.7	HRD
Lithium	0.0223	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:09	EPA 200.7	HRD
Magnesium	21.2	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:09	EPA 200.7	HRD
Sodium	136	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:09	EPA 200.7	HRD



Amended Report

Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W7A

MEC0098-08 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:20	EPA 245.1, 7470A	HRD

Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W602A

MEC0098-09 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	191	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 14:28	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 14:28	EPA 300.0	CRL
Sulfate	310	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 14:28	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	294	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:42	SM 2320B	CRL
pH	7.71		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:42	SM 4500-H+ B	CRL
Total Dissolved Solids	1080	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.14	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Barium	77.4	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Cobalt	1.88	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Molybdenum	68.6	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 8:57	EPA 200.8	CRL

Total Metals by ICP

Boron	1.11	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:15	EPA 200.7	HRD
Calcium	127	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:14	EPA 200.7	HRD
Potassium	1.93	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:14	EPA 200.7	HRD
Lithium	0.0249	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:14	EPA 200.7	HRD
Magnesium	31.3	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:14	EPA 200.7	HRD
Sodium	171	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:14	EPA 200.7	HRD



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Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W602A

MEC0098-09 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:22	EPA 245.1, 7470A	HRD



Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W502A

MEC0098-10 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	94.8	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 16:51	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 16:51	EPA 300.0	CRL
Sulfate	1470	10.0	mg/L		10	BEC0244	3/15/19 5:54	3/15/19 16:30	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	331	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:49	SM 2320B	CRL
pH	7.43		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:49	SM 4500-H+ B	CRL
Total Dissolved Solids	2630	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	37.3	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Barium	80.4	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Cobalt	3.89	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Molybdenum	63.9	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:01	EPA 200.8	CRL

Total Metals by ICP

Boron	8.34	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:20	EPA 200.7	HRD
Calcium	490	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:19	EPA 200.7	HRD
Potassium	15.0	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:19	EPA 200.7	HRD
Lithium	0.0797	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:19	EPA 200.7	HRD
Magnesium	70.0	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:19	EPA 200.7	HRD
Sodium	142	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:19	EPA 200.7	HRD



Amended Report

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0851

Minneapolis Testing Laboratory
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Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W502A

MEC0098-10 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:24	EPA 245.1, 7470A	HRD

Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Minneapolis Testing Laboratory
1518 Chestnut Ave N
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Certification # MN-027-053-197
WI-999071150
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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Duplicate

MEC0098-11 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	94.9	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 17:32	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 17:32	EPA 300.0	CRL
Sulfate	1480	10.0	mg/L		10	BEC0244	3/15/19 5:54	3/15/19 17:11	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	322	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 15:55	SM 2320B	CRL
pH	7.45		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 15:55	SM 4500-H+ B	CRL
Total Dissolved Solids	2610	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	37.5	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Barium	80.2	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Cobalt	4.02	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Molybdenum	63.6	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:05	EPA 200.8	CRL

Total Metals by ICP

Boron	8.39	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:25	EPA 200.7	HRD
Calcium	486	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:24	EPA 200.7	HRD
Potassium	14.7	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:24	EPA 200.7	HRD
Lithium	0.0777	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:24	EPA 200.7	HRD
Magnesium	69.6	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:24	EPA 200.7	HRD
Sodium	141	1.50	mg/L		1	BEC0318	3/19/19 10:46	3/20/19 15:24	EPA 200.7	HRD



Amended Report

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Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

Duplicate

MEC0098-11 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:26	EPA 245.1, 7470A	HRD

Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W502B

MEC0098-12 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	84.2	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:13	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:13	EPA 300.0	CRL
Sulfate	1190	10.0	mg/L		10	BEC0244	3/15/19 5:54	3/15/19 17:52	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	394	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 16:09	SM 2320B	CRL
pH	7.32		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 16:09	SM 4500-H+ B	CRL
Total Dissolved Solids	2130	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.12	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Barium	143	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:17	EPA 200.8	CRL

Total Metals by ICP

Boron	3.80	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:31	EPA 200.7	HRD
Calcium	457	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:30	EPA 200.7	HRD
Potassium	2.16	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:30	EPA 200.7	HRD
Lithium	0.0276	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:30	EPA 200.7	HRD
Magnesium	117	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:30	EPA 200.7	HRD
Sodium	65.1	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:30	EPA 200.7	HRD



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Christine Keefe, Manager (612) 630-4506

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W502B

MEC0098-12 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:27	EPA 245.1, 7470A	HRD



Amended Report

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W504A

MEC0098-13 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	105	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:33	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:33	EPA 300.0	CRL
Sulfate	661	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:33	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	544	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 16:17	SM 2320B	CRL
pH	7.24		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 16:17	SM 4500-H+ B	CRL
Total Dissolved Solids	1780	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.69	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Barium	23.8	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Cobalt	1.44	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Molybdenum	45.4	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Lead	1.47	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:21	EPA 200.8	CRL

Total Metals by ICP

Boron	10.9	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:37	EPA 200.7	HRD
Calcium	330	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:35	EPA 200.7	HRD
Potassium	2.60	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:35	EPA 200.7	HRD
Lithium	0.0364	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:35	EPA 200.7	HRD
Magnesium	81.1	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:36	EPA 200.7	HRD
Sodium	144	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:35	EPA 200.7	HRD



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Minneapolis Testing Laboratory
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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W504A

MEC0098-13 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:29	EPA 245.1, 7470A	HRD



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

W504B

MEC0098-14 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	43.0	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:53	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:53	EPA 300.0	CRL
Sulfate	3.23	1.00	mg/L		1	BEC0244	3/15/19 5:54	3/15/19 18:53	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	790	10.0	mg/L		1	BEC0230	3/14/19 11:49	3/14/19 16:26	SM 2320B	CRL
pH	7.43		pH Units	M_TTT	1	BEC0230	3/14/19 11:49	3/14/19 16:26	SM 4500-H+ B	CRL
Total Dissolved Solids	832	20.0	mg/L		1	BEC0268	3/18/19 8:50	3/18/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	6.32	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Barium	350	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Molybdenum	0.763	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEC0319	3/19/19 10:52	3/20/19 9:25	EPA 200.8	CRL

Total Metals by ICP

Boron	0.356	0.0500	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:42	EPA 200.7	HRD
Calcium	205	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:40	EPA 200.7	HRD
Potassium	2.60	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:40	EPA 200.7	HRD
Lithium	0.0199	0.0150	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:40	EPA 200.7	HRD
Magnesium	76.7	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:41	EPA 200.7	HRD
Sodium	21.1	1.25	mg/L		1	BEC0318	3/19/19 10:46	3/25/19 12:40	EPA 200.7	HRD



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

W504B

MEC0098-14 (Water) - Chain of Custody Number: 2286822/2286820

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					
Mercury	< 0.200	0.200	ug/L		1	BEC0342	3/20/19 8:39	3/20/19 14:34	EPA 245.1, 7470A	HRD

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 Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0244 - Wet Prep

Blank (BEC0244-BLK1)				Prepared & Analyzed: 03/15/2019						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BEC0244-BLK2)				Prepared & Analyzed: 03/15/2019						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BEC0244-BS1)				Prepared & Analyzed: 03/15/2019						
Chloride	24.8	1.00	mg/L	25.000		99.1	90-110			
Fluoride	2.64	0.750	mg/L	2.5000		105	90-110			
Sulfate	48.4	1.00	mg/L	48.000		101	90-110			

LCS (BEC0244-BS2)				Prepared & Analyzed: 03/15/2019						
Chloride	25.2	1.00	mg/L	25.000		101	90-110			
Fluoride	2.74	0.750	mg/L	2.5000		109	90-110			
Sulfate	49.7	1.00	mg/L	48.000		104	90-110			

LCS (BEC0244-BS3)				Prepared & Analyzed: 03/15/2019						
Chloride	25.0	1.00	mg/L	25.000		100	90-110			
Fluoride	2.74	0.750	mg/L	2.5000		110	90-110			
Sulfate	49.4	1.00	mg/L	48.000		103	90-110			

Duplicate (BEC0244-DUP1)				Source: MEC0098-02		Prepared & Analyzed: 03/15/2019				
Chloride	68.6	1.00	mg/L		69.6			1.32	20	
Fluoride	0.318	0.750	mg/L		0.341			6.98	20	
Sulfate	258	1.00	mg/L		261			1.10	20	

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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0244 - Wet Prep

Duplicate (BEC0244-DUP2)	Source: MEC0098-14			Prepared & Analyzed: 03/15/2019						
Chloride	42.6	1.00	mg/L		43.0			1.01	20	
Fluoride	0.367	0.750	mg/L		0.344			6.47	20	
Sulfate	3.17	1.00	mg/L		3.23			1.88	20	

Matrix Spike (BEC0244-MS1)	Source: MEC0098-02			Prepared & Analyzed: 03/15/2019						
Chloride	101	1.25	mg/L	31.250	69.6	99.2	80-120			
Fluoride	3.37	0.938	mg/L	3.1250	<0.938	108	80-120			
Sulfate	320	1.25	mg/L	60.000	261	98.5	80-120			

Matrix Spike (BEC0244-MS2)	Source: MEC0098-14			Prepared & Analyzed: 03/15/2019						
Chloride	74.8	1.25	mg/L	31.250	43.0	102	80-120			
Fluoride	3.52	0.938	mg/L	3.1250	<0.938	113	80-120			
Sulfate	66.5	1.25	mg/L	60.000	3.23	105	80-120			

Matrix Spike Dup (BEC0244-MSD1)	Source: MEC0098-02			Prepared & Analyzed: 03/15/2019						
Chloride	101	1.25	mg/L	31.250	69.6	99.6	80-120	0.134	20	
Fluoride	3.68	0.938	mg/L	3.1250	<0.938	118	80-120	8.72	20	
Sulfate	320	1.25	mg/L	60.000	261	98.7	80-120	0.0359	20	

Matrix Spike Dup (BEC0244-MSD2)	Source: MEC0098-14			Prepared & Analyzed: 03/15/2019						
Chloride	75.2	1.25	mg/L	31.250	43.0	103	80-120	0.557	20	
Fluoride	3.67	0.938	mg/L	3.1250	<0.938	118	80-120	4.20	20	
Sulfate	67.0	1.25	mg/L	60.000	3.23	106	80-120	0.817	20	



