



# 2018 CCR Landfill Annual Groundwater Monitoring and Corrective Action Report North Omaha Ash Landfill



Omaha Public Power District  
North Omaha Station

*Omaha, Nebraska*  
January 31, 2019

**OPPD North Omaha Station  
North Omaha Ash Landfill  
2018 CCR Landfill Annual Groundwater  
Monitoring and Corrective Action Report**

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# OPPD North Omaha Station North Omaha Ash Landfill 2018 CCR Landfill Annual Groundwater Monitoring and Corrective Action Report

## 1 Introduction

On April 17, 2015, the U.S. EPA published the final rule for the regulation and management of coal combustion residuals (CCR) under Subtitle D of the Resource Conservation and Recovery Act (RCRA). The CCR Rule defines a set of requirements for the disposal and handling of CCR within CCR units (defined as either landfills or surface impoundments). The OPPD North Omaha Generating Station (Station) currently has one (1) active CCR landfill. Section 40 CFR 257.90(e) of the CCR Rule specifies that an owner or operator of a CCR landfill must prepare an annual groundwater monitoring and corrective action report to summarize any key actions completed, problems encountered, and activities coming up relating to the groundwater monitoring system.

### 1.1 Purpose

The CCR Rule requires an annual groundwater monitoring corrective action report to be completed no later than January 31, 2018, and annually thereafter. This report should include:

- A map, aerial image, or diagram of the CCR unit showing all background (up-gradient) and down-gradient monitoring wells including identification numbers.
- Identification of any monitoring wells that were installed or decommissioned during the previous year, along with a narrative description of why those actions were taken.
- All monitoring well data obtained under 257.90-257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the date the sample were collected, and whether the sample was required by detection monitoring or assessment monitoring program.
- A narrative discussion of any transition between monitoring programs.
- Other information required to be included in the annual report as specified in 257.90-257.98.

### 1.2 Facility Information

OPPD has a fossil fuel-fired generating plant at the Station in Omaha, Nebraska. The Station is located east of Pershing Drive and Craig Street, approximately 3.5 miles northwest of the Eppley Airfield, along the west shore of the Missouri River at river mile 625.2. The active CCR landfill, known as the North Omaha Ash Landfill, is permitted under the current NDEQ Title 132 regulations for fossil fuel combustion ash disposal areas (NDEQ Permit No. NE0054739, Facility ID 59763). The active, unlined CCR landfill is located on the north-northwest portion of the station property and encompasses approximately 18 acres. Figures



1 through 4 in Appendix B depict the Station CCR landfill and the supporting monitoring well network.

## **2 Well Network Changes and Condition Assessment (40 CFR 257.90(e)(2))**

The groundwater monitoring system currently consists of seven (7) monitoring wells (MW2, MW9, MW13, MW15, MW17, MW18, and MW19). There were no monitoring wells installed nor decommissioned during 2018. The most recent change to the well network occurred in August 2017 with the decommissioning of monitoring well MW16 prior to landfill side slope closure. The monitoring well network was recertified by a licensed engineer following the removal of the monitoring well. The location of the monitoring wells in the groundwater monitoring program with respect to the CCR landfill are shown on Figures 1 through 4 in Appendix B.

OPPD personnel evaluated the condition of each monitoring well in the groundwater monitoring system during the sampling events from March 2018 through October 2018. During this reporting period, no repairs were required and the wells were noted in good working condition, concrete pads were intact, and no damage was observed to the protective well casings.

## **3 Summary of Sampling Events (40 CFR 257.90(e)(3))**

A groundwater sampling event was conducted by OPPD personnel in March 2018 as part of an Alternative Source Demonstration (ASD), in June 2018 as the first assessment monitoring event, and in October 2018 as the second assessment monitoring event. Samples were collected in compliance with 40 CFR Section 257.90(c), which requires groundwater monitoring be conducted throughout the active life and post-closure care period of the CCR landfill for each current background and down-gradient well in the monitoring network.

### **3.1 Groundwater Elevations and Flow Direction**

As part of the sampling events, static groundwater level measurements were recorded for each sampled monitoring well prior to purging and sampling activities. Groundwater measurements were used to determine elevations and flow across the Station. Groundwater flow in the shallow zone monitoring wells was observed to radially flow toward the northeast, east, and southeast during the June and October 2018 sampling events. Groundwater flow in the deep zone monitoring wells was observed to flow toward the south-southeast during the June and October 2018 sampling events. The groundwater flow observed in 2018 was consistent with historical flow at the Station. Groundwater elevation measurements (current and historical) are included in Appendix A.



### 3.2 Assessment Monitoring Groundwater Sampling

Assessment monitoring groundwater sampling was conducted by OPPD personnel in accordance with the Station's Sampling and Analysis Plan (SAP), dated February 2016. Two (2) sampling events were completed as part of the assessment monitoring program for the Station in June 2018, as specified in 40 CFR 257.95(b), and October 2018, as specified in 40 CFR 257.95(d). The June 2018 sampling event was analyzed for the entire Appendix III and Appendix IV constituent lists. As specified in 40 CFR 257.95(d)(1), the October 2018 sampling event was analyzed for all constituents in Appendix III and the constituents in Appendix IV that were detected in response to 40 CFR 257.95(b), or the June 2018 sampling event.

An analytical data summary (current and historical), field sample data sheets, groundwater contour maps, and laboratory analytical reports (including results and reporting limits) are included in Appendices A through C.

## 4 Statistical Analysis Results

The results of testing for statistically significant increases (SSI) above background concentrations and statistically significant levels (SSL) above the groundwater protection standards (GWPS) at designated down-gradient monitoring wells is provided in Appendix D.

## 5 Transition of Monitoring Programs (40 CFR 257.90(e)(4))

The following SSI were detected and reported in the North Omaha Station 2017 CCR Landfill Annual Groundwater Monitoring and Corrective Action Report: Boron, Calcium, Chloride, Sulfate, and Total Dissolved Solids.

On January 31, 2018, OPPD published SSI in down-gradient monitoring wells at the Station CCR landfill. An ASD investigation was conducted for the published SSI. A notification, dated May 29, 2018, was submitted to the Nebraska Department of Environmental Quality (NDEQ) stating that the ASD failed to demonstrate an alternate source for the SSI and that the Station would initiate an assessment monitoring program in accordance with 40 CFR 257.95. Subsequently, the first groundwater sampling event for the assessment monitoring program occurred in June 2018. The ASD notification is provided in Appendix E.

## 6 Upcoming Activities

OPPD will prepare a notification in accordance with 40 CFR 257.95(g) indicating the constituents in Appendix IV that have exceeded the groundwater protection standard and will characterize the nature and extent. As allowed under the CCR Rule, OPPD is considering completing an ASD prior to initiating an assessment of corrective measures.



**OMAHA PUBLIC POWER DISTRICT'S**

**NORTH OMAHA STATION**

**CCR ANNUAL GROUNDWATER MONITORING AND**

**CORRECTIVE ACTION REPORT**

**APPENDICES**

**Omaha Public Power District**  
**444 South 16<sup>th</sup> Street Mall**  
**Omaha, Nebraska 68102-2247**

**JANUARY 2019**

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## **APPENDIX A**

**SUMMARY OF GROUNDWATER ELEVATIONS  
NORTH OMAHA STATION**

Location	Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Comments
MW2	3/22/2016	1001.41	21.20	980.21	
MW2	6/14/2016	1001.41	21.65	979.76	
MW2	9/2/2016	1001.41	22.90	978.51	
MW2	11/28/2016	1001.41	22.06	979.35	
MW2	2/17/2017	1001.41	22.45	978.96	
MW2	5/2/2017	1001.41	22.00	979.41	
MW2	6/19/2017	1001.41	22.00	979.41	
MW2	7/31/2017	1001.41	23.10	978.31	
MW2	11/7/2017	1001.41	22.95	978.46	
MW2	3/8/2018	1001.41	23.33	978.08	
MW2	4/23/2018	1001.41	23.50	977.91	
MW2	6/5/2018	1001.41	22.43	978.98	
MW2	10/9/2018	1001.41	19.49	981.92	
MW4	3/22/2016	1004.59	11.84	992.75	
MW4	6/14/2016	1004.59	11.19	993.40	
MW4	9/2/2016	1004.59	12.20	992.39	
MW4	11/28/2016	1004.59	12.30	992.29	
MW4	2/17/2017	1004.59	12.90	991.69	
MW4	5/2/2017	1004.59	12.35	992.24	
MW4	6/19/2017	1004.59	11.85	992.74	
MW4	7/31/2017	1004.59	12.45	992.14	
MW4	11/7/2017	1004.59	12.80	991.79	
MW4	6/5/2018	1004.59	13.66	990.93	
MW4	10/9/2018	1004.59	11.94	992.65	
MW5	3/22/2016	1000.96	20.30	980.66	
MW5	6/14/2016	1000.96	19.15	981.81	
MW5	9/2/2016	1000.96	20.50	980.46	
MW5	11/28/2016	1000.96	20.55	980.41	
MW5	2/17/2017	1000.96	20.73	980.23	
MW5	5/2/2017	1000.96	20.25	980.71	
MW5	6/19/2017	1000.96	19.60	981.36	
MW5	7/31/2017	1000.96	20.21	980.75	
MW5	11/7/2017	1000.96	23.45	977.51	
MW5	3/8/2018	1000.96	21.25	979.71	
MW5	6/5/2018	1000.96	19.47	981.49	
MW5	10/9/2018	1000.96	17.08	983.88	
MW6	3/22/2016	1002.65	12.75	989.90	
MW6	6/14/2016	1002.65	12.05	990.60	
MW6	9/2/2016	1002.65	13.30	989.35	
MW6	11/28/2016	1002.65	13.48	989.17	
MW6	2/17/2017	1002.65	13.89	988.76	
MW6	5/2/2017	1002.65	13.40	989.25	
MW6	6/19/2017	1002.65	12.50	990.15	
MW6	7/31/2017	1002.65	13.37	989.28	

Measurements are in feet.

Well condition is compliant unless noted otherwise.

**SUMMARY OF GROUNDWATER ELEVATIONS  
NORTH OMAHA STATION**

Location	Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Comments
MW6	11/7/2017	1002.65	12.20	990.45	
MW6	3/8/2018	1002.65	13.10	989.55	
MW6	6/5/2018	1002.65	14.17	988.48	
MW6	10/9/2018	1002.65	13.49	989.16	
MW7	3/22/2016	1001.85	16.57	985.28	
MW7	6/14/2016	1001.85	15.70	986.15	
MW7	9/2/2016	1001.85	17.21	984.64	
MW7	11/28/2016	1001.85	17.80	984.05	
MW7	2/17/2017	1001.85	18.30	983.55	
MW7	5/2/2017	1001.85	16.69	985.16	
MW7	6/19/2017	1001.85	16.15	985.70	
MW7	7/31/2017	1001.85	16.72	985.13	
MW7	11/7/2017	1001.85	15.65	986.20	
MW7	6/5/2018	1001.85	17.51	984.34	
MW7	10/9/2018	1001.85	16.71	985.14	
MW8	3/22/2016	1003.59	17.55	986.04	
MW8	6/14/2016	1003.59	16.00	987.59	
MW8	9/2/2016	1003.59	17.48	986.11	
MW8	11/28/2016	1003.59	18.18	985.41	
MW8	2/17/2017	1003.59	18.67	984.92	
MW8	5/2/2017	1003.59	11.32	992.27	
MW8	6/19/2017	1003.59	16.45	987.14	
MW8	7/31/2017	1003.59	11.38	992.21	
MW8	11/7/2017	1003.59	15.80	987.79	
MW8	3/8/2018	1003.59	17.17	986.42	
MW8	6/5/2018	1003.59	18.27	985.32	
MW8	10/9/2018	1003.59	17.05	986.54	
MW9	3/22/2016	1026.47	22.41	1004.06	
MW9	6/14/2016	1026.47	22.10	1004.37	
MW9	9/2/2016	1026.47	24.70	1001.77	
MW9	11/28/2016	1026.47	24.65	1001.82	
MW9	2/17/2017	1026.47	24.70	1001.77	
MW9	5/2/2017	1026.47	23.71	1002.76	
MW9	6/19/2017	1026.47	23.90	1002.57	
MW9	7/31/2017	1026.47	26.65	999.82	
MW9	11/7/2017	1026.47	21.30	1005.17	
MW9	3/8/2018	1026.47	26.35	1000.12	
MW9	4/23/2018	1026.47	29.27	997.20	
MW9	6/5/2018	1026.47	26.52	999.95	
MW9	10/9/2018	1026.47	25.47	1001.00	
MW10	3/22/2016	1002.48	15.50	986.98	
MW10	6/14/2016	1002.48	14.50	987.98	
MW10	9/2/2016	1002.48	16.04	986.44	
MW10	11/28/2016	1002.48	16.80	985.68	

Measurements are in feet.

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**SUMMARY OF GROUNDWATER ELEVATIONS  
NORTH OMAHA STATION**

Location	Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Comments
MW10	2/17/2017	1002.48	16.99	985.49	
MW10	5/2/2017	1002.48	15.55	986.93	
MW10	6/19/2017	1002.48	14.95	987.53	
MW10	7/31/2017	1002.48	16.00	986.48	
MW10	11/7/2017	1002.48	14.25	988.23	
MW10	6/5/2018	1002.48	16.27	986.21	
MW10	10/9/2018	1002.48	15.51	986.97	
MW11	3/22/2016	1002.99	10.83	992.16	
MW11	6/14/2016	1002.99	10.05	992.94	
MW11	9/2/2016	1002.99	11.30	991.69	
MW11	11/28/2016	1002.99	12.20	990.79	
MW11	2/17/2017	1002.99	12.54	990.45	
MW11	5/2/2017	1002.99	12.45	990.54	
MW11	6/19/2017	1002.99	10.50	992.49	
MW11	7/31/2017	1002.99	13.02	989.97	
MW11	11/7/2017	1002.99	12.00	990.99	
MW11	3/8/2018	1002.99	12.81	990.18	
MW11	6/5/2018	1002.99	12.98	990.01	
MW11	10/9/2018	1002.99	12.81	990.18	
MW12	3/22/2016	1003.78	16.34	987.44	
MW12	6/14/2016	1003.78	14.55	989.23	
MW12	9/2/2016	1003.78	15.60	988.18	
MW12	11/28/2016	1003.78	17.25	986.53	
MW12	2/17/2017	1003.78	17.71	986.07	
MW12	5/2/2017	1003.78	9.39	994.39	
MW12	6/19/2017	1003.78	15.00	988.78	
MW12	7/31/2017	1003.78	10.20	993.58	
MW12	11/7/2017	1003.78	14.42	989.36	
MW12	6/5/2018	1003.78	16.11	987.67	
MW12	10/9/2018	1003.78	13.05	990.73	
MW13	3/22/2016	1001.91	17.41	984.50	
MW13	6/14/2016	1001.91	17.40	984.51	
MW13	9/2/2016	1001.91	22.50	979.41	
MW13	11/28/2016	1001.91	18.20	983.71	
MW13	2/17/2017	1001.91	18.80	983.11	
MW13	5/2/2017	1001.91	18.41	983.50	
MW13	6/19/2017	1001.91	18.30	983.61	
MW13	7/31/2017	1001.91	19.25	982.66	
MW13	11/7/2017	1001.91	19.40	982.51	
MW13	3/8/2018	1001.91	20.21	981.70	
MW13	4/23/2018	1001.91	20.35	981.56	
MW13	6/5/2018	1001.91	18.90	983.01	
MW13	10/9/2018	1001.91	15.93	985.98	
MW15	3/22/2016	1005.39	10.90	994.49	

Measurements are in feet.

Well condition is compliant unless noted otherwise.

**SUMMARY OF GROUNDWATER ELEVATIONS  
NORTH OMAHA STATION**

Location	Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Comments
MW15	6/14/2016	1005.39	10.40	994.99	
MW15	9/2/2016	1005.39	10.90	994.49	
MW15	11/28/2016	1005.39	11.30	994.09	
MW15	2/17/2017	1005.39	11.65	993.74	
MW15	5/2/2017	1005.39	10.45	994.94	
MW15	6/19/2017	1005.39	10.60	994.79	
MW15	7/31/2017	1005.39	12.15	993.24	
MW15	11/7/2017	1005.39	12.75	992.64	
MW15	3/8/2018	1005.39	13.75	991.64	
MW15	4/23/2018	1005.39	12.70	992.69	
MW15	6/5/2018	1005.39	12.12	993.27	
MW15	10/9/2018	1005.39	10.71	994.68	
MW16	3/22/2016	1004.41	11.69	992.72	
MW16	6/14/2016	1004.41	10.90	993.51	
MW16	9/2/2016	1004.41	12.30	992.11	
MW16	11/28/2016	1004.41	12.10	992.31	
MW16	2/17/2017	1004.41	13.10	991.31	
MW16	5/2/2017	1004.41	12.25	992.16	
MW16	6/19/2017	1004.41	11.45	992.96	
MW16	7/31/2017	1004.41	12.50	991.91	Decommissioned on 8/4/2017
MW17	3/22/2016	1002.54	17.18	985.36	
MW17	6/14/2016	1002.54	16.10	986.44	
MW17	9/2/2016	1002.54	17.50	985.04	
MW17	11/28/2016	1002.54	17.51	985.03	
MW17	2/17/2017	1002.54	18.25	984.29	
MW17	5/2/2017	1002.54	17.12	985.42	
MW17	6/19/2017	1002.54	16.55	985.99	
MW17	7/31/2017	1002.54	17.10	985.44	
MW17	11/7/2017	1002.54	17.50	985.04	
MW17	3/8/2018	1002.54	19.21	983.33	
MW17	4/23/2018	1002.54	19.00	983.54	
MW17	6/5/2018	1002.54	17.10	985.44	
MW17	10/9/2018	1002.54	14.71	987.83	
MW18	3/22/2016	1037.00	34.75	1002.25	
MW18	6/14/2016	1037.00	33.92	1003.08	
MW18	9/2/2016	1037.00	35.50	1001.50	
MW18	11/28/2016	1036.70	35.35	1001.35	Casing Cut, New TOC Elevation
MW18	2/17/2017	1036.70	35.95	1000.75	
MW18	5/2/2017	1036.70	34.80	1001.90	
MW18	6/19/2017	1036.70	34.70	1002.00	
MW18	7/31/2017	1036.70	36.40	1000.30	
MW18	11/7/2017	1036.70	36.39	1000.31	
MW18	3/8/2018	1036.70	36.31	1000.39	
MW18	4/23/2018	1036.70	35.63	1001.07	

Measurements are in feet.

Well condition is compliant unless noted otherwise.

**SUMMARY OF GROUNDWATER ELEVATIONS  
NORTH OMAHA STATION**

Location	Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Comments
MW18	6/5/2018	1036.70	35.52	1001.18	
MW18	10/9/2018	1036.70	33.94	1002.76	
MW19	3/22/2016	1037.10	33.85	1003.25	
MW19	6/14/2016	1037.10	33.40	1003.70	
MW19	9/2/2016	1037.10	34.95	1002.15	
MW19	11/28/2016	1036.91	34.91	1002.00	Casing Cut, New TOC Elevation
MW19	2/17/2017	1036.91	35.30	1001.61	
MW19	5/2/2017	1036.91	34.22	1002.69	
MW19	6/19/2017	1036.91	34.20	1002.71	
MW19	7/31/2017	1036.91	35.85	1001.06	
MW19	11/7/2017	1036.91	35.86	1001.05	
MW19	3/8/2018	1036.91	37.06	999.85	
MW19	4/23/2018	1036.91	35.15	1001.76	
MW19	6/5/2018	1036.91	35.81	1001.10	
MW19	10/9/2018	1036.91	33.78	1003.13	
MW20	3/22/2016	993.47	8.17	985.30	
MW20	6/14/2016	993.47	7.60	985.87	
MW20	9/2/2016	993.47	8.35	985.12	
MW20	11/28/2016	993.47	9.00	984.47	
MW20	2/17/2017	993.47	9.41	984.06	
MW20	5/2/2017	993.47	8.20	985.27	
MW20	6/19/2017	993.47	8.05	985.42	
MW20	7/31/2017	993.47	8.70	984.77	
MW20	11/7/2017	993.47	9.03	984.44	
MW20	6/5/2018	993.47	6.08	987.39	
MW20	10/9/2018	993.47	7.00	986.47	

Measurements are in feet.

Well condition is compliant unless noted otherwise.

**North Omaha Station**  
**Appendix III Groundwater Monitoring Results**

CCR Program D=Detection A=Assessment				D	D	D	D	D	D	D/A
EPA MCL						250 <sup>2</sup>	250 <sup>2</sup>	500 <sup>2</sup>	6.5-8.5 <sup>2</sup>	4.0
Location	Duplicate	Well Type	Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Fluoride (mg/L)
MW2		d								
			3/22/2016	1.6	267	23.1	1320	1920	6.85	<0.5
			6/14/2016	1.52	278	25.7	774	1560	6.80	<0.5
			9/2/2016	1.22	197	24.9	503	2890	7.04	<0.5
			11/28/2016	1.31	262	24.4	650	1420	7.49	0.318
	x		11/28/2016	1.21	251	31.6	610	1350	7.49	0.308
			2/17/2017	1.92	292	19.3	915	2120	7.79	0.563
			5/2/2017	1.79	300	22.9	889	1840	7.27	1.94
			6/19/2017	1.48	277	24.1	631	2020	7.09	<0.5
			7/31/2017	1.81	299	24.8	799	1850	7.37	0.583
			11/7/2017	1.59	263	21.2	907	2210	7.29	0.529
			3/9/2018	1.88	292	27.4	745	1570	6.73	<0.5
			6/5/2018	1.15	239	28.5	618	1460	7.02	<0.5
			10/9/2018	1.38	302	22.2	808	1720	6.96	<0.5
			10/9/2018	1.32	299	22.4	840	1800	6.96	0.597
MW9		u								
			3/22/2016	<0.2	147	121	23	708	6.83	1.35
			6/14/2016	<0.2	159	165	31.7	770	6.78	0.864
			9/2/2016	<0.2	122	146	19.9	766	7.27	<0.5
			11/28/2016	<0.2	166	177	35.4	790	7.02	<0.5
			2/17/2017	<0.2	116	120	26.2	640	7.47	0.585
			5/2/2017	<0.2	148	127	25.5	760	7.35	1.84
			6/19/2017	<0.2	150	149	22	888	6.99	0.517
			7/31/2017	<0.2	190	275	57.1	1180	7.87	0.617
			11/7/2017	<0.2	153	220	37.7	1090	7.46	0.55
			3/20/2018	<0.2	146	210	46.1	844	6.68	<0.5
			6/5/2018	<0.2	185	231	57.5	1190	7.00	<0.5
			10/9/2018	<0.2	159	194	45.5	872	6.74	0.592
MW13		d								
			3/22/2016	2.05	127	7.97	486	1050	6.89	0.796
	x		3/22/2016	1.96	130	7.55	498	1060	6.89	0.67
			6/14/2016	1.97	138	6.7	500	1030	6.70	<0.5
			9/2/2016	2.02	116	8.06	458	1170	7.03	0.652
			11/28/2016	2.21	155	11.3	583	1140	7.25	2.55
			2/17/2017	2.02	153	6.35	603	1320	7.44	<0.5
	x		2/17/2017	1.89	149	8.45	584	1260	7.44	0.571
			5/2/2017	1.8	156	7.52	650	1450	7.30	1.05
	x		5/2/2017	2.04	165	9.22	591	1390	7.30	3.24
			6/19/2017	2.09	179	7.83	590	1400	7.07	<0.5
	x		6/19/2017	2.02	169	7.24	565	1750	7.07	<0.5
			7/31/2017	2.26	133	6.3	512	1150	7.20	0.587
			11/7/2017	1.71	129	6.81	581	1080	6.79	0.67
			3/9/2018	1.98	152	7.35	663	1340	7.03	0.53
			6/5/2018	1.78	151	7.93	654	1490	8.31	<0.5
	x		6/5/2018	1.69	133	7.53	618	1440	8.31	<0.5
MW13			10/9/2018	1.77	161	7.05	644	1190	6.96	<0.5

**North Omaha Station**  
**Appendix III Groundwater Monitoring Results**

CCR Program D=Detection A=Assessment				D	D	D	D	D	D	D/A
EPA MCL						250 <sup>2</sup>	250 <sup>2</sup>	500 <sup>2</sup>	6.5-8.5 <sup>2</sup>	4.0
Location	Duplicate	Well Type	Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Fluoride (mg/L)
MW15		d								
			3/22/2016	3.11	311	24.3	262	1510	7.09	<0.5
			6/14/2016	5.39	340	13	934	1640	6.80	<0.5
			9/2/2016	3.36	220	3.52	625	1460	6.97	0.278
			11/28/2016	2.87	285	28.2	886	1500	7.32	3.48
	x		11/28/2016	2.84	276	31.6	860	1440	7.32	5.01
			2/17/2017	2.81	266	16.8	863	1370	7.65	<0.5
			5/2/2017	2.80	263	11.2	861	1280	7.02	0.878
			6/19/2017	2.57	248	9.99	643	1320	7.05	<0.5
			7/31/2017	3.01	247	11.4	641	1140	7.02	<0.5
	x		7/31/2017	2.80	235	12.7	633	1180	7.02	<0.5
			11/7/2017	4.13	293	11.6	900	1520	7.10	<0.5
	x		11/7/2017	4.24	304	11.8	887	1750	7.10	<0.5
			3/9/2018	4.10	283	13.4	819	1330	7.24	<0.5
	x		3/9/2018	3.64	248	20.6	778	1270	7.24	<0.5
			6/5/2018	3.26	265	16.6	745	1640	7.42	<0.5
			10/9/2018	2.48	230	11.5	656	1130	7.10	<0.5
MW16		d								
			3/22/2016	0.367	180	64.7	345	948	6.86	1.84
			6/14/2016	0.409	180	65.5	340	968	6.67	<0.5
			9/2/2016	0.333	143	57.3	277	1160	7.18	<0.5
	x		9/2/2016	0.310	145	61.8	266	1060	7.18	0.817
			11/28/2016	0.312	184	60.7	357	1040	7.11	<0.5
			2/17/2017	0.433	181	59.2	374	1410	7.51	1.37
			5/2/2017	0.320	184	60.7	381	1030	7.26	1.85
			6/19/2017	0.371	194	59.3	326	1460	6.97	<0.5
			7/31/2017	0.423	200	57.9	352	1200	7.12	0.528
MW17		d								
			3/23/2016	0.668	392	51.3	1010	3150	6.60	1.36
			6/14/2016	0.706	376	50	990	2360	6.59	<0.5
			9/2/2016	0.637	320	43	807	2660	6.98	<0.5
			11/29/2016	0.644	390	49.7	1080	2640	6.76	<0.5
			2/17/2017	0.700	380	62.6	1010	2250	7.31	2.91
			5/2/2017	0.649	364	45.3	1090	3040	7.47	1.66
			6/19/2017	0.679	373	42.3	944	2640	6.93	<0.5
			7/31/2017	0.753	365	44.4	913	2300	7.05	<0.5
			11/7/2017	0.660	323	46.2	952	2590	7.14	<0.5
			3/9/2018	0.745	357	46.8	907	2010	6.31	1.29
			6/5/2018	0.745	363	43.6	918	1990	6.95	<0.5
			10/10/2018	0.615	328	41.9	872	1980	6.39	<0.5
MW18		u								
			3/22/2016	<0.2	115	<5	24.8	504	6.86	<0.5
			6/14/2016	<0.2	96.1	<5	5	468	7.18	<0.5
			9/2/2016	<0.2	73.4	<5	<5	460	7.20	<0.5
MW18			11/28/2016	<0.2	97.6	<5	<5	628	7.47	<0.5
Continued			2/17/2017	<0.2	94.8	<5	<5	474	7.70	0.508



# North Omaha Station

## Appendix III Groundwater Monitoring Results

CCR Program D=Detection A=Assessment				D	D	D	D	D	D	D/A
EPA MCL						250 <sup>2</sup>	250 <sup>2</sup>	500 <sup>2</sup>	6.5-8.5 <sup>2</sup>	4.0
Location	Duplicate	Well Type	Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Fluoride (mg/L)
			5/2/2017	<0.2	98.9	<5	<5	542	7.27	1.32
			6/19/2017	<0.2	98.4	<5	<5	514	7.20	<0.5
			7/31/2017	<0.2	98.8	<5	<5	468	7.63	0.632
			11/7/2017	<0.2	87.5	<5	<5	518	7.22	0.704
			3/9/2018	<0.2	97.3	<5	<5	438	6.46	0.530
			6/5/2018	<0.2	106	<5	<5	438	6.91	0.528
			10/9/2018	<0.2	94.2	<5	<5	398	6.64	0.817
MW19		u								
			3/22/2016	<0.2	103	6.5	29.5	494	6.85	<0.5
			6/14/2016	<0.2	110	7.2	29.9	508	6.80	<0.5
			9/2/2016	<0.2	82.8	<5	21.5	492	7.12	<0.5
			11/28/2016	<0.2	110	6.02	20.7	484	7.29	<0.5
			2/17/2017	<0.2	90.5	3.55	15.7	484	7.49	0.418
			5/2/2017	<0.2	107	3.7	10.6	566	7.39	0.804
			6/19/2017	<0.2	103	<5	10.2	518	7.05	<0.5
			7/31/2017	<0.2	105	<5	8.35	480	7.53	0.693
			11/7/2017	<0.2	93	<5	6.91	410	6.98	<0.5
			3/9/2018	<0.2	113	<5	8.89	426	6.53	<0.5
			6/5/2018	<0.2	100	<5	5.53	440	6.91	0.524
			10/9/2018	<0.2	106	11.9	16.5	460	6.49	<0.5

**Notes:**

mg/L = milligrams per liter

pCi/L = picoCuries per liter

MCL = Maximum Contaminant Level

<sup>1</sup> = MCL is presented in Appendix I to Part 257 and differs from Part 141.62 and 141.66

<sup>2</sup> = MCL is the National Secondary Drinking Water Regulations Standard

NA = Analyte Not Analyzed/Measured

< = not detected above the reporting limit given

Well Type: u = up-gradient/background; d = down-gradient

Laboratory Reported Qualifiers

(^\*) = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

(F1) = MS and/or MSD Recovery is outside acceptance limits.

(F2) = MS/MSD RPD exceeds control limits.

(B) = Compound was found in the blank and sample.

(U) = Result is less than the sample detection limit.

(\*) = LCS or LCSD is outside acceptance limits







**North Omaha Station**  
**Appendix IV Groundwater Monitoring Results**

Laboratory Reported Qualifiers

(^) = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

(F1) = MS and/or MSD Recovery is outside acceptance limits.

(F2) = MS/MSD RPD exceeds control limits.

(B) = Compound was found in the blank and sample.

(U) = Result is less than the sample detection limit.

(\*) = LCS or LCSD is outside acceptance limits

# NORTH OMAHA STATION

## Water Levels Prior to Purging

MW-2	Date of Sampling	3/8/2018	Time of Sampling	10:03 AM	Static Water Level	23.33
MW-4	Date of Sampling	3/8/2018	Time of Sampling		Static Water Level	
MW-5	Date of Sampling	3/8/2018	Time of Sampling	10:32 AM	Static Water Level	21.25
MW-6	Date of Sampling	3/8/2018	Time of Sampling	9:54 AM	Static Water Level	13.1
MW-7	Date of Sampling	3/8/2018	Time of Sampling		Static Water Level	
MW-8	Date of Sampling	3/8/2018	Time of Sampling	10:22 AM	Static Water Level	17.17
MW-9	Date of Sampling	3/8/2018	Time of Sampling	9:42 AM	Static Water Level	26.35
MW-10	Date of Sampling	3/8/2018	Time of Sampling		Static Water Level	
MW-11	Date of Sampling	3/8/2018	Time of Sampling	9:43 AM	Static Water Level	12.81
MW-12	Date of Sampling		Time of Sampling		Static Water Level	
MW-13	Date of Sampling	3/8/2018	Time of Sampling	10:05 AM	Static Water Level	20.21
MW-15	Date of Sampling	3/8/2018	Time of Sampling	10:18 AM	Static Water Level	13.75
MW-16	Date of Sampling		Time of Sampling		Static Water Level	
MW-17	Date of Sampling	3/8/2018	Time of Sampling	10:26 AM	Static Water Level	19.21
MW-18	Date of Sampling	3/8/2018	Time of Sampling	9:32 AM	Static Water Level	36.31
MW-19	Date of Sampling	3/8/2018	Time of Sampling	9:36 AM	Static Water Level	37.06
MW-20	Date of Sampling		Time of Sampling		Static Water Level	

# Field Notes For Monitoring Well Sampling

Facility Name: Omaha Station	North	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-2	Date: 3/9/2018	
Sample Number: MW-2	Weather Conditions: Low of 21° High of 39° sunny with light snow flurry no accumulation	
OVA Readings: N/A	Wellhead Inspection (Note Conditions)	Compliant

### Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	23.3	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement		9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)		10.) Purge Rate (mL/min)	250
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	12
5.) Casing Volume (L)	-14.3869	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)		13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	4:38 PM

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
4:44 AM	1.20	12.93	1.32	21.3	6.67	2124.000	23.70
4:49 AM	1.80	12.82	0.55	20.6	6.73	2111.000	23.70
4:54 AM	2.40	12.88	0.46	22.9	6.72	2108.000	23.70
4:59 AM	3.00	12.85	0.37	19.5	6.73	2120.000	23.70

Well Evacuated to Dryness?                                 No                                 Time to recharge?                                 

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-2	5:00 PM	12.85	0.37	19.5	6.73	2120.000	23.70

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	250 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance	Clear	Instrument Calibration	R. Layman/P. Finigan
Clarity		Prior to sampling by:	
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO <sub>3</sub>		

# Field Notes For Monitoring Well Sampling

Facility Name: Omaha Station	North	Sampler Name(s): J. Starstka
Monitoring Well Identification Number: MW-9		Date: 3/20/2018
Sample Number: MW-9		Weather Conditions: L
OVA Readings: N/A		Wellhead Inspection (Note Conditions) <span style="float: right;">Compliant</span>

## Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)		8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement		9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)		10.) Purge Rate (mL/min)	#DIV/0!
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	
5.) Casing Volume (L)	0.0000	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)		13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	2:22 PM

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
3:10 PM	9.60	10.85	0.77	61.2	6.70	1727.000	27.00
3:13 PM	10.20	10.94	0.71	48.1	6.69	1725.000	27.00
3:16 PM	10.80	10.99	0.68	41	6.69	1726.000	27.00
3:19 PM	11.40	10.88	0.74	38.8	6.68	1730.000	27.00
3:21 PM	11.80	10.85	0.64	35	6.68	1727.000	27.00
3:24 PM	12.4	10.92	0.5	32.6	6.68	1720	27.00
3:27 PM	13	11.05	0.46	30.3	6.68	1711	27.00
3:30 PM	13.6	11.1	0.4	27.8	6.68	1709	27.00
3:33 PM	14.2	11	0.38	25.8	6.68	1708	27.00
3:35 PM	14.6	10.98	0.34	24.1	6.68	1707	27.00

Well Evacuated to Dryness? No Time to recharge? \_\_\_\_\_

## Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-9	3:35 PM	10.98	0.34	24.1	6.68	1707	27.00

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	#DIV/0!	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance		Instrument Calibration	J. Staroska/ P. Finigan
Clarity	Clear	Prior to sampling by:	
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO <sub>3</sub>		



# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW 13	Date: 3/9/2018
Sample Number: MW-13	Weather Conditions: Low of 21° High of 39° sunny with light snow flurry no accumulation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) <span style="float: right;">Compliant</span>

## Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	18.85	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement		9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)		10.) Purge Rate (mL/min)	300
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	100
5.) Casing Volume (L)	-11.6392	12.) Immiscible Layers observed?	No
6.) Actual Volume of Water Purged (L)		13.) Thickness of immiscible Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	2:40 PM

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
2:45 PM	1.50	13.22	0.51	1100	6.93	1657.000	21.65
2:50 PM	3.00	13.32	0.24	168.4	6.93	1785.000	21.60
2:55 PM	4.50	13.58	0.23	339.9	6.94	1802.000	21.40
3:00 PM	6.00	13.23	0.19	92.64	6.96	1853.000	21.05
3:05 PM	7.50	13.25	0.16	87	7.01	1889.000	20.95
3:10 PM	9	13.23	0.18	76.36	7.03	1920	20.88
3:15 PM	10.5	13.59	0.1	59.21	7.03	1935	20.88
3:20 PM	12	13.27	0.08	50.61	7.03	1951	20.83
3:25 PM	13.5	13.1	0.07	43.15	7.03	1964	20.88
3:30 PM	15	13.06	0.06	29.47	7.04	1974	20.88
3:35 PM	16.5	12.87	0.06	31.01	7.05	1982	20.88
3:40 PM	18	13.16	0.05	29.36	7.07	1990	20.88
3:45 PM	19.5	13.07	0.05	28.02	7.09	1992	20.88
3:50 PM	21	12.9	0.05	20	7.12	1998	20.88
4:17 PM	29.1	12.62	0.04	13	7.23	2014	20.88
4:18 PM	29.4	12.64	0.04	15.5	7.23	2014	20.88
4:19 AM	29.7	12.75	0.04	18.9	7.24	2016	20.88
4:20 PM	30	12.68	0.04	16.8	7.24	2016	20.88

Well Evacuated to Dryness? No Time to recharge? \_\_\_\_\_

## Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-13	4:20 AM	12.68	0.04	16.8	7.24	2016	20.88

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	300 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance		Instrument Calibration	R. Layman/P. Finigan
Clarity	Clear	Prior to sampling by:	
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO <sub>3</sub>		



# Field Notes For Monitoring Well Sampling

Facility Name: Omaha Station	North	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-17		Date: 3/9/2018
Sample Number: MW-17		Weather Conditions: Low of 21° High of 39° sunny with light snow flurry no accumulation
OVA Readings: N/A		Wellhead Inspection (Note Conditions) <span style="float: right;">Compliant</span>

### Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)		8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement		9.) Dedicated?	<b>Yes</b>
3.) Bottom of Casing (+/- 0.01 ft) (ft)		10.) Purge Rate (mL/min)	200
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	19
5.) Casing Volume (L)	0.0000	12.) Immiscible Layers observed?	No
6.) Actual Volume of Water Purged (L)		13.) Thickness of immiscible Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	7:57 PM

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
8:02 PM	1.00	12.21	1.88	32	6.39	2364.000	20.00
8:07 PM	2.00	11.80	1.02	43.6	6.34	2374.000	20.30
8:12 PM	3.00	11.28	0.88	23.6	6.32	2390.000	20.02
8:14 PM	3.40	10.63	0.87	21.8	6.32	2391.000	20.15
8:15 PM	3.60	10.01	0.89	22	6.32	2396.000	20.15
8:16 PM	3.8	9.82	0.9	21.9	6.31	2390	20.15

Well Evacuated to Dryness? No Time to recharge?