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0230 - Wet Prep

LCS (BEC0230-BS1)		Prepared & Analyzed: 03/14/2019								
pH	7.08		pH Units	7.0000		101	90-110			
Alkalinity, Total	99.0		mg/L	100.00		99.0	90-110			

LCS (BEC0230-BS2)		Prepared & Analyzed: 03/14/2019								
Alkalinity, Total	98.9		mg/L	100.00		98.9	90-110			
pH	7.08		pH Units	7.0000		101	90-110			

Duplicate (BEC0230-DUP1)		Source: MEC0098-02		Prepared & Analyzed: 03/14/2019						
pH	9.21		pH Units		9.07			1.53	20	
Alkalinity, Total	45.0	10.0	mg/L		40.5			10.6	20	

Duplicate (BEC0230-DUP2)		Source: MEC0098-11		Prepared & Analyzed: 03/14/2019						
pH	7.44		pH Units		7.45			0.134	20	
Alkalinity, Total	323	10.0	mg/L		322			0.363	20	

Batch BEC0245 - Wet Prep

Blank (BEC0245-BLK1)		Prepared & Analyzed: 03/15/2019								
Total Suspended Solids	<4.00	4.00	mg/L							

Duplicate (BEC0245-DUP1)		Source: MEC0089-02		Prepared & Analyzed: 03/15/2019						
Total Suspended Solids	18.8	4.00	mg/L		18.4			2.15	20	

Batch BEC0246 - Wet Prep

Blank (BEC0246-BLK1)		Prepared & Analyzed: 03/15/2019								
Total Dissolved Solids	<20.0	20.0	mg/L							



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0246 - Wet Prep

Duplicate (BEC0246-DUP1)	Source: MEC0089-02		Prepared & Analyzed: 03/15/2019							
Total Dissolved Solids	978	20.0	mg/L		1000			2.62	20	

Batch BEC0267 - Wet Prep

Blank (BEC0267-BLK1)			Prepared & Analyzed: 03/18/2019							
Total Suspended Solids	<4.00	4.00	mg/L							

Duplicate (BEC0267-DUP1)	Source: MEC0098-06		Prepared & Analyzed: 03/18/2019							
Total Suspended Solids	4.00	4.00	mg/L		3.20			22.2	20	M_D-RL

Batch BEC0268 - Wet Prep

Blank (BEC0268-BLK1)			Prepared & Analyzed: 03/18/2019							
Total Dissolved Solids	<20.0	20.0	mg/L							

Duplicate (BEC0268-DUP1)	Source: MEC0098-06		Prepared & Analyzed: 03/18/2019							
Total Dissolved Solids	1980	20.0	mg/L		1890			4.24	20	



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/15/2019 11:44

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0319 - EPA 200.2, EPA 3005

Blank (BEC0319-BLK1)

Prepared: 03/19/2019 Analyzed: 03/20/2019

Selenium	<0.500	0.500	ug/L
Molybdenum	<0.500	0.500	ug/L
Cadmium	<0.100	0.100	ug/L
Cobalt	<0.500	0.500	ug/L
Chromium	<0.500	0.500	ug/L
Arsenic	<0.500	0.500	ug/L
Lead	<0.500	0.500	ug/L
Antimony	<0.500	0.500	ug/L
Thallium	<0.500	0.500	ug/L
Beryllium	<0.500	0.500	ug/L
Barium	<0.500	0.500	ug/L

LCS (BEC0319-BS1)

Prepared: 03/19/2019 Analyzed: 03/20/2019

Beryllium	93.2	0.500	ug/L	100.00	93.2	85-115
Cadmium	96.4	0.100	ug/L	100.00	96.4	85-115
Cobalt	100	0.500	ug/L	100.00	100	85-115
Thallium	100	0.500	ug/L	100.00	100	85-115
Arsenic	102	0.500	ug/L	100.00	102	85-115
Chromium	101	0.500	ug/L	100.00	101	85-115
Molybdenum	97.2	0.500	ug/L	100.00	97.2	85-115
Selenium	101	0.500	ug/L	100.00	101	85-115
Antimony	102	0.500	ug/L	100.00	102	85-115
Barium	102	0.500	ug/L	100.00	102	85-115
Lead	99.7	0.500	ug/L	100.00	99.7	85-115

Duplicate (BEC0319-DUP1)

Source: MEC0098-04

Prepared: 03/19/2019 Analyzed: 03/20/2019

Chromium	0.209	0.500	ug/L	0.206	1.24	20	
Beryllium	0.0549	0.500	ug/L	0.0197	94.2	20	M_D-RL
Arsenic	4.24	0.500	ug/L	4.69	9.97	20	
Barium	49.8	0.500	ug/L	49.8	0.0989	20	
Cadmium	<0.100	0.100	ug/L	<0.100		20	
Molybdenum	88.4	0.500	ug/L	88.8	0.426	20	
Cobalt	0.143	0.500	ug/L	0.118	19.4	20	
Lead	0.0483	0.500	ug/L	0.0373	25.7	20	M_D-RL
Antimony	0.229	0.500	ug/L	0.203	12.0	20	
Selenium	0.164	0.500	ug/L	0.352	72.6	20	M_D-RL
Thallium	0.0186	0.500	ug/L	<0.500		20	



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0319 - EPA 200.2, EPA 3005

Duplicate (BEC0319-DUP2)	Source: MEC0098-05			Prepared: 03/19/2019 Analyzed: 03/20/2019						
Cobalt	5.12	0.500	ug/L		5.20			1.67	20	
Arsenic	2.43	0.500	ug/L		2.38			2.03	20	
Barium	11.2	0.500	ug/L		11.1			1.44	20	
Beryllium	0.0348	0.500	ug/L		0.0343			1.49	20	
Thallium	0.404	0.500	ug/L		0.395			2.23	20	
Cadmium	1.99	0.100	ug/L		1.98			0.558	20	
Chromium	0.0923	0.500	ug/L		0.0724			24.2	20	M_D-RL
Molybdenum	30.8	0.500	ug/L		30.6			0.820	20	
Lead	0.0322	0.500	ug/L		0.0318			1.35	20	
Antimony	0.105	0.500	ug/L		0.0816			24.9	20	M_D-RL
Selenium	<0.500	0.500	ug/L		0.0898				20	

Matrix Spike (BEC0319-MS1)	Source: MEC0098-04			Prepared: 03/19/2019 Analyzed: 03/20/2019						
Cobalt	97.9	0.500	ug/L	100.00	0.118	97.7	70-130			
Thallium	94.0	0.500	ug/L	100.00	<0.500	94.0	70-130			
Lead	91.3	0.500	ug/L	100.00	0.0373	91.3	70-130			
Arsenic	109	0.500	ug/L	100.00	4.69	105	70-130			
Selenium	98.8	0.500	ug/L	100.00	0.352	98.5	70-130			
Cadmium	94.9	0.100	ug/L	100.00	<0.100	94.9	70-130			
Antimony	101	0.500	ug/L	100.00	0.203	101	70-130			
Beryllium	94.9	0.500	ug/L	100.00	0.0197	94.8	70-130			
Molybdenum	197	0.500	ug/L	100.00	88.8	108	70-130			
Barium	152	0.500	ug/L	100.00	49.8	103	70-130			
Chromium	101	0.500	ug/L	100.00	0.206	100	70-130			

Matrix Spike (BEC0319-MS2)	Source: MEC0098-05			Prepared: 03/19/2019 Analyzed: 03/20/2019						
Selenium	102	0.500	ug/L	100.00	0.0898	102	70-130			
Cadmium	96.1	0.100	ug/L	100.00	1.98	94.1	70-130			
Chromium	99.8	0.500	ug/L	100.00	0.0724	99.7	70-130			
Cobalt	105	0.500	ug/L	100.00	5.20	99.4	70-130			
Thallium	93.8	0.500	ug/L	100.00	0.395	93.4	70-130			
Arsenic	112	0.500	ug/L	100.00	2.38	110	70-130			
Molybdenum	129	0.500	ug/L	100.00	30.6	97.9	70-130			
Barium	112	0.500	ug/L	100.00	11.1	101	70-130			
Beryllium	89.0	0.500	ug/L	100.00	0.0343	88.9	70-130			
Antimony	99.0	0.500	ug/L	100.00	0.0816	98.9	70-130			
Lead	89.0	0.500	ug/L	100.00	0.0318	88.9	70-130			



Amended Report

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0319 - EPA 200.2, EPA 3005

Matrix Spike Dup (BEC0319-MSD1)		Source: MEC0098-04			Prepared: 03/19/2019 Analyzed: 03/20/2019					
Beryllium	94.3	0.500	ug/L	100.00	0.0197	94.3	70-130	0.563	20	
Arsenic	109	0.500	ug/L	100.00	4.69	104	70-130	0.417	20	
Chromium	101	0.500	ug/L	100.00	0.206	101	70-130	0.575	20	
Barium	150	0.500	ug/L	100.00	49.8	100	70-130	1.48	20	
Selenium	99.6	0.500	ug/L	100.00	0.352	99.2	70-130	0.753	20	
Cobalt	98.7	0.500	ug/L	100.00	0.118	98.6	70-130	0.870	20	
Antimony	102	0.500	ug/L	100.00	0.203	102	70-130	0.815	20	
Cadmium	96.4	0.100	ug/L	100.00	<0.100	96.4	70-130	1.63	20	
Molybdenum	192	0.500	ug/L	100.00	88.8	103	70-130	2.87	20	
Thallium	92.4	0.500	ug/L	100.00	<0.500	92.4	70-130	1.71	20	
Lead	92.2	0.500	ug/L	100.00	0.0373	92.2	70-130	0.997	20	
Matrix Spike Dup (BEC0319-MSD2)		Source: MEC0098-05			Prepared: 03/19/2019 Analyzed: 03/20/2019					
Molybdenum	132	0.500	ug/L	100.00	30.6	101	70-130	2.31	20	
Selenium	102	0.500	ug/L	100.00	0.0898	102	70-130	0.0869	20	
Cobalt	104	0.500	ug/L	100.00	5.20	98.7	70-130	0.704	20	
Cadmium	94.5	0.100	ug/L	100.00	1.98	92.5	70-130	1.61	20	
Beryllium	90.6	0.500	ug/L	100.00	0.0343	90.6	70-130	1.86	20	
Thallium	94.9	0.500	ug/L	100.00	0.395	94.5	70-130	1.18	20	
Lead	89.2	0.500	ug/L	100.00	0.0318	89.1	70-130	0.230	20	
Arsenic	113	0.500	ug/L	100.00	2.38	111	70-130	0.954	20	
Chromium	101	0.500	ug/L	100.00	0.0724	101	70-130	0.971	20	
Antimony	100	0.500	ug/L	100.00	0.0816	100	70-130	1.47	20	
Barium	114	0.500	ug/L	100.00	11.1	103	70-130	2.29	20	