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	200 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance		Instrument Calibration	R. Layman/ P. Finigan
Clarity	Cloudy	Prior to sampling by:	
Color	Light Brown	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO <sub>3</sub>		

# Field Notes For Monitoring Well Sampling

Facility Name: Omaha Station	North	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-18	Date: 3/8/2018	
Sample Number: MW-18	Weather Conditions: Low of 21° High of 39° sunny with light snow flurry no accumulation	
OVA Readings: N/A	Wellhead Inspection (Note Conditions)	Compliant

## Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	37	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement		9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)		10.) Purge Rate (mL/min)	0
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	90
5.) Casing Volume (L)	-22.8462	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)		13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	10:00 AM

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
10:05 AM	0.50	7.16	10.28	14.8	6.69	728.000	37.40
10:10 AM	0.10	6.00	9.76	16.2	6.73	710.000	37.47
10:15 AM	0.15	5.45	10.02	14.3	6.70	692.000	37.47
10:20 AM	0.20	5.04	10.60	15.6	6.69	984.000	37.42
10:25 AM	0.25	4.91	11.69	18	6.67	681.000	37.50
10:30 AM	0.30	4.8	12.35	22.5	6.63	678	37.50
10:35 AM	0.35	4.78	11.24	27.5	6.56	689	37.50
10:40 AM	0.40	4.84	6.39	27.2	6.48	709	37.60
10:45 AM	0.45	4.57	5.03	34.4	6.46	714	37.60
10:50 AM	0.50	5.09	4.16	29.6	6.45	717	67.60
10:55 AM	0.55	5.4	3.18	28.4	6.44	719	37.60
11:00 AM	0.60	5.84	2.77	30.8	6.4	723	38.20
11:05 AM	0.70	8.7	1.5	59.6	6.41	721	38.50
11:10 AM	0.70	9.69	1.02	17.8	6.43	731	38.85
11:15 AM	0.75	10.05	0.82	19.8	6.46	736	39.34
11:20 AM	0.80	10.22	0.64	18.3	6.47	737	39.80
11:25 AM	0.85	10.31	0.58	15.4	6.47	738	40.30
11:30 AM	0.90	10.4	0.49	19.3	6.47	737	40.70

Well Evacuated to Dryness? No Time to recharge? \_\_\_\_\_

## Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-18	11:30 AM	10.4	0.49	19.3	6.47	737	40.70

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	0 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance		Instrument Calibration	R. Layman/P. Finigan
Clarity	clear	Prior to sampling by:	
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO <sub>3</sub>		

# Field Notes For Monitoring Well Sampling

Facility Name: Omaha Station	North	Sampler Name(s): Ryan Layman (#79647)	
Monitoring Well Identification Number: MW-19	Date: 3/8/2018		
Sample Number: MW-19	Weather Conditions: Low of 21° High of 39° sunny with light snow flurry no accumulation		
OVA Readings: N/A	Wellhead Inspection (Note Conditions)		Compliant

## Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	36.2	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement		9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)		10.) Purge Rate (mL/min)	100
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	30
5.) Casing Volume (L)	-22.3522	12.) Immiscible Layers observed?	No
6.) Actual Volume of Water Purged (L)		13.) Thickness of immiscible Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	11:58 AM

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
12:03 PM	0.50	9.25	2.80	8.74	6.64	583.000	36.25
12:08 PM	1.00	9.79	0.97	14	6.59	576.000	36.25
12:13 PM	1.50	10.05	0.77	15.8	6.52	660.000	36.25
12:18 PM	2.00	10.33	0.54	9.54	6.53	700.000	36.26
12:23 PM	2.50	10.24	0.41	8	6.53	707.000	36.26
12:28 PM	3	10.22	0.39	7.36	6.53	710	36.26

Well Evacuated to Dryness? No Time to recharge? \_\_\_\_\_

## Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-19	12:28 PM	10.22	0.39	7.36	6.53	710.000	36.26

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	100 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance		Instrument Calibration	R. Layman/P. Finigan
Clarity	Cloudy	Prior to sampling by:	
Color	Light Brown	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO <sub>3</sub>		

# NORTH OMAHA STATION

## Water Levels Prior to Purging

MW-2	Date of Sampling	6/5/2018	Time of Sampling	8:46 AM	Static Water Level	22.43
MW-4	Date of Sampling	6/5/2018	Time of Sampling	8:55 AM	Static Water Level	13.66
MW-5	Date of Sampling	6/5/2018	Time of Sampling	9:34 AM	Static Water Level	19.47
MW-6	Date of Sampling	6/5/2018	Time of Sampling	9:13 AM	Static Water Level	14.17
MW-7	Date of Sampling	6/5/2018	Time of Sampling	9:19 AM	Static Water Level	17.51
MW-8	Date of Sampling	6/5/2018	Time of Sampling	9:24 AM	Static Water Level	18.26
MW-9	Date of Sampling	6/5/2018	Time of Sampling	8:33 AM	Static Water Level	26.52
MW-10	Date of Sampling	6/5/2018	Time of Sampling	9:17 AM	Static Water Level	14.27
MW-11	Date of Sampling	6/5/2018	Time of Sampling	9:11 AM	Static Water Level	12.98
MW-12	Date of Sampling	6/5/2018	Time of Sampling	9:26 AM	Static Water Level	16.11
MW-13	Date of Sampling	6/5/2018	Time of Sampling	9:49 AM	Static Water Level	18.9
MW-15	Date of Sampling	6/5/2018	Time of Sampling	8:56 AM	Static Water Level	12.12
MW-17	Date of Sampling	6/5/2018	Time of Sampling	9:30 AM	Static Water Level	17.10
MW-18	Date of Sampling	6/5/2018	Time of Sampling	8:26 AM	Static Water Level	35.52
MW-19	Date of Sampling	6/5/2018	Time of Sampling	8:21 AM	Static Water Level	35.81
MW-20	Date of Sampling	6/5/2018	Time of Sampling	9:41 AM	Static Water Level	6.08

# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: <b>MW-2</b>	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:46 AM	Pump Start	1:06 PM
Static Water Level (+/- 0.01ft) (ft)	22.43	Purge Rate (mL/min)	150
Bottom of Casing (+/- 0.01 ft) (ft)	28.35	Time to purge Well (min)	0:36
Casing Volume (L)	3.6554	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	5.40		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
1:09 PM	0.45	20.82	1.58	326	7.07	1.970	22.80
1:12 PM	0.45	20.93	0.97	293	7.07	1.950	22.80
1:15 PM	0.45	21.03	0.70	233	7.06	1.930	22.80
1:18 PM	0.45	21.04	0.71	176	7.05	1.930	22.80
1:21 PM	0.45	21.22	0.78	127	7.05	1.910	22.80
1:24 PM	0.45	21.13	0.82	102	7.04	1.910	22.80
1:27 PM	0.45	21.10	0.77	76	7.04	1.900	22.80
1:30 PM	0.45	21.10	0.75	68.9	7.03	1.900	22.80
1:33 PM	0.45	21.28	0.76	62.3	7.03	1.910	22.80
1:36 PM	0.45	21.28	0.72	42.8	7.02	1.900	22.80
1:39 PM	0.45	21.43	0.71	44.9	7.02	1.910	22.80
1:42 PM	0.45	21.42	0.71	45.3	7.02	1.910	22.80

Well Evacuated to Dryness? \_\_\_\_\_ Time to recharge? \_\_\_\_\_

Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-2	1:42 PM	21.42	0.71	45.30	7.02	1.91	22.80
Duplicate	No						

Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 27/3 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurrences:			

# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-9	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:33 AM	Pump Start	12:06 PM
Static Water Level (+/- 0.01ft) (ft)	26.52	Purge Rate (mL/min)	150
Bottom of Casing (+/- 0.01 ft) (ft)	56.65	Time to purge Well (min)	0:34
Casing Volume (L)	18.6042	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	5.10		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
12:09 PM	0.45	16.32	0.72	1000	6.99	0.089	28.10
12:12 PM	0.45	17.80	0.51	976	6.98	1.750	28.40
12:22 PM	1.50	17.23	0.00	995	6.97	1.750	28.41
12:25 PM	0.45	17.34	0.00	824	6.98	1.730	28.45
12:28 PM	0.45	17.38	0.00	726	6.99	1.710	28.45
12:31 PM	0.45	17.30	0.00	684	7.00	1.690	28.45
12:34 PM	0.45	17.05	0.00	639	7.00	1.660	28.45
12:37 PM	0.45	16.89	0.00	647	7.01	1.660	28.45
12:40 PM	0.45	16.94	0.00	640	7.00	1.650	28.45

Well Evacuated to Dryness? \_\_\_\_\_ Time to recharge? \_\_\_\_\_

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-18	12:40:00 PM	16.94	0.00	640.00	7.00	1.65	28.45
Duplicate	No						

### Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 27/3 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM

Unusual Occurrences: At 12:12 the hose came off of the flow cell and it took a while to refill the cell.



# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: <b>MW-13</b>	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	9:49 AM	Pump Start	2:15 PM
Static Water Level (+/- 0.01ft) (ft)	18.90	Purge Rate (mL/min)	150
Bottom of Casing (+/- 0.01 ft) (ft)	23.98	Time to purge Well (min)	0:43
Casing Volume (L)	3.1367	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	6.30		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
2:18 PM	0.45	21.67	0.52	768.00	7.30	1.850	19.68
2:21 PM	0.45	21.75	0.27	385.00	6.60	1.860	20.60
2:24 PM	0.45	21.40	0.47	280.00	7.50	1.850	19.50
2:27 PM	0.45	21.20	0.76	280.00	8.05	1.500	19.50
2:30 PM	0.45	21.33	2.52	221.00	8.28	1.550	19.50
2:33 PM	0.45	21.42	3.17	124.00	8.19	2.580	19.45
2:36 PM	0.45	21.44	4.70	102.00	8.19	2.680	19.50
2:39 PM	0.45	21.42	6.24	75.05	8.19	2.240	19.50
2:42 PM	0.45	21.41	7.58	55.01	8.20	2.090	19.50
2:45 PM	0.45	21.17	8.32	58.80	8.20	2.020	19.48
2:48 PM	0.45	21.12	8.34	46.05	8.20	2.000	19.50
2:52 PM	0.45	21.05	8.54	40.00	8.22	1.990	19.50
2:55 PM	0.45	21.14	9.93	36.00	8.26	1.990	19.50
2:58 PM	0.45	21.31	10.75	37.01	8.31	2.000	19.50

Well Evacuated to Dryness? \_\_\_\_\_ Time to recharge? \_\_\_\_\_

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-13	2:58 PM	21.31	10.75	37.01	8.31	2.00	19.50
Duplicate	Yes						

### Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 27/3 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurrences:			

# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: <b>MW-15</b>	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:56 AM	Pump Start	3:30 PM
Static Water Level (+/- 0.01ft) (ft)	12.12	Purge Rate (mL/min)	250
Bottom of Casing (+/- 0.01 ft) (ft)	15.6	Time to purge Well (min)	0:19
Casing Volume (L)	2.1488	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	3.55		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
3:33 PM	0.45						
3:40 PM	1.75	16.53	26.00	4.4	7.50	1.560	13.25
3:43 PM	0.45	16.37	2.01	7	7.43	1.570	13.30
3:46 PM	0.45	16.48	1.53	1.9	7.43	1.570	13.30
3:49 PM	0.45	16.41	1.94	2.4	7.42	1.570	0.01

Well Evacuated to Dryness? \_\_\_\_\_ Time to recharge? \_\_\_\_\_

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-15	3:49:00 PM	16.41	1.94	2.40	7.42	1.57	0.01
Duplicate	No						

### Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 27/3 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurrences: Flow Cell became disconnected			

# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: <b>MW-17</b>	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	9:30 AM	Pump Start	6:08 PM
Static Water Level (+/- 0.01ft) (ft)	17.10	Purge Rate (mL/min)	100
Bottom of Casing (+/- 0.01 ft) (ft)	25.45	Time to purge Well (min)	0:15
Casing Volume (L)	5.1558	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	1.50		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
6:11 PM	0.30	25.87	1.66	205	6.98	2.270	18.00
6:14 PM	0.30	26.16	1.01	218	6.96	2.270	18.00
6:17 PM	0.30	26.31	0.92	227	6.96	2.260	18.00
6:20 PM	0.30	26.46	0.40	233	6.95	2.250	18.00
6:23 PM	0.30	26.50	0.26	247	6.95	2.260	18.00

Well Evacuated to Dryness? \_\_\_\_\_ Time to recharge? \_\_\_\_\_

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-17	6:23:00 PM	26.50	0.26	247.00	6.95	2.26	18.00
Duplicate	No						

### Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 27/3 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurrences:			

# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-18	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:26 AM	Pump Start	9:52 AM
Static Water Level (+/- 0.01ft) (ft)	35.52	Purge Rate (mL/min)	200
Bottom of Casing (+/- 0.01 ft) (ft)	70.9	Time to purge Well (min)	0:54
Casing Volume (L)	21.85	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	10.20		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
10:16 AM	4.80	17.98	2.96	1000	6.89	0.860	37.70
10:19 AM	0.60	18.12	2.62	1000	6.90	0.793	38.00
10:22 AM	0.60	18.03	2.30	1000	6.86	0.776	37.85
10:25 AM	0.60	18.94	2.28	990	6.39	0.782	37.68
10:28 AM	0.30	19.14	2.23	935	6.90	0.784	37.59
10:31 AM	0.30	19.57	2.24	915	6.89	0.780	37.55
10:34 AM	0.60	20.56	2.71	1000	6.90	0.785	37.60
10:37 AM	0.60	19.77	2.65	815	6.81	0.773	37.65
10:40 AM	0.60	19.05	2.20	1000	6.91	0.750	38.00
10:43 AM	0.60	19.01	2.10	1000	6.91	0.748	38.10
10:46 AM	0.60	19.04	2.05	998	6.90	0.740	38.20

Well Evacuated to Dryness? No Time to recharge? \_\_\_\_\_

Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-18	10:46:00 AM	19.04	2.05	998.00		0.74	38.20
Duplicate	No						

Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 28/2 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurrences: Had to adjust the flow due to drop in water level			

# Field Notes For Monitoring Well Sampling

Facility Name: North Omaha Station	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-19	Date: 6/5/2018
Wellhead Inspection (Condition) Compliant	Weather Conditions: Clear, Sunny, high of 95°F low of 70°F

### Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:21 AM	Pump Start	11:12 AM
Static Water Level (+/- 0.01ft) (ft)	35.81	Purge Rate (mL/min)	150
Bottom of Casing (+/- 0.01 ft) (ft)	76.7	Time to purge Well (min)	0:30
Casing Volume (L)	25.2481	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	4.50		

\*Measured from a defined point on the edge of casing (surveyed top of casing)

Time	Volume Purged (L)	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
11:15 AM	0.45	16.83	2.16	318	6.99	0.720	35.55
11:18 AM	0.45	16.61	1.35	335	6.97	0.726	35.55
11:21 AM	0.45	16.47	0.84	315	6.95	0.731	35.55
11:24 AM	0.45	16.32	0.57	297	6.94	0.732	35.60
11:27 AM	0.45	16.28	0.48	279	6.93	0.733	35.60
11:30 AM	0.45	16.20	1.27	269	6.92	0.734	35.58
11:33 AM	0.45	16.40	0.52	280	6.90	0.755	35.60
11:36 AM	0.45	16.45	0.12	238	6.92	0.745	35.60
11:39 AM	0.45	16.40	0.04	226	6.92	0.740	35.60
11:42 AM	0.45	16.40	0.02	220	6.91	0.735	35.60

Well Evacuated to Dryness? \_\_\_\_\_ Time to recharge? \_\_\_\_\_

### Ground Sample Information

Well #	Time	Temperature C°	DO (mg/l)	Turb (Ntu)	pH	Conductivity (mS/cm)	Water Level (ft)
MW-19	11:42:00 AM	16.40	0.02	220.00	6.91	0.735	35.60
Duplicate	No						

### Physical Characteristics

Sample Clarity	Clear	Pump Control Information	CPM-2 27/3 20 psi
Sample Color	Clear	Decontamination Liquids	Alconex, DI Rinse
Sample Odor	Odorless	Instrument Calibration By	Ryan Layman
Sample immiscible Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM

Unusual Occurrences: \_\_\_\_\_

# NORTH OMAHA STATION

## Water Levels Prior to Purging

MW2	Date of Sampling	10/9/2018	Time of Sampling	7:51	Static Water Level	19.49
MW4	Date of Sampling	10/9/2018	Time of Sampling	8:05	Static Water Level	11.94
MW5	Date of Sampling	10/9/2018	Time of Sampling	8:39	Static Water Level	17.08
MW6	Date of Sampling	10/9/2018	Time of Sampling	8:07	Static Water Level	13.49
MW7	Date of Sampling	10/9/2018	Time of Sampling	8:26	Static Water Level	16.71
MW8	Date of Sampling	10/9/2018	Time of Sampling	8:17	Static Water Level	17.05
MW9	Date of Sampling	10/9/2018	Time of Sampling	7:42	Static Water Level	25.47
MW10	Date of Sampling	10/9/2018	Time of Sampling	8:24	Static Water Level	15.51
MW11	Date of Sampling	10/9/2018	Time of Sampling	8:11	Static Water Level	12.81
MW12	Date of Sampling	10/9/2018	Time of Sampling	8:20	Static Water Level	13.05
MW13	Date of Sampling	10/9/2018	Time of Sampling	7:54	Static Water Level	15.93
MW15	Date of Sampling	10/9/2018	Time of Sampling	8:00	Static Water Level	10.71
MW17	Date of Sampling	10/9/2018	Time of Sampling	8:32	Static Water Level	14.71
MW18	Date of Sampling	10/9/2018	Time of Sampling	7:18	Static Water Level	33.94
MW19	Date of Sampling	10/9/2018	Time of Sampling	7:30	Static Water Level	33.28
MW20	Date of Sampling	10/9/2018	Time of Sampling	8:46	Static Water Level	7.00



# Field Notes For Monitoring Well Sampling

Facility Name: OPPD North Omaha Station	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: <b>MW9 - 3</b>	Date: 10/9/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Rainy, Overcast, 50°F

### Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:42	Pump Start Time	12:00
Static Water Level (+/- 0.01 feet)*	25.47	Purge Rate (mL/minute)	150-200
Bottom of Well Casing (+/- 0.01 feet)*	56.65	Time to Purge Well (hours:minutes)	0:53
2" Well Casing Volume (L)	19.25	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	8,500		

\*Measurement collected from a defined point on the edge of the surveyed top of monitoring well casing using an electronic water level indicator.

### Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
12:05	1,000	12.68	2.20	765	6.61	1.73	26.20
12:08	1,600	12.54	1.40	903	6.58	1.70	28.93
12:11	2,200	12.50	1.18	>1,000	6.64	1.69	29.10
12:14	2,650	12.46	1.12	961	6.66	1.67	29.00
12:17	3,100	12.51	1.07	753	6.68	1.65	29.04
12:20	3,550	12.55	1.03	731	6.69	1.61	29.10
12:23	4,000	12.63	1.02	657	6.68	1.58	29.10
12:26	4,450	12.62	1.04	669	6.72	1.52	29.09
12:29	4,900	12.60	0.94	626	6.71	1.51	29.10
12:32	5,360	12.61	0.92	612	6.71	1.50	29.08
12:35	5,800	12.63	0.92	569	6.70	1.50	29.13
12:38	6,250	12.64	0.89	576	6.71	1.51	29.14
12:41	6,700	12.64	0.88	529	6.72	1.53	29.11
12:44	7,150	12.60	0.87	533	6.73	1.54	29.11
12:47	7,600	12.59	0.87	534	6.74	1.55	29.11
12:50	8,050	12.60	0.87	530	6.74	1.55	29.12
12:53	8,500	12.62	0.86	527	6.74	1.56	29.13

Well Evacuated to Dryness?       No                            Recharge time? Not Measured

### Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
12:53	8,500	12.62	0.86	527	6.74	1.56	29.13
Duplicate?	No	Preservation?	Cool on Ice, HNO <sub>3</sub> for Metals	Pump Rate (mL/minute)	100		

### Physical Characteristics

Sample Clarity	Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Clear	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/9/2018, 6:48
Notes / Unusual Occurrences: None			



# Field Notes For Monitoring Well Sampling

Facility Name: OPPD North Omaha Station	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: <b>MW13 - 5</b>	Date: 10/9/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Rainy, Overcast, 52°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:54	Pump Start Time	15:00
Static Water Level (+/- 0.01 feet)*	15.93	Purge Rate (mL/minute)	100-250
Bottom of Well Casing (+/- 0.01 feet)*	23.98	Time to Purge Well (hours:minutes)	0:50
2" Well Casing Volume (L)	4.97	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	6,100		

\*Measurement collected from a defined point on the edge of the surveyed top of monitoring well casing using an electronic water level indicator.

## Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
15:05	1,250	14.12	3.05	240	6.58	1.81	17.09
15:08	2,000	14.03	2.08	221	6.70	1.79	16.50
15:11	2,300	14.02	1.62	198	6.75	1.76	16.25
15:14	2,600	13.97	1.40	187	6.79	1.73	16.10
15:17	2,900	13.96	1.35	179	6.81	1.72	16.08
15:20	3,100	13.95	1.07	168	6.84	1.70	16.04
15:23	3,400	13.96	0.94	152	6.87	1.69	16.01
15:26	3,700	13.95	0.95	128	6.88	1.69	15.99
15:29	4,000	13.94	0.85	115	6.90	1.69	15.97
15:32	4,300	13.95	0.76	89.2	6.92	1.69	15.95
15:35	4,600	13.97	0.74	87.4	6.93	1.70	15.95
15:38	4,900	13.97	0.70	81.4	6.94	1.71	15.95
15:41	5,200	13.97	0.69	73.7	6.95	1.71	15.96
15:44	5,500	13.97	0.70	68.0	6.95	1.73	15.95
15:47	5,800	13.97	0.68	66.0	6.95	1.74	15.95
15:50	6,100	13.98	0.70	64.3	6.96	1.75	15.95

Well Evacuated to Dryness?         No                              Recharge time?         Not Measured        

## Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
15:50	6,100	13.98	0.70	64	6.96	1.75	15.95
Duplicate?	No	Preservation?	Cool on Ice, HNO <sub>3</sub> for Metals		Pump Rate (mL/minute)		100

## Physical Characteristics

Sample Clarity	Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Clear	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/9/2018, 6:48
Notes / Unusual Occurrences: None			

# Field Notes For Monitoring Well Sampling

Facility Name: OPPD North Omaha Station	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: <b>MW15 - 6</b>	Date: 10/9/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Rainy, Overcast, 52°F

### Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:00	Pump Start Time	16:53
Static Water Level (+/- 0.01 feet)*	10.71	Purge Rate (mL/minute)	100
Bottom of Well Casing (+/- 0.01 feet)*	15.60	Time to Purge Well (hours:minutes)	0:20
2" Well Casing Volume (L)	3.02	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	2,000		

\*Measurement collected from a defined point on the edge of the surveyed top of monitoring well casing using an electronic water level indicator.

### Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
16:58	500	14.21	3.63	19.8	7.06	1.64	10.87
17:01	800	14.24	2.71	9.5	7.16	1.59	10.92
17:04	1,100	14.35	2.10	3.4	7.17	1.56	10.95
17:07	1,400	14.32	1.63	0.7	7.14	1.53	11.00
17:10	1,700	14.36	1.52	2.1	7.11	1.52	11.03
17:13	2,000	14.23	1.48	2.3	7.10	1.51	11.03

Well Evacuated to Dryness? No Recharge time? Not Measured

### Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
17:13	2,000	14.23	1.48	2	7.10	1.51	11.03
Duplicate?	No	Preservation?	Cool on Ice, HNO <sub>3</sub> for Metals	Pump Rate (mL/minute)	100		

### Physical Characteristics

Sample Clarity	Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Clear	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/9/2018, 6:48
Notes / Unusual Occurrences: None			

# Field Notes For Monitoring Well Sampling

Facility Name: OPPD North Omaha Station	Sampler Name(s): Kyle Uhing (79776), Patrick Finigan
Monitoring Well Identification - Sample Number: <b>MW17 - 9</b>	Date: 10/10/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Rainy, Overcast, 43°F

### Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:32	Pump Start Time	9:10
Static Water Level (+/- 0.01 feet)*	14.71	Purge Rate (mL/minute)	100
Bottom of Well Casing (+/- 0.01 feet)*	25.45	Time to Purge Well (hours:minutes)	0:58
2" Well Casing Volume (L)	6.63	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	5,800		

\*Measurement collected from a defined point on the edge of the surveyed top of monitoring well casing using an electronic water level indicator.

### Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
9:20	1,000	10.93	5.53	123	6.41	2.43	15.10
9:23	1,300	11.78	3.00	203	6.31	2.45	15.30
9:26	1,600	12.51	1.92	242	6.31	2.47	15.76
9:29	1,900	12.62	1.58	194	6.32	2.48	15.84
9:32	2,200	12.50	1.29	108	6.33	2.49	15.90
9:35	2,500	12.49	1.46	90.2	6.34	2.49	15.92
9:38	2,800	12.35	1.32	80.9	6.35	2.49	15.94
9:41	3,100	12.34	1.35	69.0	6.35	2.49	15.95
9:44	3,400	12.22	1.17	62.2	6.35	2.49	15.95
9:47	3,700	12.13	1.12	51.6	6.36	2.49	15.96
9:50	4,000	12.13	1.18	46.5	6.37	2.48	15.95
9:53	4,300	12.22	1.00	40.5	6.37	2.48	15.96
9:56	4,600	12.38	1.04	36.0	6.37	2.48	15.95
9:59	4,900	12.34	1.00	30.9	6.38	2.49	15.95
10:02	5,200	12.34	1.11	28.4	6.38	2.48	15.95
10:05	5,500	12.24	1.13	26.0	6.38	2.49	15.95
10:08	5,800	12.16	1.10	24.9	6.39	2.49	15.95

Well Evacuated to Dryness?       No                            Recharge time?       Not Measured      

### Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
10:08	5,800	12.16	1.10	24.9	6.39	2.49	15.95
Duplicate?	No	Preservation?	Cool on Ice, HNO <sub>3</sub> for Metals	Pump Rate (mL/minute)		100	

### Physical Characteristics

Sample Clarity	Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Clear	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/10/2018, 6:47
Notes / Unusual Occurrences: None			

# Field Notes For Monitoring Well Sampling

Facility Name: OPPD North Omaha Station	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: <b>MW18 - 1</b>	Date: 10/9/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Rainy, Overcast, 55°F

### Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:18	Pump Start Time	9:52
Static Water Level (+/- 0.01 feet)*	33.94	Purge Rate (mL/minute)	100-200
Bottom of Well Casing (+/- 0.01 feet)*	70.90	Time to Purge Well (hours:minutes)	0:27
2" Well Casing Volume (L)	22.82	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	3,600		

\*Measurement collected from a defined point on the edge of the surveyed top of monitoring well casing using an electronic water level indicator.

### Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
10:01	1,800	12.77	7.31	181	6.76	0.773	35.22
10:04	2,100	12.67	6.43	71.5	6.75	0.773	37.16
10:07	2,400	12.61	5.73	67.7	6.75	0.766	37.80
10:10	2,700	12.49	5.64	105	6.74	0.762	37.92
10:13	3,000	12.55	5.49	142	6.72	0.761	37.91
10:16	3,300	12.59	5.40	146	6.64	0.760	37.91
10:19	3,600	12.57	5.34	139	6.64	0.756	37.91

Well Evacuated to Dryness? No Recharge time? Not Measured

### Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
10:19	3,600	12.57	5.34	139	6.64	0.76	37.91
Duplicate?	No	Preservation?	Cool on Ice, HNO <sub>3</sub> for Metals	Pump Rate (mL/minute)	100		

### Physical Characteristics

Sample Clarity	Mostly Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Light Brown	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/9/2018, 6:48
Notes / Unusual Occurrences: None			

# Field Notes For Monitoring Well Sampling

Facility Name: OPPD North Omaha Station	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: <b>MW19 - 2</b>	Date: 10/9/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Rainy, Overcast, 53°F

## Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:30	Pump Start Time	10:54
Static Water Level (+/- 0.01 feet)*	33.28	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	76.70	Time to Purge Well (hours:minutes)	0:26
2" Well Casing Volume (L)	26.81	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	5,200		

\*Measurement collected from a defined point on the edge of the surveyed top of monitoring well casing using an electronic water level indicator.

## Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
10:59	1,000	12.62	3.15	110	6.51	0.749	33.92
11:02	1,600	12.35	1.57	55.4	6.44	0.753	33.90
11:05	2,200	12.29	1.50	40.0	6.41	0.754	33.87
11:08	2,800	12.27	1.52	35.3	6.44	0.753	33.91
11:11	3,400	12.25	1.51	38.3	6.44	0.751	33.90
11:14	4,000	12.25	1.49	40.8	6.46	0.749	33.90
11:17	4,600	12.26	1.50	37.4	6.50	0.748	33.88
11:20	5,200	12.28	1.50	37.8	6.49	0.748	33.88

Well Evacuated to Dryness? No Recharge time? Not Measured

## Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
11:20	5,200	12.28	1.50	38	6.49	0.75	33.88
Duplicate?	No	Preservation?	Cool on Ice, HNO <sub>3</sub> for Metals	Pump Rate (mL/minute)	100		




## Physical Characteristics

Sample Clarity	Mostly Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Light Brown	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/9/2018, 6:48

Notes / Unusual Occurrences: None

## **APPENDIX B**

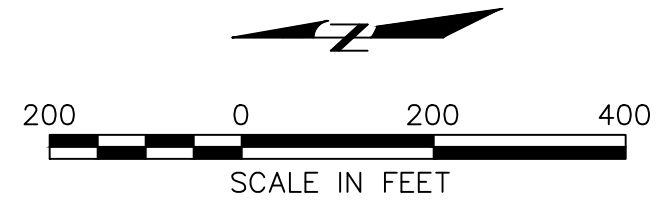
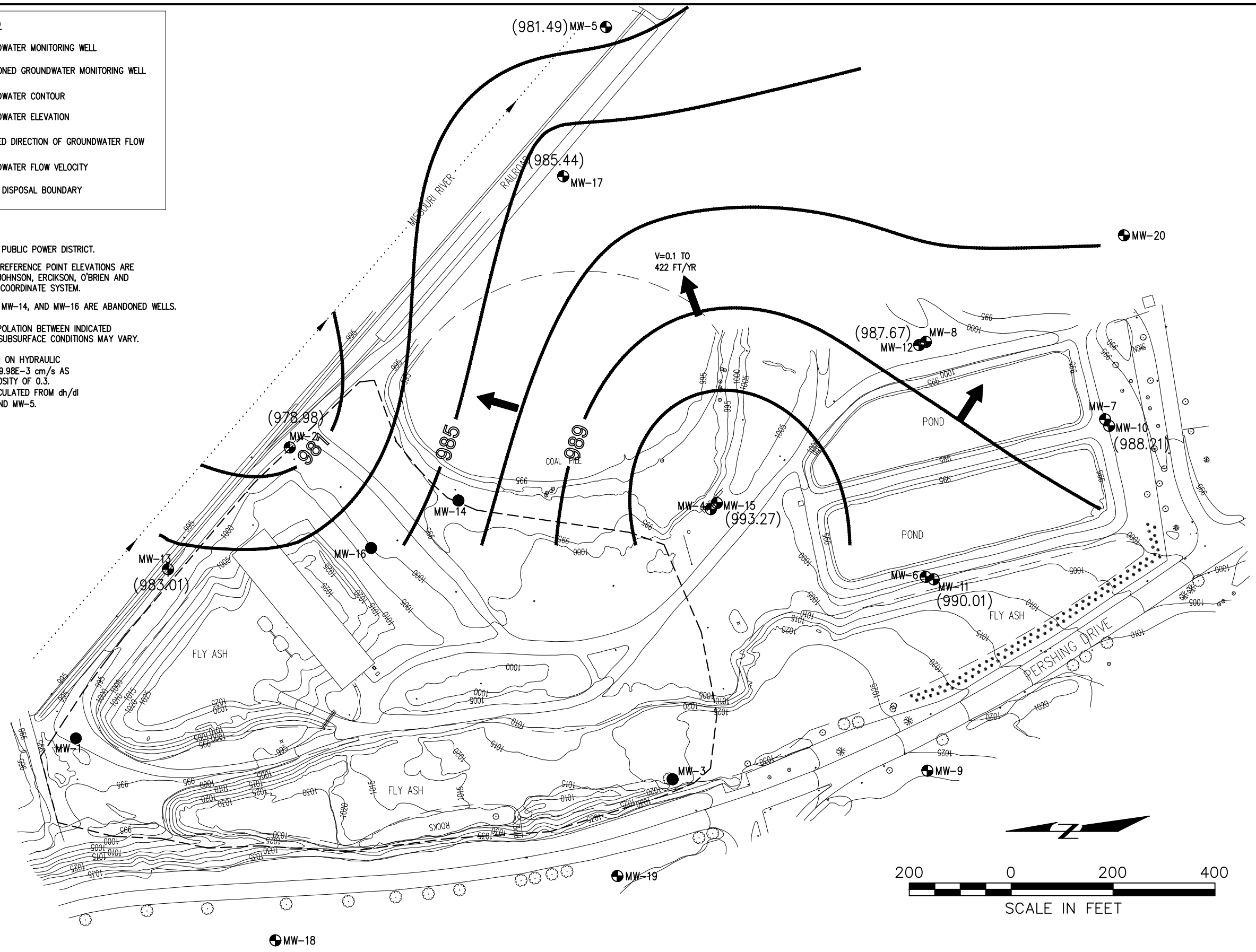
**LEGEND**

- MW-2  GROUNDWATER MONITORING WELL
- MW-1  ABANDONED GROUNDWATER MONITORING WELL
- 984 — GROUNDWATER CONTOUR
- (990.40) GROUNDWATER ELEVATION
-  INFERRED DIRECTION OF GROUNDWATER FLOW
- V=X FT/YR GROUNDWATER FLOW VELOCITY
- - - - PERMIT DISPOSAL BOUNDARY

**NOTES:**

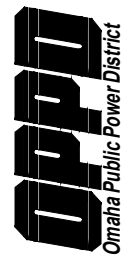
- 1.) BASE MAP FURNISHED BY OMAHA PUBLIC POWER DISTRICT.
- 2.) MONITORING WELL LOCATION AND REFERENCE POINT ELEVATIONS ARE BASED ON MARCH 1995 SURVEY BY JOHNSON, ERICKSON, O'BRIEN AND ASSOCIATES, INC. USING PLANT GRID COORDINATE SYSTEM.
- 3.) MONITORING WELLS MW-1, MW-3, MW-14, AND MW-16 ARE ABANDONED WELLS.
- 4.) CONTOURS ARE BASED ON INTERPOLATION BETWEEN INDICATED GROUNDWATER ELEVATIONS. ACTUAL SUBSURFACE CONDITIONS MAY VARY.

GROUNDWATER FLOW VELOCITY BASED ON HYDRAULIC CONDUCTIVITY RANGE OF  $1.3E-6$  TO  $9.98E-3$  cm/s AS REPORTED BY SCS 1995 AND A POROSITY OF 0.3. VELOCITY AS SHOWN ON FIGURE CALCULATED FROM dh/dl OF 0.0123 FT/FT BETWEEN MW-15 AND MW-5.






**FIGURE 1**  
GROUNDWATER CONTOUR MAP - SHALLOW ZONE  
JUNE 5, 2018

OMAHA PUBLIC POWER DISTRICT  
NORTH OMAHA STATION  
OMAHA, NEBRASKA



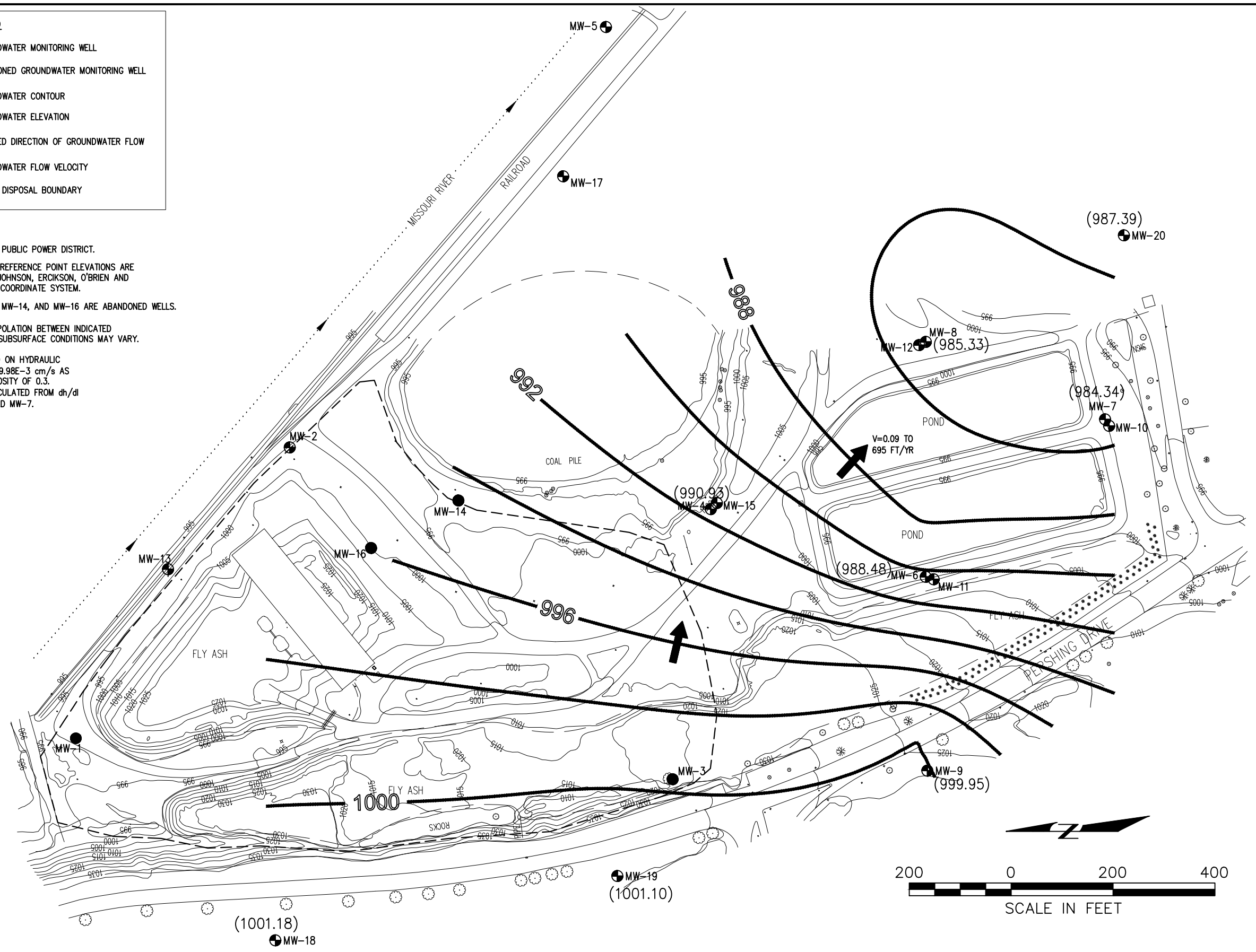
**LEGEND**

- MW-2  GROUNDWATER MONITORING WELL
- MW-1  ABANDONED GROUNDWATER MONITORING WELL
- 984 — GROUNDWATER CONTOUR
- (990.40) GROUNDWATER ELEVATION
-  INFERRED DIRECTION OF GROUNDWATER FLOW
- V=X FT/YR GROUNDWATER FLOW VELOCITY
- - - - PERMIT DISPOSAL BOUNDARY

**NOTES:**

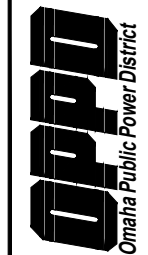
- 1.) BASE MAP FURNISHED BY OMAHA PUBLIC POWER DISTRICT.
- 2.) MONITORING WELL LOCATION AND REFERENCE POINT ELEVATIONS ARE BASED ON MARCH 1995 SURVEY BY JOHNSON, ERICKSON, O'BRIEN AND ASSOCIATES, INC. USING PLANT GRID COORDINATE SYSTEM.
- 3.) MONITORING WELLS MW-1, MW-3, MW-14, AND MW-16 ARE ABANDONED WELLS.
- 4.) CONTOURS ARE BASED ON INTERPOLATION BETWEEN INDICATED GROUNDWATER ELEVATIONS. ACTUAL SUBSURFACE CONDITIONS MAY VARY.

GROUNDWATER FLOW VELOCITY BASED ON HYDRAULIC CONDUCTIVITY RANGE OF  $1.3E-6$  TO  $9.98E-3$  cm/s AS REPORTED BY SCS 1995 AND A POROSITY OF 0.3. VELOCITY AS SHOWN ON FIGURE CALCULATED FROM  $dh/dl$  OF 0.0202 FT/FT BETWEEN MW-9 AND MW-7.





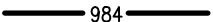
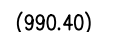

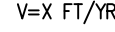
**FIGURE 2**  
GROUNDWATER CONTOUR MAP - DEEP ZONE  
JUNE 5, 2018

OMAHA PUBLIC POWER DISTRICT  
NORTH OMAHA STATION  
OMAHA, NEBRASKA





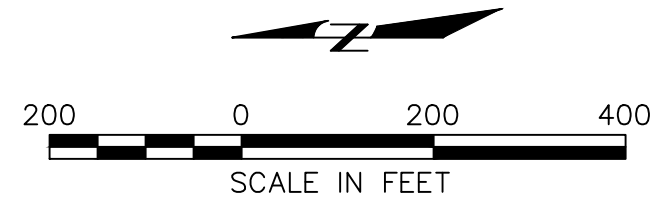
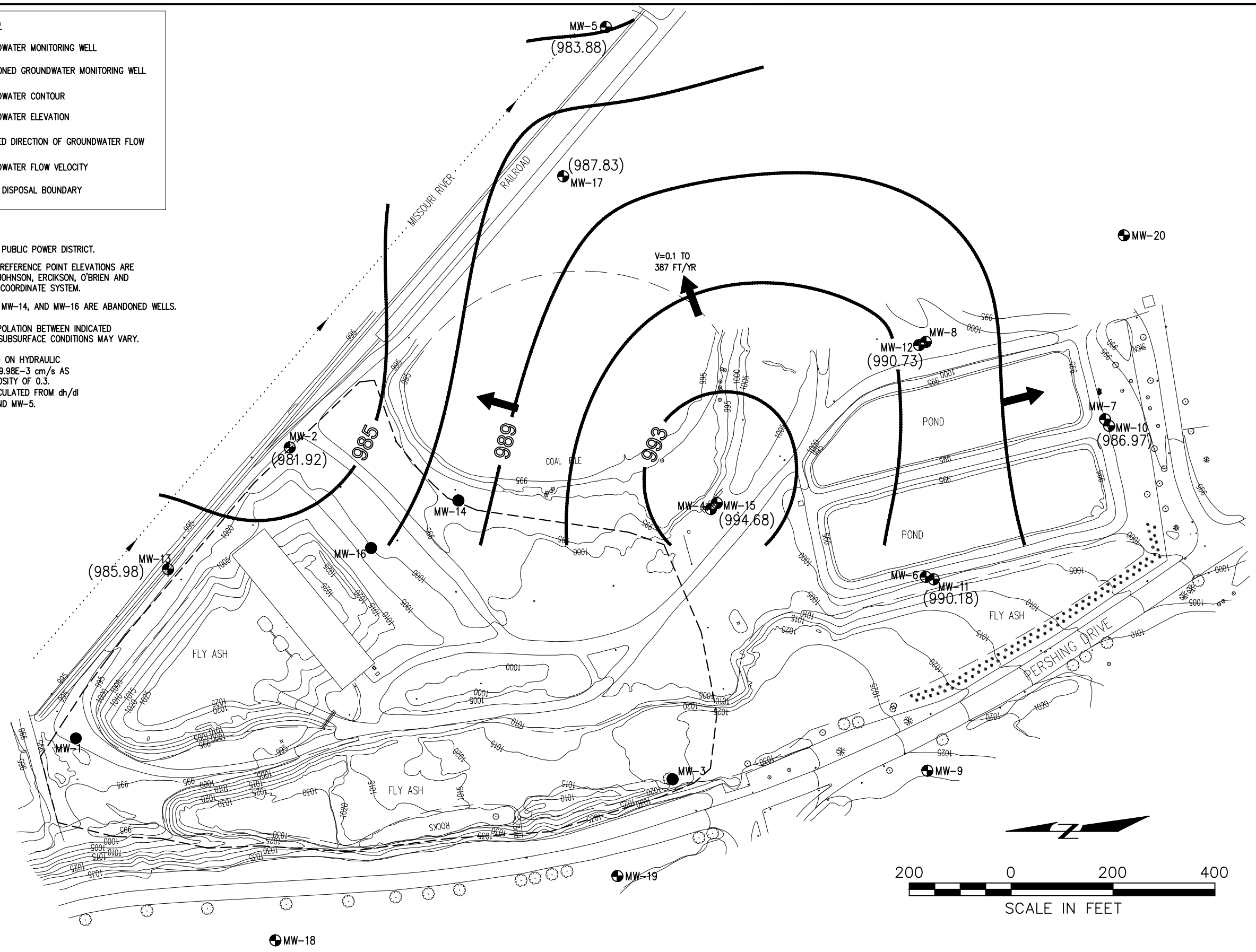
**LEGEND**

- MW-2  GROUNDWATER MONITORING WELL
- MW-1  ABANDONED GROUNDWATER MONITORING WELL
- 984  GROUNDWATER CONTOUR
- (990.40)  GROUNDWATER ELEVATION
-  INFERRED DIRECTION OF GROUNDWATER FLOW
- V=X FT/YR  GROUNDWATER FLOW VELOCITY
- - - - PERMIT DISPOSAL BOUNDARY

**NOTES:**

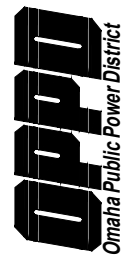
- 1.) BASE MAP FURNISHED BY OMAHA PUBLIC POWER DISTRICT.
- 2.) MONITORING WELL LOCATION AND REFERENCE POINT ELEVATIONS ARE BASED ON MARCH 1995 SURVEY BY JOHNSON, ERICKSON, O'BRIEN AND ASSOCIATES, INC. USING PLANT GRID COORDINATE SYSTEM.
- 3.) MONITORING WELLS MW-1, MW-3, MW-14, AND MW-16 ARE ABANDONED WELLS.
- 4.) CONTOURS ARE BASED ON INTERPOLATION BETWEEN INDICATED GROUNDWATER ELEVATIONS. ACTUAL SUBSURFACE CONDITIONS MAY VARY.

GROUNDWATER FLOW VELOCITY BASED ON HYDRAULIC CONDUCTIVITY RANGE OF  $1.3E-6$  TO  $9.98E-3$  cm/s AS REPORTED BY SCS 1995 AND A POROSITY OF 0.3. VELOCITY AS SHOWN ON FIGURE CALCULATED FROM dh/dl OF 0.0113 FT/FT BETWEEN MW-15 AND MW-5.






**FIGURE 3**  
GROUNDWATER CONTOUR MAP - SHALLOW ZONE  
OCTOBER 9, 2018

OMAHA PUBLIC POWER DISTRICT  
NORTH OMAHA STATION  
OMAHA, NEBRASKA



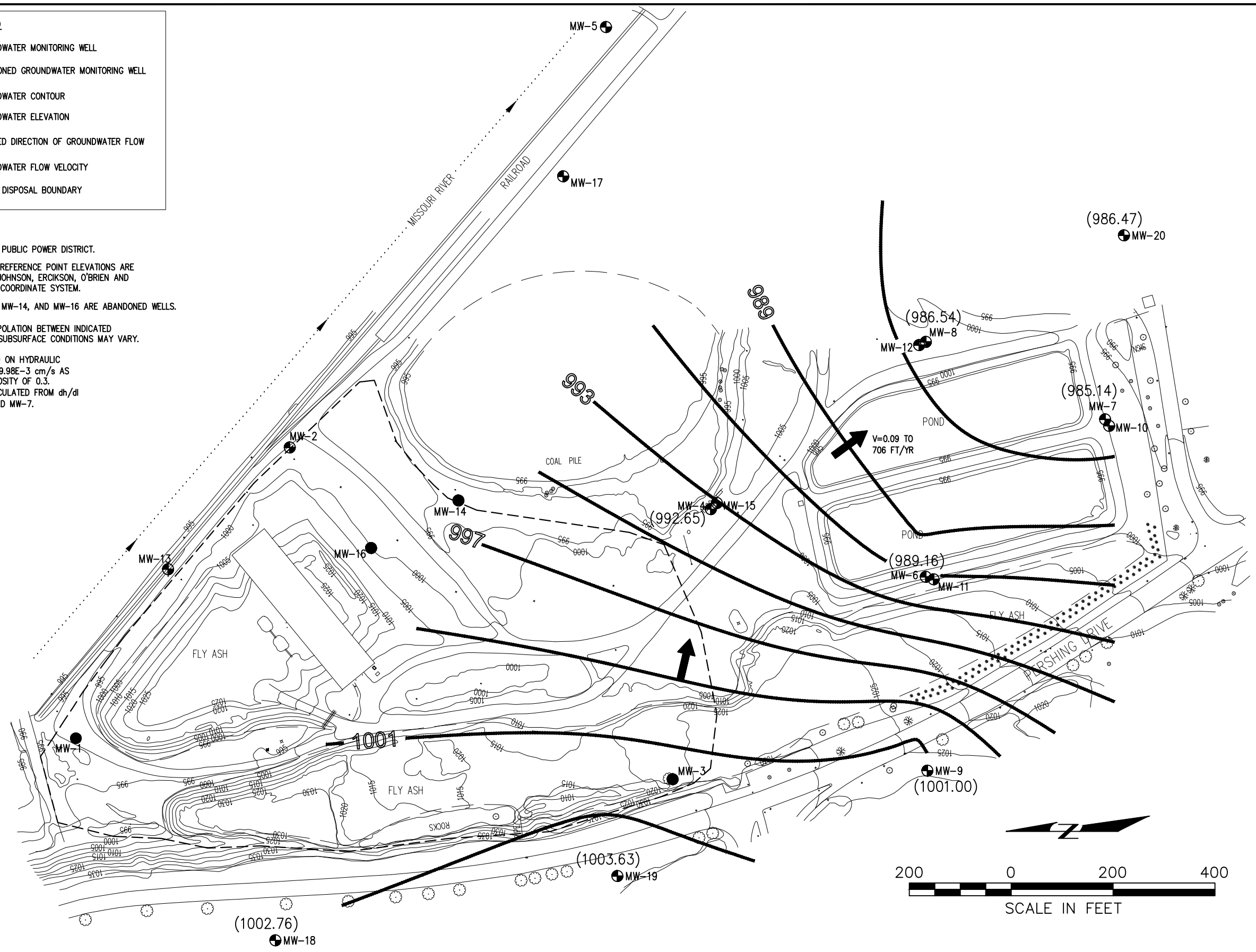
**LEGEND**

- MW-2  GROUNDWATER MONITORING WELL
- MW-1  ABANDONED GROUNDWATER MONITORING WELL
- 984 — GROUNDWATER CONTOUR
- (990.40) GROUNDWATER ELEVATION
-  INFERRED DIRECTION OF GROUNDWATER FLOW
- V=X FT/YR GROUNDWATER FLOW VELOCITY
- - - - PERMIT DISPOSAL BOUNDARY

**NOTES:**

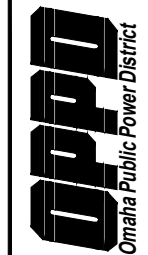
- 1.) BASE MAP FURNISHED BY OMAHA PUBLIC POWER DISTRICT.
- 2.) MONITORING WELL LOCATION AND REFERENCE POINT ELEVATIONS ARE BASED ON MARCH 1995 SURVEY BY JOHNSON, ERICKSON, O'BRIEN AND ASSOCIATES, INC. USING PLANT GRID COORDINATE SYSTEM.
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GROUNDWATER FLOW VELOCITY BASED ON HYDRAULIC CONDUCTIVITY RANGE OF  $1.3E-6$  TO  $9.98E-3$  cm/s AS REPORTED BY SCS 1995 AND A POROSITY OF 0.3. VELOCITY AS SHOWN ON FIGURE CALCULATED FROM dh/dl OF 0.0205 FT/FT BETWEEN MW-9 AND MW-7.



**FIGURE 4**  
GROUNDWATER CONTOUR MAP - DEEP ZONE  
OCTOBER 9, 2018

OMAHA PUBLIC POWER DISTRICT  
NORTH OMAHA STATION  
OMAHA, NEBRASKA



## **APPENDIX C**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-125890-1

Client Project/Site: North Omaha Station CCR

Sampling Event: CCR Parameters (Q1 and Q3)

For:

Omaha Public Power District

Attn: Accounts Payable, 4E/EP-5

444 South 16th Street Mall

Omaha, Nebraska 68102-2247

Attn: Bryan Lorence



Authorized for release by:

3/29/2018 12:51:40 PM

Shawn Hayes, Senior Project Manager

(319)229-8211

[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Job ID: 310-125890-1**

**Laboratory: TestAmerica Cedar Falls**

## Narrative

**Job Narrative**  
**310-125890-1**

## Comments

No additional comments.

## Receipt

The samples were received on 3/15/2018 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.3° C and 4.4° C.

## HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## Metals

Method(s) 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following sample: MW6 (310-125890-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-125890-1	MW2	Ground Water	03/09/18 17:00	03/15/18 09:25
310-125890-2	MW6	Ground Water	03/09/18 19:35	03/15/18 09:25
310-125890-3	MW18	Ground Water	03/09/18 11:30	03/15/18 09:25
310-125890-4	MW13	Ground Water	03/09/18 15:25	03/15/18 09:25
310-125890-5	MW15	Ground Water	03/09/18 17:38	03/15/18 09:25
310-125890-6	MW17	Ground Water	03/09/18 20:18	03/15/18 09:25
310-125890-7	DUP-1	Ground Water	03/09/18 00:00	03/15/18 09:25
310-125890-8	MW19	Ground Water	03/09/18 12:28	03/15/18 09:25

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# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Client Sample ID: MW2

## Lab Sample ID: 310-125890-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	27.4		20.0		mg/L	20		9056A	Total/NA
Sulfate	745		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.219		0.00200		mg/L	1		6020A	Total/NA
Barium	0.113		0.00200		mg/L	1		6020A	Total/NA
Boron	1.88		0.200		mg/L	1		6020A	Total/NA
Calcium	292		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000620		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0415		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1570		60.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW6

## Lab Sample ID: 310-125890-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	315		10.0		mg/L	10		9056A	Total/NA
Fluoride	0.525		0.500		mg/L	5		9056A	Total/NA
Sulfate	349		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.0194		0.00800		mg/L	4		6020A	Total/NA
Barium	0.165		0.00800		mg/L	4		6020A	Total/NA
Calcium	316		0.800		mg/L	4		6020A	Total/NA
Cobalt	0.00654		0.00200		mg/L	4		6020A	Total/NA
Lithium	0.0407		0.0400		mg/L	4		6020A	Total/NA
Molybdenum	0.0683		0.00800		mg/L	4		6020A	Total/NA
Total Dissolved Solids	1240		60.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW18

## Lab Sample ID: 310-125890-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.530		0.500		mg/L	5		9056A	Total/NA
Barium	0.303		0.00200		mg/L	1		6020A	Total/NA
Calcium	97.3		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0282		0.0100		mg/L	1		6020A	Total/NA
Lead	0.00137		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	438		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW13

## Lab Sample ID: 310-125890-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.35		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.534		0.500		mg/L	5		9056A	Total/NA
Sulfate	663		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.205		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0982		0.00200		mg/L	1		6020A	Total/NA
Boron	1.98		0.200		mg/L	1		6020A	Total/NA
Calcium	152		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000613		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0212		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	1.22		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0609		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1340		30.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls



# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Client Sample ID: MW15

## Lab Sample ID: 310-125890-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13.4		5.00		mg/L	5		9056A	Total/NA
Sulfate	819		20.0		mg/L	20		9056A	Total/NA
Antimony	0.00172		0.00100		mg/L	1		6020A	Total/NA
Arsenic	0.00337		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0405		0.00200		mg/L	1		6020A	Total/NA
Boron	4.10		0.200		mg/L	1		6020A	Total/NA
Calcium	283		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0126		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.353		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0653		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1330		60.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW17

## Lab Sample ID: 310-125890-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	46.8		20.0		mg/L	20		9056A	Total/NA
Fluoride	1.29		0.500		mg/L	5		9056A	Total/NA
Sulfate	907		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.0257		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0351		0.00200		mg/L	1		6020A	Total/NA
Boron	0.745		0.200		mg/L	1		6020A	Total/NA
Calcium	357		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.0107		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.112		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00320		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	2010		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 310-125890-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20.6		20.0		mg/L	20		9056A	Total/NA
Sulfate	778		20.0		mg/L	20		9056A	Total/NA
Antimony	0.00174		0.00100		mg/L	1		6020A	Total/NA
Arsenic	0.00281		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0381		0.00200		mg/L	1		6020A	Total/NA
Boron	3.64		0.200		mg/L	1		6020A	Total/NA
Calcium	248		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0103		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.329		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0643		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1270		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW19

## Lab Sample ID: 310-125890-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8.89		5.00		mg/L	5		9056A	Total/NA
Barium	0.323		0.00200		mg/L	1		6020A	Total/NA
Calcium	113		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0334		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	426		30.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW2**  
**Date Collected: 03/09/18 17:00**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-1**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>27.4</b>		20.0		mg/L			03/20/18 17:27	20
Fluoride	<0.500		0.500		mg/L			03/20/18 18:14	5
<b>Sulfate</b>	<b>745</b>		20.0		mg/L			03/20/18 17:27	20

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:17	1
<b>Arsenic</b>	<b>0.219</b>		0.00200		mg/L		03/19/18 08:18	03/21/18 19:17	1
<b>Barium</b>	<b>0.113</b>		0.00200		mg/L		03/19/18 08:18	03/21/18 19:17	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:17	1
<b>Boron</b>	<b>1.88</b>		0.200		mg/L		03/19/18 08:18	03/21/18 19:17	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:17	1
<b>Calcium</b>	<b>292</b>		0.200		mg/L		03/19/18 08:18	03/21/18 19:17	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:17	1
<b>Cobalt</b>	<b>0.000620</b>		0.000500		mg/L		03/19/18 08:18	03/21/18 19:17	1
<b>Lithium</b>	<b>0.0415</b>		0.0100		mg/L		03/19/18 08:18	03/21/18 19:17	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:17	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 08:18	03/21/18 19:17	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:17	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:17	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:36	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1570</b>		60.0		mg/L			03/16/18 11:40	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW6**  
**Date Collected: 03/09/18 19:35**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-2**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	315		10.0		mg/L			03/21/18 08:37	10
Fluoride	0.525		0.500		mg/L			03/20/18 18:29	5
Sulfate	349		10.0		mg/L			03/21/18 08:37	10

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00400		0.00400		mg/L		03/19/18 08:18	03/21/18 19:20	4
Arsenic	0.0194		0.00800		mg/L		03/19/18 08:18	03/21/18 19:20	4
Barium	0.165		0.00800		mg/L		03/19/18 08:18	03/21/18 19:20	4
Beryllium	<0.00400		0.00400		mg/L		03/19/18 08:18	03/21/18 19:20	4
Boron	<0.800		0.800		mg/L		03/19/18 08:18	03/21/18 19:20	4
Cadmium	<0.00200		0.00200		mg/L		03/19/18 08:18	03/21/18 19:20	4
Calcium	316		0.800		mg/L		03/19/18 08:18	03/21/18 19:20	4
Chromium	<0.0200		0.0200		mg/L		03/19/18 08:18	03/21/18 19:20	4
Cobalt	0.00654		0.00200		mg/L		03/19/18 08:18	03/21/18 19:20	4
Lithium	0.0407		0.0400		mg/L		03/19/18 08:18	03/21/18 19:20	4
Lead	<0.00200		0.00200		mg/L		03/19/18 08:18	03/21/18 19:20	4
Molybdenum	0.0683		0.00800		mg/L		03/19/18 08:18	03/21/18 19:20	4
Selenium	<0.0200		0.0200		mg/L		03/19/18 08:18	03/21/18 19:20	4
Thallium	<0.00400		0.00400		mg/L		03/19/18 08:18	03/21/18 19:20	4

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:38	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1240		60.0		mg/L			03/16/18 11:40	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW18**  
**Date Collected: 03/09/18 11:30**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-3**  
**Matrix: Ground Water**

**Method: 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/20/18 20:03	5
<b>Fluoride</b>	<b>0.530</b>		0.500		mg/L			03/20/18 20:03	5
Sulfate	<5.00		5.00		mg/L			03/20/18 20:03	5

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:33	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 08:18	03/23/18 11:36	1
<b>Barium</b>	<b>0.303</b>		0.00200		mg/L		03/19/18 08:18	03/21/18 19:33	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:33	1
Boron	<0.200		0.200		mg/L		03/19/18 08:18	03/21/18 19:33	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:33	1
<b>Calcium</b>	<b>97.3</b>		0.200		mg/L		03/19/18 08:18	03/21/18 19:33	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:33	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:33	1
<b>Lithium</b>	<b>0.0282</b>		0.0100		mg/L		03/19/18 08:18	03/23/18 11:36	1
<b>Lead</b>	<b>0.00137</b>		0.000500		mg/L		03/19/18 08:18	03/21/18 19:33	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 08:18	03/21/18 19:33	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:33	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:33	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:39	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>438</b>		30.0		mg/L			03/16/18 11:40	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW13**  
**Date Collected: 03/09/18 15:25**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-4**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.35		5.00		mg/L			03/20/18 20:34	5
Fluoride	0.534		0.500		mg/L			03/20/18 20:34	5
Sulfate	663		20.0		mg/L			03/20/18 20:18	20

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:39	1
Arsenic	0.205		0.00200		mg/L		03/19/18 08:18	03/23/18 11:42	1
Barium	0.0982		0.00200		mg/L		03/19/18 08:18	03/21/18 19:39	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:39	1
Boron	1.98		0.200		mg/L		03/19/18 08:18	03/21/18 19:39	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:39	1
Calcium	152		0.200		mg/L		03/19/18 08:18	03/21/18 19:39	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:39	1
Cobalt	0.000613		0.000500		mg/L		03/19/18 08:18	03/21/18 19:39	1
Lithium	0.0212		0.0100		mg/L		03/19/18 08:18	03/23/18 11:42	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:39	1
Molybdenum	1.22		0.00200		mg/L		03/19/18 08:18	03/21/18 19:39	1
Selenium	0.0609		0.00500		mg/L		03/19/18 08:18	03/21/18 19:39	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:39	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:41	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1340		30.0		mg/L			03/16/18 11:40	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW15**

**Date Collected: 03/09/18 17:38**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-5**

**Matrix: Ground Water**

## Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.4		5.00		mg/L			03/20/18 21:05	5
Fluoride	<0.500		0.500		mg/L			03/20/18 21:05	5
Sulfate	819		20.0		mg/L			03/20/18 20:49	20

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00172		0.00100		mg/L		03/19/18 08:18	03/21/18 19:42	1
Arsenic	0.00337		0.00200		mg/L		03/19/18 08:18	03/23/18 11:45	1
Barium	0.0405		0.00200		mg/L		03/19/18 08:18	03/21/18 19:42	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:42	1
Boron	4.10		0.200		mg/L		03/19/18 08:18	03/21/18 19:42	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:42	1
Calcium	283		0.200		mg/L		03/19/18 08:18	03/21/18 19:42	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:42	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:42	1
Lithium	0.0126		0.0100		mg/L		03/19/18 08:18	03/23/18 11:45	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:42	1
Molybdenum	0.353		0.00200		mg/L		03/19/18 08:18	03/21/18 19:42	1
Selenium	0.0653		0.00500		mg/L		03/19/18 08:18	03/21/18 19:42	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:42	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:43	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1330		60.0		mg/L			03/16/18 11:40	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW17**  
**Date Collected: 03/09/18 20:18**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-6**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.8		20.0		mg/L			03/20/18 21:20	20
Fluoride	1.29		0.500		mg/L			03/20/18 22:06	5
Sulfate	907		20.0		mg/L			03/20/18 21:20	20

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:45	1
Arsenic	0.0257		0.00200		mg/L		03/19/18 08:18	03/23/18 11:58	1
Barium	0.0351		0.00200		mg/L		03/19/18 08:18	03/21/18 19:45	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:45	1
Boron	0.745		0.200		mg/L		03/19/18 08:18	03/21/18 19:45	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:45	1
Calcium	357		0.200		mg/L		03/19/18 08:18	03/21/18 19:45	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:45	1
Cobalt	0.0107		0.000500		mg/L		03/19/18 08:18	03/21/18 19:45	1
Lithium	0.112		0.0100		mg/L		03/19/18 08:18	03/23/18 11:58	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:45	1
Molybdenum	0.00320		0.00200		mg/L		03/19/18 08:18	03/21/18 19:45	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:45	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:45	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:44	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2010		150		mg/L			03/16/18 11:40	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: DUP-1**

**Date Collected: 03/09/18 00:00**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-7**

**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.6		20.0		mg/L			03/20/18 22:22	20
Fluoride	<0.500		0.500		mg/L			03/20/18 22:37	5
Sulfate	778		20.0		mg/L			03/20/18 22:22	20

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00174		0.00100		mg/L		03/19/18 08:18	03/21/18 19:48	1
Arsenic	0.00281		0.00200		mg/L		03/19/18 08:18	03/23/18 12:01	1
Barium	0.0381		0.00200		mg/L		03/19/18 08:18	03/21/18 19:48	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:48	1
Boron	3.64		0.200		mg/L		03/19/18 08:18	03/21/18 19:48	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:48	1
Calcium	248		0.200		mg/L		03/19/18 08:18	03/21/18 19:48	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:48	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:48	1
Lithium	0.0103		0.0100		mg/L		03/19/18 08:18	03/23/18 12:01	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:48	1
Molybdenum	0.329		0.00200		mg/L		03/19/18 08:18	03/21/18 19:48	1
Selenium	0.0643		0.00500		mg/L		03/19/18 08:18	03/21/18 19:48	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:48	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1270		30.0		mg/L			03/16/18 11:40	1



# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW19**  
**Date Collected: 03/09/18 12:28**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-8**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/20/18 22:52	5
Fluoride	<0.500		0.500		mg/L			03/20/18 22:52	5
<b>Sulfate</b>	<b>8.89</b>		5.00		mg/L			03/20/18 22:52	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:52	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 08:18	03/23/18 12:04	1
<b>Barium</b>	<b>0.323</b>		0.00200		mg/L		03/19/18 08:18	03/21/18 19:52	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:52	1
Boron	<0.200		0.200		mg/L		03/19/18 08:18	03/21/18 19:52	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:52	1
<b>Calcium</b>	<b>113</b>		0.200		mg/L		03/19/18 08:18	03/21/18 19:52	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:52	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:52	1
<b>Lithium</b>	<b>0.0334</b>		0.0100		mg/L		03/19/18 08:18	03/23/18 12:04	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:18	03/21/18 19:52	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 08:18	03/21/18 19:52	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 08:18	03/21/18 19:52	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:18	03/21/18 19:52	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:47	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>426</b>		30.0		mg/L			03/16/18 11:40	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-197462/3**  
**Matrix: Water**  
**Analysis Batch: 197462**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/20/18 16:57	1
Fluoride	<0.100		0.100		mg/L			03/20/18 16:57	1
Sulfate	<1.00		1.00		mg/L			03/20/18 16:57	1

**Lab Sample ID: LCS 310-197462/4**  
**Matrix: Water**  
**Analysis Batch: 197462**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.601		mg/L		101	90 - 110
Fluoride	1.50	1.601		mg/L		107	90 - 110
Sulfate	7.50	7.652		mg/L		102	90 - 110

**Lab Sample ID: 310-125890-2 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 197462**

**Client Sample ID: MW6**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.525		5.00	5.933		mg/L		108	80 - 120

**Lab Sample ID: 310-125890-2 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 197462**

**Client Sample ID: MW6**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	315		50.0	356.2	4	mg/L		83	80 - 120
Sulfate	349		50.0	387.4	4	mg/L		77	80 - 120

**Lab Sample ID: 310-125890-2 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 197462**

**Client Sample ID: MW6**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.525		5.00	5.990		mg/L		109	80 - 120	1	15

**Lab Sample ID: 310-125890-2 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 197462**

**Client Sample ID: MW6**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	315		50.0	348.4	4	mg/L		67	80 - 120	2	15
Sulfate	349		50.0	377.5	4	mg/L		57	80 - 120	3	15

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 310-197091/1-A**  
**Matrix: Water**  
**Analysis Batch: 197558**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 197091**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 08:17	03/21/18 18:17	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 08:17	03/21/18 18:17	1
Barium	<0.00200		0.00200		mg/L		03/19/18 08:17	03/21/18 18:17	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 08:17	03/21/18 18:17	1
Boron	<0.200		0.200		mg/L		03/19/18 08:17	03/21/18 18:17	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 08:17	03/21/18 18:17	1
Calcium	<0.200		0.200		mg/L		03/19/18 08:17	03/21/18 18:17	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 08:17	03/21/18 18:17	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 08:17	03/21/18 18:17	1
Lithium	<0.0100		0.0100		mg/L		03/19/18 08:17	03/21/18 18:17	1
Lead	<0.000500		0.000500		mg/L		03/19/18 08:17	03/21/18 18:17	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 08:17	03/21/18 18:17	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 08:17	03/21/18 18:17	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 08:17	03/21/18 18:17	1

**Lab Sample ID: LCS 310-197091/2-A**  
**Matrix: Water**  
**Analysis Batch: 197558**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 197091**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0200	0.02063		mg/L		103	80 - 120
Arsenic	0.0400	0.03790		mg/L		95	80 - 120
Barium	0.0400	0.04212		mg/L		105	80 - 120
Beryllium	0.0200	0.02152		mg/L		108	80 - 120
Boron	0.880	0.9422		mg/L		107	80 - 120
Cadmium	0.0200	0.02171		mg/L		109	80 - 120
Calcium	2.00	2.235		mg/L		112	80 - 120
Chromium	0.0400	0.04365		mg/L		109	80 - 120
Cobalt	0.0200	0.02159		mg/L		108	80 - 120
Lithium	0.100	0.09795		mg/L		98	80 - 120
Lead	0.0200	0.02252		mg/L		113	80 - 120
Molybdenum	0.0400	0.04082		mg/L		102	80 - 120
Selenium	0.0400	0.03938		mg/L		98	80 - 120
Thallium	0.0160	0.01769		mg/L		111	80 - 120

**Lab Sample ID: 310-125890-3 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 197558**

**Client Sample ID: MW18**  
**Prep Type: Total/NA**  
**Prep Batch: 197091**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Barium	0.303		0.3010		mg/L		0.7	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Boron	<0.200		<0.200		mg/L		NC	20
Cadmium	<0.000500		<0.000500		mg/L		NC	20
Calcium	97.3		97.10		mg/L		0.2	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: 310-125890-3 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 197558**

**Client Sample ID: MW18**  
**Prep Type: Total/NA**  
**Prep Batch: 197091**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Lead	0.00137		0.001384		mg/L		1	20
Molybdenum	<0.00200		<0.00200		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

**Lab Sample ID: 310-125890-3 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 197767**

**Client Sample ID: MW18**  
**Prep Type: Total/NA**  
**Prep Batch: 197091**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Lithium	0.0282		0.02725		mg/L		4	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 310-197306/1-A**  
**Matrix: Water**  
**Analysis Batch: 197721**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 197306**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/22/18 10:00	03/22/18 21:03	1

**Lab Sample ID: LCS 310-197306/2-A**  
**Matrix: Water**  
**Analysis Batch: 197721**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 197306**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001680		mg/L		101	80 - 120

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-196975/1**  
**Matrix: Water**  
**Analysis Batch: 196975**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<30.0		30.0		mg/L			03/16/18 11:40	1

**Lab Sample ID: LCS 310-196975/2**  
**Matrix: Water**  
**Analysis Batch: 196975**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	928.0		mg/L		93	90 - 110

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 310-125890-1 DU  
 Matrix: Ground Water  
 Analysis Batch: 196975

Client Sample ID: MW2  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1570		1456		mg/L		7	24

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# QC Association Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## HPLC/IC

### Analysis Batch: 197462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	9056A	
310-125890-1	MW2	Total/NA	Ground Water	9056A	
310-125890-2	MW6	Total/NA	Ground Water	9056A	
310-125890-2	MW6	Total/NA	Ground Water	9056A	
310-125890-3	MW18	Total/NA	Ground Water	9056A	
310-125890-4	MW13	Total/NA	Ground Water	9056A	
310-125890-4	MW13	Total/NA	Ground Water	9056A	
310-125890-5	MW15	Total/NA	Ground Water	9056A	
310-125890-5	MW15	Total/NA	Ground Water	9056A	
310-125890-6	MW17	Total/NA	Ground Water	9056A	
310-125890-6	MW17	Total/NA	Ground Water	9056A	
310-125890-7	DUP-1	Total/NA	Ground Water	9056A	
310-125890-7	DUP-1	Total/NA	Ground Water	9056A	
310-125890-8	MW19	Total/NA	Ground Water	9056A	
MB 310-197462/3	Method Blank	Total/NA	Water	9056A	
LCS 310-197462/4	Lab Control Sample	Total/NA	Water	9056A	
310-125890-2 MS	MW6	Total/NA	Ground Water	9056A	
310-125890-2 MS	MW6	Total/NA	Ground Water	9056A	
310-125890-2 MSD	MW6	Total/NA	Ground Water	9056A	
310-125890-2 MSD	MW6	Total/NA	Ground Water	9056A	

## Metals

### Prep Batch: 197091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	3010A	
310-125890-2	MW6	Total/NA	Ground Water	3010A	
310-125890-3	MW18	Total/NA	Ground Water	3010A	
310-125890-4	MW13	Total/NA	Ground Water	3010A	
310-125890-5	MW15	Total/NA	Ground Water	3010A	
310-125890-6	MW17	Total/NA	Ground Water	3010A	
310-125890-7	DUP-1	Total/NA	Ground Water	3010A	
310-125890-8	MW19	Total/NA	Ground Water	3010A	
MB 310-197091/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-197091/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-125890-3 DU	MW18	Total/NA	Ground Water	3010A	

### Prep Batch: 197306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	7470A	
310-125890-2	MW6	Total/NA	Ground Water	7470A	
310-125890-3	MW18	Total/NA	Ground Water	7470A	
310-125890-4	MW13	Total/NA	Ground Water	7470A	
310-125890-5	MW15	Total/NA	Ground Water	7470A	
310-125890-6	MW17	Total/NA	Ground Water	7470A	
310-125890-7	DUP-1	Total/NA	Ground Water	7470A	
310-125890-8	MW19	Total/NA	Ground Water	7470A	
MB 310-197306/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-197306/2-A	Lab Control Sample	Total/NA	Water	7470A	

TestAmerica Cedar Falls

# QC Association Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Metals (Continued)

### Analysis Batch: 197558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	6020A	197091
310-125890-2	MW6	Total/NA	Ground Water	6020A	197091
310-125890-3	MW18	Total/NA	Ground Water	6020A	197091
310-125890-4	MW13	Total/NA	Ground Water	6020A	197091
310-125890-5	MW15	Total/NA	Ground Water	6020A	197091
310-125890-6	MW17	Total/NA	Ground Water	6020A	197091
310-125890-7	DUP-1	Total/NA	Ground Water	6020A	197091
310-125890-8	MW19	Total/NA	Ground Water	6020A	197091
MB 310-197091/1-A	Method Blank	Total/NA	Water	6020A	197091
LCS 310-197091/2-A	Lab Control Sample	Total/NA	Water	6020A	197091
310-125890-3 DU	MW18	Total/NA	Ground Water	6020A	197091

### Analysis Batch: 197721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	7470A	197306
310-125890-2	MW6	Total/NA	Ground Water	7470A	197306
310-125890-3	MW18	Total/NA	Ground Water	7470A	197306
310-125890-4	MW13	Total/NA	Ground Water	7470A	197306
310-125890-5	MW15	Total/NA	Ground Water	7470A	197306
310-125890-6	MW17	Total/NA	Ground Water	7470A	197306
310-125890-7	DUP-1	Total/NA	Ground Water	7470A	197306
310-125890-8	MW19	Total/NA	Ground Water	7470A	197306
MB 310-197306/1-A	Method Blank	Total/NA	Water	7470A	197306
LCS 310-197306/2-A	Lab Control Sample	Total/NA	Water	7470A	197306

### Analysis Batch: 197767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-3	MW18	Total/NA	Ground Water	6020A	197091
310-125890-4	MW13	Total/NA	Ground Water	6020A	197091
310-125890-5	MW15	Total/NA	Ground Water	6020A	197091
310-125890-6	MW17	Total/NA	Ground Water	6020A	197091
310-125890-7	DUP-1	Total/NA	Ground Water	6020A	197091
310-125890-8	MW19	Total/NA	Ground Water	6020A	197091
310-125890-3 DU	MW18	Total/NA	Ground Water	6020A	197091

## General Chemistry

### Analysis Batch: 196975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	SM 2540C	
310-125890-2	MW6	Total/NA	Ground Water	SM 2540C	
310-125890-3	MW18	Total/NA	Ground Water	SM 2540C	
310-125890-4	MW13	Total/NA	Ground Water	SM 2540C	
310-125890-5	MW15	Total/NA	Ground Water	SM 2540C	
310-125890-6	MW17	Total/NA	Ground Water	SM 2540C	
310-125890-7	DUP-1	Total/NA	Ground Water	SM 2540C	
310-125890-8	MW19	Total/NA	Ground Water	SM 2540C	
MB 310-196975/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-196975/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-125890-1 DU	MW2	Total/NA	Ground Water	SM 2540C	

TestAmerica Cedar Falls



# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW2**  
**Date Collected: 03/09/18 17:00**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-1**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	197462	03/20/18 17:27	CJT	TAL CF
Total/NA	Analysis	9056A		5	197462	03/20/18 18:14	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:17	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:36	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Client Sample ID: MW6**  
**Date Collected: 03/09/18 19:35**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-2**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197462	03/20/18 18:29	CJT	TAL CF
Total/NA	Analysis	9056A		10	197462	03/21/18 08:37	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		4	197558	03/21/18 19:20	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:38	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Client Sample ID: MW18**  
**Date Collected: 03/09/18 11:30**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-3**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197462	03/20/18 20:03	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:33	SAD	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197767	03/23/18 11:36	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:39	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Client Sample ID: MW13**  
**Date Collected: 03/09/18 15:25**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-4**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	197462	03/20/18 20:18	CJT	TAL CF
Total/NA	Analysis	9056A		5	197462	03/20/18 20:34	CJT	TAL CF

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: MW13**

**Date Collected: 03/09/18 15:25**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-4**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:39	SAD	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197767	03/23/18 11:42	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:41	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Client Sample ID: MW15**

**Date Collected: 03/09/18 17:38**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-5**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	197462	03/20/18 20:49	CJT	TAL CF
Total/NA	Analysis	9056A		5	197462	03/20/18 21:05	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:42	SAD	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197767	03/23/18 11:45	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:43	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Client Sample ID: MW17**

**Date Collected: 03/09/18 20:18**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-6**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	197462	03/20/18 21:20	CJT	TAL CF
Total/NA	Analysis	9056A		5	197462	03/20/18 22:06	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:45	SAD	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197767	03/23/18 11:58	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:44	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

**Client Sample ID: DUP-1**

**Date Collected: 03/09/18 00:00**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-7**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	197462	03/20/18 22:22	CJT	TAL CF
Total/NA	Analysis	9056A		5	197462	03/20/18 22:37	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:48	SAD	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197767	03/23/18 12:01	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:46	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Client Sample ID: MW19**

**Date Collected: 03/09/18 12:28**

**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-8**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197462	03/20/18 22:52	CJT	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197558	03/21/18 19:52	SAD	TAL CF
Total/NA	Prep	3010A			197091	03/19/18 08:18	JNR	TAL CF
Total/NA	Analysis	6020A		1	197767	03/23/18 12:04	SAD	TAL CF
Total/NA	Prep	7470A			197306	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/22/18 21:47	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	196975	03/16/18 11:40	SAS	TAL CF

**Laboratory References:**

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

# Accreditation/Certification Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

## Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF

#### Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



## Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>	
Client: <u>OPPD</u>	
City/State: <u>Omaha NE</u>	Project: <u>29280/N. Omaha Station 4F</u>
<b>Receipt Information</b>	
Date/Time Received: <u>3/15/18 9:25</u>	Received By: <u>TD</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: <u>B-10</u>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? <u>↓</u>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>J</u>	Correction Factor (°C): <u>+0.1</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>4.3</u>	Corrected Temp (°C): <u>4.4</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

Place COC scanning label here

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>OPPD</u>	
City/State: <u>Omaha NE</u>	Project: <u>29280/11. Omaha station 4</u>
<b>Receipt Information</b>	
Date/Time Received: <u>3/13/18 9:25</u>	Received By: <u>TD</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: <u>1260</u>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>J</u>	Correction Factor (°C): <u>+0.1</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>3.2</u>	Corrected Temp (°C): <u>3.3</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

### Chain of Custody Record



<b>Client Information</b> Company: <b>Omaha Public Power District</b> Address: <b>444 South 16th Street Mail 9E/EP1</b> City: <b>Omaha</b> State: <b>NE</b> Zip: <b>68102-2247</b> Phone: <b>402-636-2515 (Test)</b> Email: <b>bsojka@oppd.com</b> Project Name: <b>North Omaha Station Landfill</b> Site: <b>North Omaha</b>		Due Date Requested: TAT Requested (days): PO #: IWO #: TestAmerica Project #: 31007560 830W#		Job #: Analysis Requested: <input checked="" type="checkbox"/>		COC No.: Page: Job #: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - Ni/HSO4 F - MeOH G - Ascorbic Acid H - DI Water I - Ice J - EDTA K - EDTA L - EDA Other: M - Heaane N - None O - AsNaO2 P - Na2O4S Q - Na2S03 R - H2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		Total Number of Containers:		Special Instructions/Note: * Incorrect Coc Submitted Need full CCR Parameter List SH 3/5/18	
Sample Identification MW2 MW5 MW6 MW8 MW-18 MW9 MW13 MW15 MW16 MW17 DUP-1 MW-18 MW-11		Sample Date 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18		Sample Time 17:00 19:35 11:30 15:25 17:38 20:18 12:28		Matrix (W=Water, S=Sediment, O=Organic, I=Inorganic) Preservation Code: G G G G G G G G G G G	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:		Method of Shipment:		Date/Time:	
Relinquished by:		Date/Time: 3-14-18 15:00		Received by: <i>Mathampatu</i>		Date/Time: 3-15-18 9:25	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Custody Seal Intact: Δ Yes Δ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:		Company: TACF Company:	





Temperature readings:

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW2	310-125890-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-125890-B-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-125890-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW6	310-125890-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-125890-B-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW6	310-125890-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-125890-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW18	310-125890-B-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-125890-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-125890-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-125890-B-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-125890-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-125890-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW15	310-125890-B-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-125890-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-125890-B-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-125890-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-125890-E-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-125890-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-125890-B-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP-1	310-125890-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-125890-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW19	310-125890-B-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-125890-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____



# Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-125890-1

**Login Number: 125890**

**List Source: TestAmerica Cedar Falls**

**List Number: 1**

**Creator: Patrick, Kathryn E**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Wrong tests on COC. Logged in for full CCR Parameters
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	MW-17 250 HNO3 received leaking. Replaced and poured off from NT bottle.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-125890-2

Client Project/Site: North Omaha Station CCR

Sampling Event: CCR Parameters (Q1 and Q3)

For:

Omaha Public Power District

Attn: Accounts Payable, 4E/EP-5

444 South 16th Street Mall

Omaha, Nebraska 68102-2247

Attn: Bryan Lorence



Authorized for release by:

4/12/2018 5:53:17 PM

Shawn Hayes, Senior Project Manager

(319)229-8211

[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

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**Job ID: 310-125890-2**

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**Laboratory: TestAmerica Cedar Falls**

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**Narrative**

**Job Narrative**  
**310-125890-2**

**Comments**

No additional comments.

**Receipt**

The samples were received on 3/15/2018 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.3° C and 4.4° C.