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0318 - EPA 200.2, EPA 3005

Blank (BEC0318-BLK1)

Prepared: 03/19/2019 Analyzed: 03/20/2019

Boron	<0.0500	0.0500	mg/L
Calcium	<1.50	1.50	mg/L
Sodium	<1.50	1.50	mg/L
Magnesium	<1.50	1.50	mg/L
Lithium	<0.0150	0.0150	mg/L
Potassium	<1.50	1.50	mg/L

LCS (BEC0318-BS1)

Prepared: 03/19/2019 Analyzed: 03/20/2019

Potassium	98.7	1.50	mg/L	100.00	98.7	85-115
Boron	0.979	0.0500	mg/L	1.0000	97.9	85-115
Lithium	0.992	0.0150	mg/L	1.0000	99.2	85-115
Magnesium	101	1.50	mg/L	100.00	101	85-115
Calcium	102	1.50	mg/L	100.00	102	85-115
Sodium	103	1.50	mg/L	100.00	103	85-115

Duplicate (BEC0318-DUP1)

Source: MEC0098-02

Prepared: 03/19/2019 Analyzed: 03/20/2019

Potassium	14.5	1.50	mg/L	13.5	6.78	20
Calcium	60.5	1.50	mg/L	57.5	4.97	20
Boron	5.48	0.0500	mg/L	5.30	3.45	20
Sodium	94.8	1.50	mg/L	90.4	4.72	20
Magnesium	7.98	1.50	mg/L	7.61	4.63	20
Lithium	0.114	0.0150	mg/L	0.109	4.86	20

Duplicate (BEC0318-DUP2)

Source: MEC0098-03

Prepared: 03/19/2019 Analyzed: 03/20/2019

Sodium	83.4	1.50	mg/L	82.7	0.836	20
Potassium	5.42	1.50	mg/L	5.33	1.61	20
Calcium	68.0	1.50	mg/L	67.4	0.928	20
Magnesium	12.8	1.50	mg/L	12.7	0.518	20
Boron	3.46	0.0500	mg/L	3.39	1.97	20
Lithium	0.0292	0.0150	mg/L	0.0291	0.322	20



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/15/2019 11:44
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0318 - EPA 200.2, EPA 3005

Matrix Spike (BEC0318-MS1)		Source: MEC0098-02		Prepared: 03/19/2019 Analyzed: 03/20/2019						
Calcium	161	1.50	mg/L	100.00	57.5	103	70-130			
Boron	6.58	0.0500	mg/L	1.0000	5.30	129	70-130			
Lithium	1.10	0.0150	mg/L	1.0000	0.109	99.2	70-130			
Sodium	196	1.50	mg/L	100.00	90.4	106	70-130			
Magnesium	109	1.50	mg/L	100.00	7.61	101	70-130			
Potassium	112	1.50	mg/L	100.00	13.5	98.8	70-130			
Matrix Spike (BEC0318-MS2)		Source: MEC0098-03		Prepared: 03/19/2019 Analyzed: 03/20/2019						
Lithium	1.02	0.0150	mg/L	1.0000	0.0291	99.3	70-130			
Sodium	190	1.50	mg/L	100.00	82.7	107	70-130			
Potassium	104	1.50	mg/L	100.00	5.33	98.8	70-130			
Calcium	173	1.50	mg/L	100.00	67.4	105	70-130			
Boron	4.56	0.0500	mg/L	1.0000	3.39	117	70-130			
Magnesium	115	1.50	mg/L	100.00	12.7	102	70-130			
Matrix Spike Dup (BEC0318-MSD1)		Source: MEC0098-02		Prepared: 03/19/2019 Analyzed: 03/20/2019						
Sodium	202	1.50	mg/L	100.00	90.4	111	70-130	2.81	20	
Magnesium	110	1.50	mg/L	100.00	7.61	103	70-130	1.39	20	
Lithium	1.11	0.0150	mg/L	1.0000	0.109	100	70-130	1.00	20	
Potassium	114	1.50	mg/L	100.00	13.5	100	70-130	1.26	20	
Calcium	165	1.50	mg/L	100.00	57.5	107	70-130	2.40	20	
Boron	6.65	0.0500	mg/L	1.0000	5.30	136	70-130	1.05	20	M_MS
Matrix Spike Dup (BEC0318-MSD2)		Source: MEC0098-03		Prepared: 03/19/2019 Analyzed: 03/20/2019						
Lithium	1.00	0.0150	mg/L	1.0000	0.0291	97.2	70-130	2.09	20	
Boron	4.58	0.0500	mg/L	1.0000	3.39	119	70-130	0.383	20	
Sodium	187	1.50	mg/L	100.00	82.7	104	70-130	1.50	20	
Calcium	170	1.50	mg/L	100.00	67.4	103	70-130	1.44	20	
Magnesium	113	1.50	mg/L	100.00	12.7	100	70-130	1.82	20	
Potassium	102	1.50	mg/L	100.00	5.33	96.5	70-130	2.19	20	



Amended Report

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Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEC0342 - EPA 245.1, EPA 7470A

Blank (BEC0342-BLK1)				Prepared & Analyzed: 03/20/2019						
Mercury	<0.200	0.200	ug/L							
LCS (BEC0342-BS1)				Prepared & Analyzed: 03/20/2019						
Mercury	2.73	0.200	ug/L	3.0030		90.7	85-115			
Duplicate (BEC0342-DUP1)				Source: MEC0098-06		Prepared & Analyzed: 03/20/2019				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BEC0342-DUP2)				Source: MEC0098-07		Prepared & Analyzed: 03/20/2019				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Matrix Spike (BEC0342-MS1)				Source: MEC0098-06		Prepared & Analyzed: 03/20/2019				
Mercury	2.91	0.200	ug/L	3.0030	<0.200	97.0	70-130			
Matrix Spike (BEC0342-MS2)				Source: MEC0098-07		Prepared & Analyzed: 03/20/2019				
Mercury	2.83	0.200	ug/L	3.0030	<0.200	94.2	70-130			
Matrix Spike Dup (BEC0342-MSD1)				Source: MEC0098-06		Prepared & Analyzed: 03/20/2019				
Mercury	2.80	0.200	ug/L	3.0030	<0.200	93.1	70-130	4.07	20	
Matrix Spike Dup (BEC0342-MSD2)				Source: MEC0098-07		Prepared & Analyzed: 03/20/2019				
Mercury	2.85	0.200	ug/L	3.0030	<0.200	94.9	70-130	0.701	20	



Amended Report

Minneapolis Testing Laboratory
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Minneapolis, MN 55043
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Christine Keefe, Manager (612) 630-4506

Original Report ID: MEC0098 Xcel General Report FINAL 03 28 2019
0851

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/15/2019 11:44

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_MS	The percent recovery and/or RPD were outside the acceptance limits for the MS/MSD due to possible matrix interference and/or non-homogeneous sample matrix.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

June 07, 2019

Dave Anderson
Pace Analytical Services - Field Svcs Division
1700 Elm Street, Suite 200
Minneapolis, MN 55414

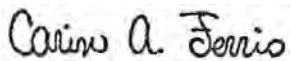
RE: Project: 19-01923,XCEL ENERGY Black Dog
Pace Project No.: 30295102

Dear Dave Anderson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

cc: Eric Ealy, Xcel Energy
Christine M. Keefe, Xcel Energy
Ciara Ruikkie, Pace Analytical Services - Field Svcs
Division



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 19-01923,XCEL ENERGY Black Dog
Pace Project No.: 30295102

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30295102001	Field Blank	Water	05/14/19 08:10	05/17/19 09:30
30295102002	W 603A	Water	05/14/19 08:50	05/17/19 09:30
30295102003	W 604A	Water	05/14/19 09:50	05/17/19 09:30
30295102004	W 605A	Water	05/14/19 10:50	05/17/19 09:30
30295102005	W 506A	Water	05/14/19 11:40	05/17/19 09:30
30295102006	W 601A	Water	05/14/19 12:30	05/17/19 09:30
30295102007	W 600A	Water	05/14/19 13:25	05/17/19 09:30
30295102008	W 504A	Water	05/14/19 14:10	05/17/19 09:30
30295102009	W 504B	Water	05/14/19 14:40	05/17/19 09:30
30295102010	W 502A	Water	05/15/19 09:10	05/17/19 09:30
30295102011	W 502B	Water	05/15/19 10:00	05/17/19 09:30
30295102012	Duplicate	Water	05/15/19 10:00	05/17/19 09:30
30295102013	W 602A	Water	05/15/19 10:50	05/17/19 09:30
30295102014	W 7A	Water	05/15/19 11:40	05/17/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30295102001	Field Blank	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102002	W 603A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102003	W 604A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102004	W 605A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102005	W 506A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102006	W 601A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102007	W 600A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102008	W 504A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102009	W 504B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102010	W 502A	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102011	W 502B	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102012	Duplicate	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30295102013	W 602A	EPA 903.1	MK1	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30295102014	W 7A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Method: EPA 903.1

Description: 903.1 Radium 226

Client: Pace-MN Field Services Division

Date: June 07, 2019

General Information:

14 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Method: EPA 904.0

Description: 904.0 Radium 228

Client: Pace-MN Field Services Division

Date: June 07, 2019

General Information:

14 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Method: Total Radium Calculation