**RAD**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-125890-1	MW2	Ground Water	03/09/18 17:00	03/15/18 09:25
310-125890-2	MW6	Ground Water	03/09/18 19:35	03/15/18 09:25
310-125890-3	MW18	Ground Water	03/09/18 11:30	03/15/18 09:25
310-125890-4	MW13	Ground Water	03/09/18 15:25	03/15/18 09:25
310-125890-5	MW15	Ground Water	03/09/18 17:38	03/15/18 09:25
310-125890-6	MW17	Ground Water	03/09/18 20:18	03/15/18 09:25
310-125890-7	DUP-1	Ground Water	03/09/18 00:00	03/15/18 09:25
310-125890-8	MW19	Ground Water	03/09/18 12:28	03/15/18 09:25

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# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW2**  
**Date Collected: 03/09/18 17:00**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-1**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.287		0.0884	0.0920	1.00	0.0653	pCi/L	03/20/18 14:39	04/11/18 08:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					03/20/18 14:39	04/11/18 08:16	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.762		0.277	0.286	1.00	0.382	pCi/L	03/20/18 15:16	03/28/18 16:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					03/20/18 15:16	03/28/18 16:41	1
Y Carrier	86.0		40 - 110					03/20/18 15:16	03/28/18 16:41	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.05		0.291	0.300	5.00	0.382	pCi/L		04/12/18 14:16	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW6**  
**Date Collected: 03/09/18 19:35**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-2**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.303		0.100	0.104	1.00	0.0962	pCi/L	03/20/18 14:39	04/11/18 08:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					03/20/18 14:39	04/11/18 08:16	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.370	U	0.254	0.256	1.00	0.394	pCi/L	03/20/18 15:16	03/28/18 16:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					03/20/18 15:16	03/28/18 16:41	1
Y Carrier	86.7		40 - 110					03/20/18 15:16	03/28/18 16:41	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.673		0.273	0.276	5.00	0.394	pCi/L		04/12/18 14:16	1



# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW18**  
**Date Collected: 03/09/18 11:30**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-3**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.468		0.116	0.123	1.00	0.0835	pCi/L	03/20/18 14:39	04/11/18 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					03/20/18 14:39	04/11/18 08:17	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.620		0.240	0.246	1.00	0.332	pCi/L	03/20/18 15:16	03/28/18 16:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					03/20/18 15:16	03/28/18 16:41	1
Y Carrier	92.7		40 - 110					03/20/18 15:16	03/28/18 16:41	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.09		0.267	0.275	5.00	0.332	pCi/L		04/12/18 14:16	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW13**  
**Date Collected: 03/09/18 15:25**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-4**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0929		0.0645	0.0650	1.00	0.0890	pCi/L	03/20/18 14:39	04/11/18 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					03/20/18 14:39	04/11/18 08:17	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.453		0.249	0.252	1.00	0.371	pCi/L	03/20/18 15:16	03/28/18 16:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					03/20/18 15:16	03/28/18 16:41	1
Y Carrier	83.4		40 - 110					03/20/18 15:16	03/28/18 16:41	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.546		0.257	0.260	5.00	0.371	pCi/L		04/12/18 14:16	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW15**  
**Date Collected: 03/09/18 17:38**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-5**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0594	U	0.0564	0.0566	1.00	0.0869	pCi/L	03/20/18 14:39	04/11/18 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					03/20/18 14:39	04/11/18 08:17	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.173	U	0.215	0.215	1.00	0.355	pCi/L	03/20/18 15:16	03/28/18 16:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					03/20/18 15:16	03/28/18 16:41	1
Y Carrier	82.6		40 - 110					03/20/18 15:16	03/28/18 16:41	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.232	U	0.222	0.222	5.00	0.355	pCi/L		04/12/18 14:16	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW17**  
**Date Collected: 03/09/18 20:18**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-6**  
**Matrix: Ground Water**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.162		0.0673	0.0688	1.00	0.0614	pCi/L	03/20/18 14:39	04/11/18 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					03/20/18 14:39	04/11/18 08:17	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.577		0.224	0.231	1.00	0.307	pCi/L	03/20/18 15:16	03/28/18 16:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					03/20/18 15:16	03/28/18 16:42	1
Y Carrier	88.6		40 - 110					03/20/18 15:16	03/28/18 16:42	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.738		0.234	0.241	5.00	0.307	pCi/L		04/12/18 14:16	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: DUP-1**  
**Date Collected: 03/09/18 00:00**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-7**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.118		0.0628	0.0637	1.00	0.0739	pCi/L	03/20/18 14:39	04/11/18 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					03/20/18 14:39	04/11/18 08:17	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.254	U	0.211	0.212	1.00	0.335	pCi/L	03/20/18 15:16	03/28/18 16:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					03/20/18 15:16	03/28/18 16:42	1
Y Carrier	85.6		40 - 110					03/20/18 15:16	03/28/18 16:42	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.372		0.220	0.221	5.00	0.335	pCi/L		04/12/18 14:16	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW19**  
**Date Collected: 03/09/18 12:28**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-8**  
**Matrix: Ground Water**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.394		0.102	0.108	1.00	0.0689	pCi/L	03/20/18 14:39	04/11/18 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					03/20/18 14:39	04/11/18 08:17	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.297	U	0.214	0.216	1.00	0.333	pCi/L	03/20/18 15:16	03/28/18 16:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					03/20/18 15:16	03/28/18 16:42	1
Y Carrier	84.1		40 - 110					03/20/18 15:16	03/28/18 16:42	1

### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.691		0.237	0.241	5.00	0.333	pCi/L		04/12/18 14:16	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-356733/23-A**  
**Matrix: Water**  
**Analysis Batch: 360147**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 356733**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04111	U	0.0409	0.0411	1.00	0.0616	pCi/L	03/20/18 14:39	04/11/18 08:22	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					03/20/18 14:39	04/11/18 08:22	1

**Lab Sample ID: LCS 160-356733/1-A**  
**Matrix: Water**  
**Analysis Batch: 360146**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 356733**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	10.11		1.02	1.00	0.0693	pCi/L	86	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	108		40 - 110						

**Lab Sample ID: LCSD 160-356733/2-A**  
**Matrix: Water**  
**Analysis Batch: 360146**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 356733**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.8	10.99		1.11	1.00	0.0845	pCi/L	93	68 - 137	0.41	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	105		40 - 110								

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-356739/23-A**  
**Matrix: Water**  
**Analysis Batch: 357969**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 356739**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2130	U	0.204	0.205	1.00	0.329	pCi/L	03/20/18 15:16	03/28/18 16:44	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					03/20/18 15:16	03/28/18 16:44	1
Y Carrier	79.6		40 - 110					03/20/18 15:16	03/28/18 16:44	1

TestAmerica Cedar Falls



# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-356739/1-A**  
**Matrix: Water**  
**Analysis Batch: 357969**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 356739**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.44	7.625		0.896	1.00	0.334	pCi/L	90	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	108		40 - 110
Y Carrier	88.2		40 - 110

**Lab Sample ID: LCSD 160-356739/2-A**  
**Matrix: Water**  
**Analysis Batch: 357969**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 356739**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.44	8.148		0.951	1.00	0.330	pCi/L	97	56 - 140	0.28	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	85.6		40 - 110

# QC Association Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Rad

### Prep Batch: 356733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	PrecSep-21	
310-125890-2	MW6	Total/NA	Ground Water	PrecSep-21	
310-125890-3	MW18	Total/NA	Ground Water	PrecSep-21	
310-125890-4	MW13	Total/NA	Ground Water	PrecSep-21	
310-125890-5	MW15	Total/NA	Ground Water	PrecSep-21	
310-125890-6	MW17	Total/NA	Ground Water	PrecSep-21	
310-125890-7	DUP-1	Total/NA	Ground Water	PrecSep-21	
310-125890-8	MW19	Total/NA	Ground Water	PrecSep-21	
MB 160-356733/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-356733/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-356733/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 356739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125890-1	MW2	Total/NA	Ground Water	PrecSep_0	
310-125890-2	MW6	Total/NA	Ground Water	PrecSep_0	
310-125890-3	MW18	Total/NA	Ground Water	PrecSep_0	
310-125890-4	MW13	Total/NA	Ground Water	PrecSep_0	
310-125890-5	MW15	Total/NA	Ground Water	PrecSep_0	
310-125890-6	MW17	Total/NA	Ground Water	PrecSep_0	
310-125890-7	DUP-1	Total/NA	Ground Water	PrecSep_0	
310-125890-8	MW19	Total/NA	Ground Water	PrecSep_0	
MB 160-356739/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-356739/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-356739/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Client Sample ID: MW2**  
**Date Collected: 03/09/18 17:00**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-1**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:16	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

**Client Sample ID: MW6**  
**Date Collected: 03/09/18 19:35**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-2**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:16	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

**Client Sample ID: MW18**  
**Date Collected: 03/09/18 11:30**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-3**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:17	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

**Client Sample ID: MW13**  
**Date Collected: 03/09/18 15:25**  
**Date Received: 03/15/18 09:25**

**Lab Sample ID: 310-125890-4**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:17	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Client Sample ID: MW15

Date Collected: 03/09/18 17:38

Date Received: 03/15/18 09:25

## Lab Sample ID: 310-125890-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:17	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

## Client Sample ID: MW17

Date Collected: 03/09/18 20:18

Date Received: 03/15/18 09:25

## Lab Sample ID: 310-125890-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:17	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

## Client Sample ID: DUP-1

Date Collected: 03/09/18 00:00

Date Received: 03/15/18 09:25

## Lab Sample ID: 310-125890-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:17	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

## Client Sample ID: MW19

Date Collected: 03/09/18 12:28

Date Received: 03/15/18 09:25

## Lab Sample ID: 310-125890-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356733	03/20/18 14:39	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 08:17	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356739	03/20/18 15:16	TJT	TAL SL
Total/NA	Analysis	9320		1	357969	03/28/18 16:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542018-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18 *
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.  
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566





**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>OPPD</u>	
City/State: <u>Omaha NE</u>	Project: <u>29280/N. Omaha Station 4F</u>
<b>Receipt Information</b>	
Date/Time Received: <u>3/15/18 9:25</u>	Received By: <u>TD</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: <u>B-10</u>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? <u>↓</u>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>J</u>	Correction Factor (°C): <u>+0.1</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>4.3</u>	Corrected Temp (°C): <u>4.4</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

Place COC scanning label here

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>OPPD</u>	
City/State: <u>Omaha NE</u>	Project: <u>29280/11. Omaha station 4</u>
<b>Receipt Information</b>	
Date/Time Received: <u>3/18/18 9:25</u>	Received By: <u>TD</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: <u>1.260</u>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler # <u>2</u> of <u>2</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>J</u>	Correction Factor (°C): <u>+0.1</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>3.2</u>	Corrected Temp (°C): <u>3.3</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	



### Chain of Custody Record



<b>Client Information</b> Company: Omaha Public Power District Address: 444 South 16th Street, Mail 9E/EP1 City: Omaha State: NE 68102-2247 Phone: 402-636-2515 (Test) Email: bsojka@oppd.com Project Name: North Omaha Station Landfill Site: <i>North Omaha</i>		Due Date Requested: TAT Requested (days): PO #: IWO #: TestAmerica Project #: 31007560 830W#		Job #: Analysis Requested: <input checked="" type="checkbox"/>		COC No.: Page: Job #: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - Ni/HSO4 F - MeOH G - Ascorbic Acid H - DI Water I - Ice J - EDTA K - EDTA L - EDA Other: M - Heaane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - H2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)															
Client Contact: Brad Sojka R. Lymon Hayes Shawn M shawn.hayes@testamericainc.com		Date Requested: 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18		Sample Date: 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18 3-9-18		Sample Time: 17:00 19:35 11:30 15:25 17:38 20:18 12:28		Sample Type (C=Comp, G=grab): G G G G G G G G G G G		Matrix (W=Water, S=Sediment, O=Organic, I=Inorganic, A=Asbestos): GW GW GW GW GW GW GW GW GW GW GW		Preservation Code: G G G G G G G G G G G		Perform MS/MSD (Yes or No): D D D D D D D D D D D D		Field Filtered Sample (Yes or No): D D D D D D D D D D D D		Total Number of Containers: 9029A Landfill Lit - As, Ba, Cd, Cr, Pb, Pp, Se, Ag 770A Mercury 9058A Sulfate N		Special Instructions/Note: * Incorrect Coc Submitted Need full CCR Parameter List SH 3/5/18	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: <input type="checkbox"/> i, ii, iii, iv, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Empty Kit Relinquished by:		Date:		Method of Shipment:		Relinquished by:		Date/Time:		Company:					
Relinquished by:		Date/Time: 3-14-18 15:00		Company: OPPD		Relinquished by:		Date/Time:		Company:		Relinquished by:		Date/Time:		Company:					
Relinquished by:		Date/Time:		Company:		Relinquished by:		Date/Time:		Company:		Relinquished by:		Date/Time:		Company:					
Custody Seal Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Relinquished by:		Date/Time:		Company:		Relinquished by:		Date/Time:		Company:					



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW2	310-125890-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-125890-B-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-125890-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW6	310-125890-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-125890-B-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW6	310-125890-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-125890-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW18	310-125890-B-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-125890-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-125890-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-125890-B-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-125890-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-125890-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW15	310-125890-B-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-125890-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-125890-B-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-125890-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-125890-E-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-125890-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-125890-B-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP-1	310-125890-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-125890-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW19	310-125890-B-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-125890-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____

# Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-125890-2

**Login Number: 125890**

**List Source: TestAmerica Cedar Falls**

**List Number: 1**

**Creator: Patrick, Kathryn E**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Wrong tests on COC. Logged in for full CCR Parameters
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	MW-17 250 HNO3 received leaking. Replaced and poured off from NT bottle.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-125890-2

**Login Number: 125890**

**List Number: 2**

**Creator: Daniels, Brian J**

**List Source: TestAmerica St. Louis**

**List Creation: 03/16/18 02:31 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Tracer/Carrier Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

## Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
310-125890-1	MW2	98.2	
310-125890-2	MW6	91.7	
310-125890-3	MW18	97.9	
310-125890-4	MW13	96.5	
310-125890-5	MW15	105	
310-125890-6	MW17	102	
310-125890-7	DUP-1	103	
310-125890-8	MW19	99.7	
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
LCS 160-356733/1-A	Lab Control Sample	108	
LCSD 160-356733/2-A	Lab Control Sample Dup	105	
MB 160-356733/23-A	Method Blank	106	
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			

## Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-125890-1	MW2	98.2	86.0
310-125890-2	MW6	91.7	86.7
310-125890-3	MW18	97.9	92.7
310-125890-4	MW13	96.5	83.4
310-125890-5	MW15	105	82.6
310-125890-6	MW17	102	88.6
310-125890-7	DUP-1	103	85.6
310-125890-8	MW19	99.7	84.1
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

# Tracer/Carrier Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-125890-2

**Method: 9320 - Radium-228 (GFPC)**

**Matrix: Water**

**Prep Type: Total/NA**

## Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
LCS 160-356739/1-A	Lab Control Sample	108	88.2
LCSD 160-356739/2-A	Lab Control Sample Dup	105	85.6
MB 160-356739/23-A	Method Blank	106	79.6

### Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-126720-1

Client Project/Site: North Omaha Station CCR

Sampling Event: CCR Parameters (Q1 and Q3)

For:

Omaha Public Power District

Attn: Accounts Payable, 4E/EP-5

444 South 16th Street Mall

Omaha, Nebraska 68102-2247

Attn: Bryan Lorence



Authorized for release by:

4/5/2018 4:03:12 PM

Shawn Hayes, Senior Project Manager

(319)229-8211

[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1

2

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

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**Job ID: 310-126720-1**

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**Laboratory: TestAmerica Cedar Falls**

## Narrative

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**Job Narrative**  
**310-126720-1**

### Comments

No additional comments.

### Receipt

The sample was received on 3/28/2018 9:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

### HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### General Chemistry

Method(s) SM 2540C TDS: Due to delayed shipping method the following sample was received outside of 7 day holding time: MW9 (310-126720-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-126720-1	MW9	Ground Water	03/20/18 15:35	03/28/18 09:15

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

**Client Sample ID: MW9**

**Lab Sample ID: 310-126720-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	210		5.00		mg/L	5		9056A	Total/NA
Sulfate	46.1		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00777		0.00200		mg/L	1		6020A	Total/NA
Barium	0.526		0.00200		mg/L	1		6020A	Total/NA
Calcium	146		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000895		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0428		0.0100		mg/L	1		6020A	Total/NA
Lead	0.00284		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	844	H	60.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

**Client Sample ID: MW9**  
**Date Collected: 03/20/18 15:35**  
**Date Received: 03/28/18 09:15**

**Lab Sample ID: 310-126720-1**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>210</b>		5.00		mg/L			04/02/18 18:32	5
Fluoride	<0.500		0.500		mg/L			04/02/18 18:32	5
<b>Sulfate</b>	<b>46.1</b>		5.00		mg/L			04/02/18 18:32	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/29/18 07:15	04/03/18 16:55	1
<b>Arsenic</b>	<b>0.00777</b>		0.00200		mg/L		03/29/18 07:15	04/03/18 16:55	1
<b>Barium</b>	<b>0.526</b>		0.00200		mg/L		03/29/18 07:15	04/03/18 16:55	1
Beryllium	<0.00100		0.00100		mg/L		03/29/18 07:15	04/03/18 16:55	1
Boron	<0.200		0.200		mg/L		03/29/18 07:15	04/03/18 16:55	1
Cadmium	<0.000500		0.000500		mg/L		03/29/18 07:15	04/03/18 16:55	1
<b>Calcium</b>	<b>146</b>		0.200		mg/L		03/29/18 07:15	04/03/18 16:55	1
Chromium	<0.00500		0.00500		mg/L		03/29/18 07:15	04/03/18 16:55	1
<b>Cobalt</b>	<b>0.000895</b>		0.000500		mg/L		03/29/18 07:15	04/03/18 16:55	1
<b>Lithium</b>	<b>0.0428</b>		0.0100		mg/L		03/29/18 07:15	04/03/18 16:55	1
<b>Lead</b>	<b>0.00284</b>		0.000500		mg/L		03/29/18 07:15	04/03/18 16:55	1
Molybdenum	<0.00200		0.00200		mg/L		03/29/18 07:15	04/03/18 16:55	1
Selenium	<0.00500		0.00500		mg/L		03/29/18 07:15	04/03/18 16:55	1
Thallium	<0.00100		0.00100		mg/L		03/29/18 07:15	04/03/18 16:55	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/18 09:44	03/30/18 10:53	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>844</b>	<b>H</b>	60.0		mg/L			03/29/18 10:03	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-198791/3**  
**Matrix: Water**  
**Analysis Batch: 198791**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/02/18 18:01	1
Fluoride	<0.100		0.100		mg/L			04/02/18 18:01	1
Sulfate	<1.00		1.00		mg/L			04/02/18 18:01	1

**Lab Sample ID: LCS 310-198791/4**  
**Matrix: Water**  
**Analysis Batch: 198791**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	8.092		mg/L		108	90 - 110
Fluoride	1.50	1.610		mg/L		107	90 - 110
Sulfate	7.50	7.916		mg/L		106	90 - 110

**Lab Sample ID: 310-126720-1 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 198791**

**Client Sample ID: MW9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	210		25.0	226.2	4	mg/L		67	80 - 120
Fluoride	<0.500		5.00	5.634		mg/L		113	80 - 120
Sulfate	46.1		25.0	68.55		mg/L		90	80 - 120

**Lab Sample ID: 310-126720-1 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 198791**

**Client Sample ID: MW9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	210		25.0	223.8	4	mg/L		57	80 - 120	1	15
Fluoride	<0.500		5.00	5.747		mg/L		115	80 - 120	2	15
Sulfate	46.1		25.0	67.46		mg/L		86	80 - 120	2	15

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 310-198280/1-A**  
**Matrix: Water**  
**Analysis Batch: 198873**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 198280**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/29/18 07:15	04/03/18 16:21	1
Arsenic	<0.00200		0.00200		mg/L		03/29/18 07:15	04/03/18 16:21	1
Barium	<0.00200		0.00200		mg/L		03/29/18 07:15	04/03/18 16:21	1
Beryllium	<0.00100		0.00100		mg/L		03/29/18 07:15	04/03/18 16:21	1
Boron	<0.200		0.200		mg/L		03/29/18 07:15	04/03/18 16:21	1
Cadmium	<0.000500		0.000500		mg/L		03/29/18 07:15	04/03/18 16:21	1
Calcium	<0.200		0.200		mg/L		03/29/18 07:15	04/03/18 16:21	1
Chromium	<0.00500		0.00500		mg/L		03/29/18 07:15	04/03/18 16:21	1
Cobalt	<0.000500		0.000500		mg/L		03/29/18 07:15	04/03/18 16:21	1
Lithium	<0.0100		0.0100		mg/L		03/29/18 07:15	04/03/18 16:21	1
Lead	<0.000500		0.000500		mg/L		03/29/18 07:15	04/03/18 16:21	1

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 310-198280/1-A**  
**Matrix: Water**  
**Analysis Batch: 198873**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 198280**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.00200		0.00200		mg/L		03/29/18 07:15	04/03/18 16:21	1
Selenium	<0.00500		0.00500		mg/L		03/29/18 07:15	04/03/18 16:21	1
Thallium	<0.00100		0.00100		mg/L		03/29/18 07:15	04/03/18 16:21	1

**Lab Sample ID: LCS 310-198280/2-A**  
**Matrix: Water**  
**Analysis Batch: 198873**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 198280**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0200	0.01903		mg/L		95	80 - 120
Arsenic	0.0400	0.03901		mg/L		98	80 - 120
Barium	0.0400	0.04034		mg/L		101	80 - 120
Beryllium	0.0200	0.02002		mg/L		100	80 - 120
Boron	0.880	0.8843		mg/L		100	80 - 120
Cadmium	0.0200	0.02027		mg/L		101	80 - 120
Calcium	2.00	2.042		mg/L		102	80 - 120
Chromium	0.0400	0.04150		mg/L		104	80 - 120
Cobalt	0.0200	0.02063		mg/L		103	80 - 120
Lithium	0.100	0.09945		mg/L		99	80 - 120
Lead	0.0200	0.01983		mg/L		99	80 - 120
Molybdenum	0.0400	0.03781		mg/L		95	80 - 120
Selenium	0.0400	0.03702		mg/L		93	80 - 120
Thallium	0.0160	0.01598		mg/L		100	80 - 120

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 310-198327/1-A**  
**Matrix: Water**  
**Analysis Batch: 198499**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 198327**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		03/29/18 09:35	03/30/18 10:22	1

**Lab Sample ID: LCS 310-198327/2-A**  
**Matrix: Water**  
**Analysis Batch: 198499**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 198327**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00167	0.001647		mg/L		99	80 - 120

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-198337/1**  
**Matrix: Water**  
**Analysis Batch: 198337**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<30.0		30.0		mg/L			03/29/18 10:03	1

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 310-198337/2  
Matrix: Water  
Analysis Batch: 198337

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	984.0		mg/L		98	90 - 110

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# QC Association Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

## HPLC/IC

### Analysis Batch: 198791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	9056A	
MB 310-198791/3	Method Blank	Total/NA	Water	9056A	
LCS 310-198791/4	Lab Control Sample	Total/NA	Water	9056A	
310-126720-1 MS	MW9	Total/NA	Ground Water	9056A	
310-126720-1 MSD	MW9	Total/NA	Ground Water	9056A	

## Metals

### Prep Batch: 198280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	3010A	
MB 310-198280/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-198280/2-A	Lab Control Sample	Total/NA	Water	3010A	

### Prep Batch: 198327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	7470A	
MB 310-198327/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-198327/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Analysis Batch: 198499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	7470A	198327
MB 310-198327/1-A	Method Blank	Total/NA	Water	7470A	198327
LCS 310-198327/2-A	Lab Control Sample	Total/NA	Water	7470A	198327

### Analysis Batch: 198873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	6020A	198280
MB 310-198280/1-A	Method Blank	Total/NA	Water	6020A	198280
LCS 310-198280/2-A	Lab Control Sample	Total/NA	Water	6020A	198280

## General Chemistry

### Analysis Batch: 198337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	SM 2540C	
MB 310-198337/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-198337/2	Lab Control Sample	Total/NA	Water	SM 2540C	

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

**Client Sample ID: MW9**  
**Date Collected: 03/20/18 15:35**  
**Date Received: 03/28/18 09:15**

**Lab Sample ID: 310-126720-1**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	198791	04/02/18 18:32	CJT	TAL CF
Total/NA	Prep	3010A			198280	03/29/18 07:15	JNR	TAL CF
Total/NA	Analysis	6020A		1	198873	04/03/18 16:55	SAD	TAL CF
Total/NA	Prep	7470A			198327	03/29/18 09:44	CJT	TAL CF
Total/NA	Analysis	7470A		1	198499	03/30/18 10:53	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	198337	03/29/18 10:03	SAS	TAL CF

#### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

# Accreditation/Certification Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

## Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF

#### Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



310-126720 Chain of Custody

## Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>	
Client: <i>Omaha public Power District</i>	
City/State: <i>Omaha NE</i>	Project: <i>North Omaha station CFR</i>
<b>Receipt Information</b>	
Date/Time Received: <i>03-28-18 0915</i>	Received By: <i>J</i>
Delivery Type: <input checked="" type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Cooler # ____ of ____</i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact?</i> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <i>J</i>	Correction Factor (°C): <i>+0.1</i>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <i>1.9</i>	Corrected Temp (°C): <i>2.0</i>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes:</i> Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

## Chain of Custody Record

<b>Client Information</b> Company: Omaha Public Power District Address: 444 South 16th Street Mall 9E/EP1 City: Omaha State, Zip: NE, 68102-2247 Phone: 402-636-2515 (Tel) Email: balorense@oppd.com Project Name: North Omaha Station CCR Site: <i>North Omaha Station</i>		Lab PMF: Hayes, Shawn M E-Mail: shawn.hayes@testamericainc.com Carrier Tracking No(s): Job #:									
Due Date Requested: TAT Requested (days): PO #: WO #: TestAmerica Project #: 31007560 SSSOW#:		Analysis Requested Total Number of Containers:									
Sample Identification MW9	Sample Date:	Sample Time:	Sample Type (C=Comp, G=grab) G	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air) GW	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	915_Ra226, 9320_Ra228, Combined Ra226 and Ra228	6020A CCR List, 7470A Mercury	2540C TDS, 9056A Chloride, Fluoride, Sulfate	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	Special Instructions/Note:
	Sample Date:	Sample Time:	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	915_Ra226, 9320_Ra228, Combined Ra226 and Ra228	6020A CCR List, 7470A Mercury	2540C TDS, 9056A Chloride, Fluoride, Sulfate			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological											
Deliverable Requested: I, II, III, IV, Other (specify)											
Empty Kit Relinquished by:											
Relinquished by: <i>Bryan Lorence</i> Date: <i>3/26/18 1400</i> Company: <i>OPP</i>											
Relinquished by: Received by: <i>Dana Anderson</i> Date/Time: <i>3/28/18 0915</i> Company: <i>FAF</i>											
Relinquished by: Received by: Date/Time: Company:											
Custody Seals Intact: Custody Seal No.: Cooler Temperature(s) °C and Other Remarks:											



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Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW9	310-126720-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-126720-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-126720-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____

# Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-126720-1

**Login Number: 126720**

**List Number: 1**

**Creator: Homolar, Dana J**

**List Source: TestAmerica Cedar Falls**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No date or time on COC, logged in per container labels.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: (319)277-2401

TestAmerica Job ID: 310-126720-2  
Client Project/Site: North Omaha Station CCR  
Sampling Event: CCR Parameters (Q1 and Q3)

For:  
Omaha Public Power District  
Attn: Accounts Payable, 4E/EP-5  
444 South 16th Street Mall  
Omaha, Nebraska 68102-2247

Attn: Bryan Lorence



Authorized for release by:  
4/24/2018 6:33:57 PM

Shawn Hayes, Senior Project Manager  
(319)229-8211  
[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

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**Job ID: 310-126720-2**

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**Laboratory: TestAmerica Cedar Falls**

## Narrative

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**Job Narrative**  
**310-126720-2**

## Comments

No additional comments.

## Receipt

The sample was received on 3/28/2018 9:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

## RAD

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-126720-1	MW9	Ground Water	03/20/18 15:35	03/28/18 09:15

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# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

**Client Sample ID: MW9**

**Lab Sample ID: 310-126720-1**

Date Collected: 03/20/18 15:35

Matrix: Ground Water

Date Received: 03/28/18 09:15

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.438		0.107	0.114	1.00	0.0770	pCi/L	03/30/18 09:03	04/23/18 05:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					03/30/18 09:03	04/23/18 05:56	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.812		0.299	0.308	1.00	0.419	pCi/L	03/30/18 09:42	04/05/18 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					03/30/18 09:42	04/05/18 15:00	1
Y Carrier	91.2		40 - 110					03/30/18 09:42	04/05/18 15:00	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.25		0.318	0.328	5.00	0.419	pCi/L		04/24/18 17:14	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-358307/17-A**  
**Matrix: Water**  
**Analysis Batch: 362142**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358307**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	Uncert.						
Radium-226	0.03520	U	0.0366 (2σ+/-)	0.0367 (2σ+/-)	1.00	0.0552	pCi/L	03/30/18 09:03	04/23/18 05:59	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	103		40 - 110		03/30/18 09:03	04/23/18 05:59	1			

**Lab Sample ID: LCS 160-358307/1-A**  
**Matrix: Water**  
**Analysis Batch: 362141**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358307**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.8	10.70		1.09	1.00	0.0852	pCi/L	91	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	Limits						
Ba Carrier	104		40 - 110						

**Lab Sample ID: LCSD 160-358307/2-A**  
**Matrix: Water**  
**Analysis Batch: 362141**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 358307**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.8	10.55		1.07	1.00	0.0574	pCi/L	89	68 - 137	0.07	1
Carrier	LCSD LCSD		Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	%Yield	Qualifier	Limits								
Ba Carrier	106		40 - 110								

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-358316/17-A**  
**Matrix: Water**  
**Analysis Batch: 359055**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358316**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	Uncert.						
Radium-228	0.1252	U	0.207 (2σ+/-)	0.207 (2σ+/-)	1.00	0.349	pCi/L	03/30/18 09:42	04/05/18 14:57	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	103		40 - 110		03/30/18 09:42	04/05/18 14:57	1			
Y Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Y Carrier	%Yield	Qualifier	Limits							
Y Carrier	91.6		40 - 110		03/30/18 09:42	04/05/18 14:57	1			

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-358316/1-A**  
**Matrix: Water**  
**Analysis Batch: 359055**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358316**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.42	7.852		0.927	1.00	0.357	pCi/L	93	56 - 140
<b>Carrier</b>		<b>LCS %Yield</b>	<b>LCS Qualifier</b>	<b>Limits</b>					
Ba Carrier		104		40 - 110					
Y Carrier		92.0		40 - 110					

**Lab Sample ID: LCSD 160-358316/2-A**  
**Matrix: Water**  
**Analysis Batch: 359055**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 358316**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.42	7.062		0.843	1.00	0.318	pCi/L	84	56 - 140	0.45	1
<b>Carrier</b>		<b>LCSD %Yield</b>	<b>LCSD Qualifier</b>	<b>Limits</b>							
Ba Carrier		106		40 - 110							
Y Carrier		92.7		40 - 110							



# QC Association Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

## Rad

### Prep Batch: 358307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	PrecSep-21	
MB 160-358307/17-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-358307/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-358307/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 358316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-126720-1	MW9	Total/NA	Ground Water	PrecSep_0	
MB 160-358316/17-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-358316/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-358316/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

**Client Sample ID: MW9**

**Lab Sample ID: 310-126720-1**

**Date Collected: 03/20/18 15:35**

**Matrix: Ground Water**

**Date Received: 03/28/18 09:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358307	03/30/18 09:03	TJT	TAL SL
Total/NA	Analysis	9315		1	362141	04/23/18 05:56	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358316	03/30/18 09:42	TJT	TAL SL
Total/NA	Analysis	9320		1	359058	04/05/18 15:00	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	362497	04/24/18 17:14	RTM	TAL SL

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

## Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18 *
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18 *
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542018-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18 *
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18 *
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

#### Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



310-126720 Chain of Custody

## Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>	
Client: <i>Omaha public Power District</i>	
City/State: <i>Omaha NE</i>	Project: <i>North omaha station CFR</i>
<b>Receipt Information</b>	
Date/Time Received: <i>03-28-18 0915</i>	Received By: <i>J</i>
Delivery Type: <input checked="" type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Cooler # ____ of ____</i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact?</i> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <i>J</i>	Correction Factor (°C): <i>+0.1</i>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <i>1.9</i>	Corrected Temp (°C): <i>2.0</i>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes:</i> Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

### Chain of Custody Record

<b>Client Information</b> Company: Omaha Public Power District Address: 444 South 16th Street Mall 9E/EP1 City: Omaha State, Zip: NE, 68102-2247 Phone: 402-636-2515(Tel) Email: balorense@oppd.com Project Name: North Omaha Station CCR Site: <i>North Omaha Station</i>		Lab PM: Hayes, Shawn M E-Mail: shawn.hayes@testamericainc.com		Carrier Tracking No(s): Page: Job #:	
Due Date Requested: TAT Requested (days): PO #: WO #: TestAmerica Project #: SSSOW#:		<b>Analysis Requested</b>			
Sample Identification MW9		Sample Date <del>_____</del>	Sample Time <del>_____</del>	Sample Type (C=Comp, G=grab) G	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air) GW
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		Total Number of containers: <del>_____</del>			
Special Instructions/Note: <del>_____</del>		Special Instructions/Note: <del>_____</del>			
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
<b>Deliverable Requested:</b> I, II, III, IV, Other (specify) _____					
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
<b>Special Instructions/QC Requirements:</b> _____					
Empty Kit Relinquished by: _____ Date: _____		Method of Shipment: _____			
Relinquished by: <i>Bryan Lorence</i> Date/Time: <i>5/26/18 1400</i>		Received by: <i>Dana Anderson</i> Date/Time: <i>5/28/18 0915</i>		Company: <i>OPP</i>	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____		Company: _____	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____		Company: _____	
Custody Seals Intact: _____		Cooler Temperature(s) °C and Other Remarks: _____			



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Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW9	310-126720-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-126720-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-126720-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____

## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-126720-2

**Login Number: 126720**

**List Source: TestAmerica Cedar Falls**

**List Number: 1**

**Creator: Homolar, Dana J**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No date or time on COC, logged in per container labels.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-126720-2

**Login Number: 126720**

**List Number: 2**

**Creator: Daniels, Brian J**

**List Source: TestAmerica St. Louis**

**List Creation: 03/29/18 01:42 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Tracer/Carrier Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-126720-2

## Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
310-126720-1	MW9	98.5	
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
LCS 160-358307/1-A	Lab Control Sample	104	
LCSD 160-358307/2-A	Lab Control Sample Dup	106	
MB 160-358307/17-A	Method Blank	103	
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			

## Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-126720-1	MW9	98.5	91.2
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

## Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
LCS 160-358316/1-A	Lab Control Sample	104	92.0
LCSD 160-358316/2-A	Lab Control Sample Dup	106	92.7
MB 160-358316/17-A	Method Blank	103	91.6
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-132121-1

Client Project/Site: North Omaha Station CCR

Sampling Event:

CCR and Landfill Parameters (Q2 and Q4)

For:

Omaha Public Power District

Attn: Accounts Payable, 4E/EP-5

444 South 16th Street Mall

Omaha, Nebraska 68102-2247

Attn: Bryan Lorence



Authorized for release by:

6/28/2018 7:27:56 PM

Shawn Hayes, Senior Project Manager

(319)229-8211

[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

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**Job ID: 310-132121-1**

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**Laboratory: TestAmerica Cedar Falls**

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**Narrative**

**Job Narrative**  
**310-132121-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 6/8/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0° C and 2.4° C.

**HPLC/IC**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Metals**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**General Chemistry**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-132121-1	MW2	Ground Water	06/05/18 13:42	06/08/18 09:30
310-132121-2	MW5	Ground Water	06/05/18 19:48	06/08/18 09:30
310-132121-3	MW6	Ground Water	06/05/18 16:40	06/08/18 09:30
310-132121-4	MW8	Ground Water	06/05/18 17:30	06/08/18 09:30
310-132121-5	MW9	Ground Water	06/05/18 12:43	06/08/18 09:30
310-132121-6	MW13	Ground Water	06/05/18 14:58	06/08/18 09:30
310-132121-7	MW15	Ground Water	06/05/18 15:49	06/08/18 09:30
310-132121-8	MW17	Ground Water	06/05/18 18:23	06/08/18 09:30
310-132121-9	MW18	Ground Water	06/05/18 10:46	06/08/18 09:30
310-132121-10	MW19	Ground Water	06/05/18 11:42	06/08/18 09:30
310-132121-11	DUP-1	Ground Water	06/05/18 00:00	06/08/18 09:30

# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Client Sample ID: MW2

## Lab Sample ID: 310-132121-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	28.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	618		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.225		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0896		0.00200		mg/L	1		6020A	Total/NA
Boron	1.15		0.200		mg/L	1		6020A	Total/NA
Calcium	239		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000997		0.000500		mg/L	1		6020A	Total/NA
Lead	0.000586		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0330		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1460		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW5

## Lab Sample ID: 310-132121-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	44.2		5.00		mg/L	5		9056A	Total/NA
Sulfate	1230		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.0486		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0447		0.00200		mg/L	1		6020A	Total/NA
Boron	0.580		0.200		mg/L	1		6020A	Total/NA
Calcium	413		0.200		mg/L	1		6020A	Total/NA
Lead	0.00262		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0700		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	2610		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW6

## Lab Sample ID: 310-132121-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	287		10.0		mg/L	10		9056A	Total/NA
Sulfate	293		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.0136		0.00200		mg/L	1		6020A	Total/NA
Barium	0.196		0.00200		mg/L	1		6020A	Total/NA
Boron	0.589		0.200		mg/L	1		6020A	Total/NA
Cadmium	0.000564		0.000500		mg/L	1		6020A	Total/NA
Calcium	339		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00700		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00319		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0480		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0702		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1690		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW8

## Lab Sample ID: 310-132121-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	519		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.0189		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0954		0.00200		mg/L	1		6020A	Total/NA
Boron	1.54		0.200		mg/L	1		6020A	Total/NA
Calcium	149		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00281		0.000500		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Client Sample ID: MW8 (Continued)

## Lab Sample ID: 310-132121-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.00956		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0115		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0753		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	908		60.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW9

## Lab Sample ID: 310-132121-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	231		5.00		mg/L	5		9056A	Total/NA
Sulfate	57.5		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00768		0.00200		mg/L	1		6020A	Total/NA
Barium	0.625		0.00200		mg/L	1		6020A	Total/NA
Calcium	185		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00293		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00885		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0541		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1190		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW13

## Lab Sample ID: 310-132121-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.93		5.00		mg/L	5		9056A	Total/NA
Sulfate	654		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.0544		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0605		0.00200		mg/L	1		6020A	Total/NA
Boron	1.78		0.200		mg/L	1		6020A	Total/NA
Calcium	151		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000718		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0205		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	1.28		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0483		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1490		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW15

## Lab Sample ID: 310-132121-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	745		50.0		mg/L	50		9056A	Total/NA
Antimony	0.00157		0.00100		mg/L	1		6020A	Total/NA
Barium	0.0424		0.00200		mg/L	1		6020A	Total/NA
Boron	3.26		0.200		mg/L	1		6020A	Total/NA
Calcium	265		0.200		mg/L	1		6020A	Total/NA
Chromium	0.0267		0.00500		mg/L	1		6020A	Total/NA
Molybdenum	0.353		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0934		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1640		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW17

## Lab Sample ID: 310-132121-8

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls



# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Client Sample ID: MW17 (Continued)

## Lab Sample ID: 310-132121-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	43.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	918		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.0224		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0505		0.00200		mg/L	1		6020A	Total/NA
Boron	0.745		0.200		mg/L	1		6020A	Total/NA
Calcium	363		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.0134		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0990		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00356		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1990		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW18

## Lab Sample ID: 310-132121-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.528		0.500		mg/L	5		9056A	Total/NA
Arsenic	0.00327		0.00200		mg/L	1		6020A	Total/NA
Barium	0.449		0.00200		mg/L	1		6020A	Total/NA
Cadmium	0.000537		0.000500		mg/L	1		6020A	Total/NA
Calcium	106		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00271		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0243		0.0100		mg/L	1		6020A	Total/NA
Lead	0.0114		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	438		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW19

## Lab Sample ID: 310-132121-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.524		0.500		mg/L	5		9056A	Total/NA
Sulfate	5.53		5.00		mg/L	5		9056A	Total/NA
Barium	0.355		0.00200		mg/L	1		6020A	Total/NA
Calcium	100		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0306		0.0100		mg/L	1		6020A	Total/NA
Lead	0.00121		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	440		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 310-132121-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.53		5.00		mg/L	5		9056A	Total/NA
Sulfate	618		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.0621		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0612		0.00200		mg/L	1		6020A	Total/NA
Boron	1.69		0.200		mg/L	1		6020A	Total/NA
Calcium	133		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000720		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0177		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	1.40		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0517		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1440		150		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW2**  
**Date Collected: 06/05/18 13:42**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-1**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>28.5</b>		5.00		mg/L			06/18/18 23:59	5
Fluoride	<0.500		0.500		mg/L			06/18/18 23:59	5
<b>Sulfate</b>	<b>618</b>		50.0		mg/L			06/19/18 00:15	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 12:58	1
<b>Arsenic</b>	<b>0.225</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 12:58	1
<b>Barium</b>	<b>0.0896</b>		0.00200		mg/L		06/18/18 10:00	06/25/18 23:43	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 12:58	1
<b>Boron</b>	<b>1.15</b>		0.200		mg/L		06/18/18 10:00	06/26/18 12:58	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/25/18 23:43	1
<b>Calcium</b>	<b>239</b>		0.200		mg/L		06/18/18 10:00	06/26/18 12:58	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 12:58	1
<b>Cobalt</b>	<b>0.000997</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 12:58	1
<b>Lead</b>	<b>0.000586</b>		0.000500		mg/L		06/18/18 10:00	06/25/18 23:43	1
<b>Lithium</b>	<b>0.0330</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 12:58	1
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/25/18 23:43	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 12:58	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/25/18 23:43	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:03	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1460</b>		150		mg/L			06/11/18 11:45	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW9**  
**Date Collected: 06/05/18 12:43**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-5**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>231</b>		5.00		mg/L			06/19/18 02:42	5
Fluoride	<0.500		0.500		mg/L			06/19/18 02:42	5
<b>Sulfate</b>	<b>57.5</b>		5.00		mg/L			06/19/18 02:42	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:29	1
<b>Arsenic</b>	<b>0.00768</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 13:29	1
<b>Barium</b>	<b>0.625</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:18	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:18	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 00:18	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:18	1
<b>Calcium</b>	<b>185</b>		0.200		mg/L		06/18/18 10:00	06/26/18 00:18	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:29	1
<b>Cobalt</b>	<b>0.00293</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 00:18	1
<b>Lead</b>	<b>0.00885</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 00:18	1
<b>Lithium</b>	<b>0.0541</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 00:18	1
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 00:18	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:29	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:18	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:13	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1190</b>		150		mg/L			06/11/18 11:45	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW13**  
**Date Collected: 06/05/18 14:58**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-6**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.93</b>		5.00		mg/L			06/19/18 03:31	5
Fluoride	<0.500		0.500		mg/L			06/19/18 03:31	5
<b>Sulfate</b>	<b>654</b>		50.0		mg/L			06/19/18 03:48	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:32	1
<b>Arsenic</b>	<b>0.0544</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 13:32	1
<b>Barium</b>	<b>0.0605</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:21	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:21	1
<b>Boron</b>	<b>1.78</b>		0.200		mg/L		06/18/18 10:00	06/26/18 00:21	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:21	1
<b>Calcium</b>	<b>151</b>		0.200		mg/L		06/18/18 10:00	06/26/18 00:21	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:32	1
<b>Cobalt</b>	<b>0.000718</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 00:21	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:21	1
<b>Lithium</b>	<b>0.0205</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 00:21	1
<b>Molybdenum</b>	<b>1.28</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:21	1
<b>Selenium</b>	<b>0.0483</b>		0.00500		mg/L		06/18/18 10:00	06/26/18 13:32	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:21	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:18	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1490</b>		150		mg/L			06/11/18 11:45	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW15**  
**Date Collected: 06/05/18 15:49**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-7**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>16.6</b>		5.00		mg/L			06/19/18 04:04	5
Fluoride	<0.500		0.500		mg/L			06/19/18 04:04	5
<b>Sulfate</b>	<b>745</b>		50.0		mg/L			06/19/18 04:53	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Antimony</b>	<b>0.00157</b>		0.00100		mg/L		06/18/18 10:00	06/26/18 13:35	1
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 00:24	1
<b>Barium</b>	<b>0.0424</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:24	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:24	1
<b>Boron</b>	<b>3.26</b>		0.200		mg/L		06/18/18 10:00	06/26/18 00:24	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:24	1
<b>Calcium</b>	<b>265</b>		0.200		mg/L		06/18/18 10:00	06/26/18 00:24	1
<b>Chromium</b>	<b>0.0267</b>		0.00500		mg/L		06/18/18 10:00	06/26/18 00:24	1
Cobalt	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:24	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:24	1
Lithium	<0.0100		0.0100		mg/L		06/18/18 10:00	06/26/18 00:24	1
<b>Molybdenum</b>	<b>0.353</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:24	1
<b>Selenium</b>	<b>0.0934</b>		0.00500		mg/L		06/18/18 10:00	06/26/18 13:35	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:24	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:20	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1640</b>		150		mg/L			06/11/18 11:45	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW17**  
**Date Collected: 06/05/18 18:23**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-8**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>43.6</b>		5.00		mg/L			06/19/18 05:09	5
Fluoride	<0.500		0.500		mg/L			06/19/18 05:09	5
<b>Sulfate</b>	<b>918</b>		50.0		mg/L			06/19/18 05:26	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:38	1
<b>Arsenic</b>	<b>0.0224</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 13:38	1
<b>Barium</b>	<b>0.0505</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:27	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:38	1
<b>Boron</b>	<b>0.745</b>		0.200		mg/L		06/18/18 10:00	06/26/18 13:38	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:27	1
<b>Calcium</b>	<b>363</b>		0.200		mg/L		06/18/18 10:00	06/26/18 13:38	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:38	1
<b>Cobalt</b>	<b>0.0134</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 13:38	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:27	1
<b>Lithium</b>	<b>0.0990</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 13:38	1
<b>Molybdenum</b>	<b>0.00356</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:27	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:38	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:27	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:21	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1990</b>		150		mg/L			06/11/18 11:45	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW18**  
**Date Collected: 06/05/18 10:46**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-9**  
**Matrix: Ground Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			06/19/18 05:42	5
<b>Fluoride</b>	<b>0.528</b>		0.500		mg/L			06/19/18 05:42	5
Sulfate	<5.00		5.00		mg/L			06/19/18 05:42	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:41	1
<b>Arsenic</b>	<b>0.00327</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 13:41	1
<b>Barium</b>	<b>0.449</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:30	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:41	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 13:41	1
<b>Cadmium</b>	<b>0.000537</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 00:30	1
<b>Calcium</b>	<b>106</b>		0.200		mg/L		06/18/18 10:00	06/26/18 13:41	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:41	1
<b>Cobalt</b>	<b>0.00271</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 13:41	1
<b>Lithium</b>	<b>0.0243</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 13:41	1
<b>Lead</b>	<b>0.0114</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 00:30	1
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 00:30	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:41	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:30	1

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:23	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>438</b>		30.0		mg/L			06/11/18 11:45	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW19**

**Date Collected: 06/05/18 11:42**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-10**

**Matrix: Ground Water**

**Method: 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			06/19/18 05:59	5
<b>Fluoride</b>	<b>0.524</b>		0.500		mg/L			06/19/18 05:59	5
<b>Sulfate</b>	<b>5.53</b>		5.00		mg/L			06/19/18 05:59	5

**Method: 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:44	1
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 13:44	1
<b>Barium</b>	<b>0.355</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:33	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:44	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 13:44	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:33	1
<b>Calcium</b>	<b>100</b>		0.200		mg/L		06/18/18 10:00	06/26/18 13:44	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:44	1
Cobalt	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 13:44	1
<b>Lithium</b>	<b>0.0306</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 13:44	1
<b>Lead</b>	<b>0.00121</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 00:33	1
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 00:33	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:44	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:33	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:25	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>440</b>		30.0		mg/L			06/11/18 11:45	1



# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: DUP-1**

**Date Collected: 06/05/18 00:00**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-11**

**Matrix: Ground Water**

## Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.53</b>		5.00		mg/L			06/19/18 06:15	5
Fluoride	<0.500		0.500		mg/L			06/19/18 06:15	5
<b>Sulfate</b>	<b>618</b>		20.0		mg/L			06/19/18 06:31	20

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:47	1
<b>Arsenic</b>	<b>0.0621</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 13:47	1
<b>Barium</b>	<b>0.0612</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:37	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 13:47	1
<b>Boron</b>	<b>1.69</b>		0.200		mg/L		06/18/18 10:00	06/26/18 13:47	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:37	1
<b>Calcium</b>	<b>133</b>		0.200		mg/L		06/18/18 10:00	06/26/18 13:47	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 13:47	1
<b>Cobalt</b>	<b>0.000720</b>		0.000500		mg/L		06/18/18 10:00	06/26/18 13:47	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 00:37	1
<b>Lithium</b>	<b>0.0177</b>		0.0100		mg/L		06/18/18 10:00	06/26/18 13:47	1
<b>Molybdenum</b>	<b>1.40</b>		0.00200		mg/L		06/18/18 10:00	06/26/18 00:37	1
<b>Selenium</b>	<b>0.0517</b>		0.00500		mg/L		06/18/18 10:00	06/26/18 13:47	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 00:37	1

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:26	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1440</b>		150		mg/L			06/11/18 11:45	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-207110/3**  
**Matrix: Water**  
**Analysis Batch: 207110**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			06/18/18 23:26	1
Fluoride	<0.100		0.100		mg/L			06/18/18 23:26	1
Sulfate	<1.00		1.00		mg/L			06/18/18 23:26	1

**Lab Sample ID: LCS 310-207110/4**  
**Matrix: Water**  
**Analysis Batch: 207110**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.571		mg/L		101	90 - 110
Fluoride	1.50	1.532		mg/L		102	90 - 110
Sulfate	7.50	7.568		mg/L		101	90 - 110

**Lab Sample ID: 310-132121-5 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 207110**

**Client Sample ID: MW9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	231		25.0	250.0	4	mg/L		76	80 - 120
Fluoride	<0.500		5.00	5.390		mg/L		108	80 - 120
Sulfate	57.5		25.0	82.08		mg/L		98	80 - 120

**Lab Sample ID: 310-132121-5 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 207110**

**Client Sample ID: MW9**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	231		25.0	251.0	4	mg/L		80	80 - 120	0	15
Fluoride	<0.500		5.00	5.158		mg/L		103	80 - 120	4	15
Sulfate	57.5		25.0	81.74		mg/L		97	80 - 120	0	15

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 310-206581/1-A**  
**Matrix: Water**  
**Analysis Batch: 207644**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/25/18 23:37	1
Barium	<0.00200		0.00200		mg/L		06/18/18 10:00	06/25/18 23:37	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/25/18 23:37	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/25/18 23:37	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/25/18 23:37	1
Calcium	<0.200		0.200		mg/L		06/18/18 10:00	06/25/18 23:37	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/25/18 23:37	1
Cobalt	<0.000500		0.000500		mg/L		06/18/18 10:00	06/25/18 23:37	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/25/18 23:37	1
Lithium	<0.0100		0.0100		mg/L		06/18/18 10:00	06/25/18 23:37	1
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/25/18 23:37	1

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 310-206581/1-A**  
**Matrix: Water**  
**Analysis Batch: 207667**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/25/18 23:37	1

**Lab Sample ID: MB 310-206581/1-A**  
**Matrix: Water**  
**Analysis Batch: 207740**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 12:52	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 12:52	1

**Lab Sample ID: LCS 310-206581/2-A**  
**Matrix: Water**  
**Analysis Batch: 207644**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.0400	0.04107		mg/L		103	80 - 120
Barium	0.0400	0.04462		mg/L		112	80 - 120
Beryllium	0.0200	0.02355		mg/L		118	80 - 120
Boron	0.880	0.9580		mg/L		109	80 - 120
Cadmium	0.0200	0.02293		mg/L		115	80 - 120
Calcium	2.00	2.258		mg/L		113	80 - 120
Chromium	0.0400	0.04540		mg/L		113	80 - 120
Cobalt	0.0200	0.02280		mg/L		114	80 - 120
Lead	0.0200	0.02382		mg/L		119	80 - 120
Lithium	0.100	0.1053		mg/L		105	80 - 120
Molybdenum	0.0400	0.04226		mg/L		106	80 - 120
Thallium	0.0160	0.01923		mg/L		120	80 - 120

**Lab Sample ID: LCS 310-206581/2-A**  
**Matrix: Water**  
**Analysis Batch: 207740**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0200	0.01922		mg/L		96	80 - 120
Selenium	0.0400	0.03554		mg/L		89	80 - 120

**Lab Sample ID: 310-132121-1 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 207740**

**Client Sample ID: MW2**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<0.00100		0.0200	0.01907		mg/L		95	75 - 125
Arsenic	0.225		0.0400	0.2616	4	mg/L		90	75 - 125
Barium	0.0811		0.0400	0.1221		mg/L		102	75 - 125
Beryllium	<0.00100		0.0200	0.01974		mg/L		99	75 - 125
Boron	1.15		0.880	2.003		mg/L		97	75 - 125
Cadmium	<0.000500		0.0200	0.02030		mg/L		102	75 - 125
Calcium	239		2.00	232.2	4	mg/L		-313	75 - 125
Chromium	<0.00500		0.0400	0.04180		mg/L		104	75 - 125

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: 310-132121-1 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 207740**

**Client Sample ID: MW2**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**  
**%Rec. Limits**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cobalt	0.000997		0.0200	0.02120		mg/L		101	75 - 125
Lead	<0.000500		0.0200	0.02100		mg/L		103	75 - 125
Lithium	0.0330		0.100	0.1208		mg/L		88	75 - 125
Molybdenum	<0.00200		0.0400	0.04351		mg/L		105	75 - 125
Selenium	<0.00500		0.0400	0.03752		mg/L		94	75 - 125
Thallium	<0.00100		0.0160	0.01530		mg/L		96	75 - 125

**Lab Sample ID: 310-132121-1 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 207740**

**Client Sample ID: MW2**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**  
**%Rec. RPD Limit**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.00100		0.0200	0.01902		mg/L		95	75 - 125	0	20
Arsenic	0.225		0.0400	0.2674	4	mg/L		105	75 - 125	2	20
Barium	0.0811		0.0400	0.1289		mg/L		119	75 - 125	5	20
Beryllium	<0.00100		0.0200	0.01967		mg/L		98	75 - 125	0	20
Boron	1.15		0.880	2.080		mg/L		106	75 - 125	4	20
Cadmium	<0.000500		0.0200	0.02023		mg/L		101	75 - 125	0	20
Calcium	239		2.00	238.9	4	mg/L		21	75 - 125	3	20
Chromium	<0.00500		0.0400	0.04228		mg/L		106	75 - 125	1	20
Cobalt	0.000997		0.0200	0.02126		mg/L		101	75 - 125	0	20
Lead	<0.000500		0.0200	0.02135		mg/L		104	75 - 125	2	20
Lithium	0.0330		0.100	0.1175		mg/L		85	75 - 125	3	20
Molybdenum	<0.00200		0.0400	0.04370		mg/L		105	75 - 125	0	20
Selenium	<0.00500		0.0400	0.03867		mg/L		97	75 - 125	3	20
Thallium	<0.00100		0.0160	0.01520		mg/L		95	75 - 125	1	20

**Lab Sample ID: 310-132121-11 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 207644**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**  
**RPD Limit**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Barium	0.0612		0.05934		mg/L		3	20
Cadmium	<0.000500		<0.000500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Molybdenum	1.40		1.377		mg/L		1	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

**Lab Sample ID: 310-132121-11 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 207740**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**  
**RPD Limit**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Arsenic	0.0621		0.06274		mg/L		1	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Boron	1.69		1.718		mg/L		1	20
Calcium	133		133.0		mg/L		0.1	20
Chromium	<0.00500		<0.00500		mg/L		NC	20

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: 310-132121-11 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 207740**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**  
**Prep Batch: 206581**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Cobalt	0.000720		0.0007340		mg/L		2	20
Lithium	0.0177		0.01770		mg/L		0.2	20
Selenium	0.0517		0.05348		mg/L		3	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 310-206489/1-A**  
**Matrix: Water**  
**Analysis Batch: 206691**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 206489**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000200		0.000200		mg/L		06/14/18 08:33	06/15/18 12:00	1

**Lab Sample ID: LCS 310-206489/2-A**  
**Matrix: Water**  
**Analysis Batch: 206691**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 206489**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Mercury	0.00167	0.001552		mg/L		93	80 - 120

**Lab Sample ID: 310-132121-2 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 206691**

**Client Sample ID: MW5**  
**Prep Type: Total/NA**  
**Prep Batch: 206489**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Mercury	<0.000200		0.00167	0.001581		mg/L		95	80 - 120

**Lab Sample ID: 310-132121-2 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 206691**

**Client Sample ID: MW5**  
**Prep Type: Total/NA**  
**Prep Batch: 206489**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Mercury	<0.000200		0.00167	0.001563		mg/L		94	80 - 120	1	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-206117/1**  
**Matrix: Water**  
**Analysis Batch: 206117**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<30.0		30.0		mg/L			06/11/18 11:45	1

**Lab Sample ID: LCS 310-206117/2**  
**Matrix: Water**  
**Analysis Batch: 206117**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Total Dissolved Solids	1000	966.0		mg/L		97	90 - 110

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 310-132121-8 DU  
 Matrix: Ground Water  
 Analysis Batch: 206117

Client Sample ID: MW17  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1990		2020		mg/L		1	24

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# QC Association Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## HPLC/IC

### Analysis Batch: 207110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	9056A	
310-132121-1	MW2	Total/NA	Ground Water	9056A	
310-132121-2	MW5	Total/NA	Ground Water	9056A	
310-132121-2	MW5	Total/NA	Ground Water	9056A	
310-132121-3	MW6	Total/NA	Ground Water	9056A	
310-132121-3	MW6	Total/NA	Ground Water	9056A	
310-132121-4	MW8	Total/NA	Ground Water	9056A	
310-132121-4	MW8	Total/NA	Ground Water	9056A	
310-132121-5	MW9	Total/NA	Ground Water	9056A	
310-132121-6	MW13	Total/NA	Ground Water	9056A	
310-132121-6	MW13	Total/NA	Ground Water	9056A	
310-132121-7	MW15	Total/NA	Ground Water	9056A	
310-132121-7	MW15	Total/NA	Ground Water	9056A	
310-132121-8	MW17	Total/NA	Ground Water	9056A	
310-132121-8	MW17	Total/NA	Ground Water	9056A	
310-132121-9	MW18	Total/NA	Ground Water	9056A	
310-132121-10	MW19	Total/NA	Ground Water	9056A	
310-132121-11	DUP-1	Total/NA	Ground Water	9056A	
310-132121-11	DUP-1	Total/NA	Ground Water	9056A	
MB 310-207110/3	Method Blank	Total/NA	Water	9056A	
LCS 310-207110/4	Lab Control Sample	Total/NA	Water	9056A	
310-132121-5 MS	MW9	Total/NA	Ground Water	9056A	
310-132121-5 MSD	MW9	Total/NA	Ground Water	9056A	

## Metals

### Prep Batch: 206489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	7470A	
310-132121-2	MW5	Total/NA	Ground Water	7470A	
310-132121-3	MW6	Total/NA	Ground Water	7470A	
310-132121-4	MW8	Total/NA	Ground Water	7470A	
310-132121-5	MW9	Total/NA	Ground Water	7470A	
310-132121-6	MW13	Total/NA	Ground Water	7470A	
310-132121-7	MW15	Total/NA	Ground Water	7470A	
310-132121-8	MW17	Total/NA	Ground Water	7470A	
310-132121-9	MW18	Total/NA	Ground Water	7470A	
310-132121-10	MW19	Total/NA	Ground Water	7470A	
310-132121-11	DUP-1	Total/NA	Ground Water	7470A	
MB 310-206489/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-206489/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-132121-2 MS	MW5	Total/NA	Ground Water	7470A	
310-132121-2 MSD	MW5	Total/NA	Ground Water	7470A	

### Prep Batch: 206581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	3010A	
310-132121-2	MW5	Total/NA	Ground Water	3010A	
310-132121-3	MW6	Total/NA	Ground Water	3010A	
310-132121-4	MW8	Total/NA	Ground Water	3010A	

TestAmerica Cedar Falls



# QC Association Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Metals (Continued)

### Prep Batch: 206581 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-5	MW9	Total/NA	Ground Water	3010A	
310-132121-6	MW13	Total/NA	Ground Water	3010A	
310-132121-7	MW15	Total/NA	Ground Water	3010A	
310-132121-8	MW17	Total/NA	Ground Water	3010A	
310-132121-9	MW18	Total/NA	Ground Water	3010A	
310-132121-10	MW19	Total/NA	Ground Water	3010A	
310-132121-11	DUP-1	Total/NA	Ground Water	3010A	
MB 310-206581/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-206581/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-132121-1 MS	MW2	Total/NA	Ground Water	3010A	
310-132121-1 MSD	MW2	Total/NA	Ground Water	3010A	
310-132121-11 DU	DUP-1	Total/NA	Ground Water	3010A	

### Analysis Batch: 206691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	7470A	206489
310-132121-2	MW5	Total/NA	Ground Water	7470A	206489
310-132121-3	MW6	Total/NA	Ground Water	7470A	206489
310-132121-4	MW8	Total/NA	Ground Water	7470A	206489
310-132121-5	MW9	Total/NA	Ground Water	7470A	206489
310-132121-6	MW13	Total/NA	Ground Water	7470A	206489
310-132121-7	MW15	Total/NA	Ground Water	7470A	206489
310-132121-8	MW17	Total/NA	Ground Water	7470A	206489
310-132121-9	MW18	Total/NA	Ground Water	7470A	206489
310-132121-10	MW19	Total/NA	Ground Water	7470A	206489
310-132121-11	DUP-1	Total/NA	Ground Water	7470A	206489
MB 310-206489/1-A	Method Blank	Total/NA	Water	7470A	206489
LCS 310-206489/2-A	Lab Control Sample	Total/NA	Water	7470A	206489
310-132121-2 MS	MW5	Total/NA	Ground Water	7470A	206489
310-132121-2 MSD	MW5	Total/NA	Ground Water	7470A	206489

### Analysis Batch: 207644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	6020A	206581
310-132121-3	MW6	Total/NA	Ground Water	6020A	206581
310-132121-4	MW8	Total/NA	Ground Water	6020A	206581
310-132121-5	MW9	Total/NA	Ground Water	6020A	206581
310-132121-6	MW13	Total/NA	Ground Water	6020A	206581
310-132121-7	MW15	Total/NA	Ground Water	6020A	206581
310-132121-8	MW17	Total/NA	Ground Water	6020A	206581
310-132121-9	MW18	Total/NA	Ground Water	6020A	206581
310-132121-10	MW19	Total/NA	Ground Water	6020A	206581
310-132121-11	DUP-1	Total/NA	Ground Water	6020A	206581
MB 310-206581/1-A	Method Blank	Total/NA	Water	6020A	206581
LCS 310-206581/2-A	Lab Control Sample	Total/NA	Water	6020A	206581
310-132121-11 DU	DUP-1	Total/NA	Ground Water	6020A	206581

### Analysis Batch: 207667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	6020A	206581
310-132121-2	MW5	Total/NA	Ground Water	6020A	206581

TestAmerica Cedar Falls

# QC Association Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Metals (Continued)

### Analysis Batch: 207667 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-3	MW6	Total/NA	Ground Water	6020A	206581
310-132121-4	MW8	Total/NA	Ground Water	6020A	206581
310-132121-5	MW9	Total/NA	Ground Water	6020A	206581
310-132121-6	MW13	Total/NA	Ground Water	6020A	206581
310-132121-7	MW15	Total/NA	Ground Water	6020A	206581
310-132121-8	MW17	Total/NA	Ground Water	6020A	206581
310-132121-9	MW18	Total/NA	Ground Water	6020A	206581
310-132121-10	MW19	Total/NA	Ground Water	6020A	206581
310-132121-11	DUP-1	Total/NA	Ground Water	6020A	206581
MB 310-206581/1-A	Method Blank	Total/NA	Water	6020A	206581
LCS 310-206581/2-A	Lab Control Sample	Total/NA	Water	6020A	206581
310-132121-11 DU	DUP-1	Total/NA	Ground Water	6020A	206581

### Analysis Batch: 207740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	6020A	206581
310-132121-2	MW5	Total/NA	Ground Water	6020A	206581
310-132121-3	MW6	Total/NA	Ground Water	6020A	206581
310-132121-4	MW8	Total/NA	Ground Water	6020A	206581
310-132121-5	MW9	Total/NA	Ground Water	6020A	206581
310-132121-6	MW13	Total/NA	Ground Water	6020A	206581
310-132121-7	MW15	Total/NA	Ground Water	6020A	206581
310-132121-8	MW17	Total/NA	Ground Water	6020A	206581
310-132121-9	MW18	Total/NA	Ground Water	6020A	206581
310-132121-10	MW19	Total/NA	Ground Water	6020A	206581
310-132121-11	DUP-1	Total/NA	Ground Water	6020A	206581
MB 310-206581/1-A	Method Blank	Total/NA	Water	6020A	206581
LCS 310-206581/2-A	Lab Control Sample	Total/NA	Water	6020A	206581
310-132121-1 MS	MW2	Total/NA	Ground Water	6020A	206581
310-132121-1 MSD	MW2	Total/NA	Ground Water	6020A	206581
310-132121-11 DU	DUP-1	Total/NA	Ground Water	6020A	206581

## General Chemistry

### Analysis Batch: 206117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	SM 2540C	
310-132121-2	MW5	Total/NA	Ground Water	SM 2540C	
310-132121-3	MW6	Total/NA	Ground Water	SM 2540C	
310-132121-4	MW8	Total/NA	Ground Water	SM 2540C	
310-132121-5	MW9	Total/NA	Ground Water	SM 2540C	
310-132121-6	MW13	Total/NA	Ground Water	SM 2540C	
310-132121-7	MW15	Total/NA	Ground Water	SM 2540C	
310-132121-8	MW17	Total/NA	Ground Water	SM 2540C	
310-132121-9	MW18	Total/NA	Ground Water	SM 2540C	
310-132121-10	MW19	Total/NA	Ground Water	SM 2540C	
310-132121-11	DUP-1	Total/NA	Ground Water	SM 2540C	
MB 310-206117/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-206117/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-132121-8 DU	MW17	Total/NA	Ground Water	SM 2540C	

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW2**  
**Date Collected: 06/05/18 13:42**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-1**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/18/18 23:59	SAD	TAL CF
Total/NA	Analysis	9056A		50	207110	06/19/18 00:15	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/25/18 23:43	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/25/18 23:43	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 12:58	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:03	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW5**  
**Date Collected: 06/05/18 19:48**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-2**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 00:31	SAD	TAL CF
Total/NA	Analysis	9056A		50	207110	06/19/18 00:48	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/25/18 23:59	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:07	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:05	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW6**  
**Date Collected: 06/05/18 16:40**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-3**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 01:37	SAD	TAL CF
Total/NA	Analysis	9056A		10	207110	06/19/18 01:53	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:12	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:12	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:13	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:10	JNR	TAL CF

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW6**  
**Date Collected: 06/05/18 16:40**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-3**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW8**  
**Date Collected: 06/05/18 17:30**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-4**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 02:09	SAD	TAL CF
Total/NA	Analysis	9056A		20	207110	06/19/18 02:26	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:15	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:15	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:16	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:12	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW9**  
**Date Collected: 06/05/18 12:43**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-5**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 02:42	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:18	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:18	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:29	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:13	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW13**  
**Date Collected: 06/05/18 14:58**  
**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-6**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 03:31	SAD	TAL CF
Total/NA	Analysis	9056A		50	207110	06/19/18 03:48	SAD	TAL CF

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW13**

**Date Collected: 06/05/18 14:58**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-6**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:21	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:21	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:32	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:18	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW15**

**Date Collected: 06/05/18 15:49**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-7**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 04:04	SAD	TAL CF
Total/NA	Analysis	9056A		50	207110	06/19/18 04:53	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:24	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:24	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:35	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:20	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW17**

**Date Collected: 06/05/18 18:23**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-8**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 05:09	SAD	TAL CF
Total/NA	Analysis	9056A		50	207110	06/19/18 05:26	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:27	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:27	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:38	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:21	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: MW18**

**Date Collected: 06/05/18 10:46**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-9**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 05:42	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:30	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:30	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:41	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:23	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: MW19**

**Date Collected: 06/05/18 11:42**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-10**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 05:59	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:33	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:33	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:44	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:25	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Client Sample ID: DUP-1**

**Date Collected: 06/05/18 00:00**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-11**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	207110	06/19/18 06:15	SAD	TAL CF
Total/NA	Analysis	9056A		20	207110	06/19/18 06:31	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207644	06/26/18 00:37	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207667	06/26/18 00:37	SAD	TAL CF
Total/NA	Prep	3010A			206581	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 13:47	SAD	TAL CF
Total/NA	Prep	7470A			206489	06/14/18 08:33	JNR	TAL CF
Total/NA	Analysis	7470A		1	206691	06/15/18 12:26	JNR	TAL CF

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

**Client Sample ID: DUP-1**

**Date Collected: 06/05/18 00:00**

**Date Received: 06/08/18 09:30**

**Lab Sample ID: 310-132121-11**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF

**Laboratory References:**

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

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# Accreditation/Certification Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

## Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18



# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

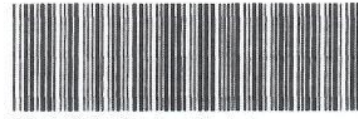
#### Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



310-132121 Chain of Custody

**Cooler/Sample Receipt and Temperature Record**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>North Omaha Station CLR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>6/18/18 0930</u>	Received By: <u>WAB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers? <sup>VP 6/18</sup> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>H</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>2.4</u>	Corrected Temp (°C): <u>2.4</u>
• Sample Container Temperature	
Container type(s) used: _____	
Uncorrected Temp (°C): _____	Corrected Temp (°C): _____
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	



**Cooler/Sample Receipt and Temperature**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NF</u>	Project: <u>North Omaha Station Landfill</u>
<b>Receipt Information</b>	
Date/Time Received: <u>6/8/18 0930</u>	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers? <sup>4-P</sup> <sub>6-9-18</sub>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Cooler # <u>2</u> of <u>2</u></i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>H</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>2.0</u>	Corrected Temp (°C): <u>2.0</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes: Is there evidence that the chilling process began?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

#31045



**TestAmerica Cedar Falls**

704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone (319) 277-2401 Fax (319) 277-2425

**Chain of Custody Record**

<b>Client Information</b>		Lab Pkt. Hayes, Shawn M		Carrier Tracking No(s)		COC No:	
Company: Bryan Lorence		E-Mail: shawn.hayes@testamericainc.com		Page		Job #	
Company: Omaha Public Power District		Address: 444 South 16th Street Mail 9E/EP1		City: Omaha		State, Zip: NE, 68102-2247	
Phone: 402-636-2515(Tel)		Email: info@omaha.org		Project Name: North Omaha Station CCR		Site:	
Due Date Requested:		TAT Requested (days):		PO #:		WO #:	
TestAmerica Project #: 31007560		SSOW#:		Date Requested:		Analysis Requested	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
Matrix (W=water, S=solid, O=oil, A=air)		Preservation Code:		Field Filtered Sample (Yes or No)		Perform MSMSD (Yes or No)	
9316, Ra228, 9320, Ra226, Combined Ra226 and Ra228		D		N		X	
6020A CCR List, 7470A Mercury		D		N		X	
2540C TDS, 9056A Chloride, Fluoride, Sulfate		D		N		X	
MW2		6/5/18		13:47		G GW	
MW5		6/5/18		19:40		G GW	
MW6		6/5/18		16:40		G GW	
MW8		6/5/18		17:30		G GW	
MW9		6/5/18		12:43		G GW	
MW13		6/5/18		14:58		G GW	
MW15		6/5/18		15:19		G GW	
MW17		6/5/18		18:23		G GW	
MW18		6/5/18		10:46		G GW	
MW19		6/5/18		11:47		G GW	
DUP		6/5/18				G GW	
Total Number of containers							
Special Instructions/Note:							
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Radiological <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: [Signature]		Date/Time: 6/7/2018 1300		Company: OPPD		Received by: [Signature]	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

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Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW2	310-132121-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-132121-B-1	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW2	310-132121-C-1	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW5	310-132121-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW5	310-132121-B-2	Plastic 1 liter - Nitric Acid	>2	2.5	1932930
MW5	310-132121-C-2	Plastic 1 liter - Nitric Acid	>2	2.5	1932930
MW6	310-132121-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-132121-B-3	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW6	310-132121-C-3	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW8	310-132121-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW8	310-132121-B-4	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW8	310-132121-C-4	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW9	310-132121-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-132121-B-5	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW9	310-132121-C-5	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW13	310-132121-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-132121-B-6	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW13	310-132121-C-6	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW15	310-132121-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW15	310-132121-B-7	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW15	310-132121-C-7	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW17	310-132121-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW17	310-132121-B-8	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW17	310-132121-C-8	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW18	310-132121-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW18	310-132121-B-9	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW18	310-132121-C-9	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW19	310-132121-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW19	310-132121-B-10	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW19	310-132121-C-10	Plastic 1 liter - Nitric Acid	<2	_____	1932930
DUP-1	310-132121-A-11	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-132121-B-11	Plastic 1 liter - Nitric Acid	<2	_____	1932930
DUP-1	310-132121-C-11	Plastic 1 liter - Nitric Acid	<2	_____	1932930

## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-132121-1

**Login Number: 132121**

**List Number: 1**

**Creator: Patrick, Kathryn E**

**List Source: TestAmerica Cedar Falls**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-132121-2

Client Project/Site: North Omaha Station CCR

Sampling Event: CCR and Landfill Parameters (Q2 and Q4)

For:

Omaha Public Power District

Attn: Accounts Payable, 4E/EP-5

444 South 16th Street Mall

Omaha, Nebraska 68102-2247

Attn: Bryan Lorence



Authorized for release by:

7/12/2018 3:02:22 PM

Shawn Hayes, Senior Project Manager

(319)229-8211

[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Job ID: 310-132121-2**

**Laboratory: TestAmerica Cedar Falls**

## Narrative

### Job Narrative 310-132121-2

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/8/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0° C and 2.4° C.

#### RAD

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-370639:

Sample aliquot MW8 (310-132121-4) was reduced due to potential matrix interference. Sample was brown, murky, and contained sediment.

Sample aliquots MW9 (310-132121-5) and MW18 (310-132121-9) were reduced due to potential matrix interference. Samples were brown, opaque, and had strong odors similar to that of sulfur.

Sample aliquot MW19 (310-132121-10) was reduced due to potential matrix interference. Sample was brown, murky, and had a strong odor similar to that of sulfur.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-370636:

Sample aliquot MW8 (310-132121-4) was reduced due to potential matrix interference. Sample was brown, murky, and contained sediment.

Sample aliquots MW9 (310-132121-5) and MW18 (310-132121-9) were reduced due to potential matrix interference. Samples were brown, opaque, and had strong odors similar to that of sulfur.

Sample aliquot MW19 (310-132121-10) was reduced due to potential matrix interference. Sample was brown, murky, and had a strong odor similar to that of sulfur.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-132121-1	MW2	Ground Water	06/05/18 13:42	06/08/18 09:30
310-132121-2	MW5	Ground Water	06/05/18 19:48	06/08/18 09:30
310-132121-3	MW6	Ground Water	06/05/18 16:40	06/08/18 09:30
310-132121-4	MW8	Ground Water	06/05/18 17:30	06/08/18 09:30
310-132121-5	MW9	Ground Water	06/05/18 12:43	06/08/18 09:30
310-132121-6	MW13	Ground Water	06/05/18 14:58	06/08/18 09:30
310-132121-7	MW15	Ground Water	06/05/18 15:49	06/08/18 09:30
310-132121-8	MW17	Ground Water	06/05/18 18:23	06/08/18 09:30
310-132121-9	MW18	Ground Water	06/05/18 10:46	06/08/18 09:30
310-132121-10	MW19	Ground Water	06/05/18 11:42	06/08/18 09:30
310-132121-11	DUP-1	Ground Water	06/05/18 00:00	06/08/18 09:30

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW2**

**Lab Sample ID: 310-132121-1**

**Date Collected: 06/05/18 13:42**

**Matrix: Ground Water**

**Date Received: 06/08/18 09:30**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.186	U	0.142	0.143	1.00	0.193	pCi/L	06/15/18 10:05	07/10/18 06:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/15/18 10:05	07/10/18 06:03	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.237	U	0.217	0.218	1.00	0.348	pCi/L	06/15/18 11:02	07/09/18 09:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/15/18 11:02	07/09/18 09:34	1
Y Carrier	84.1		40 - 110					06/15/18 11:02	07/09/18 09:34	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.422		0.259	0.261	5.00	0.348	pCi/L		07/11/18 17:35	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW9**

**Lab Sample ID: 310-132121-5**

Date Collected: 06/05/18 12:43

Matrix: Ground Water

Date Received: 06/08/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.782		0.373	0.380	1.00	0.410	pCi/L	06/15/18 10:05	07/10/18 07:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/15/18 10:05	07/10/18 07:49	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.67		0.538	0.560	1.00	0.699	pCi/L	06/15/18 11:02	07/09/18 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/15/18 11:02	07/09/18 09:35	1
Y Carrier	83.7		40 - 110					06/15/18 11:02	07/09/18 09:35	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.45		0.655	0.677	5.00	0.699	pCi/L		07/11/18 17:35	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW13**

**Lab Sample ID: 310-132121-6**

Date Collected: 06/05/18 14:58

Matrix: Ground Water

Date Received: 06/08/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.179	U	0.140	0.141	1.00	0.198	pCi/L	06/15/18 10:05	07/10/18 16:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					06/15/18 10:05	07/10/18 16:38	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.195	U	0.212	0.213	1.00	0.346	pCi/L	06/15/18 11:02	07/09/18 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					06/15/18 11:02	07/09/18 09:35	1
Y Carrier	82.6		40 - 110					06/15/18 11:02	07/09/18 09:35	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.374		0.254	0.255	5.00	0.346	pCi/L		07/11/18 17:35	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW15**

**Lab Sample ID: 310-132121-7**

**Date Collected: 06/05/18 15:49**

**Matrix: Ground Water**

**Date Received: 06/08/18 09:30**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.147	U	0.149	0.150	1.00	0.234	pCi/L	06/15/18 10:05	07/10/18 07:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/15/18 10:05	07/10/18 07:50	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.135	U	0.208	0.209	1.00	0.351	pCi/L	06/15/18 11:02	07/09/18 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/15/18 11:02	07/09/18 09:35	1
Y Carrier	81.5		40 - 110					06/15/18 11:02	07/09/18 09:35	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.282	U	0.256	0.257	5.00	0.351	pCi/L		07/11/18 17:35	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW17**

**Lab Sample ID: 310-132121-8**

Date Collected: 06/05/18 18:23

Matrix: Ground Water

Date Received: 06/08/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.265		0.158	0.159	1.00	0.190	pCi/L	06/15/18 10:05	07/10/18 07:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/15/18 10:05	07/10/18 07:50	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.695		0.262	0.270	1.00	0.363	pCi/L	06/15/18 11:02	07/09/18 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/15/18 11:02	07/09/18 09:35	1
Y Carrier	87.5		40 - 110					06/15/18 11:02	07/09/18 09:35	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.960		0.306	0.313	5.00	0.363	pCi/L		07/11/18 17:35	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW18**

**Lab Sample ID: 310-132121-9**

Date Collected: 06/05/18 10:46

Matrix: Ground Water

Date Received: 06/08/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.990		0.410	0.419	1.00	0.418	pCi/L	06/15/18 10:05	07/10/18 07:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/15/18 10:05	07/10/18 07:50	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.21		0.543	0.554	1.00	0.789	pCi/L	06/15/18 11:02	07/09/18 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/15/18 11:02	07/09/18 09:35	1
Y Carrier	87.1		40 - 110					06/15/18 11:02	07/09/18 09:35	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.20		0.680	0.695	5.00	0.789	pCi/L		07/11/18 17:35	1



# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: MW19**

**Lab Sample ID: 310-132121-10**

Date Collected: 06/05/18 11:42

Matrix: Ground Water

Date Received: 06/08/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.10		0.330	0.345	1.00	0.257	pCi/L	06/15/18 10:05	07/10/18 07:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/15/18 10:05	07/10/18 07:50	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.297	U	0.293	0.295	1.00	0.475	pCi/L	06/15/18 11:02	07/09/18 09:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/15/18 11:02	07/09/18 09:35	1
Y Carrier	83.4		40 - 110					06/15/18 11:02	07/09/18 09:35	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.40		0.441	0.454	5.00	0.475	pCi/L		07/11/18 17:35	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-132121-11**

**Date Collected: 06/05/18 00:00**

**Matrix: Ground Water**

**Date Received: 06/08/18 09:30**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.142	U	0.121	0.122	1.00	0.175	pCi/L	06/15/18 10:05	07/10/18 08:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					06/15/18 10:05	07/10/18 08:34	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.276	U	0.216	0.217	1.00	0.339	pCi/L	06/15/18 11:02	07/09/18 09:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					06/15/18 11:02	07/09/18 09:36	1
Y Carrier	87.9		40 - 110					06/15/18 11:02	07/09/18 09:36	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.418		0.248	0.249	5.00	0.339	pCi/L		07/11/18 17:35	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-370636/23-A**  
**Matrix: Water**  
**Analysis Batch: 374666**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 370636**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.08653	U	0.0978	0.0981	1.00	0.155	pCi/L	06/15/18 10:05	07/10/18 08:35	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	109		40 - 110		06/15/18 10:05	07/10/18 08:35	1			

**Lab Sample ID: LCS 160-370636/1-A**  
**Matrix: Water**  
**Analysis Batch: 374666**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 370636**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.8	10.09		1.18	1.00	0.170	pCi/L	85	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	Limits						
Ba Carrier	108		40 - 110						

**Lab Sample ID: LCSD 160-370636/2-A**  
**Matrix: Water**  
**Analysis Batch: 374666**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 370636**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.8	10.35		1.21	1.00	0.161	pCi/L	88	68 - 137	0.11	1
Carrier	LCSD LCSD		Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	%Yield	Qualifier	Limits								
Ba Carrier	109		40 - 110								

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-370639/23-A**  
**Matrix: Water**  
**Analysis Batch: 374497**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 370639**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.05544	U	0.180	0.180	1.00	0.336	pCi/L	06/15/18 11:02	07/09/18 09:30	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	109		40 - 110		06/15/18 11:02	07/09/18 09:30	1			
Y Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Y Carrier	%Yield	Qualifier	Limits							
Y Carrier	82.6		40 - 110		06/15/18 11:02	07/09/18 09:30	1			

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-370639/1-A**

**Matrix: Water**

**Analysis Batch: 374440**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 370639**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.16	9.040		1.04	1.00	0.356	pCi/L	111	56 - 140
<b>Carrier</b>		<b>LCS %Yield</b>	<b>LCS Qualifier</b>	<b>Limits</b>					
Ba Carrier		108		40 - 110					
Y Carrier		83.4		40 - 110					

**Lab Sample ID: LCSD 160-370639/2-A**

**Matrix: Water**

**Analysis Batch: 374440**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 370639**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.16	9.007		1.04	1.00	0.378	pCi/L	110	56 - 140	0.02	1
<b>Carrier</b>		<b>LCSD %Yield</b>	<b>LCSD Qualifier</b>	<b>Limits</b>							
Ba Carrier		109		40 - 110							
Y Carrier		84.1		40 - 110							

# QC Association Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Rad

### Prep Batch: 370636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	PrecSep-21	
310-132121-2	MW5	Total/NA	Ground Water	PrecSep-21	
310-132121-3	MW6	Total/NA	Ground Water	PrecSep-21	
310-132121-4	MW8	Total/NA	Ground Water	PrecSep-21	
310-132121-5	MW9	Total/NA	Ground Water	PrecSep-21	
310-132121-6	MW13	Total/NA	Ground Water	PrecSep-21	
310-132121-7	MW15	Total/NA	Ground Water	PrecSep-21	
310-132121-8	MW17	Total/NA	Ground Water	PrecSep-21	
310-132121-9	MW18	Total/NA	Ground Water	PrecSep-21	
310-132121-10	MW19	Total/NA	Ground Water	PrecSep-21	
310-132121-11	DUP-1	Total/NA	Ground Water	PrecSep-21	
MB 160-370636/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-370636/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-370636/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 370639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132121-1	MW2	Total/NA	Ground Water	PrecSep_0	
310-132121-2	MW5	Total/NA	Ground Water	PrecSep_0	
310-132121-3	MW6	Total/NA	Ground Water	PrecSep_0	
310-132121-4	MW8	Total/NA	Ground Water	PrecSep_0	
310-132121-5	MW9	Total/NA	Ground Water	PrecSep_0	
310-132121-6	MW13	Total/NA	Ground Water	PrecSep_0	
310-132121-7	MW15	Total/NA	Ground Water	PrecSep_0	
310-132121-8	MW17	Total/NA	Ground Water	PrecSep_0	
310-132121-9	MW18	Total/NA	Ground Water	PrecSep_0	
310-132121-10	MW19	Total/NA	Ground Water	PrecSep_0	
310-132121-11	DUP-1	Total/NA	Ground Water	PrecSep_0	
MB 160-370639/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-370639/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-370639/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Client Sample ID: MW2

Lab Sample ID: 310-132121-1

Date Collected: 06/05/18 13:42

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 06:03	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:34	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW5

Lab Sample ID: 310-132121-2

Date Collected: 06/05/18 19:48

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 06:03	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW6

Lab Sample ID: 310-132121-3

Date Collected: 06/05/18 16:40

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 06:03	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW8

Lab Sample ID: 310-132121-4

Date Collected: 06/05/18 17:30

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 07:49	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Client Sample ID: MW9

Lab Sample ID: 310-132121-5

Date Collected: 06/05/18 12:43

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 07:49	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW13

Lab Sample ID: 310-132121-6

Date Collected: 06/05/18 14:58

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 16:38	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW15

Lab Sample ID: 310-132121-7

Date Collected: 06/05/18 15:49

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 07:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW17

Lab Sample ID: 310-132121-8

Date Collected: 06/05/18 18:23

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 07:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL



# Lab Chronicle

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Client Sample ID: MW18

Lab Sample ID: 310-132121-9

Date Collected: 06/05/18 10:46

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 07:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: MW19

Lab Sample ID: 310-132121-10

Date Collected: 06/05/18 11:42

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374667	07/10/18 07:50	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:35	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

## Client Sample ID: DUP-1

Lab Sample ID: 310-132121-11

Date Collected: 06/05/18 00:00

Matrix: Ground Water

Date Received: 06/08/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			370636	06/15/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	374666	07/10/18 08:34	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370639	06/15/18 11:02	JLC	TAL SL
Total/NA	Analysis	9320		1	374440	07/09/18 09:36	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375032	07/11/18 17:35	RTM	TAL SL

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

## Accreditation/Certification Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

### Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-18
Georgia	State Program	4	IA100001 (OR)	09-29-18
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-18
North Dakota	State Program	8	R-186	09-29-18
Oregon	NELAP	10	IA100001	09-29-18

### Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-18 *
Nevada	State Program	9	MO000542018-1	07-31-18 *
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18 *
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18 *
Texas	NELAP	6	T104704193-17-11	07-31-18 *
US Fish & Wildlife	Federal		058448	07-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18 *
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

**Protocol References:**

None = None

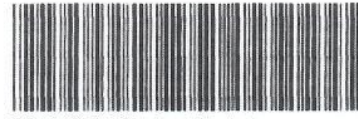
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566