Description: Total Radium 228+226

Client: Pace-MN Field Services Division

Date: June 07, 2019

General Information:

14 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Sample: Field Blank **Lab ID: 30295102001** Collected: 05/14/19 08:10 Received: 05/17/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.937 ± 0.678 (0.944) C:NA T:82%	pCi/L	06/06/19 10:43	13982-63-3	
Radium-228	EPA 904.0	0.0219 ± 0.764 (1.75) C:79% T:79%	pCi/L	06/03/19 21:03	15262-20-1	
Total Radium	Total Radium Calculation	0.959 ± 1.44 (2.69)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 603A **Lab ID: 30295102002** Collected: 05/14/19 08:50 Received: 05/17/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.236 ± 0.402 (0.709) C:NA T:95%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	0.150 ± 0.780 (1.77) C:79% T:69%	pCi/L	06/03/19 21:03	15262-20-1	
Total Radium	Total Radium Calculation	0.386 ± 1.18 (2.48)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 604A **Lab ID: 30295102003** Collected: 05/14/19 09:50 Received: 05/17/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.205 ± 0.484 (0.897) C:NA T:88%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	0.819 ± 0.824 (1.71) C:69% T:80%	pCi/L	06/03/19 21:03	15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 1.31 (2.61)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 605A **Lab ID: 30295102004** Collected: 05/14/19 10:50 Received: 05/17/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.473 ± 0.516 (0.811) C:NA T:83%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	-0.504 ± 0.635 (1.54) C:74% T:89%	pCi/L	06/03/19 21:03	15262-20-1	
Total Radium	Total Radium Calculation	0.473 ± 1.15 (2.35)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 506A **Lab ID: 30295102005** Collected: 05/14/19 11:40 Received: 05/17/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.126 ± 0.463 (0.890) C:NA T:87%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	0.0718 ± 0.709 (1.61) C:76% T:89%	pCi/L	06/03/19 21:03	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Sample: W 506A		Lab ID: 30295102005	Collected: 05/14/19 11:40	Received: 05/17/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.198 ± 1.17 (2.50)		pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 601A		Lab ID: 30295102006	Collected: 05/14/19 12:30	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.919 ± 0.547 (0.520) C:NA T:76%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	0.327 ± 0.586 (1.28) C:78% T:72%	pCi/L	06/03/19 19:45	15262-20-1	
Total Radium	Total Radium Calculation	1.25 ± 1.13 (1.80)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 600A		Lab ID: 30295102007	Collected: 05/14/19 13:25	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.516 ± 0.540 (0.845) C:NA T:87%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	0.278 ± 0.527 (1.16) C:73% T:91%	pCi/L	06/03/19 19:45	15262-20-1	
Total Radium	Total Radium Calculation	0.794 ± 1.07 (2.01)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 504A		Lab ID: 30295102008	Collected: 05/14/19 14:10	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.172 ± 0.373 (0.689) C:NA T:87%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	0.427 ± 0.376 (0.765) C:84% T:79%	pCi/L	06/06/19 12:50	15262-20-1	
Total Radium	Total Radium Calculation	0.599 ± 0.749 (1.45)	pCi/L	06/07/19 12:43	7440-14-4	

Sample: W 504B		Lab ID: 30295102009	Collected: 05/14/19 14:40	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.957 ± 0.624 (0.845) C:NA T:90%	pCi/L	06/06/19 10:56	13982-63-3	
Radium-228	EPA 904.0	1.12 ± 0.651 (1.20) C:76% T:83%	pCi/L	06/03/19 19:46	15262-20-1	
Total Radium	Total Radium Calculation	2.08 ± 1.28 (2.05)	pCi/L	06/06/19 14:43	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Sample: W 502A		Lab ID: 30295102010	Collected: 05/15/19 09:10	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.674 ± 0.471 (0.569) C:NA T:89%	pCi/L	06/06/19 11:19	13982-63-3	
Radium-228	EPA 904.0	0.458 ± 0.598 (1.27) C:75% T:76%	pCi/L	06/03/19 20:30	15262-20-1	
Total Radium	Total Radium Calculation	1.13 ± 1.07 (1.84)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 502B		Lab ID: 30295102011	Collected: 05/15/19 10:00	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.463 ± 0.428 (0.623) C:NA T:93%	pCi/L	06/06/19 11:19	13982-63-3	
Radium-228	EPA 904.0	0.409 ± 0.622 (1.35) C:71% T:88%	pCi/L	06/03/19 20:30	15262-20-1	
Total Radium	Total Radium Calculation	0.872 ± 1.05 (1.97)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: Duplicate		Lab ID: 30295102012	Collected: 05/15/19 10:00	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.631 ± 0.435 (0.465) C:NA T:89%	pCi/L	06/06/19 11:19	13982-63-3	
Radium-228	EPA 904.0	0.792 ± 0.653 (1.31) C:70% T:83%	pCi/L	06/03/19 20:30	15262-20-1	
Total Radium	Total Radium Calculation	1.42 ± 1.09 (1.78)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 602A		Lab ID: 30295102013	Collected: 05/15/19 10:50	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.495 ± 0.371 (0.192) C:NA T:82%	pCi/L	06/06/19 11:19	13982-63-3	
Radium-228	EPA 904.0	0.641 ± 0.645 (1.34) C:70% T:83%	pCi/L	06/03/19 20:30	15262-20-1	
Total Radium	Total Radium Calculation	1.14 ± 1.02 (1.53)	pCi/L	06/06/19 14:43	7440-14-4	

Sample: W 7A		Lab ID: 30295102014	Collected: 05/15/19 11:40	Received: 05/17/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.556 ± 0.383 (0.409) C:NA T:93%	pCi/L	06/06/19 11:19	13982-63-3	
Radium-228	EPA 904.0	1.15 ± 0.785 (1.52) C:75% T:72%	pCi/L	06/03/19 20:30	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

Sample: W 7A		Lab ID: 30295102014	Collected: 05/15/19 11:40	Received: 05/17/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.71 ± 1.17 (1.93)		pCi/L	06/06/19 14:43	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

QC Batch:	343316	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	30295102001, 30295102002, 30295102003, 30295102004, 30295102005, 30295102006, 30295102007, 30295102008, 30295102009, 30295102010, 30295102011, 30295102012, 30295102013, 30295102014		

METHOD BLANK:	1670981	Matrix:	Water
Associated Lab Samples:	30295102001, 30295102002, 30295102003, 30295102004, 30295102005, 30295102006, 30295102007, 30295102008, 30295102009, 30295102010, 30295102011, 30295102012, 30295102013, 30295102014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.350 ± 0.406 (0.655) C:NA T:89%	pCi/L	06/06/19 10:43	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 19-01923,XCEL ENERGY Black Dog

Pace Project No.: 30295102

QC Batch:	343326	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30295102001, 30295102002, 30295102003, 30295102004, 30295102005, 30295102006, 30295102007, 30295102008, 30295102009, 30295102010, 30295102011, 30295102012, 30295102013, 30295102014		

METHOD BLANK:	1670987	Matrix:	Water
Associated Lab Samples:	30295102001, 30295102002, 30295102003, 30295102004, 30295102005, 30295102006, 30295102007, 30295102008, 30295102009, 30295102010, 30295102011, 30295102012, 30295102013, 30295102014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.718 ± 0.345 (0.576) C:84% T:80%	pCi/L	06/03/19 13:38	

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QUALIFIERS

Project: 19-01923,XCEL ENERGY Black Dog
Pace Project No.: 30295102

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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WO#: 30295102

-OF-CUSTODY / Analytical Request Document

f-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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30295102

Section A

Required Client Information:

Company: Xcel Energy	Report To: David Anderson
Address: c/o Pace MN Field	Copy To: Tom Halverson
Email To:	Purchase Order No.:
Phone:	Project Name: 19-01923, Xcel Energy -
Fax:	Project Number: Black Dog CCR, May 2019
Requested Due Date/TAT:	

Section C

Invoice Information:

Attention: Cara Ruikkie
Company Name: Pace MN Field Services
Address:
Pace Quote Reference: Tom Halverson
Pace Project Manager: Carin Fertis
Pace Profile #:

Page: **1** of **2**

2273476

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE: _____

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Codes DW WT WW P SL OL WP AR TS OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
① client needs to analyze for: Radium 226+228pCi/L Combined.	David Anderson	5/15/19	1400	John Doe	5/17/19	0925	N	N	Y

109 of 18 RA-226 EPA 903.1 RA-228 EPA 904.0 ORIGINAL	SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER:	David Anderson				
	SIGNATURE of SAMPLER:	David Anderson				
	DATE Signed (MM/DD/YY):	5/15/19				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev.00, 09Nov2017

Pittsburgh Lab Sample Condition Upon Receipt

30295102

Client Name: X-CEL Energy Project # _____Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____Tracking #: 4934 3730 0915

Label <u>02</u>
LIMS Login <u>02</u>

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☒ noThermometer Used NA Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:

	Yes	No	N/A	pH paper Lot# <u>10D3581</u>	Date and Initials of person examining contents: <u>05/17/19 OVB</u>
Chain of Custody Present:	☒	☐	☐	1.	
Chain of Custody Filled Out:	☒	☐	☐	2.	
Chain of Custody Relinquished:	☒	☐	☐	3.	
Sampler Name & Signature on COC:	☒	☐	☐	4.	
Sample Labels match COC:	☒	☐	☐	5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	☒	☐	☐	6.	
Short Hold Time Analysis (<72hr remaining):	☐	☒	☐	7.	
Rush Turn Around Time Requested:	☐	☒	☐	8.	
Sufficient Volume:	☒	☐	☐	9.	
Correct Containers Used:	☒	☐	☐	10.	
-Pace Containers Used:	☒	☐	☐		
Containers Intact:	☒	☐	☐	11.	
Orthophosphate field filtered	☐	☐	☒	12.	
Hex Cr Aqueous sample field filtered	☐	☐	☒	13.	
Organic Samples checked for dechlorination:	☐	☐	☒	14.	
Filtered volume received for Dissolved tests	☐	☐	☒	15.	
All containers have been checked for preservation.	☒	☐	☐	16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	☒	☐	☐	Initial when completed <u>OVB</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	☐	☒	☐	17.	
Trip Blank Present:	☐	☒	☐	18.	
Trip Blank Custody Seals Present	☐	☒	☐		
Rad Samples Screened < 0.5 mrem/hr	☒	☐	☐	Initial when completed: <u>OVB</u>	Date: <u>05/17/19</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification #MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

28 May 2019

Eric Ealy

Environmental Services-Water Minneapolis

250 Marquette Plaza

Minneapolis, MN 55401

RE: Black Dog CCR

cc:

Enclosed are the results of analyses for samples received by the laboratory on 05/15/2019 12:45. If you have any questions concerning this report, please feel free to contact me.

I certify that this analysis report was prepared under my direction or supervision under a system designed to assure that qualified personnel analyzed the submitted samples. All protocols for analysis were followed as required by Minnesota Rules and the Applicable Management Plan.

Sincerely,

Steve Davis

Project Manager



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sample Qualifier	Laboratory ID	Matrix	Sampled	Received
Field Blank		MEE0179-01	Water	05/14/2019 8:10	05/15/2019 12:45
W603A		MEE0179-02	Water	05/14/2019 8:50	05/15/2019 12:45
W604A		MEE0179-03	Water	05/14/2019 9:50	05/15/2019 12:45
W605A		MEE0179-04	Water	05/14/2019 10:50	05/15/2019 12:45
W506A		MEE0179-05	Water	05/14/2019 11:40	05/15/2019 12:45
W601A		MEE0179-06	Water	05/14/2019 12:30	05/15/2019 12:45
W600A		MEE0179-07	Water	05/14/2019 13:25	05/15/2019 12:45
W504A		MEE0179-08	Water	05/14/2019 14:10	05/15/2019 12:45
W504B		MEE0179-09	Water	05/14/2019 14:40	05/15/2019 12:45
W502A		MEE0179-10	Water	05/15/2019 9:10	05/15/2019 12:45
W502B		MEE0179-11	Water	05/15/2019 10:00	05/15/2019 12:45
Duplicate		MEE0179-12	Water	05/15/2019 10:00	05/15/2019 12:45
W602A		MEE0179-13	Water	05/15/2019 10:50	05/15/2019 12:45
W7A		MEE0179-14	Water	05/15/2019 11:40	05/15/2019 12:45



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/28/2019 06:05

Field Blank

MEE0179-01 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	< 1.00	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:16	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:16	EPA 300.0	CRL
Sulfate	< 1.00	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:16	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	< 10.0	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 14:35	SM 2320B	CRL
pH	7.04		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 14:35	SM 4500-H+ B	CRL
Total Dissolved Solids	< 20.0	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Barium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:54	EPA 200.8	CRL

Total Metals by ICP

Boron	< 0.0500	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:39	EPA 200.7	HRD
Calcium	< 1.25	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:37	EPA 200.7	HRD
Potassium	< 1.25	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:37	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:37	EPA 200.7	HRD
Magnesium	< 1.25	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:37	EPA 200.7	HRD
Sodium	< 1.25	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:37	EPA 200.7	HRD



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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Field Blank

MEE0179-01 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting			Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit	Units	Qualifier	Dilution					
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:30	EPA 245.1, 7470A	HRD



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 WI-999071150
 Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W603A

MEE0179-02 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	77.5	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:36	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:36	EPA 300.0	CRL
Sulfate	294	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:36	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	47.5	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 14:48	SM 2320B	CRL
pH	9.23		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 14:48	SM 4500-H+ B	CRL
Total Dissolved Solids	610	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.62	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Barium	45.0	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Molybdenum	164	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Antimony	1.04	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Selenium	2.90	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 8:57	EPA 200.8	CRL

Total Metals by ICP

Boron	5.06	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:43	EPA 200.7	HRD
Calcium	67.0	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:42	EPA 200.7	HRD
Potassium	12.7	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:42	EPA 200.7	HRD
Lithium	0.0971	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:42	EPA 200.7	HRD
Magnesium	9.10	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:42	EPA 200.7	HRD
Sodium	108	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:42	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W603A

MEE0179-02 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:33	EPA 245.1, 7470A	HRD



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W604A

MEE0179-03 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	40.6	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:56	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:56	EPA 300.0	CRL
Sulfate	190	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 12:56	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	67.6	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 14:54	SM 2320B	CRL
pH	8.87		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 14:54	SM 4500-H+ B	CRL
Total Dissolved Solids	414	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	2.48	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Barium	37.7	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Molybdenum	86.9	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Selenium	2.02	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:09	EPA 200.8	CRL

Total Metals by ICP

Boron	3.06	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:59	EPA 200.7	HRD
Calcium	46.8	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:58	EPA 200.7	HRD
Potassium	3.91	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:58	EPA 200.7	HRD
Lithium	0.0164	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:58	EPA 200.7	HRD
Magnesium	11.5	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:58	EPA 200.7	HRD
Sodium	63.1	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 14:58	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W604A

MEE0179-03 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:34	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/28/2019 06:05

W605A

MEE0179-04 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	39.3	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 13:17	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 13:17	EPA 300.0	CRL
Sulfate	175	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 13:17	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	131	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:00	SM 2320B	CRL
pH	8.37		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:00	SM 4500-H+ B	CRL
Total Dissolved Solids	456	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	5.79	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Barium	44.5	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Molybdenum	47.8	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Selenium	0.507	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:13	EPA 200.8	CRL

Total Metals by ICP

Boron	1.75	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:04	EPA 200.7	HRD
Calcium	66.3	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:03	EPA 200.7	HRD
Potassium	3.95	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:03	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:03	EPA 200.7	HRD
Magnesium	15.5	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:03	EPA 200.7	HRD
Sodium	57.0	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:03	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W605A

MEE0179-04 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting			Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit	Units	Qualifier	Dilution					
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:36	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W506A

MEE0179-05 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	17.9	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 13:58	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 13:58	EPA 300.0	CRL
Sulfate	469	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 13:58	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	202	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:06	SM 2320B	CRL
pH	6.94		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:06	SM 4500-H+ B	CRL
Total Dissolved Solids	972	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.04	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Barium	14.9	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Cadmium	2.06	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Cobalt	4.26	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Molybdenum	12.3	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Selenium	1.85	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:17	EPA 200.8	CRL

Total Metals by ICP

Boron	1.25	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:09	EPA 200.7	HRD
Calcium	239	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:08	EPA 200.7	HRD
Potassium	4.50	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:08	EPA 200.7	HRD
Lithium	0.0298	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:08	EPA 200.7	HRD
Magnesium	21.3	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:08	EPA 200.7	HRD
Sodium	21.5	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:08	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W506A

MEE0179-05 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting			Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit	Units	Qualifier	Dilution					
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:38	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W601A

MEE0179-06 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	131	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 14:39	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 14:39	EPA 300.0	CRL
Sulfate	1050	10.0	mg/L		10	BEE0412	5/17/19 6:06	5/17/19 14:18	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	74.8	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:12	SM 2320B	CRL
pH	9.79		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:12	SM 4500-H+ B	CRL
Total Dissolved Solids	1870	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	13.1	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Barium	56.0	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Cobalt	< 5.00	5.00	ug/L	M_DIL	10	BEE0386	5/16/19 7:32	5/20/19 9:21	EPA 200.8	CRL
Chromium	< 5.00	5.00	ug/L	M_DIL	10	BEE0386	5/16/19 7:32	5/20/19 9:21	EPA 200.8	CRL
Molybdenum	258	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Antimony	1.86	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Selenium	39.0	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:25	EPA 200.8	CRL

Total Metals by ICP

Boron	11.4	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:14	EPA 200.7	HRD
Calcium	291	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:13	EPA 200.7	HRD
Potassium	36.9	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:13	EPA 200.7	HRD
Lithium	0.265	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:13	EPA 200.7	HRD
Magnesium	5.87	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:13	EPA 200.7	HRD
Sodium	249	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:13	EPA 200.7	HRD



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WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W601A

MEE0179-06 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting			Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit	Units	Qualifier	Dilution					
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:39	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W600A

MEE0179-07 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	33.5	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 15:19	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 15:19	EPA 300.0	CRL
Sulfate	1290	10.0	mg/L		10	BEE0412	5/17/19 6:06	5/17/19 14:59	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	35.9	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:17	SM 2320B	CRL
pH	5.63		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:17	SM 4500-H+ B	CRL
Total Dissolved Solids	2010	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.07	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Barium	11.5	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Beryllium	0.839	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Cadmium	1.52	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Cobalt	33.0	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Chromium	1.77	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Molybdenum	3.33	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Lead	0.529	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL
Thallium	0.709	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:29	EPA 200.8	CRL

Total Metals by ICP

Boron	2.28	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:19	EPA 200.7	HRD
Calcium	398	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:18	EPA 200.7	HRD
Potassium	5.29	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:18	EPA 200.7	HRD
Lithium	0.0227	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:18	EPA 200.7	HRD
Magnesium	23.2	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:18	EPA 200.7	HRD
Sodium	55.0	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:18	EPA 200.7	HRD



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W600A

MEE0179-07 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:41	EPA 245.1, 7470A	HRD



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 WI-999071150
 Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W504A

MEE0179-08 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	101	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 17:22	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 17:22	EPA 300.0	CRL
Sulfate	716	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 17:22	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	547	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:25	SM 2320B	CRL
pH	7.14		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:25	SM 4500-H+ B	CRL
Total Dissolved Solids	1920	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.80	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Barium	30.7	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Cobalt	2.54	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Molybdenum	29.9	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:33	EPA 200.8	CRL

Total Metals by ICP

Boron	11.3	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:25	EPA 200.7	HRD
Calcium	349	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:23	EPA 200.7	HRD
Potassium	2.40	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:23	EPA 200.7	HRD
Lithium	0.0324	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:23	EPA 200.7	HRD
Magnesium	87.4	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:24	EPA 200.7	HRD
Sodium	158	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:23	EPA 200.7	HRD



Minneapolis Testing Laboratory
1518 Chestnut Ave N
Minneapolis, MN 55043
Certification # MN-027-053-197
WI-999071150
Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W504A

MEE0179-08 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:46	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W504B