310-132121 Chain of Custody

**Cooler/Sample Receipt and Temperature Record**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>North Omaha Station CLR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>6/18/18 0930</u>	Received By: <u>WAB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers? <sup>VP 6/18</sup> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>
Cooler Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>H</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>2.4</u>	Corrected Temp (°C): <u>2.4</u>
• Sample Container Temperature	
Container type(s) used: _____	
Uncorrected Temp (°C): _____	Corrected Temp (°C): _____
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	



**Cooler/Sample Receipt and Temperature**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NF</u>	Project: <u>North Omaha Station Landfill</u>
<b>Receipt Information</b>	
Date/Time Received: <u>6/8/18 0930</u>	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers? <sup>4-P</sup> <sub>6-9-18</sub>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Cooler # <u>2</u> of <u>2</u></i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>H</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>2.0</u>	Corrected Temp (°C): <u>2.0</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes:</i> Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

#31045



**TestAmerica Cedar Falls**  
 704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone (319) 277-2401 Fax (319) 277-2425

### Chain of Custody Record

Client Information		Sampler:		Lab Pkt.:		Carrier Tracking No(s):		COC No:			
Company: Bryan Lorence		Phone:		Hayes, Shawn M				Page:			
Company: Omaha Public Power District		E-Mail: shawn.hayes@testamericainc.com						Job #:			
Address: 444 South 16th Street Mail 9E/EP1		Date Requested:		Analysis Requested				Preservation Codes:			
City: Omaha		TAT Requested (days):						A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
State, Zip: NE, 68102-2247		FO #:						M - Hexane N - None O - AsNO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
Phone: 402-636-2515(Tel)		WO #:						Total Number of containers			
Email: bryan.l@ppd.com		TestAmerica Project #:						Special Instructions/Note:			
Project Name: North Omaha Station CCR		SSOW#:									
Site:											
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=material, ST=Stress, Act=)	Field Filtered Sample (Yes or No)	Perform MSMSD (Yes or No)	9316, Ra228, 9320, Ra226, Combined Ra226 and Ra228	6020A CCR List, 7470A Mercury	2540C TDS, 9056A Chloride, Fluoride, Sulfate	Analysis Requested	Special Instructions/Note
MW2	6/5/18	13:47	G	GW	X	X	X	X	X		
MW5	6/5/18	19:40	G	GW	X	X	X	X	X		
MW6	6/5/18	16:40	G	GW	X	X	X	X	X		
MW8	6/5/18	17:30	G	GW	X	X	X	X	X		
MW9	6/5/18	12:43	G	GW	X	X	X	X	X		
MW13	6/5/18	14:58	G	GW	X	X	X	X	X		
MW15	6/5/18	15:19	G	GW	X	X	X	X	X		
MW17	6/5/18	18:23	G	GW	X	X	X	X	X		
MW18	6/5/18	10:46	G	GW	X	X	X	X	X		
MW19	6/5/18	11:47	G	GW	X	X	X	X	X		
DUP	6/5/18		G	GW	X	X	X	X	X		

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Unknown  Radiological  
 Deliverable Requested: I, II, III, IV, Other (specify)

**Empty Kit Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_  
**Relinquished by:** \_\_\_\_\_ Date/Time: 6/7/2018 13:00 Company: OPPD  
**Relinquished by:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
**Relinquished by:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Special Instructions/QC Requirements:**

**Method of Shipment:** \_\_\_\_\_ Date/Time: 6-8-18 9:30 Company: TACF  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_

**Cooler Temperature(s) °C and Other Remarks:**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW2	310-132121-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-132121-B-1	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW2	310-132121-C-1	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW5	310-132121-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW5	310-132121-B-2	Plastic 1 liter - Nitric Acid	>2	2.5	1932930
MW5	310-132121-C-2	Plastic 1 liter - Nitric Acid	>2	2.5	1932930
MW6	310-132121-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-132121-B-3	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW6	310-132121-C-3	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW8	310-132121-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW8	310-132121-B-4	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW8	310-132121-C-4	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW9	310-132121-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-132121-B-5	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW9	310-132121-C-5	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW13	310-132121-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-132121-B-6	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW13	310-132121-C-6	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW15	310-132121-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW15	310-132121-B-7	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW15	310-132121-C-7	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW17	310-132121-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW17	310-132121-B-8	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW17	310-132121-C-8	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW18	310-132121-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW18	310-132121-B-9	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW18	310-132121-C-9	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW19	310-132121-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW19	310-132121-B-10	Plastic 1 liter - Nitric Acid	<2	_____	1932930
MW19	310-132121-C-10	Plastic 1 liter - Nitric Acid	<2	_____	1932930
DUP-1	310-132121-A-11	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-132121-B-11	Plastic 1 liter - Nitric Acid	<2	_____	1932930
DUP-1	310-132121-C-11	Plastic 1 liter - Nitric Acid	<2	_____	1932930

## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-132121-2

**Login Number: 132121**

**List Source: TestAmerica Cedar Falls**

**List Number: 1**

**Creator: Patrick, Kathryn E**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-132121-2

**Login Number: 132121**

**List Number: 2**

**Creator: Press, Nicholas B**

**List Source: TestAmerica St. Louis**

**List Creation: 06/12/18 01:53 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Tracer/Carrier Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

## Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
310-132121-1	MW2	106	
310-132121-2	MW5	102	
310-132121-3	MW6	102	
310-132121-4	MW8	109	
310-132121-5	MW9	103	
310-132121-6	MW13	97.6	
310-132121-7	MW15	106	
310-132121-8	MW17	105	
310-132121-9	MW18	101	
310-132121-10	MW19	104	
310-132121-11	DUP-1	100	

**Tracer/Carrier Legend**  
Ba Carrier = Ba Carrier

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
LCS 160-370636/1-A	Lab Control Sample	108	
LCS D 160-370636/2-A	Lab Control Sample Dup	109	
MB 160-370636/23-A	Method Blank	109	

**Tracer/Carrier Legend**  
Ba Carrier = Ba Carrier

## Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-132121-1	MW2	106	84.1
310-132121-2	MW5	102	83.7
310-132121-3	MW6	102	85.2
310-132121-4	MW8	109	84.9
310-132121-5	MW9	103	83.7
310-132121-6	MW13	97.6	82.6
310-132121-7	MW15	106	81.5
310-132121-8	MW17	105	87.5
310-132121-9	MW18	101	87.1
310-132121-10	MW19	104	83.4
310-132121-11	DUP-1	100	87.9

**Tracer/Carrier Legend**  
Ba Carrier = Ba Carrier  
Y Carrier = Y Carrier

# Tracer/Carrier Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station CCR

TestAmerica Job ID: 310-132121-2

**Method: 9320 - Radium-228 (GFPC)**

**Matrix: Water**

**Prep Type: Total/NA**

## Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
LCS 160-370639/1-A	Lab Control Sample	108	83.4
LCSD 160-370639/2-A	Lab Control Sample Dup	109	84.1
MB 160-370639/23-A	Method Blank	109	82.6

### Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Cedar Falls  
704 Enterprise Drive  
Cedar Falls, IA 50613  
Tel: (319)277-2401

TestAmerica Job ID: 310-141419-1  
Client Project/Site: North Omaha Station  
Revision: 2

For:  
Omaha Public Power District  
Attn: Accounts Payable, 4E/EP-5  
444 South 16th Street Mall  
Omaha, Nebraska 68102-2247

Attn: Kyle Uhing



Authorized for release by:  
1/23/2019 11:28:46 AM

Shawn Hayes, Senior Project Manager  
(319)229-8211  
[shawn.hayes@testamericainc.com](mailto:shawn.hayes@testamericainc.com)

### LINKS

Review your project  
results through  
**Total Access**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

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**Job ID: 310-141419-1**

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**Laboratory: TestAmerica Cedar Falls**

## Narrative

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**Job Narrative**  
**310-141419-1**

### Comments

No additional comments.

### Receipt

The samples were received on 10/11/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.1° C, 0.8° C and 1.3° C.

### HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-141419-1	MW2	Water	10/09/18 14:23	10/11/18 09:30
310-141419-2	MW5	Water	10/10/18 11:05	10/11/18 09:30
310-141419-3	MW6	Water	10/09/18 18:22	10/11/18 09:30
310-141419-4	MW8	Water	10/10/18 08:44	10/11/18 09:30
310-141419-5	MW9	Water	10/09/18 12:53	10/11/18 09:30
310-141419-6	MW13	Water	10/09/18 15:50	10/11/18 09:30
310-141419-7	MW15	Water	10/09/18 17:13	10/11/18 09:30
310-141419-8	MW17	Water	10/10/18 10:08	10/11/18 09:30
310-141419-9	MW18	Water	10/09/18 10:19	10/11/18 09:30
310-141419-10	MW19	Water	10/09/18 11:20	10/11/18 09:30
310-141419-11	DUP-1	Water	10/09/18 00:00	10/11/18 09:30



# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Client Sample ID: MW2

## Lab Sample ID: 310-141419-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	22.2		5.00		mg/L	5		9056A	Total/NA
Sulfate	808		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.247		0.00200		mg/L	1		6020A	Total/NA
Barium	0.112	F1	0.00200		mg/L	1		6020A	Total/NA
Boron	1.38		0.200		mg/L	1		6020A	Total/NA
Calcium	302		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00135		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0423		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1720		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW5

## Lab Sample ID: 310-141419-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	41.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	1240		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.0549		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0402		0.00200		mg/L	1		6020A	Total/NA
Boron	0.528		0.200		mg/L	1		6020A	Total/NA
Calcium	412		0.200		mg/L	1		6020A	Total/NA
Lead	0.000627		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0797		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	2410		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW6

## Lab Sample ID: 310-141419-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	181		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.520		0.500		mg/L	5		9056A	Total/NA
Sulfate	179		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0393		0.00200		mg/L	1		6020A	Total/NA
Barium	0.295		0.00200		mg/L	1		6020A	Total/NA
Boron	0.415		0.200		mg/L	1		6020A	Total/NA
Cadmium	0.000834		0.000500		mg/L	1		6020A	Total/NA
Calcium	250		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00661		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00660		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0407		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0537		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	988		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW8

## Lab Sample ID: 310-141419-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	548		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.0121		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0892		0.00200		mg/L	1		6020A	Total/NA
Boron	1.52		0.200		mg/L	1		6020A	Total/NA
Calcium	132		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000864		0.000500		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls



# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Client Sample ID: MW8 (Continued)

## Lab Sample ID: 310-141419-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.00200		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0108		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0950		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	900		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW9

## Lab Sample ID: 310-141419-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	194		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.592		0.500		mg/L	5		9056A	Total/NA
Sulfate	45.5		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00571		0.00200		mg/L	1		6020A	Total/NA
Barium	0.469		0.00200		mg/L	1		6020A	Total/NA
Calcium	159		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00150		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00407		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0482		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	872		60.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW13

## Lab Sample ID: 310-141419-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.05		5.00		mg/L	5		9056A	Total/NA
Sulfate	644		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.0782		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0775		0.00200		mg/L	1		6020A	Total/NA
Boron	1.77		0.200		mg/L	1		6020A	Total/NA
Calcium	161		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0213		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.980		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0298		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1190		60.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW15

## Lab Sample ID: 310-141419-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	656		50.0		mg/L	50		9056A	Total/NA
Antimony	0.00168		0.00100		mg/L	1		6020A	Total/NA
Barium	0.0394		0.00200		mg/L	1		6020A	Total/NA
Boron	2.48		0.200		mg/L	1		6020A	Total/NA
Calcium	230		0.200		mg/L	1		6020A	Total/NA
Chromium	0.0182		0.00500		mg/L	1		6020A	Total/NA
Lithium	0.0139		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.290		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.0631		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1130		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW17

## Lab Sample ID: 310-141419-8

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

# Detection Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Client Sample ID: MW17 (Continued)

## Lab Sample ID: 310-141419-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	41.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	872		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.0173		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0346		0.00200		mg/L	1		6020A	Total/NA
Boron	0.615		0.200		mg/L	1		6020A	Total/NA
Calcium	328		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.0114		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.104		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1980		150		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW18

## Lab Sample ID: 310-141419-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.817		0.500		mg/L	5		9056A	Total/NA
Barium	0.293		0.00200		mg/L	1		6020A	Total/NA
Calcium	94.2		0.200		mg/L	1		6020A	Total/NA
Lead	0.000938		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0254		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	398		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW19

## Lab Sample ID: 310-141419-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	16.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.334		0.00200		mg/L	1		6020A	Total/NA
Calcium	106		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0336		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	460		30.0		mg/L	1		SM 2540C	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 310-141419-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	22.4		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.597		0.500		mg/L	5		9056A	Total/NA
Sulfate	840		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.246		0.00200		mg/L	1		6020A	Total/NA
Barium	0.111		0.00200		mg/L	1		6020A	Total/NA
Boron	1.32		0.200		mg/L	1		6020A	Total/NA
Calcium	299		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00127		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0397		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1800		150		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

# Client Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW2**  
**Date Collected: 10/09/18 14:23**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-1**  
**Matrix: Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>22.2</b>		5.00		mg/L			10/18/18 06:40	5
Fluoride	<0.500		0.500		mg/L			10/18/18 06:40	5
<b>Sulfate</b>	<b>808</b>		50.0		mg/L			10/18/18 06:56	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 17:09	1
<b>Arsenic</b>	<b>0.247</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 17:09	1
<b>Barium</b>	<b>0.112</b>	<b>F1</b>	0.00200		mg/L		10/15/18 10:00	10/16/18 17:09	1
<b>Boron</b>	<b>1.38</b>		0.200		mg/L		10/15/18 10:00	10/16/18 17:09	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:09	1
<b>Calcium</b>	<b>302</b>		0.200		mg/L		10/15/18 10:00	10/16/18 17:09	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:09	1
<b>Cobalt</b>	<b>0.00135</b>		0.000500		mg/L		10/15/18 10:00	10/16/18 17:09	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:09	1
<b>Lithium</b>	<b>0.0423</b>		0.0100		mg/L		10/15/18 10:00	10/16/18 17:09	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 17:09	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:09	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1720</b>		150		mg/L			10/12/18 10:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW9**  
**Date Collected: 10/09/18 12:53**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-5**  
**Matrix: Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	194		5.00		mg/L			10/18/18 09:36	5
Fluoride	0.592		0.500		mg/L			10/18/18 09:36	5
Sulfate	45.5		5.00		mg/L			10/18/18 09:36	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 17:44	1
Arsenic	0.00571		0.00200		mg/L		10/15/18 10:00	10/16/18 17:44	1
Barium	0.469		0.00200		mg/L		10/15/18 10:00	10/16/18 17:44	1
Boron	<0.200		0.200		mg/L		10/15/18 10:00	10/16/18 17:44	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:44	1
Calcium	159		0.200		mg/L		10/15/18 10:00	10/16/18 17:44	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:44	1
Cobalt	0.00150		0.000500		mg/L		10/15/18 10:00	10/16/18 17:44	1
Lead	0.00407		0.000500		mg/L		10/15/18 10:00	10/16/18 17:44	1
Lithium	0.0482		0.0100		mg/L		10/15/18 10:00	10/16/18 17:44	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 17:44	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:44	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	872		60.0		mg/L			10/12/18 10:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW13**  
**Date Collected: 10/09/18 15:50**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-6**  
**Matrix: Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.05</b>		5.00		mg/L			10/18/18 09:53	5
Fluoride	<0.500		0.500		mg/L			10/18/18 09:53	5
<b>Sulfate</b>	<b>644</b>		50.0		mg/L			10/18/18 10:09	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Arsenic</b>	<b>0.0782</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Barium</b>	<b>0.0775</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Boron</b>	<b>1.77</b>		0.200		mg/L		10/15/18 10:00	10/16/18 17:47	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Calcium</b>	<b>161</b>		0.200		mg/L		10/15/18 10:00	10/16/18 17:47	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:47	1
Cobalt	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:47	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Lithium</b>	<b>0.0213</b>		0.0100		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Molybdenum</b>	<b>0.980</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 17:47	1
<b>Selenium</b>	<b>0.0298</b>		0.00500		mg/L		10/15/18 10:00	10/16/18 17:47	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1190</b>		60.0		mg/L			10/12/18 10:48	1

# Client Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW15**

**Date Collected: 10/09/18 17:13**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-7**

**Matrix: Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>11.5</b>		5.00		mg/L			10/18/18 10:25	5
Fluoride	<0.500		0.500		mg/L			10/18/18 10:25	5
<b>Sulfate</b>	<b>656</b>		50.0		mg/L			10/18/18 10:42	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Antimony</b>	<b>0.00168</b>		0.00100		mg/L		10/15/18 10:00	10/16/18 17:50	1
Arsenic	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Barium</b>	<b>0.0394</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Boron</b>	<b>2.48</b>		0.200		mg/L		10/15/18 10:00	10/16/18 17:50	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Calcium</b>	<b>230</b>		0.200		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Chromium</b>	<b>0.0182</b>		0.00500		mg/L		10/15/18 10:00	10/16/18 17:50	1
Cobalt	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:50	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Lithium</b>	<b>0.0139</b>		0.0100		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Molybdenum</b>	<b>0.290</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 17:50	1
<b>Selenium</b>	<b>0.0631</b>		0.00500		mg/L		10/15/18 10:00	10/16/18 17:50	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1130</b>		30.0		mg/L			10/12/18 10:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW17**  
**Date Collected: 10/10/18 10:08**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-8**  
**Matrix: Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>41.9</b>		5.00		mg/L			10/18/18 10:58	5
Fluoride	<0.500		0.500		mg/L			10/18/18 10:58	5
<b>Sulfate</b>	<b>872</b>		50.0		mg/L			10/18/18 11:14	50

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 18:03	1
<b>Arsenic</b>	<b>0.0173</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 18:03	1
<b>Barium</b>	<b>0.0346</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 18:03	1
<b>Boron</b>	<b>0.615</b>		0.200		mg/L		10/15/18 10:00	10/16/18 18:03	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:03	1
<b>Calcium</b>	<b>328</b>		0.200		mg/L		10/15/18 10:00	10/16/18 18:03	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:03	1
<b>Cobalt</b>	<b>0.0114</b>		0.000500		mg/L		10/15/18 10:00	10/16/18 18:03	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:03	1
<b>Lithium</b>	<b>0.104</b>		0.0100		mg/L		10/15/18 10:00	10/16/18 18:03	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 18:03	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:03	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>1980</b>		150		mg/L			10/12/18 10:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW18**

**Date Collected: 10/09/18 10:19**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-9**

**Matrix: Water**

## Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			10/18/18 11:31	5
<b>Fluoride</b>	<b>0.817</b>		0.500		mg/L			10/18/18 11:31	5
Sulfate	<5.00		5.00		mg/L			10/18/18 11:31	5

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 18:06	1
Arsenic	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 18:06	1
<b>Barium</b>	<b>0.293</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 18:06	1
Boron	<0.200		0.200		mg/L		10/15/18 10:00	10/16/18 18:06	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:06	1
<b>Calcium</b>	<b>94.2</b>		0.200		mg/L		10/15/18 10:00	10/16/18 18:06	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:06	1
Cobalt	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:06	1
<b>Lead</b>	<b>0.000938</b>		0.000500		mg/L		10/15/18 10:00	10/16/18 18:06	1
<b>Lithium</b>	<b>0.0254</b>		0.0100		mg/L		10/15/18 10:00	10/16/18 18:06	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 18:06	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:06	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>398</b>		30.0		mg/L			10/12/18 10:48	1



# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW19**

**Date Collected: 10/09/18 11:20**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-10**

**Matrix: Water**

### Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>11.9</b>		5.00		mg/L			10/18/18 11:47	5
Fluoride	<0.500		0.500		mg/L			10/18/18 11:47	5
<b>Sulfate</b>	<b>16.5</b>		5.00		mg/L			10/18/18 11:47	5

### Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 18:09	1
Arsenic	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 18:09	1
<b>Barium</b>	<b>0.334</b>		0.00200		mg/L		10/15/18 10:00	10/16/18 18:09	1
Boron	<0.200		0.200		mg/L		10/15/18 10:00	10/16/18 18:09	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:09	1
<b>Calcium</b>	<b>106</b>		0.200		mg/L		10/15/18 10:00	10/16/18 18:09	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:09	1
Cobalt	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:09	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:09	1
<b>Lithium</b>	<b>0.0336</b>		0.0100		mg/L		10/15/18 10:00	10/16/18 18:09	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 18:09	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:09	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>460</b>		30.0		mg/L			10/12/18 10:48	1

# Client Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: DUP-1**

**Date Collected: 10/09/18 00:00**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-11**

**Matrix: Water**

## Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.4		5.00		mg/L			10/18/18 13:09	5
Fluoride	0.597		0.500		mg/L			10/18/18 13:09	5
Sulfate	840		50.0		mg/L			10/18/18 13:25	50

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 18:13	1
Arsenic	0.246		0.00200		mg/L		10/15/18 10:00	10/16/18 18:13	1
Barium	0.111		0.00200		mg/L		10/15/18 10:00	10/16/18 18:13	1
Boron	1.32		0.200		mg/L		10/15/18 10:00	10/16/18 18:13	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:13	1
Calcium	299		0.200		mg/L		10/15/18 10:00	10/16/18 18:13	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:13	1
Cobalt	0.00127		0.000500		mg/L		10/15/18 10:00	10/16/18 18:13	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 18:13	1
Lithium	0.0397		0.0100		mg/L		10/15/18 10:00	10/16/18 18:13	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 18:13	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 18:13	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1800		150		mg/L			10/12/18 10:49	1

# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-219512/3**  
**Matrix: Water**  
**Analysis Batch: 219512**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			10/18/18 03:33	1
Fluoride	<0.100		0.100		mg/L			10/18/18 03:33	1
Sulfate	<1.00		1.00		mg/L			10/18/18 03:33	1

**Lab Sample ID: LCS 310-219512/4**  
**Matrix: Water**  
**Analysis Batch: 219512**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.50	7.579		mg/L		101	90 - 110
Fluoride	1.50	1.556		mg/L		104	90 - 110
Sulfate	7.50	7.711		mg/L		103	90 - 110

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 310-218919/1-A**  
**Matrix: Water**  
**Analysis Batch: 219270**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 218919**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		10/15/18 10:00	10/16/18 17:03	1
Arsenic	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 17:03	1
Barium	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 17:03	1
Boron	<0.200		0.200		mg/L		10/15/18 10:00	10/16/18 17:03	1
Cadmium	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:03	1
Calcium	<0.200		0.200		mg/L		10/15/18 10:00	10/16/18 17:03	1
Chromium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:03	1
Cobalt	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:03	1
Lead	<0.000500		0.000500		mg/L		10/15/18 10:00	10/16/18 17:03	1
Lithium	<0.0100		0.0100		mg/L		10/15/18 10:00	10/16/18 17:03	1
Molybdenum	<0.00200		0.00200		mg/L		10/15/18 10:00	10/16/18 17:03	1
Selenium	<0.00500		0.00500		mg/L		10/15/18 10:00	10/16/18 17:03	1

**Lab Sample ID: LCS 310-218919/2-A**  
**Matrix: Water**  
**Analysis Batch: 219270**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 218919**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0400	0.04174		mg/L		104	80 - 120
Arsenic	0.0400	0.04348		mg/L		109	80 - 120
Barium	0.0400	0.03924		mg/L		98	80 - 120
Boron	0.900	0.8887		mg/L		99	80 - 120
Cadmium	0.0400	0.04172		mg/L		104	80 - 120
Calcium	4.00	4.099		mg/L		102	80 - 120
Chromium	0.0400	0.04118		mg/L		103	80 - 120
Cobalt	0.0400	0.04120		mg/L		103	80 - 120
Lead	0.0400	0.03903		mg/L		98	80 - 120
Lithium	0.100	0.1040		mg/L		104	80 - 120

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 310-218919/2-A**  
**Matrix: Water**  
**Analysis Batch: 219270**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 218919**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Molybdenum	0.0400	0.04133		mg/L		103	80 - 120
Selenium	0.0400	0.04052		mg/L		101	80 - 120

**Lab Sample ID: 310-141419-1 MS**  
**Matrix: Water**  
**Analysis Batch: 219270**

**Client Sample ID: MW2**  
**Prep Type: Total/NA**  
**Prep Batch: 218919**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<0.00100		0.0400	0.03880		mg/L		97	75 - 125
Arsenic	0.247		0.0400	0.2713	4	mg/L		61	75 - 125
Barium	0.112	F1	0.0400	0.1413	F1	mg/L		72	75 - 125
Boron	1.38		0.900	2.097		mg/L		79	75 - 125
Cadmium	<0.000500		0.0400	0.03684		mg/L		92	75 - 125
Calcium	302		4.00	285.4	4	mg/L		-402	75 - 125
Chromium	<0.00500		0.0400	0.03789		mg/L		95	75 - 125
Cobalt	0.00135		0.0400	0.03750		mg/L		90	75 - 125
Lead	<0.000500		0.0400	0.03824		mg/L		96	75 - 125
Lithium	0.0423		0.100	0.1290		mg/L		87	75 - 125
Molybdenum	<0.00200		0.0400	0.03966		mg/L		96	75 - 125
Selenium	<0.00500		0.0400	0.03821		mg/L		96	75 - 125

**Lab Sample ID: 310-141419-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 219270**

**Client Sample ID: MW2**  
**Prep Type: Total/NA**  
**Prep Batch: 218919**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.00100		0.0400	0.04070		mg/L		102	75 - 125	5	20
Arsenic	0.247		0.0400	0.2887	4	mg/L		104	75 - 125	6	20
Barium	0.112	F1	0.0400	0.1481		mg/L		89	75 - 125	5	20
Boron	1.38		0.900	2.231		mg/L		94	75 - 125	6	20
Cadmium	<0.000500		0.0400	0.03854		mg/L		96	75 - 125	5	20
Calcium	302		4.00	300.7	4	mg/L		-19	75 - 125	5	20
Chromium	<0.00500		0.0400	0.04020		mg/L		100	75 - 125	6	20
Cobalt	0.00135		0.0400	0.03944		mg/L		95	75 - 125	5	20
Lead	<0.000500		0.0400	0.04007		mg/L		100	75 - 125	5	20
Lithium	0.0423		0.100	0.1374		mg/L		95	75 - 125	6	20
Molybdenum	<0.00200		0.0400	0.04182		mg/L		102	75 - 125	5	20
Selenium	<0.00500		0.0400	0.04003		mg/L		100	75 - 125	5	20

**Lab Sample ID: 310-141419-11 DU**  
**Matrix: Water**  
**Analysis Batch: 219270**

**Client Sample ID: DUP-1**  
**Prep Type: Total/NA**  
**Prep Batch: 218919**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Arsenic	0.246		0.2490		mg/L		1	20
Barium	0.111		0.1097		mg/L		1	20
Boron	1.32		1.332		mg/L		1	20
Cadmium	<0.000500		<0.000500		mg/L		NC	20

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-141419-11 DU  
 Matrix: Water  
 Analysis Batch: 219270

Client Sample ID: DUP-1  
 Prep Type: Total/NA  
 Prep Batch: 218919

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Calcium	299		299.7		mg/L		0.2	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	0.00127		0.001275		mg/L		0.6	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Lithium	0.0397		0.03988		mg/L		0.5	20
Molybdenum	<0.00200		<0.00200		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-218833/1  
 Matrix: Water  
 Analysis Batch: 218833

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	<30.0		30.0		mg/L			10/12/18 10:47	1

Lab Sample ID: LCS 310-218833/2  
 Matrix: Water  
 Analysis Batch: 218833

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Total Dissolved Solids	1000	1008		mg/L		101	90 - 110

Lab Sample ID: 310-141419-3 DU  
 Matrix: Water  
 Analysis Batch: 218833

Client Sample ID: MW6  
 Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Total Dissolved Solids	988		994.0		mg/L		0.6	24

# QC Association Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## HPLC/IC

### Analysis Batch: 219512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-1	MW2	Total/NA	Water	9056A	
310-141419-1	MW2	Total/NA	Water	9056A	
310-141419-2	MW5	Total/NA	Water	9056A	
310-141419-2	MW5	Total/NA	Water	9056A	
310-141419-3	MW6	Total/NA	Water	9056A	
310-141419-4	MW8	Total/NA	Water	9056A	
310-141419-4	MW8	Total/NA	Water	9056A	
310-141419-5	MW9	Total/NA	Water	9056A	
310-141419-6	MW13	Total/NA	Water	9056A	
310-141419-6	MW13	Total/NA	Water	9056A	
310-141419-7	MW15	Total/NA	Water	9056A	
310-141419-7	MW15	Total/NA	Water	9056A	
310-141419-8	MW17	Total/NA	Water	9056A	
310-141419-8	MW17	Total/NA	Water	9056A	
310-141419-9	MW18	Total/NA	Water	9056A	
310-141419-10	MW19	Total/NA	Water	9056A	
310-141419-11	DUP-1	Total/NA	Water	9056A	
310-141419-11	DUP-1	Total/NA	Water	9056A	
MB 310-219512/3	Method Blank	Total/NA	Water	9056A	
LCS 310-219512/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Prep Batch: 218919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-1	MW2	Total/NA	Water	3010A	
310-141419-2	MW5	Total/NA	Water	3010A	
310-141419-3	MW6	Total/NA	Water	3010A	
310-141419-4	MW8	Total/NA	Water	3010A	
310-141419-5	MW9	Total/NA	Water	3010A	
310-141419-6	MW13	Total/NA	Water	3010A	
310-141419-7	MW15	Total/NA	Water	3010A	
310-141419-8	MW17	Total/NA	Water	3010A	
310-141419-9	MW18	Total/NA	Water	3010A	
310-141419-10	MW19	Total/NA	Water	3010A	
310-141419-11	DUP-1	Total/NA	Water	3010A	
MB 310-218919/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-218919/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-141419-1 MS	MW2	Total/NA	Water	3010A	
310-141419-1 MSD	MW2	Total/NA	Water	3010A	
310-141419-11 DU	DUP-1	Total/NA	Water	3010A	

### Analysis Batch: 219270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-1	MW2	Total/NA	Water	6020A	218919
310-141419-2	MW5	Total/NA	Water	6020A	218919
310-141419-3	MW6	Total/NA	Water	6020A	218919
310-141419-4	MW8	Total/NA	Water	6020A	218919
310-141419-5	MW9	Total/NA	Water	6020A	218919
310-141419-6	MW13	Total/NA	Water	6020A	218919

TestAmerica Cedar Falls

# QC Association Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Metals (Continued)

### Analysis Batch: 219270 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-7	MW15	Total/NA	Water	6020A	218919
310-141419-8	MW17	Total/NA	Water	6020A	218919
310-141419-9	MW18	Total/NA	Water	6020A	218919
310-141419-10	MW19	Total/NA	Water	6020A	218919
310-141419-11	DUP-1	Total/NA	Water	6020A	218919
MB 310-218919/1-A	Method Blank	Total/NA	Water	6020A	218919
LCS 310-218919/2-A	Lab Control Sample	Total/NA	Water	6020A	218919
310-141419-1 MS	MW2	Total/NA	Water	6020A	218919
310-141419-1 MSD	MW2	Total/NA	Water	6020A	218919
310-141419-11 DU	DUP-1	Total/NA	Water	6020A	218919

## General Chemistry

### Analysis Batch: 218833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-1	MW2	Total/NA	Water	SM 2540C	
310-141419-2	MW5	Total/NA	Water	SM 2540C	
310-141419-3	MW6	Total/NA	Water	SM 2540C	
310-141419-4	MW8	Total/NA	Water	SM 2540C	
310-141419-5	MW9	Total/NA	Water	SM 2540C	
310-141419-6	MW13	Total/NA	Water	SM 2540C	
310-141419-7	MW15	Total/NA	Water	SM 2540C	
310-141419-8	MW17	Total/NA	Water	SM 2540C	
310-141419-9	MW18	Total/NA	Water	SM 2540C	
310-141419-10	MW19	Total/NA	Water	SM 2540C	
310-141419-11	DUP-1	Total/NA	Water	SM 2540C	
MB 310-218833/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-218833/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-141419-3 DU	MW6	Total/NA	Water	SM 2540C	



# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW2**  
**Date Collected: 10/09/18 14:23**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 06:40	MLU	TAL CF
Total/NA	Analysis	9056A		50	219512	10/18/18 06:56	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:09	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW5**  
**Date Collected: 10/10/18 11:05**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 07:11	MLU	TAL CF
Total/NA	Analysis	9056A		50	219512	10/18/18 07:27	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:35	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW6**  
**Date Collected: 10/09/18 18:22**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 07:43	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:38	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW8**  
**Date Collected: 10/10/18 08:44**  
**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-4**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 08:31	MLU	TAL CF
Total/NA	Analysis	9056A		20	219512	10/18/18 09:20	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:41	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW9**

**Date Collected: 10/09/18 12:53**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 09:36	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:44	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW13**

**Date Collected: 10/09/18 15:50**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 09:53	MLU	TAL CF
Total/NA	Analysis	9056A		50	219512	10/18/18 10:09	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:47	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW15**

**Date Collected: 10/09/18 17:13**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 10:25	MLU	TAL CF
Total/NA	Analysis	9056A		50	219512	10/18/18 10:42	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 17:50	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW17**

**Date Collected: 10/10/18 10:08**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 10:58	MLU	TAL CF
Total/NA	Analysis	9056A		50	219512	10/18/18 11:14	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 18:03	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

TestAmerica Cedar Falls

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

**Client Sample ID: MW18**

**Date Collected: 10/09/18 10:19**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 11:31	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 18:06	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: MW19**

**Date Collected: 10/09/18 11:20**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 11:47	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 18:09	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:48	SAS	TAL CF

**Client Sample ID: DUP-1**

**Date Collected: 10/09/18 00:00**

**Date Received: 10/11/18 09:30**

**Lab Sample ID: 310-141419-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219512	10/18/18 13:09	MLU	TAL CF
Total/NA	Analysis	9056A		50	219512	10/18/18 13:25	MLU	TAL CF
Total/NA	Prep	3010A			218919	10/15/18 10:00	JNR	TAL CF
Total/NA	Analysis	6020A		1	219270	10/16/18 18:13	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218833	10/12/18 10:49	SAS	TAL CF

**Laboratory References:**

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

# Accreditation/Certification Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

## Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-20
Georgia	State Program	4	IA100001 (OR)	09-29-19
Illinois	NELAP	5	200024	11-29-19
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	1	3349	08-22-19
North Dakota	State Program	8	R-186	09-29-19
Oregon	NELAP	10	IA100001	09-29-19
USDA	Federal		P330-19-00003	01-02-22

# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF

#### Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401





## Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>H. Omaha Station. CCR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>10/11/18 9:30</u>	Received By: <u>APS</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>APS 10/11/18</u> If yes: Cooler # <u>1</u> of <u>3</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>-6.8</u>	Corrected Temp (°C): <u>0.8</u>
• Sample Container Temperature	
Container type(s) used: _____	
Uncorrected Temp (°C): _____	Corrected Temp (°C): _____
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>N. Omaha Station COR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>10/11/13 9:30</u>	Received By: <u>APR</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler # <u>2</u> of <u>3</u></i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>0.1</u>	Corrected Temp (°C): <u>0.1</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) <i>If yes: Is there evidence that the chilling process began?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	
<u>X MWS 250ML HNO3 lid wasn't on sample properly lost most of sample. Sample most likely compromised! APR 10/11/13</u>	

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>N. Omaha Station CCR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>10/11/18 930</u>	Received By: <u>APB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler # <u>3</u> of <u>3</u></i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>0.0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>1.3</u>	Corrected Temp (°C): <u>1.3</u>
• <b>Sample Container Temperature</b>	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes: Is there evidence that the chilling process began?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	



**TestAmerica Cedar Falls**  
 704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone (319) 277-2401 Fax (319) 277-2425

**Chain of Custody Record**



<b>Client Information</b>		Sampler: Kyle K. Uhing		Lab PM: Hayes, Shawn M		Carrier Tracking No(s):	
Client Contact: Kyle Uhing		Phone: (402) 636-2515		E-Mail: shawn.hayes@testamericainc.com		Page:	
Company: Omaha Public Power District		Address: 444 South 18th Street Mall 9E/EP1		City: Omaha		Job #:	
State, Zip: NE, 68102-2247		Phone: 402-636-2515		Email: kkuhing@oppd.com		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Project Name: North Omaha Station CCR		TestAmerica Project #: 31007560		SSOW#:		Analysis Requested	
Site: North Omaha Station		Due Date Requested:		TAT Requested (days):		Total Number of Containers	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
MW2		10/9/18		14:23		G	
MW5		10/10/18		11:05		G	
MW6		10/9/18		18:22		G	
MW8		10/10/18		8:44		G	
MW9		10/9/18		12:53		G	
MW13		10/9/18		15:50		G	
MW15		10/9/18		17:13		G	
MW17		10/10/18		16:06		G	
MW18		10/9/18		16:19		G	
MW19		10/9/18		11:20		G	
DUP1		10/9/18		--		G	
Possible Hazard Identification		Sample Date		Sample Time		Sample Type	
<input type="checkbox"/> Non-Hazard		10/9/18		14:23		G	
<input type="checkbox"/> Flammable		10/10/18		11:05		G	
<input type="checkbox"/> Skin Irritant		10/9/18		18:22		G	
<input type="checkbox"/> Poison B		10/10/18		8:44		G	
<input type="checkbox"/> Unknown		10/9/18		12:53		G	
<input type="checkbox"/> Radiological		10/9/18		15:50		G	
Deliverable Requested: I, II, III, IV, Other (specify)		10/9/18		17:13		G	
Empty Kit Relinquished by:		10/9/18		16:19		G	
Relinquished by:		10/9/18		11:20		G	
Relinquished by:		10/9/18		--		G	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Special Instructions/Note:	
Empty Kit Relinquished by:		Date/Time:		Date/Time:		See attached list for specific analysis.	
Relinquished by:		10/10/2018 14:35		10/10/18 14:35		See attached list for specific analysis.	
Relinquished by:		10/10/18 15:00		10/10/18		See attached list for specific analysis.	
Relinquished by:		10/10/18 15:00		10/10/18 09:30		See attached list for specific analysis.	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		See attached list for specific analysis.	
Empty Kit Relinquished by:		Date/Time:		Date/Time:		See attached list for specific analysis.	
Relinquished by:		10/10/2018 14:35		10/10/18 14:35		See attached list for specific analysis.	
Relinquished by:		10/10/18 15:00		10/10/18		See attached list for specific analysis.	
Relinquished by:		10/10/18 15:00		10/10/18 09:30		See attached list for specific analysis.	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		See attached list for specific analysis.	



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW2	310-141419-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-141419-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-141419-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW5	310-141419-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW5	310-141419-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW5	310-141419-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW5	310-141419-E-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-141419-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-141419-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW6	310-141419-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW8	310-141419-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW8	310-141419-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW8	310-141419-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-141419-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-141419-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-141419-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-141419-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-141419-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-141419-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-141419-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW15	310-141419-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-141419-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-141419-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW17	310-141419-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-141419-D-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-141419-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW18	310-141419-C-9	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-141419-D-9	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-141419-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW19	310-141419-C-10	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-141419-D-10	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP-1	310-141419-A-11	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-141419-C-11	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP-1	310-141419-D-11	Plastic 1 liter - Nitric Acid	<2	_____	_____



## Groundwater Sampling October 2018

### North Omaha Station

#### CCR

MW18 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cadmium, cobalt, lead, lithium, radium 226+228

MW19 – boron, calcium, chloride, sulfate, TDS, fluoride, barium, lead, lithium, radium 226+228

MW9 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, radium 226+228

MW2 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, radium 226+228

MW13 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lithium, molybdenum, selenium, radium 226+228

MW15 – boron, calcium, chloride, sulfate, TDS, fluoride, antimony, barium, chromium, molybdenum, selenium, radium 226+228

MW6 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cadmium, cobalt, lead, lithium, molybdenum, radium 226+228

MW8 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, molybdenum, radium 226+228

MW17 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lithium, molybdenum, radium, 226+228

MW5 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, lead, lithium, radium 226+228

DUP1 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, radium 226+228

#### Title 132 Landfill

MW9 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW2 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW13 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW15 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW6 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW8 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW17 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW5 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

DUP1 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

# Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-141419-1

**Login Number: 141419**

**List Source: TestAmerica Cedar Falls**

**List Number: 1**

**Creator: Homolar, Dana J**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Sample MW-5 plastic 250 Nitric spilled - pouring off from 1L Nitric
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-141419-2

Client Project/Site: North Omaha Station

For:

Omaha Public Power District

Attn: Accounts Payable, 4E/EP-5

444 South 16th Street Mall

Omaha, Nebraska 68102-2247

Attn: Kyle Uhing



Authorized for release by:

11/8/2018 5:15:18 PM

Shawn Hayes, Senior Project Manager

(319)229-8211

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*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Case Narrative

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Job ID: 310-141419-2**

**Laboratory: TestAmerica Cedar Falls**

## Narrative

**Job Narrative  
310-141419-2**

### Comments

No additional comments.

### Receipt

The samples were received on 10/11/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.1° C, 0.8° C and 1.3° C.

### RAD

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-395388:

The following samples were prepared at a reduced aliquot due to potential matrix interference. Samples were reduced due to discoloration and heavy sediment levels.

MW6 (310-141419-3), MW9 (310-141419-5), MW18 (310-141419-9) and MW19 (310-141419-10)

Method(s) PrecSep-21: Radium 226 Prep Batch 160-395371:

The following samples were prepared at a reduced aliquot due to potential matrix interference. Samples were reduced due to discoloration and heavy sediment levels.