MEE0179-09 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	51.6	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 17:42	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 17:42	EPA 300.0	CRL
Sulfate	14.4	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 17:42	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	824	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:34	SM 2320B	CRL
pH	7.35		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:34	SM 4500-H+ B	CRL
Total Dissolved Solids	900	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.52	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Barium	374	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Molybdenum	0.569	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:37	EPA 200.8	CRL

Total Metals by ICP

Boron	0.405	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:30	EPA 200.7	HRD
Calcium	205	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:28	EPA 200.7	HRD
Potassium	1.88	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:28	EPA 200.7	HRD
Lithium	0.0193	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:28	EPA 200.7	HRD
Magnesium	74.4	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:29	EPA 200.7	HRD
Sodium	23.5	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:28	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W504B

MEE0179-09 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:48	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W502A

MEE0179-10 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	95.1	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 18:23	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 18:23	EPA 300.0	CRL
Sulfate	1470	10.0	mg/L		10	BEE0412	5/17/19 6:06	5/17/19 18:03	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	329	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:42	SM 2320B	CRL
pH	7.38		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:42	SM 4500-H+ B	CRL
Total Dissolved Solids	2710	20.0	mg/L		1	BEE0382	5/16/19 8:50	5/16/19 8:50	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	36.4	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Barium	74.5	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Cobalt	4.27	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Molybdenum	63.4	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:41	EPA 200.8	CRL

Total Metals by ICP

Boron	9.09	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:35	EPA 200.7	HRD
Calcium	560	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:33	EPA 200.7	HRD
Potassium	16.2	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:34	EPA 200.7	HRD
Lithium	0.0807	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:34	EPA 200.7	HRD
Magnesium	78.6	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:34	EPA 200.7	HRD
Sodium	156	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:33	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W502A

MEE0179-10 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:50	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W502B

MEE0179-11 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	83.2	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 19:04	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 19:04	EPA 300.0	CRL
Sulfate	1150	10.0	mg/L		10	BEE0412	5/17/19 6:06	5/17/19 18:44	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	394	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 15:56	SM 2320B	CRL
pH	7.31		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 15:56	SM 4500-H+ B	CRL
Total Dissolved Solids	2200	20.0	mg/L		1	BEE0410	5/20/19 5:43	5/20/19 5:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.80	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Barium	141	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:45	EPA 200.8	CRL

Total Metals by ICP

Boron	3.51	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:40	EPA 200.7	HRD
Calcium	412	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:39	EPA 200.7	HRD
Potassium	1.88	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:39	EPA 200.7	HRD
Lithium	0.0247	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:39	EPA 200.7	HRD
Magnesium	107	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:39	EPA 200.7	HRD
Sodium	57.8	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:39	EPA 200.7	HRD



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Christine Keefe, Manager (612) 630-4506

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W502B

MEE0179-11 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting			Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit	Units	Qualifier	Dilution					
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:51	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Duplicate

MEE0179-12 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	83.6	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 19:45	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 19:45	EPA 300.0	CRL
Sulfate	1150	10.0	mg/L		10	BEE0412	5/17/19 6:06	5/17/19 19:25	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	396	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 16:04	SM 2320B	CRL
pH	7.32		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 16:04	SM 4500-H+ B	CRL
Total Dissolved Solids	2200	20.0	mg/L		1	BEE0410	5/20/19 5:43	5/20/19 5:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	4.93	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Barium	146	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Molybdenum	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 9:56	EPA 200.8	CRL

Total Metals by ICP

Boron	3.54	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:45	EPA 200.7	HRD
Calcium	412	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:44	EPA 200.7	HRD
Potassium	1.90	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:44	EPA 200.7	HRD
Lithium	0.0239	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:44	EPA 200.7	HRD
Magnesium	108	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:44	EPA 200.7	HRD
Sodium	58.0	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 15:44	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Duplicate

MEE0179-12 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:53	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W602A

MEE0179-13 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	183	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 20:05	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 20:05	EPA 300.0	CRL
Sulfate	287	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 20:05	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	273	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 16:10	SM 2320B	CRL
pH	7.94		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 16:10	SM 4500-H+ B	CRL
Total Dissolved Solids	1020	20.0	mg/L		1	BEE0410	5/20/19 5:43	5/20/19 5:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	3.12	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Barium	66.5	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Cobalt	0.531	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Molybdenum	46.4	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:00	EPA 200.8	CRL

Total Metals by ICP

Boron	1.07	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:36	EPA 200.7	HRD
Calcium	111	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:35	EPA 200.7	HRD
Potassium	1.77	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:35	EPA 200.7	HRD
Lithium	0.0181	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:35	EPA 200.7	HRD
Magnesium	36.0	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:35	EPA 200.7	HRD
Sodium	182	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:35	EPA 200.7	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

W602A

MEE0179-13 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting			Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit	Units	Qualifier	Dilution					
Mercury										
Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:55	EPA 245.1, 7470A	HRD

Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

W7A

MEE0179-14 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Result	Reporting Limit	Units	Analyte Qualifier	Dilution	Batch	Prepared	Analyzed	Method	Analyst

Anions by Ion Chromatography

Chloride	85.8	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 20:26	EPA 300.0	CRL
Fluoride	< 0.750	0.750	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 20:26	EPA 300.0	CRL
Sulfate	126	1.00	mg/L		1	BEE0412	5/17/19 6:06	5/17/19 20:26	EPA 300.0	CRL

Wet Chemistry

Alkalinity, Total	225	10.0	mg/L		1	BEE0361	5/15/19 13:09	5/15/19 16:16	SM 2320B	CRL
pH	7.74		pH Units	M_TTT	1	BEE0361	5/15/19 13:09	5/15/19 16:16	SM 4500-H+ B	CRL
Total Dissolved Solids	554	20.0	mg/L		1	BEE0410	5/20/19 5:43	5/20/19 5:43	SM 2540C	HSD

Total Metals by ICPMS

Arsenic	1.11	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Barium	72.4	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Beryllium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Cadmium	< 0.100	0.100	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Cobalt	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Chromium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Molybdenum	34.8	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Lead	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Antimony	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Selenium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL
Thallium	< 0.500	0.500	ug/L		1	BEE0386	5/16/19 7:32	5/20/19 10:04	EPA 200.8	CRL

Total Metals by ICP

Boron	1.06	0.0500	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:41	EPA 200.7	HRD
Calcium	83.5	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:40	EPA 200.7	HRD
Potassium	2.27	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:40	EPA 200.7	HRD
Lithium	< 0.0150	0.0150	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:40	EPA 200.7	HRD
Magnesium	19.9	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:40	EPA 200.7	HRD
Sodium	78.5	1.25	mg/L		1	BEE0385	5/16/19 7:28	5/20/19 16:40	EPA 200.7	HRD



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Environmental Services-Water Minneapolis
250 Marquette Plaza
Minneapolis MN, 55401

Project Name/Location: Black Dog CCR
Project Manager: Eric Ealy

Reported:
05/28/2019 06:05

W7A

MEE0179-14 (Water) - Chain of Custody Number: 2273477/2273471

Analyte	Reporting		Units	Analyte		Batch	Prepared	Analyzed	Method	Analyst
	Result	Limit		Qualifier	Dilution					

Mercury

Mercury	< 0.200	0.200	ug/L		1	BEE0560	5/22/19 14:00	5/23/19 13:57	EPA 245.1, 7470A	HRD



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0412 - Wet Prep

Blank (BEE0412-BLK1)				Prepared & Analyzed: 05/17/2019						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

Blank (BEE0412-BLK2)				Prepared & Analyzed: 05/17/2019						
Chloride	<1.00	1.00	mg/L							
Fluoride	<0.750	0.750	mg/L							
Sulfate	<1.00	1.00	mg/L							

LCS (BEE0412-BS1)				Prepared & Analyzed: 05/17/2019						
Chloride	24.8	1.00	mg/L	25.026		99.0	90-110			M_LCS-H
Fluoride	2.77	0.750	mg/L	2.5000		111	90-110			
Sulfate	50.3	1.00	mg/L	50.150		100	90-110			

LCS (BEE0412-BS2)				Prepared & Analyzed: 05/17/2019						
Chloride	24.1	1.00	mg/L	25.026		96.3	90-110			
Fluoride	2.48	0.750	mg/L	2.5000		99.1	90-110			
Sulfate	49.1	1.00	mg/L	50.150		97.8	90-110			

LCS (BEE0412-BS3)				Prepared & Analyzed: 05/17/2019						
Chloride	23.9	1.00	mg/L	25.026		95.5	90-110			
Fluoride	2.50	0.750	mg/L	2.5000		99.8	90-110			
Sulfate	48.6	1.00	mg/L	50.150		96.9	90-110			

Duplicate (BEE0412-DUP1)				Source: MEE0157-01		Prepared & Analyzed: 05/17/2019				
Chloride	17.9	1.00	mg/L		18.0			0.556	20	
Fluoride	0.307	0.750	mg/L		0.295			3.99	20	
Sulfate	91.2	1.00	mg/L		91.4			0.150	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Anions by Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0412 - Wet Prep

Duplicate (BEE0412-DUP2)		Source: MEE0157-02		Prepared & Analyzed: 05/17/2019						
Chloride	18.2	1.00	mg/L		18.3			0.192	20	
Fluoride	0.320	0.750	mg/L		<0.750				20	
Sulfate	91.9	1.00	mg/L		91.5			0.480	20	

Matrix Spike (BEE0412-MS1)		Source: MEE0157-01		Prepared & Analyzed: 05/17/2019						
Chloride	48.1	1.25	mg/L	31.283	18.0	96.1	80-120			
Fluoride	3.46	0.938	mg/L	3.1250	<0.938	111	80-120			
Sulfate	151	1.25	mg/L	62.688	91.4	95.8	80-120			

Matrix Spike (BEE0412-MS2)		Source: MEE0157-02		Prepared & Analyzed: 05/17/2019						
Chloride	48.8	1.25	mg/L	31.283	18.3	97.5	80-120			
Fluoride	3.54	0.938	mg/L	3.1250	<0.938	113	80-120			
Sulfate	152	1.25	mg/L	62.688	91.5	97.0	80-120			

Matrix Spike Dup (BEE0412-MSD1)		Source: MEE0157-01		Prepared & Analyzed: 05/17/2019						
Chloride	48.2	1.25	mg/L	31.283	18.0	96.5	80-120	0.202	20	
Fluoride	3.70	0.938	mg/L	3.1250	<0.938	119	80-120	6.91	20	
Sulfate	151	1.25	mg/L	62.688	91.4	95.9	80-120	0.0462	20	

Matrix Spike Dup (BEE0412-MSD2)		Source: MEE0157-02		Prepared & Analyzed: 05/17/2019						
Chloride	48.6	1.25	mg/L	31.283	18.3	97.1	80-120	0.277	20	
Fluoride	3.62	0.938	mg/L	3.1250	<0.938	116	80-120	2.30	20	
Sulfate	152	1.25	mg/L	62.688	91.5	96.7	80-120	0.154	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0361 - Wet Prep

LCS (BEE0361-BS1)		Prepared & Analyzed: 05/15/2019								
pH	7.06		pH Units	7.0000		101	90-110			
Alkalinity, Total	98.1		mg/L	100.00		98.1	90-110			
LCS (BEE0361-BS2)		Prepared & Analyzed: 05/15/2019								
Alkalinity, Total	99.1		mg/L	100.00		99.1	90-110			
pH	7.08		pH Units	7.0000		101	90-110			
Duplicate (BEE0361-DUP1)		Source: MEE0179-02		Prepared & Analyzed: 05/15/2019						
Alkalinity, Total	45.7	10.0	mg/L		47.5			3.95	20	
pH	9.16		pH Units		9.23			0.761	20	
Duplicate (BEE0361-DUP2)		Source: MEE0179-11		Prepared & Analyzed: 05/15/2019						
pH	7.32		pH Units		7.31			0.137	20	
Alkalinity, Total	393	10.0	mg/L		394			0.221	20	
Duplicate (BEE0361-DUP3)		Source: MEE0180-02		Prepared & Analyzed: 05/15/2019						
pH	7.44		pH Units		7.38			0.810	20	
Alkalinity, Total	432	10.0	mg/L		422			2.28	20	

Batch BEE0382 - Wet Prep

Blank (BEE0382-BLK1)		Prepared & Analyzed: 05/16/2019								
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BEE0382-DUP1)		Source: MEE0179-02		Prepared & Analyzed: 05/16/2019						
Total Dissolved Solids	626	20.0	mg/L		610			2.59	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0410 - Wet Prep

Blank (BEE0410-BLK1)				Prepared & Analyzed: 05/20/2019						
Total Dissolved Solids	<20.0	20.0	mg/L							
Duplicate (BEE0410-DUP1)				Source: MEE0179-11		Prepared & Analyzed: 05/20/2019				
Total Dissolved Solids	2230	20.0	mg/L		2200			1.35	20	
Duplicate (BEE0410-DUP2)				Source: MEE0193-01		Prepared & Analyzed: 05/20/2019				
Total Dissolved Solids	65400	1000	mg/L		65100			0.460	20	



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250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0386 - EPA 200.2, EPA 3005

Blank (BEE0386-BLK1)

Prepared: 05/16/2019 Analyzed: 05/20/2019

Chromium	<0.500	0.500	ug/L							
Selenium	<0.500	0.500	ug/L							
Lead	<0.500	0.500	ug/L							
Barium	<0.500	0.500	ug/L							
Thallium	<0.500	0.500	ug/L							
Beryllium	<0.500	0.500	ug/L							
Cadmium	<0.100	0.100	ug/L							
Cobalt	<0.500	0.500	ug/L							
Antimony	<0.500	0.500	ug/L							
Arsenic	<0.500	0.500	ug/L							
Molybdenum	<0.500	0.500	ug/L							

LCS (BEE0386-BS1)

Prepared: 05/16/2019 Analyzed: 05/20/2019

Antimony	100	0.500	ug/L	100.00		100	85-115			
Barium	103	0.500	ug/L	100.00		103	85-115			
Selenium	95.2	0.500	ug/L	100.00		95.2	85-115			
Chromium	97.3	0.500	ug/L	100.00		97.3	85-115			
Molybdenum	101	0.500	ug/L	100.00		101	85-115			
Beryllium	98.4	0.500	ug/L	100.00		98.4	85-115			
Thallium	103	0.500	ug/L	100.00		103	85-115			
Cobalt	100	0.500	ug/L	100.00		100	85-115			
Cadmium	101	0.100	ug/L	100.00		101	85-115			
Arsenic	101	0.500	ug/L	100.00		101	85-115			
Lead	103	0.500	ug/L	100.00		103	85-115			

Duplicate (BEE0386-DUP1)

Source: MEE0179-04

Prepared: 05/16/2019 Analyzed: 05/20/2019

Thallium	0.0803	0.500	ug/L	0.0127		146	20	M_D-RL		
Selenium	0.384	0.500	ug/L	0.507		27.7	20	M_D-RL		
Antimony	0.274	0.500	ug/L	0.128		72.6	20	M_D-RL		
Arsenic	5.69	0.500	ug/L	5.79		1.68	20			
Beryllium	0.148	0.500	ug/L	<0.500			20			
Barium	45.9	0.500	ug/L	44.5		2.99	20			
Lead	0.0834	0.500	ug/L	0.0410		68.0	20	M_D-RL		
Cobalt	0.122	0.500	ug/L	0.0991		21.0	20	M_D-RL		
Chromium	0.157	0.500	ug/L	0.158		0.783	20			
Molybdenum	49.7	0.500	ug/L	47.8		3.95	20			
Cadmium	<0.100	0.100	ug/L	<0.100			20			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	Reported:
250 Marquette Plaza		05/28/2019 06:05
Minneapolis MN, 55401	Project Manager: Eric Ealy	

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0386 - EPA 200.2, EPA 3005

Duplicate (BEE0386-DUP2)	Source: MEE0179-05			Prepared: 05/16/2019 Analyzed: 05/20/2019						
Chromium	0.105	0.500	ug/L		0.0883			17.3	20	
Arsenic	1.01	0.500	ug/L		1.04			3.43	20	
Beryllium	0.0340	0.500	ug/L		0.0274			21.6	20	M_D-RL
Cobalt	4.15	0.500	ug/L		4.26			2.69	20	
Barium	14.7	0.500	ug/L		14.9			1.76	20	
Molybdenum	12.6	0.500	ug/L		12.3			2.30	20	
Lead	<0.500	0.500	ug/L		<0.500				20	
Antimony	0.273	0.500	ug/L		0.200			30.8	20	M_D-RL
Selenium	1.78	0.500	ug/L		1.85			3.71	20	
Thallium	0.464	0.500	ug/L		0.447			3.83	20	
Cadmium	1.99	0.100	ug/L		2.06			3.66	20	

Matrix Spike (BEE0386-MS1)	Source: MEE0179-04			Prepared: 05/16/2019 Analyzed: 05/20/2019						
Lead	91.9	0.500	ug/L	100.00	0.0410	91.8	70-130			
Molybdenum	152	0.500	ug/L	100.00	47.8	104	70-130			
Selenium	93.9	0.500	ug/L	100.00	0.507	93.3	70-130			
Barium	149	0.500	ug/L	100.00	44.5	105	70-130			
Antimony	102	0.500	ug/L	100.00	0.128	102	70-130			
Cobalt	95.8	0.500	ug/L	100.00	0.0991	95.7	70-130			
Thallium	93.5	0.500	ug/L	100.00	0.0127	93.5	70-130			
Arsenic	107	0.500	ug/L	100.00	5.79	101	70-130			
Chromium	97.3	0.500	ug/L	100.00	0.158	97.1	70-130			
Cadmium	94.8	0.100	ug/L	100.00	<0.100	94.8	70-130			
Beryllium	96.4	0.500	ug/L	100.00	<0.500	96.4	70-130			

Matrix Spike (BEE0386-MS2)	Source: MEE0179-05			Prepared: 05/16/2019 Analyzed: 05/20/2019						
Chromium	99.0	0.500	ug/L	100.00	0.0883	98.9	70-130			
Beryllium	95.8	0.500	ug/L	100.00	0.0274	95.8	70-130			
Antimony	102	0.500	ug/L	100.00	0.200	102	70-130			
Lead	90.9	0.500	ug/L	100.00	<0.500	90.9	70-130			
Selenium	101	0.500	ug/L	100.00	1.85	99.6	70-130			
Cadmium	96.0	0.100	ug/L	100.00	2.06	93.9	70-130			
Thallium	93.0	0.500	ug/L	100.00	0.447	92.5	70-130			
Molybdenum	113	0.500	ug/L	100.00	12.3	101	70-130			
Arsenic	107	0.500	ug/L	100.00	1.04	106	70-130			
Cobalt	102	0.500	ug/L	100.00	4.26	97.6	70-130			
Barium	121	0.500	ug/L	100.00	14.9	106	70-130			



Minneapolis Testing Laboratory
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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0386 - EPA 200.2, EPA 3005

Matrix Spike Dup (BEE0386-MSD1)		Source: MEE0179-04			Prepared: 05/16/2019 Analyzed: 05/20/2019					
Cobalt	97.2	0.500	ug/L	100.00	0.0991	97.1	70-130	1.47	20	
Lead	91.9	0.500	ug/L	100.00	0.0410	91.9	70-130	0.0449	20	
Selenium	94.2	0.500	ug/L	100.00	0.507	93.7	70-130	0.340	20	
Thallium	94.9	0.500	ug/L	100.00	0.0127	94.9	70-130	1.48	20	
Cadmium	98.2	0.100	ug/L	100.00	<0.100	98.2	70-130	3.56	20	
Antimony	103	0.500	ug/L	100.00	0.128	103	70-130	0.827	20	
Barium	149	0.500	ug/L	100.00	44.5	105	70-130	0.0796	20	
Chromium	100	0.500	ug/L	100.00	0.158	100	70-130	3.10	20	
Molybdenum	153	0.500	ug/L	100.00	47.8	105	70-130	0.766	20	
Arsenic	108	0.500	ug/L	100.00	5.79	102	70-130	0.701	20	
Beryllium	98.8	0.500	ug/L	100.00	<0.500	98.8	70-130	2.49	20	