MW6 (310-141419-3), MW9 (310-141419-5), MW18 (310-141419-9) and MW19 (310-141419-10)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Sample Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-141419-1	MW2	Water	10/09/18 14:23	10/11/18 0
310-141419-5	MW9	Water	10/09/18 12:53	10/11/18 09:30
310-141419-6	MW13	Water	10/09/18 15:50	10/11/18 09:30
310-141419-7	MW15	Water	10/09/18 17:13	10/11/18 09:30
310-141419-8	MW17	Water	10/10/18 10:08	10/11/18 09:30
310-141419-9	MW18	Water	10/09/18 10:19	10/11/18 09:30
310-141419-10	MW19	Water	10/09/18 11:20	10/11/18 09:30
310-141419-11	DUP-1	Water	10/09/18 00:00	10/11/18 09:30



# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW2**

**Lab Sample ID: 310-141419-1**

Date Collected: 10/09/18 14:23

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.390		0.107	0.112	1.00	0.0870	pCi/L	10/16/18 09:22	11/07/18 06:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					10/16/18 09:22	11/07/18 06:09	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.511		0.258	0.262	1.00	0.382	pCi/L	10/16/18 11:03	10/25/18 17:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					10/16/18 11:03	10/25/18 17:06	1
Y Carrier	82.2		40 - 110					10/16/18 11:03	10/25/18 17:06	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.901		0.279	0.285	5.00	0.382	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW9**

**Lab Sample ID: 310-141419-5**

Date Collected: 10/09/18 12:53

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.947		0.229	0.244	1.00	0.163	pCi/L	10/16/18 09:22	11/07/18 06:10	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Ba Carrier	103		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.46		0.569	0.585	1.00	0.801	pCi/L	10/16/18 11:03	10/25/18 17:07	1
<i>Carrier</i>	<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>					<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Ba Carrier	103		40 - 110					10/16/18 11:03	10/25/18 17:07	1
Y Carrier	84.5		40 - 110					10/16/18 11:03	10/25/18 17:07	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.41		0.613	0.634	5.00	0.801	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW13**

**Lab Sample ID: 310-141419-6**

Date Collected: 10/09/18 15:50

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.293		0.0917	0.0954	1.00	0.0744	pCi/L	10/16/18 09:22	11/07/18 06:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.143	U	0.218	0.218	1.00	0.366	pCi/L	10/16/18 11:03	10/25/18 17:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/16/18 11:03	10/25/18 17:07	1
Y Carrier	85.2		40 - 110					10/16/18 11:03	10/25/18 17:07	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.435		0.237	0.238	5.00	0.366	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW15**

**Lab Sample ID: 310-141419-7**

Date Collected: 10/09/18 17:13

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.154		0.0732	0.0745	1.00	0.0850	pCi/L	10/16/18 09:22	11/07/18 06:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.149	U	0.223	0.224	1.00	0.375	pCi/L	10/16/18 11:03	10/25/18 17:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					10/16/18 11:03	10/25/18 17:07	1
Y Carrier	83.7		40 - 110					10/16/18 11:03	10/25/18 17:07	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.303	U	0.235	0.236	5.00	0.375	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW17**

**Lab Sample ID: 310-141419-8**

Date Collected: 10/10/18 10:08

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.277		0.0896	0.0930	1.00	0.0768	pCi/L	10/16/18 09:22	11/07/18 06:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.739		0.253	0.262	1.00	0.333	pCi/L	10/16/18 11:03	10/25/18 17:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/16/18 11:03	10/25/18 17:07	1
Y Carrier	84.9		40 - 110					10/16/18 11:03	10/25/18 17:07	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.02		0.268	0.278	5.00	0.333	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW18**

**Lab Sample ID: 310-141419-9**

Date Collected: 10/09/18 10:19

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.808		0.176	0.190	1.00	0.129	pCi/L	10/16/18 09:22	11/07/18 06:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.404	U	0.305	0.307	1.00	0.477	pCi/L	10/16/18 11:03	10/25/18 17:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/16/18 11:03	10/25/18 17:07	1
Y Carrier	78.1		40 - 110					10/16/18 11:03	10/25/18 17:07	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.21		0.352	0.361	5.00	0.477	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: MW19**

**Lab Sample ID: 310-141419-10**

Date Collected: 10/09/18 11:20

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.636		0.154	0.165	1.00	0.111	pCi/L	10/16/18 09:22	11/07/18 06:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.272	U	0.263	0.264	1.00	0.520	pCi/L	10/16/18 11:03	10/25/18 17:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/16/18 11:03	10/25/18 17:07	1
Y Carrier	83.4		40 - 110					10/16/18 11:03	10/25/18 17:07	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.364	U	0.305	0.311	5.00	0.520	pCi/L		11/08/18 16:48	1

# Client Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-141419-11**

Date Collected: 10/09/18 00:00

Matrix: Water

Date Received: 10/11/18 09:30

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.273		0.0896	0.0929	1.00	0.0790	pCi/L	10/16/18 09:22	11/07/18 06:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					10/16/18 09:22	11/07/18 06:10	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.222	U	0.220	0.221	1.00	0.357	pCi/L	10/16/18 11:03	10/25/18 17:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					10/16/18 11:03	10/25/18 17:08	1
Y Carrier	83.7		40 - 110					10/16/18 11:03	10/25/18 17:08	1

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.495		0.238	0.240	5.00	0.357	pCi/L		11/08/18 16:48	1



# Definitions/Glossary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Qualifiers

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# QC Sample Results

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-395371/23-A**  
**Matrix: Water**  
**Analysis Batch: 399720**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 395371**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.2353		0.0791	0.0819	1.00	0.0624	pCi/L	10/16/18 09:22	11/07/18 06:13	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	107		40 - 110		10/16/18 09:22	11/07/18 06:13	1			

**Lab Sample ID: LCS 160-395371/1-A**  
**Matrix: Water**  
**Analysis Batch: 399721**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 395371**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.4	10.08		1.04	1.00	0.0563	pCi/L	89	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier	Limits						
Ba Carrier	108		40 - 110		10/16/18 09:22	11/07/18 06:13	1		

**Lab Sample ID: LCSD 160-395371/2-A**  
**Matrix: Water**  
**Analysis Batch: 399721**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 395371**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.4	10.31		1.06	1.00	0.0744	pCi/L	91	68 - 137	0.11	1
Carrier	LCSD LCSD		Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	%Yield	Qualifier	Limits								
Ba Carrier	107		40 - 110		10/16/18 11:03	10/25/18 17:09	1				

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-395388/23-A**  
**Matrix: Water**  
**Analysis Batch: 397303**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 395388**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2391	U	0.200	0.201	1.00	0.318	pCi/L	10/16/18 11:03	10/25/18 17:09	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier	Limits							
Ba Carrier	107		40 - 110		10/16/18 11:03	10/25/18 17:09	1			
Y Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
Y Carrier	%Yield	Qualifier	Limits							
Y Carrier	87.9		40 - 110		10/16/18 11:03	10/25/18 17:09	1			

TestAmerica Cedar Falls

# QC Sample Results

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-395388/1-A**

**Matrix: Water**

**Analysis Batch: 397303**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 395388**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.28	7.432		0.899	1.00	0.383	pCi/L	80	56 - 140
<b>Carrier</b>		<b>LCS %Yield</b>	<b>LCS Qualifier</b>	<b>Limits</b>					
Ba Carrier		108		40 - 110					
Y Carrier		84.5		40 - 110					

**Lab Sample ID: LCSD 160-395388/2-A**

**Matrix: Water**

**Analysis Batch: 397303**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 395388**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	9.28	7.630		0.915	1.00	0.357	pCi/L	82	56 - 140	0.11	1
<b>Carrier</b>		<b>LCSD %Yield</b>	<b>LCSD Qualifier</b>	<b>Limits</b>							
Ba Carrier		107		40 - 110							
Y Carrier		85.2		40 - 110							

# QC Association Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Rad

### Prep Batch: 395371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-1	MW2	Total/NA	Water	PrecSep-21	
310-141419-2	MW5	Total/NA	Water	PrecSep-21	
310-141419-3	MW6	Total/NA	Water	PrecSep-21	
310-141419-4	MW8	Total/NA	Water	PrecSep-21	
310-141419-5	MW9	Total/NA	Water	PrecSep-21	
310-141419-6	MW13	Total/NA	Water	PrecSep-21	
310-141419-7	MW15	Total/NA	Water	PrecSep-21	
310-141419-8	MW17	Total/NA	Water	PrecSep-21	
310-141419-9	MW18	Total/NA	Water	PrecSep-21	
310-141419-10	MW19	Total/NA	Water	PrecSep-21	
310-141419-11	DUP-1	Total/NA	Water	PrecSep-21	
MB 160-395371/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-395371/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-395371/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 395388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141419-1	MW2	Total/NA	Water	PrecSep_0	
310-141419-2	MW5	Total/NA	Water	PrecSep_0	
310-141419-3	MW6	Total/NA	Water	PrecSep_0	
310-141419-4	MW8	Total/NA	Water	PrecSep_0	
310-141419-5	MW9	Total/NA	Water	PrecSep_0	
310-141419-6	MW13	Total/NA	Water	PrecSep_0	
310-141419-7	MW15	Total/NA	Water	PrecSep_0	
310-141419-8	MW17	Total/NA	Water	PrecSep_0	
310-141419-9	MW18	Total/NA	Water	PrecSep_0	
310-141419-10	MW19	Total/NA	Water	PrecSep_0	
310-141419-11	DUP-1	Total/NA	Water	PrecSep_0	
MB 160-395388/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-395388/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-395388/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Client Sample ID: MW2

Lab Sample ID: 310-141419-1

Date Collected: 10/09/18 14:23

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:06	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW5

Lab Sample ID: 310-141419-2

Date Collected: 10/10/18 11:05

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW6

Lab Sample ID: 310-141419-3

Date Collected: 10/09/18 18:22

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW8

Lab Sample ID: 310-141419-4

Date Collected: 10/10/18 08:44

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Client Sample ID: MW9

Lab Sample ID: 310-141419-5

Date Collected: 10/09/18 12:53

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW13

Lab Sample ID: 310-141419-6

Date Collected: 10/09/18 15:50

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW15

Lab Sample ID: 310-141419-7

Date Collected: 10/09/18 17:13

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW17

Lab Sample ID: 310-141419-8

Date Collected: 10/10/18 10:08

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

# Lab Chronicle

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Client Sample ID: MW18

Lab Sample ID: 310-141419-9

Date Collected: 10/09/18 10:19

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: MW19

Lab Sample ID: 310-141419-10

Date Collected: 10/09/18 11:20

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:07	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

## Client Sample ID: DUP-1

Lab Sample ID: 310-141419-11

Date Collected: 10/09/18 00:00

Matrix: Water

Date Received: 10/11/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			395371	10/16/18 09:22	JLC	TAL SL
Total/NA	Analysis	9315		1	399721	11/07/18 06:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			395388	10/16/18 11:03	JLC	TAL SL
Total/NA	Analysis	9320		1	397303	10/25/18 17:08	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:48	RTM	TAL SL

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

## Accreditation/Certification Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

### Laboratory: TestAmerica Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-20
Georgia	State Program	4	IA100001 (OR)	09-29-19
Illinois	NELAP	5	200024	11-29-18
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-19
Minnesota	NELAP	5	019-999-319	12-31-18
Minnesota (Petrofund)	State Program	1	3349	08-22-19
North Dakota	State Program	8	R-186	09-29-18 *
Oregon	NELAP	10	IA100001	09-29-19

### Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18 *
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18 *
Iowa	State Program	7	373	12-01-18 *
Kansas	NELAP	7	E-10236	10-31-18 *
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18 *
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-12	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



# Method Summary

Client: Omaha Public Power District  
Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

**Protocol References:**

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566





## Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>H. Omaha Station. CCR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>10/11/18 9:30</u>	Received By: <u>APS</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>APS 10/11/18</u> If yes: Cooler # <u>1</u> of <u>3</u>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>0.0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>-6.8</u>	Corrected Temp (°C): <u>0.8</u>
• <b>Sample Container Temperature</b>	
Container type(s) used: _____	
Uncorrected Temp (°C): _____	Corrected Temp (°C): _____
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>N. Omaha Station COR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>10/11/13 9:30</u>	Received By: <u>APR</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler # <u>2</u> of <u>3</u></i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>0.1</u>	Corrected Temp (°C): <u>0.1</u>
• Sample Container Temperature	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes: Is there evidence that the chilling process began?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	
<u>X MWS 250ML HNO3 lid wasn't on sample properly lost most of sample. Sample most likely compromised! APR 10/11/13</u>	

**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>	
Client: <u>Omaha Public Power District</u>	
City/State: <u>Omaha NE</u>	Project: <u>N. Omaha Station CCR</u>
<b>Receipt Information</b>	
Date/Time Received: <u>10/11/8 930</u>	Received By: <u>APB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler # <u>3</u> of <u>3</u></i>
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>M</u>	Correction Factor (°C): <u>0.0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C): <u>1.3</u>	Corrected Temp (°C): <u>1.3</u>
• <b>Sample Container Temperature</b>	
Container type(s) used:	
Uncorrected Temp (°C):	Corrected Temp (°C):
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No	
a) <i>If yes: Is there evidence that the chilling process began?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	

**TestAmerica Cedar Falls**  
 704 Enterprise Drive  
 Cedar Falls, IA 50613  
 Phone (319) 277-2401 Fax (319) 277-2425

### Chain of Custody Record

**TestAmerica**  
 THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Information</b>		Sampler: Kyle K. Uhing		Lab PM: Hayes, Shawn M		Carrier Tracking No(s):	
Client Contact: Kyle Uhing		Phone: (402) 636-2515		E-Mail: shawn.hayes@testamericainc.com		Page:	
Company: Omaha Public Power District		Address: 444 South 18th Street Mall 9E/EP1		City: Omaha		Job #:	
State, Zip: NE, 68102-2247		Phone: 402-636-2515		Email: kkuhing@oppd.com		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify) Other:	
Project Name: North Omaha Station CCR		TestAmerica Project #: 31007560		SSOW#:		Analysis Requested	
Site: North Omaha Station		Due Date Requested:		TAT Requested (days):		Total Number of Containers	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
Matrix (W=water, S=solid, O=ore/solid, BT=trace, A=air)		Preservation Code:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
MW2		10/9/18		14:23		G W N	
MW5		10/10/18		11:05		G W N	
MW6		10/9/18		18:22		G W N	
MW8		10/10/18		8:44		G W N	
MW9		10/9/18		12:53		G W N	
MW13		10/9/18		15:50		G W N	
MW15		10/9/18		17:13		G W N	
MW17		10/10/18		16:06		G W N	
MW18		10/9/18		16:19		G W N	
MW19		10/9/18		11:20		G W N	
DUP1		10/9/18		--		G W N	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/Note: See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis. See attached list for specific analysis.		Total Number of Containers	
Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: Kyle Uhing		Date/Time: 10/10/2018 14:35		Company: TestA		Received by: Kyle Uhing	
Relinquished by:		Date/Time: 10/10/18 15:00		Company: TestA		Received by:	
Relinquished by:		Date/Time: 10/11/18 09:30		Company: TRAC		Received by:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW2	310-141419-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-141419-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-141419-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW5	310-141419-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW5	310-141419-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW5	310-141419-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW5	310-141419-E-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-141419-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW6	310-141419-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW6	310-141419-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW8	310-141419-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW8	310-141419-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW8	310-141419-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-141419-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-141419-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-141419-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-141419-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-141419-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-141419-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-141419-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW15	310-141419-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW15	310-141419-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-141419-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW17	310-141419-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW17	310-141419-D-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-141419-A-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW18	310-141419-C-9	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW18	310-141419-D-9	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-141419-A-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW19	310-141419-C-10	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW19	310-141419-D-10	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP-1	310-141419-A-11	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP-1	310-141419-C-11	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP-1	310-141419-D-11	Plastic 1 liter - Nitric Acid	<2	_____	_____



## Groundwater Sampling October 2018

### North Omaha Station

#### CCR

MW18 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cadmium, cobalt, lead, lithium, radium 226+228

MW19 – boron, calcium, chloride, sulfate, TDS, fluoride, barium, lead, lithium, radium 226+228

MW9 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, radium 226+228

MW2 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, radium 226+228

MW13 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lithium, molybdenum, selenium, radium 226+228

MW15 – boron, calcium, chloride, sulfate, TDS, fluoride, antimony, barium, chromium, molybdenum, selenium, radium 226+228

MW6 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cadmium, cobalt, lead, lithium, molybdenum, radium 226+228

MW8 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, molybdenum, radium 226+228

MW17 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lithium, molybdenum, radium, 226+228

MW5 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, lead, lithium, radium 226+228

DUP1 – boron, calcium, chloride, sulfate, TDS, fluoride, arsenic, barium, cobalt, lead, lithium, radium 226+228

#### Title 132 Landfill

MW9 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW2 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW13 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW15 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW6 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW8 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW17 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

MW5 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

DUP1 – sulfate, arsenic, barium, cadmium, chromium, iron, lead, mercury, selenium, silver

## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-141419-2

**Login Number: 141419**

**List Source: TestAmerica Cedar Falls**

**List Number: 1**

**Creator: Homolar, Dana J**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Sample MW-5 plastic 250 Nitric spilled - pouring off from 1L Nitric
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-141419-2

**Login Number: 141419**

**List Number: 2**

**Creator: Dupart, Lacey S**

**List Source: TestAmerica St. Louis**

**List Creation: 10/12/18 04:50 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Tracer/Carrier Summary

Client: Omaha Public Power District  
 Project/Site: North Omaha Station

TestAmerica Job ID: 310-141419-2

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	
310-141419-1	MW2	107	
310-141419-2	MW5	104	
310-141419-3	MW6	102	
310-141419-4	MW8	104	
310-141419-5	MW9	103	
310-141419-6	MW13	104	
310-141419-7	MW15	108	
310-141419-8	MW17	104	
310-141419-9	MW18	105	
310-141419-10	MW19	105	
310-141419-11	DUP-1	107	
LCS 160-395371/1-A	Lab Control Sample	108	
LCSD 160-395371/2-A	Lab Control Sample Dup	107	
MB 160-395371/23-A	Method Blank	107	
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			

## Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
310-141419-1	MW2	107	82.2
310-141419-2	MW5	104	86.4
310-141419-3	MW6	102	84.1
310-141419-4	MW8	104	84.9
310-141419-5	MW9	103	84.5
310-141419-6	MW13	104	85.2
310-141419-7	MW15	108	83.7
310-141419-8	MW17	104	84.9
310-141419-9	MW18	105	78.1
310-141419-10	MW19	105	83.4
310-141419-11	DUP-1	107	83.7
LCS 160-395388/1-A	Lab Control Sample	108	84.5
LCSD 160-395388/2-A	Lab Control Sample Dup	107	85.2
MB 160-395388/23-A	Method Blank	107	87.9
<b>Tracer/Carrier Legend</b>			
Ba Carrier = Ba Carrier			
Y Carrier = Y Carrier			

## **APPENDIX D**



## TECHNICAL MEMORANDUM

30 January 2019

EA Project No. 6303805

**TO:** Mr. Bryan Lorence  
Omaha Public Power District

**FROM:** Jon Ritterling, EA, Project Manager

**SUBJECT:** Assessment Monitoring Groundwater Statistical Analysis  
North Omaha Station (NOS) Coal Combustion Residuals (CCR) Landfill  
OPPD Contract #00223532

EA Engineering, Science, and Technology, Inc., PBC (EA), under contract with the Omaha Public Power District (OPPD), is submitting this Technical Memorandum to present the results of the statistical analysis of the analytical results for Appendix III/IV constituents using data collected from the 4<sup>th</sup> quarter of 2017 through December 2018. Data were evaluated for Statistically Significant Increases/Statistically Significant Differences (SSIs/SSDs). Constituents that exhibited a SSI/SSD were compared to established groundwater protection standards.

### Overview

The objective of the statistical analyses was to analyze laboratory analytical data for groundwater samples that represent the quality of groundwater both considered to be background and that passing the boundary of the Coal Combustion Residual (CCR) landfill at the North Omaha Station (NOS). The laboratory analyses of the groundwater were completed to detect SSI/SSD in Appendix III/IV constituents in wells downgradient of the CCR landfill relative to upgradient (background) wells. The statistical methods referenced in the OPPD "CCR Groundwater Statistical Method Certification" document was used to analyze the data. While assessment monitoring per the CCR rule (40 CFR §257.95) is specific to Appendix IV constituents, analyses were completed for both Appendix III and IV constituents, as analyses were completed for both during the subject events, as part of ongoing groundwater monitoring.

### Groundwater Monitoring System

Based on groundwater flow conditions, generally from west to east towards the Missouri River, the CCR groundwater monitoring system network for the NOS CCR landfill can be described as:

- Background/Upgradient: MW-9, MW-18, and MW-19
- Downgradient: MW-2, MW-13, MW-15, and MW-17.

The monitoring well network is shown in Figure 1.

### Analytical Data

Analytical results for the Appendix III/IV constituents from the monitoring well network collected from March 2016 through October 2018 were statistically analyzed for SSI/SSD. Table 1 presents



descriptive statistics for each constituent in each network monitoring well (total observations, total non-detects, frequency of detection, mean, and standard deviation). Table 2 presents descriptive statistics for each constituent in pooled background/upgradient monitoring wells and downgradient monitoring wells (total observations, total non-detects, frequency of detection, mean, and standard deviation). Time series plots and box-plots for each constituent for each well are provided for visual review of the data.

### **Statistical Analyses**

Analytical data were treated to several statistical analyses on the distribution of the data to determine the best fit analysis of variance test for SSI/SSD.

- Shapiro-Wilk Test. Distribution of the pooled (all wells) analytical results for each constituent was tested for normality using the Shapiro-Wilk Test. This test determined if analytical data for each constituent had a normal or a lognormal distribution and if the data was parametric or nonparametric (Table 3).
- Levene's Test. Equality of variance of the analytical data was used to test for variance in the data. If variance was equal, then the parametric ANOVA test was completed on the data to determine SSDs for that constituent. If variance was not equal, then the nonparametric Kruskal-Wallis test was completed on the data.

Analytical data for calcium and pH results were found to have a normal distribution with equal variance. An ANOVA test was completed on the background/upgradient monitoring well pooled analyte data and downgradient monitoring well pooled analyte data. Mean calcium concentrations were found to be significantly different between the background/upgradient and downgradient monitoring wells (Table 4). To determine if an SSD exists for calcium in a downgradient monitoring well an ANOVA test was completed testing the calcium mean in each downgradient well to the calcium mean of the pooled background/upgradient. Calcium was found to be significantly different in all the downgradient monitoring wells (Table 5).

A Kruskal-Wallis test was completed on the background/upgradient monitoring well pooled analyte data and downgradient monitoring well pooled analyte data. Results were evaluated to determine if the mean rank concentrations for an analyte in pooled background/upgradient monitoring wells is the same in the pooled downgradient monitoring wells. Probability for the pooled data was less than the Kruskal-Wallis H test statistic for all analytes tested indicating that tested analyte pooled ranked means are different between the pooled data sets (Table 6). Beryllium and thallium have zero detections in the monitoring well network and these analytes were therefore not subjected to statistical analyses.

A Wilcoxon signed-rank test was completed testing null hypotheses that an analyte's median difference between a downgradient monitoring well and pooled background/upgradient monitoring well is zero. This test is used when the data is non-normally distributed which was determined and results are presented in Table 3. Wilcoxon signed-rank test results, presented in Table 7, identify Appendix III/IV constituents that exhibit an SSD in an analyte's median value concentration in the downgradient monitoring well that is significantly different than the concentration in the upgradient /background monitoring well.



### **Statistical Results**

Statistical analysis was completed as outlined on the available data through October 2018. Monitoring wells MW-9, MW-18, and MW-19 were designated as the background/upgradient wells and monitoring wells MW-2, MW-13, MW-15, and MW-17 were designated as downgradient wells. Output from the statistical analysis is attached. ANOVA and Wilcoxon signed-rank tests indicate SSDs for the following constituents and wells.

#### **Appendix III**

- Boron: MW-2, MW-13, MW-15, and MW-17
- Calcium: MW-2, MW-13, MW-15, and MW-17
- Sulfate: MW-2, MW-13, MW-15, and MW-17
- Total Dissolved Solids: MW-2, MW-13, MW-15, and MW-17

#### **Appendix IV**

- Antimony: MW-15
- Arsenic: MW-2, MW-13, and MW-17
- Chromium: MW-15
- Cobalt: MW-17
- Lithium: MW-17
- Molybdenum: MW-13 and MW-15
- Selenium: MW-13 and MW-15

Significant upward trend at the 98 percent (%) confidence interval utilizing Mann-Kendall trend analysis was evident for molybdenum and sulfate at MW-13 (Table 8).

### **SSI/SSD Analytical Results**

The mean concentration of SSD analytes was compared to USEPA National Primary Drinking Water Regulations, May 2009 (EPA 816-F-09-004) (Maximum Contaminant Levels [MCLs]). Table 9 lists the analyte, monitoring well, maximum observed concentration for the analyte, mean concentration of the analyte in the pooled background/upgradient monitoring wells, and the MCLs for analytes that exhibited an SSI/SSD. No background levels have been identified that are higher than MCLs; therefore, per 40 CFR §257.95(h), the MCL is established as the groundwater protection standard for assessment monitoring. Appendix IV constituents that exhibited an SSI/SSD and also had reported concentrations above their respective MCLs are as follows:

- Arsenic: MW-2, MW-13, MW-17
- Selenium: MW-13, MW-15

Twelve (12) Groundwater sampling events, analyzed for Appendix III/IV constituents, have been completed for NOS CCR landfill monitoring. Arsenic was reported at concentrations greater than the MCL in MW-2, MW-13, and MW-17 in 12 out of 12 sampling events. Selenium was reported at concentrations greater than the MCL in 1 of 12 sampling events for MW-13 and in 12 of 12 sampling events for MW-15.



**Professional Engineer Certification**

I have reviewed the statistical analyses presented in this technical memorandum and can verify that the analyses were completed following the methodology described in "Coal Combustion Residuals (CCR) Groundwater Statistical Method Certification, Omaha Public Power District North Omaha Generating Station, NOS Ash Disposal Area, December 2016." This methodology was established to meet the requirements of 40 CFR § 257.93(f), as certified in that document.

Printed Name: Jon M. Ritterling

Signature: 

Date: 30 January 2019




License No.: E-8127

Expiration: 31 Dec 2020



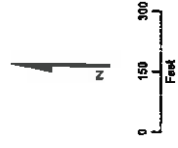


**Legend**

-  NOS CCR Monitoring Wells
-  5-Foot Groundwater Elevation Contour (June 14, 2016)
-  Approximate groundwater flow direction with estimated average linear groundwater flow velocity.



Map Date: 1/25/2019  
 Projection: NAD 1983 2011 NE State Plane FIPS 2600 F U S



**Figure 1**  
**Monitoring Well Network**  
 Assessment Monitoring  
 OPPD North Omaha Station Ash Landfill





# **Attachment 1**

## **Data Tables**

## Results of Statistical Analyses

**TABLE 1: SUMMARY STATISTICS**  
**OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)**  
**GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Well Group Type	N	No Detects	FOD *	Mean	Standard Deviation
Antimony	mg/L	MW19	background/upgradient	10	0	0%	0.0005	0
		MW9	background/upgradient	10	0	0%	0.0005	0
		MW18	background/upgradient	10	0	0%	0.0005	0
		MW13	downgradient	10	0	0%	0.0005	0
		MW15	downgradient	11	11	100%	0.00158	0.000267
		MW17	downgradient	10	0	0%	0.0005	0
		MW2	downgradient	10	0	0%	0.0005	0
Arsenic	mg/L	MW19	background/upgradient	10	0	0%	0.001	0
		MW9	background/upgradient	12	12	100%	0.00622	0.00231
		MW18	background/upgradient	11	2	18%	0.00143	0.000956
		MW15	downgradient	11	3	27%	0.00147	0.000844
		MW17	downgradient	12	12	100%	0.0186	0.0091
		MW2	downgradient	12	12	100%	0.219	0.0288
		MW13	downgradient	12	12	100%	0.151	0.0724
Barium	mg/L	MW18	background/upgradient	11	11	100%	0.325	0.0433
		MW19	background/upgradient	11	11	100%	0.319	0.0206
		MW9	background/upgradient	12	12	100%	0.513	0.0693
		MW17	downgradient	12	12	100%	0.0376	0.00593
		MW2	downgradient	12	12	100%	0.108	0.0114
		MW15	downgradient	12	12	100%	0.0454	0.00902
		MW13	downgradient	12	12	100%	0.0876	0.0178
Beryllium	mg/L	MW19	background/upgradient	10	0	0%	0.0005	0
		MW9	background/upgradient	10	0	0%	0.0005	0
		MW18	background/upgradient	10	0	0%	0.0005	0
		MW13	downgradient	10	0	0%	0.0005	0
		MW15	downgradient	10	0	0%	0.0005	0
		MW17	downgradient	10	0	0%	0.0005	0
		MW2	downgradient	10	0	0%	0.0005	0
Boron	mg/L	MW18	background/upgradient	12	0	0%	0.1	0
		MW19	background/upgradient	12	0	0%	0.1	0
		MW9	background/upgradient	12	0	0%	0.1	0
		MW13	downgradient	12	12	100%	1.97	0.176
		MW15	downgradient	12	12	100%	3.32	0.836
		MW17	downgradient	12	12	100%	0.683	0.0463
		MW2	downgradient	12	12	100%	1.55	0.259
Cadmium	mg/L	MW18	background/upgradient	11	1	9%	0.000256	0.000115
		MW19	background/upgradient	10	0	0%	0.00025	0
		MW9	background/upgradient	11	0	0%	0.00025	0
		MW15	downgradient	11	0	0%	0.00025	0
		MW17	downgradient	11	0	0%	0.00025	0
		MW13	downgradient	11	0	0%	0.000455	0.000678
		MW2	downgradient	11	0	0%	0.00025	0
Calcium	mg/L	MW18	background/upgradient	12	12	100%	96.5	9.87
		MW19	background/upgradient	12	12	100%	102	8.98
		MW9	background/upgradient	12	12	100%	153	21.5
		MW13	downgradient	12	12	100%	146	17.5
		MW15	downgradient	12	12	100%	271	34
		MW17	downgradient	12	12	100%	361	24.8
		MW2	downgradient	12	12	100%	272	30.4
Chloride	mg/L	MW18	background/upgradient	12	0	0%	2.5	0
		MW19	background/upgradient	12	6	50%	4.49	2.92
		MW9	background/upgradient	12	12	100%	178	49.1
		MW13	downgradient	12	12	100%	7.6	1.32
		MW15	downgradient	12	12	100%	14.3	6.57
		MW17	downgradient	12	12	100%	47.3	5.75
		MW2	downgradient	12	12	100%	24	2.55

**TABLE 1: SUMMARY STATISTICS  
 OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
 GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Well Group Type	N	No. Detects	FOD *	Mean	Standard Deviation
Chromium	mg/L	MW18	background/upgradient	10	0	0%	0.0025	0
		MW19	background/upgradient	10	0	0%	0.0025	0
		MW9	background/upgradient	11	1	9%	0.00278	0.00092
		MW13	downgradient	11	0	0%	0.00273	0.000754
		MW2	downgradient	11	0	0%	0.0025	0
		MW15	downgradient	12	8	67%	0.0123	0.00948
		MW17	downgradient	11	0	0%	0.0025	0
Cobalt	mg/L	MW18	background/upgradient	11	2	18%	0.000589	0.0008
		MW19	background/upgradient	10	0	0%	0.00025	0
		MW9	background/upgradient	11	11	100%	0.00161	0.000662
		MW2	downgradient	11	11	100%	0.000763	0.000252
		MW13	downgradient	11	2	18%	0.000326	0.00017
		MW15	downgradient	10	0	0%	0.00025	0
		MW17	downgradient	11	11	100%	0.0113	0.00178
Fluoride	mg/L	MW9	background/upgradient	12	8	67%	0.66	0.489
		MW18	background/upgradient	12	7	58%	0.524	0.322
		MW19	background/upgradient	12	4	33%	0.37	0.199
		MW13	downgradient	12	7	58%	0.674	0.647
		MW15	downgradient	12	3	25%	0.574	0.933
		MW17	downgradient	12	4	33%	0.768	0.861
		MW2	downgradient	12	5	42%	0.474	0.481
Lead	mg/L	MW9	background/upgradient	12	12	100%	0.00416	0.00168
		MW18	background/upgradient	11	5	45%	0.00187	0.00343
		MW19	background/upgradient	11	1	9%	0.000337	0.000289
		MW13	downgradient	11	0	0%	0.00025	0
		MW17	downgradient	11	1	9%	0.000873	0.00207
		MW2	downgradient	12	3	25%	0.000462	0.000536
		MW15	downgradient	11	1	9%	0.000288	0.000126
Lithium	mg/L	MW18	background/upgradient	11	3	27%	0.0253	0.00101
		MW19	background/upgradient	11	3	27%	0.0271	0.0036
		MW9	background/upgradient	11	5	45%	0.0363	0.0133
		MW2	downgradient	11	3	27%	0.0288	0.0069
		MW13	downgradient	11	3	27%	0.0239	0.00188
		MW15	downgradient	10	1	10%	0.0218	0.00706
		MW17	downgradient	11	11	100%	0.113	0.00763
Mercury	mg/L	MW9	background/upgradient	11	1	9%	0.000111	0.0000362
		MW18	background/upgradient	10	1	10%	0.00011	0.0000329
		MW19	background/upgradient	10	0	0%	0.0001	0
		MW13	downgradient	11	0	0%	0.0001	0
		MW15	downgradient	11	0	0%	0.0001	0
		MW17	downgradient	11	0	0%	0.0001	0
		MW2	downgradient	11	0	0%	0.0001	0
Molybdenum	mg/L	MW18	background/upgradient	10	0	0%	0.001	0
		MW19	background/upgradient	10	0	0%	0.001	0
		MW9	background/upgradient	10	0	0%	0.001	0
		MW17	downgradient	11	4	36%	0.00164	0.000977
		MW15	downgradient	11	11	100%	0.326	0.0595
		MW13	downgradient	11	11	100%	0.913	0.201
		MW2	downgradient	10	0	0%	0.001	0
pH	SU	MW18	background/upgradient	12	12	100%	7.15	0.374
		MW9	background/upgradient	12	12	100%	7.12	0.364
		MW19	background/upgradient	12	12	100%	7.04	0.345
		MW13	downgradient	12	12	100%	7.16	0.419
		MW2	downgradient	12	12	100%	7.14	0.311
		MW15	downgradient	12	12	100%	7.15	0.227
		MW17	downgradient	12	12	100%	6.87	0.355

**TABLE 1: SUMMARY STATISTICS**  
**OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)**  
**GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Well Group Type	N	No. Detects	FOD *	Mean	Standard Deviation
Ra 226+228	pCi/L	MW9	background/upgradient	11	11	100%	1.8	0.841
		MW19	background/upgradient	10	9	90%	0.984	0.536
		MW18	background/upgradient	10	10	100%	1.26	0.704
		MW2	downgradient	11	11	100%	0.596	0.28
		MW15	downgradient	11	9	82%	0.277	0.228
		MW13	downgradient	11	11	100%	0.391	0.102
Ra-226	pCi/L	MW17	downgradient	11	11	100%	0.544	0.313
		MW18	background/upgradient	10	10	100%	0.643	0.28
		MW9	background/upgradient	11	11	100%	0.704	0.195
		MW19	background/upgradient	10	10	100%	0.566	0.253
		MW2	downgradient	11	10	91%	0.213	0.12
		MW17	downgradient	11	11	100%	0.155	0.0621
Ra-228	pCi/L	MW13	downgradient	11	10	91%	0.13	0.0769
		MW15	downgradient	11	10	91%	0.127	0.0629
		MW18	background/upgradient	10	9	90%	0.594	0.459
		MW19	background/upgradient	10	8	80%	0.451	0.406
		MW9	background/upgradient	11	11	100%	1.12	0.717
		MW2	downgradient	11	10	91%	0.357	0.213
Selenium	mg/L	MW17	downgradient	11	11	100%	0.416	0.248
		MW15	downgradient	11	9	82%	0.177	0.2
		MW13	downgradient	11	9	82%	0.248	0.172
		MW9	background/upgradient	11	0	0%	0.0025	0
		MW18	background/upgradient	10	0	0%	0.0025	0
		MW19	background/upgradient	10	0	0%	0.0025	0
Sulfate	mg/L	MW13	downgradient	12	12	100%	0.0311	0.0146
		MW15	downgradient	12	12	100%	0.0849	0.0174
		MW17	downgradient	11	0	0%	0.0025	0
		MW2	downgradient	11	0	0%	0.0025	0
		MW19	background/upgradient	12	12	100%	15.4	8.46
		MW18	background/upgradient	12	2	17%	4.57	6.41
TDS	mg/L	MW9	background/upgradient	12	12	100%	35.6	13.3
		MW17	downgradient	12	12	100%	958	82.8
		MW2	downgradient	12	12	100%	797	209
		MW15	downgradient	12	12	100%	736	188
		MW13	downgradient	12	12	100%	577	71.8
		MW9	background/upgradient	12	12	100%	875	182
Thallium	mg/L	MW19	background/upgradient	12	12	100%	480	42.4
		MW18	background/upgradient	12	12	100%	488	59.7
		MW13	downgradient	12	12	100%	1230	159
		MW2	downgradient	12	12	100%	1880	407
		MW15	downgradient	12	12	100%	1400	171
		MW17	downgradient	12	12	100%	2470	389
Thallium	mg/L	MW9	background/upgradient	10	0	0%	0.0005	0
		MW19	background/upgradient	10	0	0%	0.0005	0
		MW18	background/upgradient	10	0	0%	0.0005	0
		MW15	downgradient	10	0	0%	0.0005	0
		MW17	downgradient	10	0	0%	0.0005	0
		MW2	downgradient	10	0	0%	0.0005	0
MW13	downgradient	10	0	0%	0.0005	0		

\* FOD = Frequency of Detection

**TABLE 2: POOLED SUMMARY STATISTICS  
 OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
 GROUND WATER MONITORING, 2018**

Analyte	Units	Well Group Type	N (total)	No. Detects	FOD *	Mean	Standard Deviation
Antimony	mg/L	background/upgradient	30	0	0%	0.0005	0
		downgradient	41	11	27%	0.00079	0.00050
Arsenic	mg/L	background/upgradient	33	14	42%	0.0030	0.0028
		downgradient	47	39	83%	0.0995	0.0994
Barium	mg/L	background/upgradient	34	34	100%	0.3894	0.1042
		downgradient	48	48	100%	0.0696	0.0317
Beryllium	mg/L	background/upgradient	30	0	0%	0.0005	0
		downgradient	40	0	0%	0.0005	0
Boron	mg/L	background/upgradient	36	0	0%	0.1	0
		downgradient	48	48	100%	1.88	1.06
Cadmium	mg/L	background/upgradient	32	1	3%	0.000252	0.000065
		downgradient	44	0	0%	0.000301	0.000339
Calcium	mg/L	background/upgradient	36	36	100%	117	29.6
		downgradient	48	48	100%	262.5	81.8
Chloride	mg/L	background/upgradient	36	18	50%	61.6	87.8
		downgradient	48	48	100%	23.2975	15.8
Chromium	mg/L	background/upgradient	31	1	3%	0.002598	0.000548
		downgradient	45	8	18%	0.005157	0.006431
Cobalt	mg/L	background/upgradient	32	13	41%	0.000833	0.000832
		downgradient	43	24	56%	0.003239	0.004894
Fluoride	mg/L	background/upgradient	36	19	53%	0.517861	0.366622
		downgradient	48	19	40%	0.622375	0.735934
Lead	mg/L	background/upgradient	34	18	53%	0.002182	0.002670
		downgradient	45	5	11%	0.000468	0.001052
Lithium	mg/L	background/upgradient	33	11	33%	0.029527	0.009123
		downgradient	43	18	42%	0.047474	0.039479
Mercury	mg/L	background/upgradient	31	2	6%	0.000107	0.000028
		downgradient	44	0	0%	0.0001	0
Molybdenum	mg/L	background/upgradient	30	0	0%	0.001	0
		downgradient	43	26	60%	0.318	0.392
pH	SU	background/upgradient	36	36	100%	7.1	0.354
		downgradient	48	48	100%	7.1	0.347
Ra 226+228	pCi/L	background/upgradient	31	30	97%	1.361	0.769
		downgradient	44	42	95%	0.452	0.268
Ra-226	pCi/L	background/upgradient	31	31	100%	0.640	0.242
		downgradient	44	41	93%	0.156	0.088
Ra-228	pCi/L	background/upgradient	31	28	90%	0.736	0.611
		downgradient	44	39	89%	0.299	0.223
Selenium	mg/L	background/upgradient	31	0	0%	0.0025	0
		downgradient	46	24	52%	0.0315	0.0360
Sulfate	mg/L	background/upgradient	36	26	72%	18.5	16.2
		downgradient	48	48	100%	767	201
TDS	mg/L	background/upgradient	36	36	100%	614	217
		downgradient	48	48	100%	1747	567
Thallium	mg/L	background/upgradient	30	0	0%	0.0005	0
		downgradient	40	0	0%	0.0005	0

\* FOD = Frequency of Detection

**TABLE 3: SHAPIRO-WILK GOODNESS OF FIT TEST AND LEVENE HOMOGENEITY OF VARIANCE TEST  
OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
GROUND WATER MONITORING, 2018**