Matrix Spike Dup (BEE0386-MSD2)		Source: MEE0179-05			Prepared: 05/16/2019 Analyzed: 05/20/2019					
Antimony	98.1	0.500	ug/L	100.00	0.200	97.9	70-130	3.82	20	
Barium	115	0.500	ug/L	100.00	14.9	100	70-130	4.68	20	
Chromium	103	0.500	ug/L	100.00	0.0883	103	70-130	3.71	20	
Beryllium	93.0	0.500	ug/L	100.00	0.0274	93.0	70-130	2.92	20	
Molybdenum	113	0.500	ug/L	100.00	12.3	101	70-130	0.146	20	
Arsenic	106	0.500	ug/L	100.00	1.04	105	70-130	1.09	20	
Cadmium	95.7	0.100	ug/L	100.00	2.06	93.7	70-130	0.249	20	
Thallium	93.9	0.500	ug/L	100.00	0.447	93.4	70-130	0.931	20	
Lead	90.8	0.500	ug/L	100.00	<0.500	90.8	70-130	0.158	20	
Selenium	103	0.500	ug/L	100.00	1.85	101	70-130	1.38	20	
Cobalt	105	0.500	ug/L	100.00	4.26	101	70-130	3.06	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0385 - EPA 200.2, EPA 3005

Blank (BEE0385-BLK1)

Prepared: 05/16/2019 Analyzed: 05/20/2019

Magnesium	<1.25	1.25	mg/L
Sodium	<1.25	1.25	mg/L
Boron	<0.0500	0.0500	mg/L
Calcium	<1.25	1.25	mg/L
Lithium	<0.0150	0.0150	mg/L
Potassium	<1.25	1.25	mg/L

LCS (BEE0385-BS1)

Prepared: 05/16/2019 Analyzed: 05/20/2019

Magnesium	105	1.25	mg/L	100.00	105	85-115
Sodium	106	1.25	mg/L	100.00	106	85-115
Boron	0.996	0.0500	mg/L	1.0000	99.6	85-115
Calcium	106	1.25	mg/L	100.00	106	85-115
Potassium	100	1.25	mg/L	100.00	100	85-115
Lithium	1.01	0.0150	mg/L	1.0000	101	85-115

Duplicate (BEE0385-DUP1)

Source: MEE0179-02

Prepared: 05/16/2019 Analyzed: 05/20/2019

Sodium	107	1.25	mg/L	108	0.373	20
Lithium	0.0970	0.0150	mg/L	0.0971	0.145	20
Magnesium	8.98	1.25	mg/L	9.10	1.40	20
Calcium	66.8	1.25	mg/L	67.0	0.325	20
Boron	5.13	0.0500	mg/L	5.06	1.38	20
Potassium	12.4	1.25	mg/L	12.7	2.30	20

Duplicate (BEE0385-DUP2)

Source: MEE0179-03

Prepared: 05/16/2019 Analyzed: 05/20/2019

Potassium	4.33	1.25	mg/L	3.91	9.96	20
Calcium	50.9	1.25	mg/L	46.8	8.29	20
Boron	3.27	0.0500	mg/L	3.06	6.77	20
Lithium	0.0159	0.0150	mg/L	0.0164	3.09	20
Magnesium	12.4	1.25	mg/L	11.5	8.13	20
Sodium	68.5	1.25	mg/L	63.1	8.25	20



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0385 - EPA 200.2, EPA 3005

Matrix Spike (BEE0385-MS1)		Source: MEE0179-02		Prepared: 05/16/2019 Analyzed: 05/20/2019						
Potassium	107	1.25	mg/L	100.00	12.7	94.6	70-130			
Lithium	1.05	0.0150	mg/L	1.0000	0.0971	95.1	70-130			
Calcium	168	1.25	mg/L	100.00	67.0	101	70-130			
Magnesium	108	1.25	mg/L	100.00	9.10	98.6	70-130			
Boron	6.11	0.0500	mg/L	1.0000	5.06	105	70-130			
Sodium	210	1.25	mg/L	100.00	108	102	70-130			

Matrix Spike (BEE0385-MS2)		Source: MEE0179-03		Prepared: 05/16/2019 Analyzed: 05/20/2019						
Potassium	98.1	1.25	mg/L	100.00	3.91	94.2	70-130			
Calcium	149	1.25	mg/L	100.00	46.8	102	70-130			
Magnesium	110	1.25	mg/L	100.00	11.5	98.9	70-130			
Sodium	166	1.25	mg/L	100.00	63.1	103	70-130			
Lithium	0.958	0.0150	mg/L	1.0000	0.0164	94.2	70-130			
Boron	4.08	0.0500	mg/L	1.0000	3.06	102	70-130			

Matrix Spike Dup (BEE0385-MSD1)		Source: MEE0179-02		Prepared: 05/16/2019 Analyzed: 05/20/2019						
Lithium	1.05	0.0150	mg/L	1.0000	0.0971	94.8	70-130	0.262	20	
Calcium	169	1.25	mg/L	100.00	67.0	102	70-130	0.128	20	
Magnesium	108	1.25	mg/L	100.00	9.10	98.4	70-130	0.190	20	
Boron	6.17	0.0500	mg/L	1.0000	5.06	111	70-130	0.893	20	
Potassium	107	1.25	mg/L	100.00	12.7	94.1	70-130	0.397	20	
Sodium	210	1.25	mg/L	100.00	108	102	70-130	0.0429	20	

Matrix Spike Dup (BEE0385-MSD2)		Source: MEE0179-03		Prepared: 05/16/2019 Analyzed: 05/20/2019						
Lithium	0.987	0.0150	mg/L	1.0000	0.0164	97.1	70-130	2.99	20	
Potassium	100	1.25	mg/L	100.00	3.91	96.5	70-130	2.36	20	
Boron	4.15	0.0500	mg/L	1.0000	3.06	110	70-130	1.84	20	
Calcium	152	1.25	mg/L	100.00	46.8	106	70-130	2.35	20	
Sodium	170	1.25	mg/L	100.00	63.1	107	70-130	2.36	20	
Magnesium	114	1.25	mg/L	100.00	11.5	102	70-130	3.08	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0560 - EPA 245.1, EPA 7470A

Blank (BEE0560-BLK1)				Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	<0.200	0.200	ug/L							
Blank (BEE0560-BLK2)				Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	<0.200	0.200	ug/L							
LCS (BEE0560-BS1)				Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	2.80	0.200	ug/L	3.0030		93.3	85-115			
LCS (BEE0560-BS2)				Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	2.96	0.200	ug/L	3.0030		98.4	85-115			
Duplicate (BEE0560-DUP1)				Source: MEE0179-06		Prepared: 05/22/2019 Analyzed: 05/23/2019				
Mercury	0.0330	0.200	ug/L		<0.200				20	
Duplicate (BEE0560-DUP2)				Source: MEE0179-07		Prepared: 05/22/2019 Analyzed: 05/23/2019				
Mercury	<0.200	0.200	ug/L		<0.200				20	
Duplicate (BEE0560-DUP3)				Source: MEE0179-08		Prepared: 05/22/2019 Analyzed: 05/23/2019				
Mercury	0.0325	0.200	ug/L		<0.200				20	
Matrix Spike (BEE0560-MS1)				Source: MEE0179-06		Prepared: 05/22/2019 Analyzed: 05/23/2019				
Mercury	2.98	0.200	ug/L	3.0030	<0.200	99.3	70-130			
Matrix Spike (BEE0560-MS2)				Source: MEE0179-07		Prepared: 05/22/2019 Analyzed: 05/23/2019				
Mercury	2.98	0.200	ug/L	3.0030	<0.200	99.1	70-130			
Matrix Spike (BEE0560-MS3)				Source: MEE0179-08		Prepared: 05/22/2019 Analyzed: 05/23/2019				
Mercury	2.32	0.200	ug/L	3.0030	<0.200	77.1	70-130			



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch BEE0560 - EPA 245.1, EPA 7470A

Matrix Spike Dup (BEE0560-MSD1)		Source: MEE0179-06		Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	2.87	0.200	ug/L	3.0030	<0.200	95.7	70-130	3.64	20	
Matrix Spike Dup (BEE0560-MSD2)		Source: MEE0179-07		Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	2.92	0.200	ug/L	3.0030	<0.200	97.3	70-130	1.82	20	
Matrix Spike Dup (BEE0560-MSD3)		Source: MEE0179-08		Prepared: 05/22/2019 Analyzed: 05/23/2019						
Mercury	2.31	0.200	ug/L	3.0030	<0.200	77.0	70-130	0.182	20	



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Environmental Services-Water Minneapolis	Project Name/Location: Black Dog CCR	
250 Marquette Plaza		Reported:
Minneapolis MN, 55401	Project Manager: Eric Ealy	05/28/2019 06:05

Qualifiers and Definitions

M_TTT	Sample received at the lab outside of required hold time.
M_LCS-H	The recovery of this analyte in the LCS was above the control limits. The sample result may be biased high.
M_D-RL	The RPD for the sample duplicate was outside of QC acceptance limits due to <RL.
M_DIL	Sample was diluted. The MDL and MRL were raised due to the dilution.
Z	Non Accredited Analyte
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Xcel Energy
Address: Environmental Services
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B

Required Project Information:

Report To: Todd Rønning, Rick Rasvold (Xcel)
Copy To: Jenni Bletten, Dana Pasi (Bart)
Purchase Order No.:
Project Name: Black bog CCR Baseline
Project Number: May 2019

Section C

Invoice Information:

Attention: Steve Davis
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

Page:

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2273471

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location

STATE: _____

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test General Metals	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol				Other
					DATE	TIME	DATE	TIME													
1	W 602A		WT			5/15/19	1050	2	1	1											
2	W 7A		↓			↓	1140	2	1	1											
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
① total metals (unfiltered).	David Anderson / Pace	5/15/19	1245	Steve Davis / Xcel	5/15/19	1245	
pit strips: MDO0402							

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	David Anderson				
SIGNATURE of SAMPLER:	David Anderson	DATE Signed (MM/DD/YY):	5/15/19		

ORIGINAL