Analyte	N	No Detects	FOD	Shapiro-Wilk Test				Levene's test				Test Decision		
				Normal Distribution		Lognormal Distribution		Normal Distribution		Lognormal Distribution				
				W	Prob W	Wlog	Prob W	Distribution	F	Prob. F	F		Prob. F	HOV **
Antimony	71	11	15%	0.48	<0.0001	0.48	<0.0001	Nonparametric	29.83	<0.0001	31.41	<0.0001	NA	Kruskal-Wallis
Arsenic	80	53	66%	0.69	<0.0001	0.93	0.0002	Nonparametric	27.11	<0.0001	21.02	<0.0001	NA	Kruskal-Wallis
Barium	82	82	100%	0.86	<0.0001	0.97	0.0277	Nonparametric	33.07	<0.0001	4.77	0.0017	NA	Kruskal-Wallis
Beryllium	70	0	0%	—	—	—	—	—	—	—	—	—	—	—
Boron	84	48	57%	0.64	<0.0001	0.84	<0.0001	Nonparametric	20.26	<0.0001	20.27	<0.0001	NA	Kruskal-Wallis
Cadmium	76	1	1%	0.26	<0.0001	0.37	<0.0001	Nonparametric	6.90	0.0001	2.61	0.0428	NA	Kruskal-Wallis
Calcium	84	84	100%	0.98	0.3352	0.97	0.0382	Normal	1.07	0.3765	6.17	0.0002	Equal	ANOVA
Chloride	84	66	79%	0.78	<0.0001	0.83	<0.0001	Nonparametric	41.87	<0.0001	51.28	<0.0001	NA	Kruskal-Wallis
Chromium	76	9	12%	0.59	<0.0001	0.63	<0.0001	Nonparametric	101.05	<0.0001	62.78	<0.0001	NA	Kruskal-Wallis
Cobalt	75	37	49%	0.83	<0.0001	0.89	<0.0001	Nonparametric	11.63	<0.0001	46.93	<0.0001	NA	Kruskal-Wallis
Fluoride	84	38	45%	0.70	<0.0001	0.85	<0.0001	Nonparametric	2.72	0.0355	2.07	0.0923	NA	Kruskal-Wallis
Lead	79	23	29%	0.74	<0.0001	0.90	<0.0001	Nonparametric	10.37	<0.0001	23.13	<0.0001	NA	Kruskal-Wallis
Lithium	76	29	38%	0.82	<0.0001	0.77	<0.0001	Nonparametric	2.12	0.0877	5.57	0.0006	NA	Kruskal-Wallis
Mercury	75	2	3%	0.28	<0.0001	0.28	<0.0001	Nonparametric	3.24	0.0168	3.26	0.0165	NA	Kruskal-Wallis
Molybdenum	73	26	36%	0.57	<0.0001	0.77	<0.0001	Nonparametric	19.60	<0.0001	46.89	<0.0001	NA	Kruskal-Wallis
pH	84	84	100%	0.98	0.1683	0.99	0.4882	Normal	0.88	0.4772	1.02	0.4042	Equal	ANOVA
Ra-226+228	75	72	96%	0.93	0.0006	0.95	0.0043	Nonparametric	10.42	<0.0001	1.65	0.1724	NA	Kruskal-Wallis
Ra-226	75	72	96%	0.96	0.0165	0.86	<0.0001	Nonparametric	9.77	<0.0001	1.71	0.1585	NA	Kruskal-Wallis
Ra-228	75	67	89%	0.93	0.0004	0.95	0.0037	Nonparametric	8.40	<0.0001	0.30	0.8763	NA	Kruskal-Wallis
Selenium	77	24	31%	0.69	<0.0001	0.62	<0.0001	Nonparametric	25.24	<0.0001	22.48	<0.0001	NA	Kruskal-Wallis
Sulfate	84	74	88%	0.83	<0.0001	0.91	<0.0001	Nonparametric	11.34	<0.0001	30.65	<0.0001	NA	Kruskal-Wallis
TDS	84	84	100%	0.93	0.0002	0.93	0.0003	Nonparametric	3.91	0.0060	6.60	0.0001	NA	Kruskal-Wallis
Thallium	70	0	0%	—	—	—	—	—	—	—	—	—	—	—

\* FOD = Frequency of Detection

\*\* HOV = Homogeneity of Variance

**TABLE 4: ANOVA**  
**OMAHA PUBLIC POWER DISTRICT'S (OPPD)**  
**NORTH OMAHA STATION (NOS)**  
**GROUND WATER MONITORING, 2018**

Analyte	Distributoin	F	Prob. F
Calcium	Normal	222	<0.0001
pH	Normal	1.49	0.2119



**TABLE 5: PARAMETRIC CONTRASTS BETWEEN EACH  
 DOWNGRAIENT/CROSS-GRADIENT WELL AND  
 POOLED UPGRADIENT WELLS  
 OMAHA PUBLIC POWER DISTRICT'S (OPPD)  
 NORTH OMAHA STATION (NOS)  
 GROUND WATER MONITORING, 2018**

Analyte	Well ID	Significant?
<b>Calcium</b>	MW13	Yes
	MW15	Yes
	MW17	Yes
	MW2	Yes
<b>pH</b>	MW13	No
	MW15	No
	MW17	No
	MW2	No

**TABLE 6: KRUSKAL-WALLIS  
 OMAHA PUBLIC POWER DISTRICT'S (OPPD)  
 NORTH OMAHA STATION (NOS)  
 GROUND WATER MONITORING, 2018**

Analyte	Units	Kruskal-Wallis	Degrees of Freedom	Prob.
Antimony	mg/L	69.35	4	<0.0001
Arsenic	mg/L	66.15	4	<0.0001
Barium	mg/L	72.24	4	<0.0001
Beryllium	mg/L	0.00	4	1.0000
Boron	mg/L	81.37	4	<0.0001
Cadmium	mg/L	2.02	4	0.7316
Calcium	mg/L	68.43	4	<0.0001
Chloride	mg/L	20.30	4	0.0004
Chromium	mg/L	37.45	4	<0.0001
Cobalt	mg/L	43.15	4	<0.0001
Fluoride	mg/L	3.17	4	0.5290
Lead	mg/L	18.93	4	0.0008
Lithium	mg/L	43.69	4	<0.0001
Mercury	mg/L	2.88	4	0.5786
Molybdenum	mg/L	66.30	4	<0.0001
pH	SU	4.76	4	0.3128
Ra 226+228	pCi/L	39.97	4	<0.0001
Ra-226	pCi/L	51.54	4	<0.0001
Ra-228	pCi/L	17.95	4	0.0013
Selenium	mg/L	75.15	4	<0.0001
Sulfate	mg/L	69.93	4	<0.0001
TDS	mg/L	70.95	4	<0.0001
Thallium	mg/L	0.00	4	1.0000

**TABLE 7: NONPARAMETRIC CONTRASTS BETWEEN EACH DOWNGRAIDENT/CROSS-GRADIENT WELL AND POOLED UPGRADIENT WELLS  
OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Wilcoxon Z	Prob. Z	Significant?
<b>Antimony</b>	mg/L	MW13	0.00	1.0000	No
		MW15	6.22	<0.0001	Yes
		MW17	0.00	1.0000	No
		MW2	0.00	1.0000	No
<b>Arsenic</b>	mg/L	MW13	5.28	<0.0001	Yes
		MW15	-1.47	0.5833	No
		MW17	5.04	<0.0001	Yes
		MW2	5.28	<0.0001	Yes
<b>Barium</b>	mg/L	MW13	-5.10	<0.0001	No
		MW15	-5.10	<0.0001	No
		MW17	-5.10	<0.0001	No
		MW2	-5.10	<0.0001	No
<b>Beryllium</b>	mg/L	MW13	0.00	1.0000	No
		MW15	0.00	1.0000	No
		MW17	0.00	1.0000	No
		MW2	0.00	1.0000	No
<b>Boron</b>	mg/L	MW13	6.76	<0.0001	Yes
		MW15	6.76	<0.0001	Yes
		MW17	6.76	<0.0001	Yes
		MW2	6.76	<0.0001	Yes
<b>Cadmium</b>	mg/L	MW13	1.01	0.8517	No
		MW15	0.00	1.0000	No
		MW17	0.00	1.0000	No
		MW2	0.00	1.0000	No
<b>Calcium</b>	mg/L	MW13	3.14	0.0144	No
		MW15	5.14	<0.0001	Yes
		MW17	5.14	<0.0001	Yes
		MW2	5.14	<0.0001	Yes
<b>Chloride</b>	mg/L	MW13	1.30	0.6934	No
		MW15	1.49	0.5676	No
		MW17	1.76	0.3965	No
		MW2	1.76	0.3965	No

**TABLE 7: NONPARAMETRIC CONTRASTS BETWEEN EACH DOWNGRAIENT/CROSS-GRADIENT WELL AND POOLED UPGRADIENT WELLS  
OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Wilcoxon Z	Prob. Z	Significant?
Chromium	mg/L	MW13	0.74	0.9480	No
		MW15	4.61	<0.0001	Yes
		MW17	-0.60	0.9758	No
		MW2	-0.60	0.9758	No
Cobalt	mg/L	MW13	-1.72	0.4232	No
		MW15	-2.34	0.1314	No
		MW17	5.12	<0.0001	Yes
		MW2	1.16	0.7716	No
Fluoride	mg/L	MW13	0.73	0.9505	No
		MW15	-1.39	0.6349	No
		MW17	-0.23	0.9994	No
		MW2	-0.85	0.9139	No
Lead	mg/L	MW13	-2.95	0.0262	No
		MW15	-2.65	0.0624	No
		MW17	-2.20	0.1779	No
		MW2	-2.13	0.2075	No
Lithium	mg/L	MW13	-2.80	0.0405	No
		MW15	-2.44	0.1047	No
		MW17	5.26	0.0000	Yes
		MW2	-0.11	1.0000	No
Mercury	mg/L	MW13	-0.85	0.9139	No
		MW15	-0.85	0.9139	No
		MW17	-0.85	0.9139	No
		MW2	-0.85	0.9139	No
Molybdenum	mg/L	MW13	6.22	<0.0001	Yes
		MW15	6.22	<0.0001	Yes
		MW17	3.43	0.0055	Yes
		MW2	0.00	1.0000	No
pH	SU	MW13	0.14	0.9999	No
		MW15	0.48	0.9895	No
		MW17	-1.71	0.4248	No
		MW2	0.32	0.9977	No

**TABLE 7: NONPARAMETRIC CONTRASTS BETWEEN EACH DOWNGRAIDENT/CROSS-GRADIENT WELL AND POOLED UPGRADIENT WELLS  
OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Wilcoxon Z	Prob. Z	Significant?
Ra 226+228	pCi/L	MW13	-4.36	0.0001	No
		MW15	-4.42	0.0001	No
		MW17	-3.45	0.0051	No
		MW2	-3.28	0.0093	No
Ra-226	pCi/L	MW13	-4.76	<0.0001	No
		MW15	-4.76	<0.0001	No
		MW17	-4.71	<0.0001	No
		MW2	-4.53	0.0001	No
Ra-228	pCi/L	MW13	-2.70	0.0534	No
		MW15	-3.42	0.0057	No
		MW17	-1.44	0.5986	No
		MW2	-1.70	0.4325	No
Selenium	mg/L	MW13	6.37	<0.0001	Yes
		MW15	6.37	<0.0001	Yes
		MW17	0.00	1.0000	No
		MW2	0.00	1.0000	No
Sulfate	mg/L	MW13	5.17	<0.0001	Yes
		MW15	5.17	<0.0001	Yes
		MW17	5.17	<0.0001	Yes
		MW2	5.17	<0.0001	Yes
TDS	mg/L	MW13	4.77	<0.0001	Yes
		MW15	5.05	<0.0001	Yes
		MW17	5.14	<0.0001	Yes
		MW2	5.14	<0.0001	Yes
Thallium	mg/L	MW13	0.00	1.0000	No
		MW15	0.00	1.0000	No
		MW17	0.00	1.0000	No
		MW2	0.00	1.0000	No

**TABLE 8: SSIs AND MANN-KENDALL TREND ANALYSIS  
 OMAHA PUBLIC POWER DISTRICT'S (OPPD) NORTH OMAHA STATION (NOS)  
 GROUND WATER MONITORING, 2018**

Analyte	Units	Well ID	Mann-Kendall Trend Analysis											
			Downgradient/Cross-gradient Well						Pooled Upgradient Wells					
			N	S	Var(S)	Two-Tailed Prob.	Trend	Sen Slope (units per year)	N	S	Var(S)	Two-Tailed Prob.	Trend	Sen Slope (units per year)
Antimony	mg/L	MW15	11	1	165	1.0000	--	0.0000107	11	0	0	1	--	0
			12	-10	213	0.5460	--	-0.0189						
Arsenic	mg/L	MW17	12	8	213	0.6380	--	0.0009	13	20	203	0.252	--	0
			12	-9	212	0.5920	--	-0.0050						
Boron	mg/L	MW13	12	-21	212	0.1740	--	-0.1031	13	0	0	0.952	--	0
			12	-14	213	0.3800	--	-0.2054						
			12	9	212	0.5920	--	0.0188						
			12	-2	213	0.9460	--	-0.0220						
Calcium	mg/L	MW13	12	18	213	0.2500	--	10.40						
			12	-22	213	0.1520	--	-22.46	13	-2	267	0.952	--	-0.3479
			12	-32	213	0.0320	Decreasing	-17.83						
			12	15	212	0.3450	--	11.54						
Chromium	mg/L	MW15	12	4	204	0.8400	--	0	12	0	0	0.946	--	0
Cobalt	mg/L	MW17	11	12	164	0.4020	--	0.0012	12	14	147	0.38	--	0
Lithium	mg/L	MW17	11	-35	160	0.0060	Decreasing	-0.0064	12	32	147	0.032	Increasing	0.0029
			11	33	165	0.0100	Increasing	0.1909						
Molybdenum	mg/L	MW15	11	-6	164	0.7050	--	-0.0138	11	0	0	1	--	0
			12	20	213	0.1960	--	0.0081	12	0	0	0.946	--	0
Selenium	mg/L	MW15	12	-32	213	0.0320	Decreasing	-0.0151						
			12	34	213	0.0200	Increasing	62.40						
Sulfate	mg/L	MW15	12	-4	213	0.8400	--	-20.85	13	-40	269	0.014	Decreasing	-8.633
			12	-25	212	0.1010	--	-52.88						
			12	-8	213	0.6380	--	-27.64						
			12	26	213	0.0860	--	109						
TDS	mg/L	MW15	12	-21	212	0.1740	--	-146	13	-17	268	0.337	--	-19.19
			12	-41	212	0.0050	Decreasing	-349						
			12	-10	213	0.5460	--	-96.32						

-- = Not applicable

**Table 9: Summary of SSI/SSDs  
Omaha Public Power District (OPPD) North Omaha Station (NOS)  
Groundwater Monitoring, 2018**

SSD Analyte	Down Gradient Well	Maximum Analyte Concentration in Well mg/L	USEPA MCL <sup>1</sup> mg/L	Background Wells Pooled Mean mg/L
Antimony	MW-15	0.00204	0.006	Not Detected
Arsenic	MW-2	0.204	0.01	0.003
	MW-13	0.274		
	MW-17	0.036		
Boron	MW-2	1.92	None	Not Detected
	MW-13	2.26		
	MW-15	4.24		
	MW-17	0.753		
Calcium	MW-2	302	None	117
	MW-13	179		
	MW-15	340		
	MW-17	320		
Chromium	MW-15	0.0267	0.1	0.002598
Cobalt	MW-17	0.0134	None	0.000833
Lithium	MW-17	0.129	None	0.029527
Molybdenum	MW-13	1.40	None	Not Detected
	MW-15	0.408		
Selenium	MW-13	0.0609	0.05	Not Detected
	MW-15	0.115		
Sulfate	MW-2	1320	250*	18.5
	MW-13	663		
	MW-15	934		
	MW-17	1090		
Total Dissolved Solids	MW-2	2890	500*	614
	MW-13	1750		
	MW-15	1750		
	MW-17	3150		

<sup>1</sup> USEPA National Primary Drinking Water Regulations, May 2009 (EPA 816-F-09-004)

\* USEPA non-mandatory Secondary Maximum Contaminant Levels

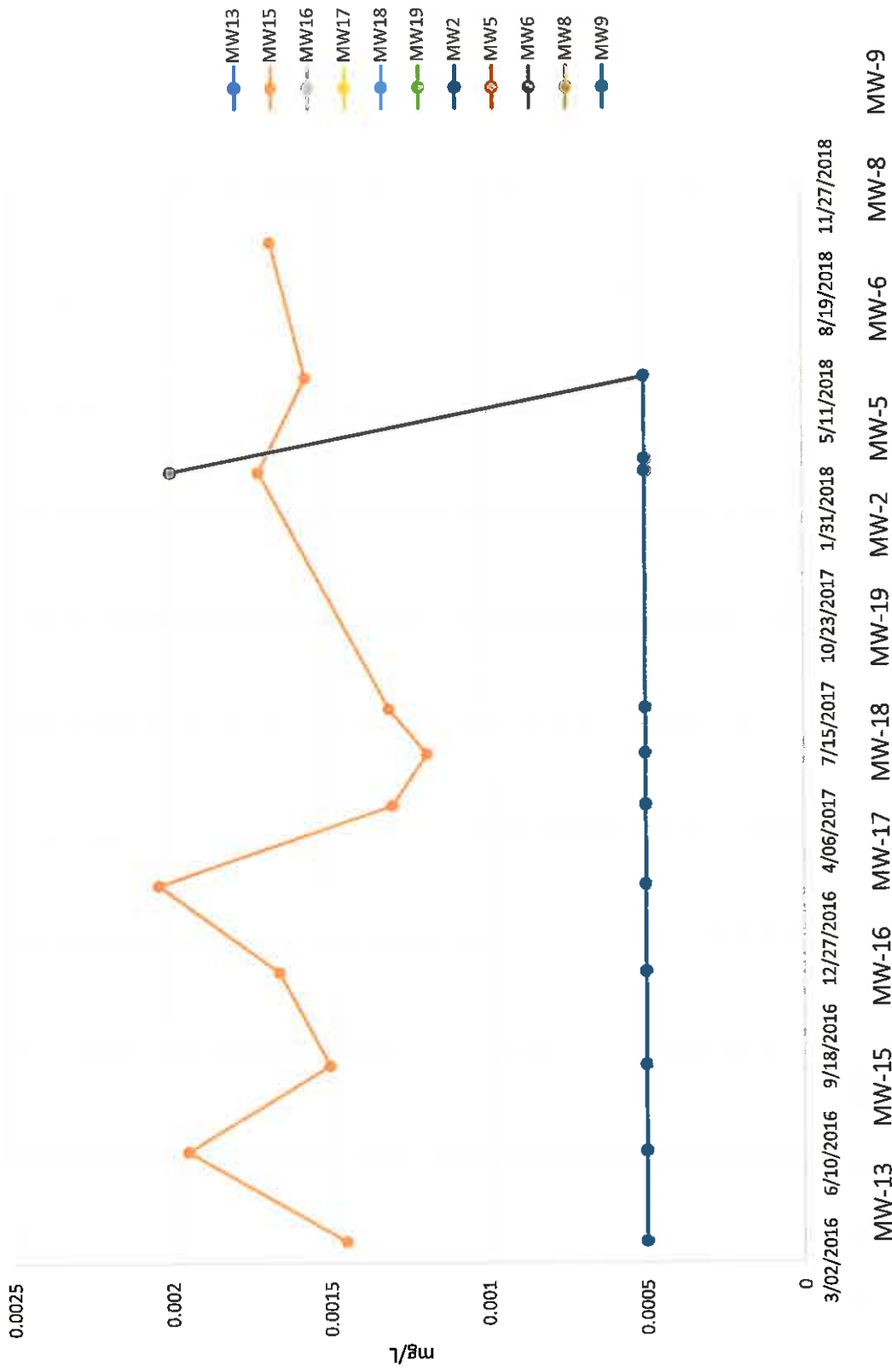
Shading indicates Appendix IV concentrations greater than their MCL

# Time Series Plots

Graphs shown include data for all site monitoring wells.



# Antimony



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

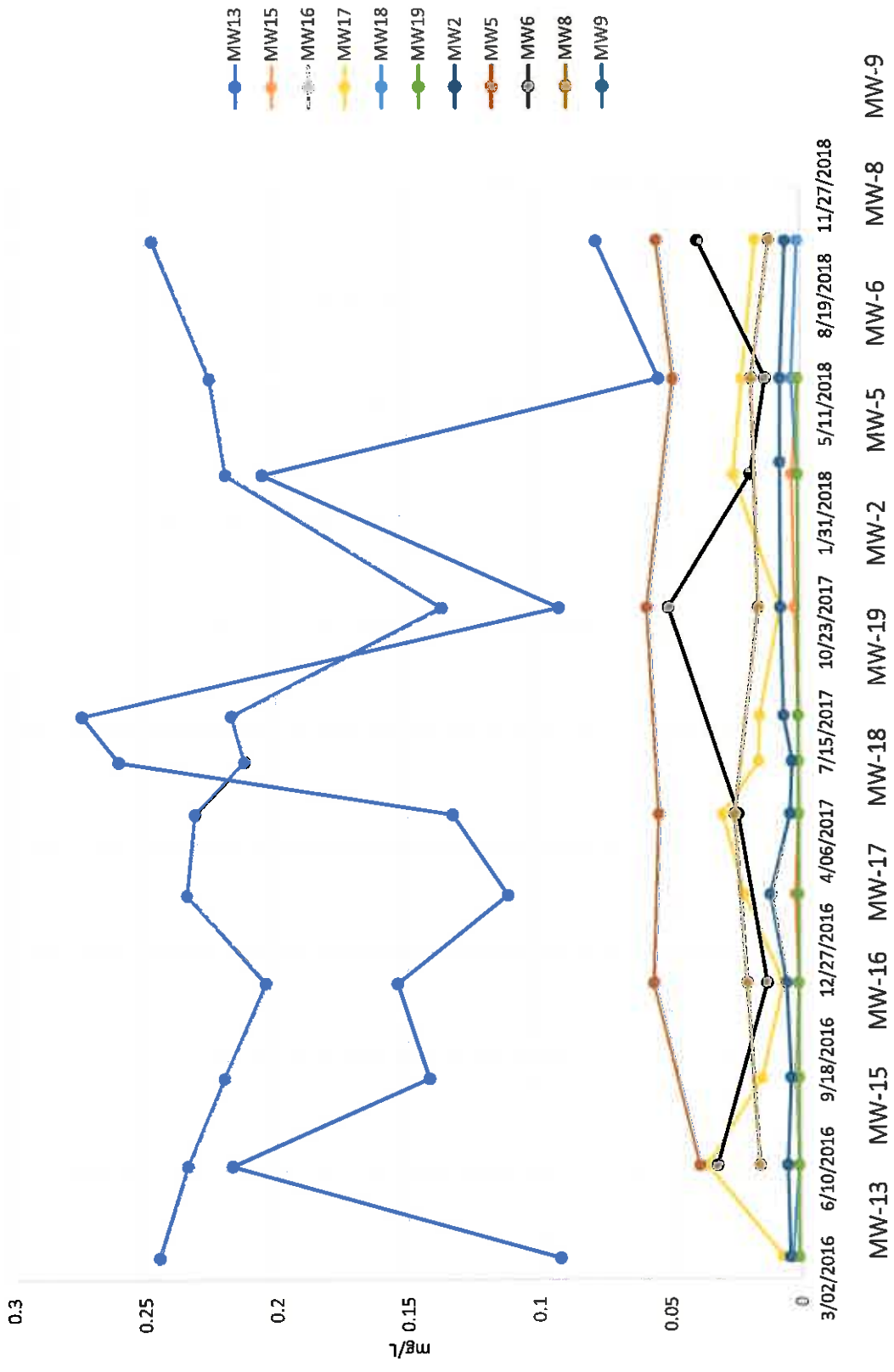
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Antimony	3/22/2016	0.001 U	0.00145	0.001 U		0.001 U	0.001 U	0.001 U				0.001 U
Antimony	3/23/2016				0.001 U							
Antimony	6/14/2016	0.001 U	0.00195	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	9/02/2016	0.001 U	0.0015	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	11/23/2016	0.001 U	0.00166	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	2/17/2017	0.001 U	0.00204	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	5/02/2017	0.001 U	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	6/19/2017	0.001 U	0.00119	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	7/31/2017	0.001 U	0.00131	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	3/09/2018	0.001 U	0.00172		0.001 U	0.001 U	0.001 U	0.001 U		0.004 U		
Antimony	3/20/2018											0.001 U
Antimony	6/05/2018	0.001 U	0.00157		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Antimony	10/09/2018		0.00168									

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Arsenic



**Notes:** Outliers reported.  
 Non-detects reported as ½ the reporting limit.

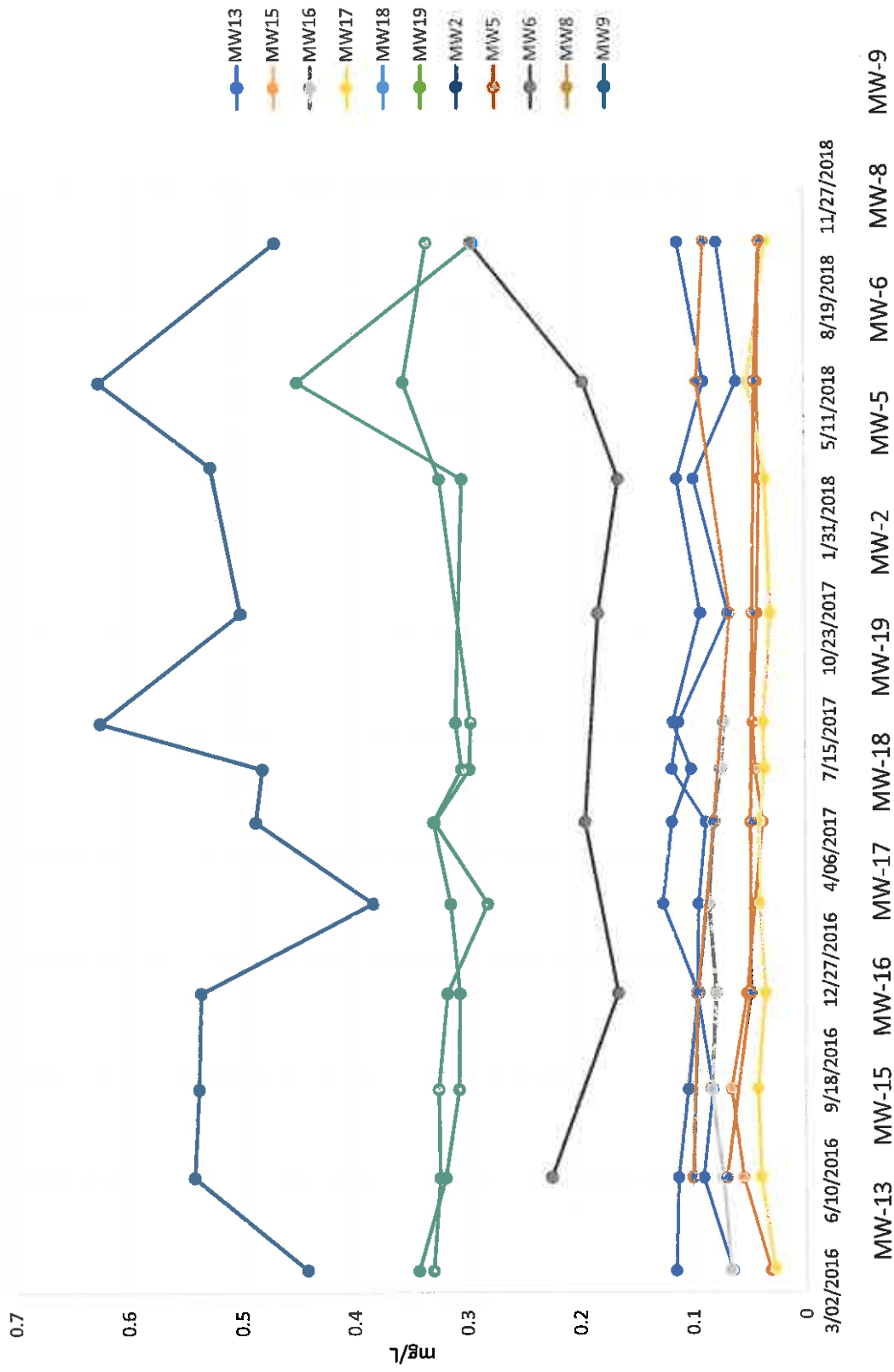
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Arsenic	3/22/2016	0.0923	0.002 U	0.002 U		0.00735	0.00345	0.002 U	0.245			0.00454
Arsenic	6/14/2016	0.217	0.002 U	0.002 U	0.036	0.002 U	0.002 U	0.234	0.0389	0.0324	0.0162	0.00542
Arsenic	9/02/2016	0.142	0.002 U	0.00233	0.0152	0.002 U	0.002 U	0.22				0.00397
Arsenic	11/28/2016	0.154	0.002 U	0.002 U	0.00691	0.002 U	0.002 U	0.204	0.0564	0.0133	0.021	0.00572
Arsenic	2/17/2017	0.112	0.00241	0.002 U	0.0219	0.002 U	0.002 U	0.234				0.0118
Arsenic	5/02/2017	0.133	0.002 U	0.002 U	0.03	0.002 U	0.002 U	0.231	0.0544	0.0243	0.0256	0.00423
Arsenic	6/19/2017	0.26	0.002 U	0.002 U	0.0163	0.002 U	0.002 U	0.212				0.00345
Arsenic	7/31/2017	0.274	0.002 U	0.002 U	0.0159	0.002 U	0.002 U	0.217				0.00662
Arsenic	11/07/2017	0.0925	0.0024		0.00794			0.137	0.0588	0.0506	0.0164	0.00772
Arsenic	3/09/2018	0.205	0.00337		0.0257	0.002 U	0.002 U	0.219		0.0194		
Arsenic	3/20/2018											0.00777
Arsenic	6/05/2018	0.0544	0.002 U		0.0224	0.00327	0.002 U	0.225	0.0486	0.0136	0.0189	0.00768
Arsenic	10/09/2018	0.0782				0.002 U		0.247		0.0393		0.00571
Arsenic	10/10/2018				0.0173				0.0549		0.0121	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Barium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

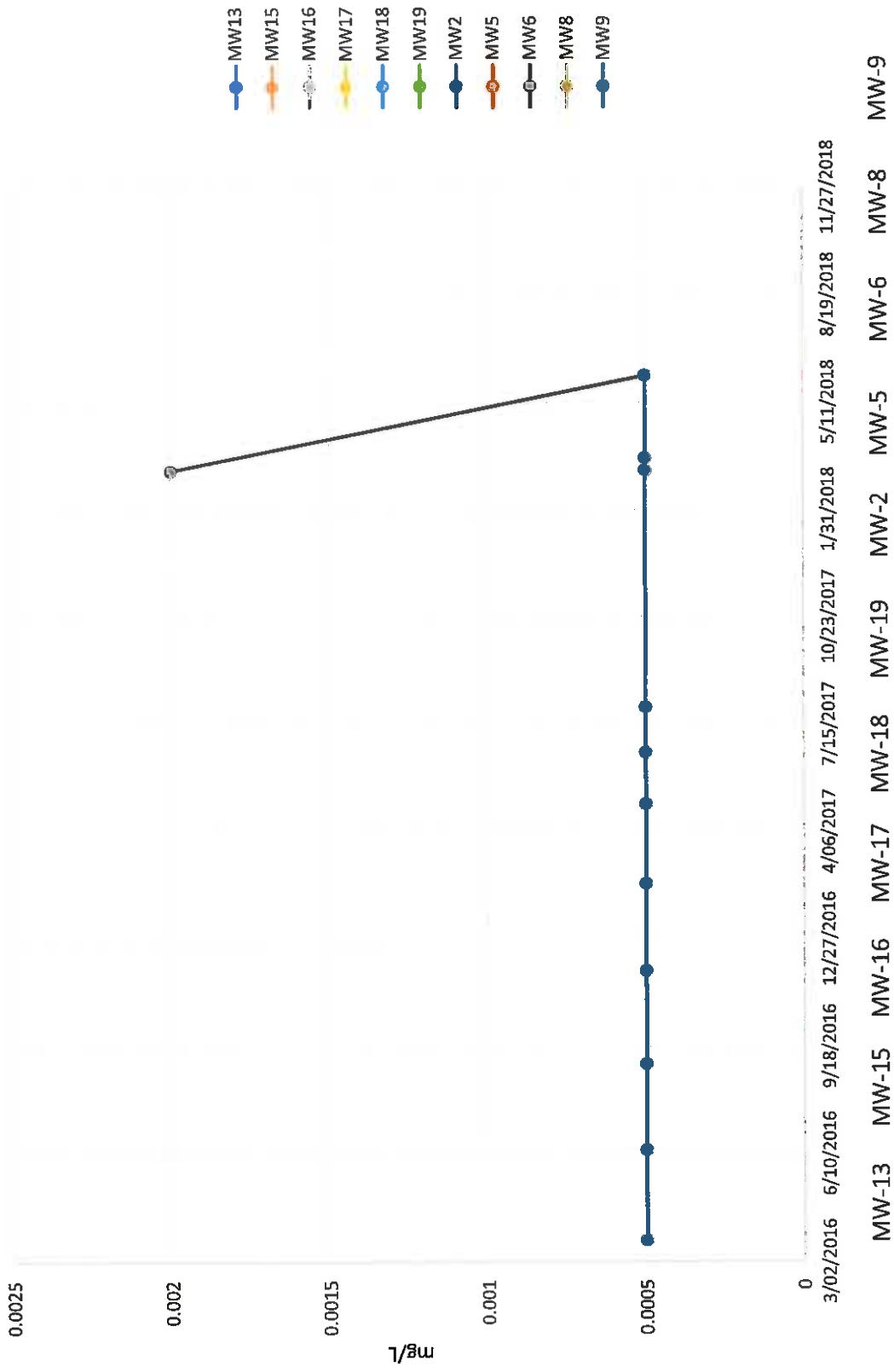
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Barium	3/22/2016	0.0652	0.0514	0.0665		0.349	0.39	0.115				0.442
Barium	3/23/2016				0.0276							
Barium	6/14/2016	0.0906	0.0552	0.073	0.0396	0.319	0.324	0.113	0.0701	0.225	0.1	0.542
Barium	9/02/2016	0.0825	0.066	0.0837	0.0424	0.307	0.325	0.104				0.538
Barium	11/28/2016	0.0959	0.0523	0.0794	0.0356	0.306	0.317	0.0952	0.0491	0.166	0.0954	0.536
Barium	2/17/2017	0.0946	0.0448	0.0857	0.0406	0.314	0.281	0.126				0.383
Barium	5/02/2017	0.0882	0.0382	0.0818	0.0411	0.329	0.328	0.118	0.0488	0.195	0.0813	0.487
Barium	6/19/2017	0.118	0.0447	0.0752	0.0361	0.304	0.297	0.101				0.481
Barium	7/31/2017	0.112	0.0467	0.0722	0.0373	0.309	0.296	0.117				0.624
Barium	11/07/2017	0.0682	0.0428		0.0305			0.0923	0.047	0.183	0.0667	0.5
Barium	3/09/2018	0.0982	0.0405		0.0351	0.303	0.323	0.113		0.165		
Barium	3/20/2018											0.526
Barium	6/05/2018	0.0605	0.0424		0.0505	0.449	0.355	0.0896	0.0447	0.196	0.0954	0.625
Barium	10/09/2018	0.0775	0.0394			0.293	0.334	0.112		0.295		0.469
Barium	10/10/2018				0.0346				0.0402		0.0892	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Beryllium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Beryllium	3/22/2016	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	3/23/2016				0.001 U							
Beryllium	6/14/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	9/02/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	11/28/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	2/17/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	5/02/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	6/19/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	7/31/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	3/09/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U		0.004 U		
Beryllium	3/20/2018											0.001 U
Beryllium	6/05/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

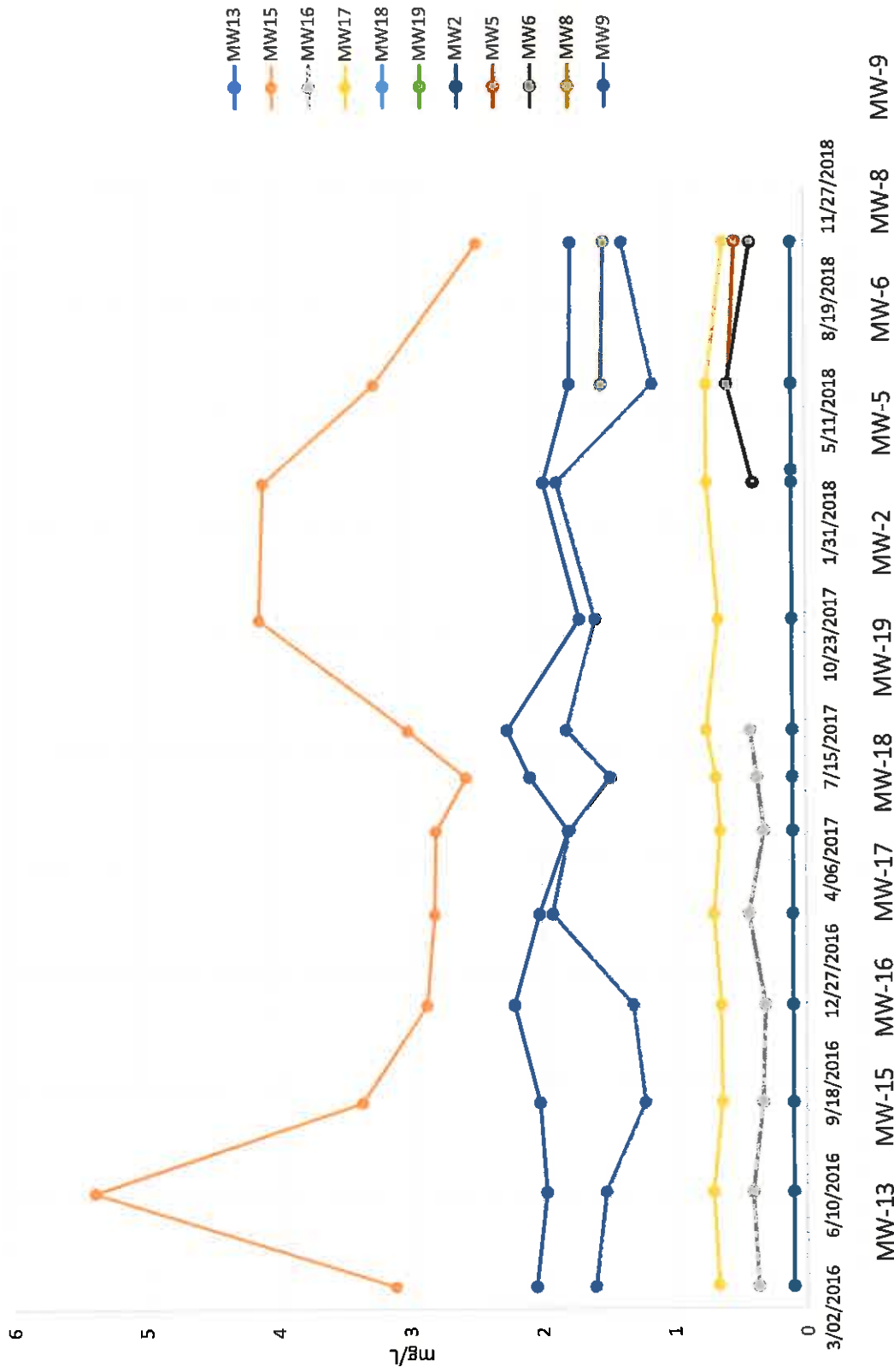
**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



# Boron



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

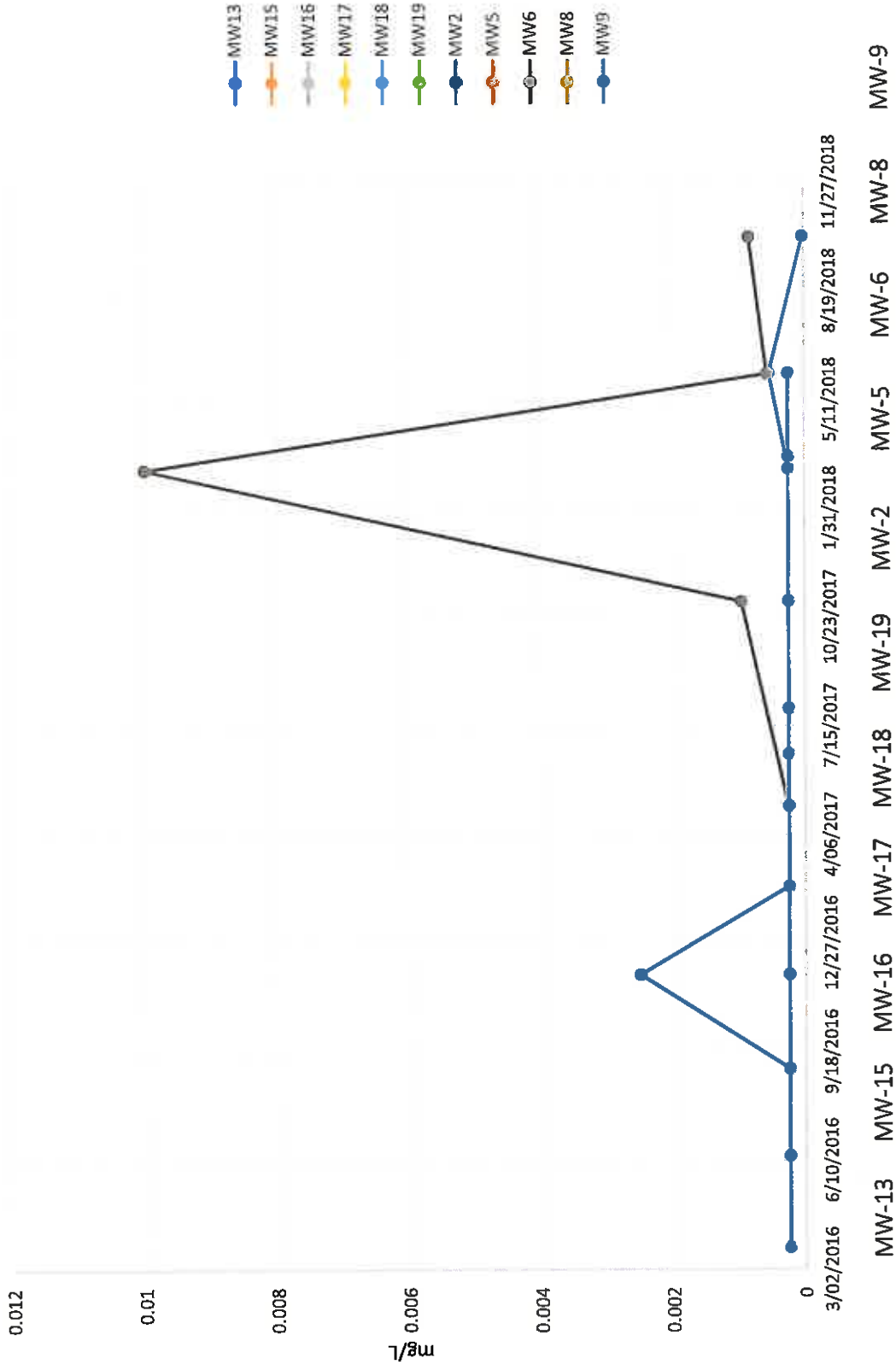
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Boron	3/23/2016	2.05	3.11	0.367		0.2 U	0.2 U	1.6				0.2 U
Boron	3/23/2016				0.668							
Boron	6/14/2016	1.97	5.39	0.409	0.706	0.2 U	0.2 U	1.52				0.2 U
Boron	9/02/2016	2.02	3.36	0.333	0.637	0.2 U	0.2 U	1.22				0.2 U
Boron	11/28/2016	2.21	2.87	0.312	0.644	0.2 U	0.2 U	1.31				0.2 U
Boron	2/17/2017	2.02	2.81	0.433	0.7	0.2 U	0.2 U	1.92				0.2 U
Boron	5/02/2017	1.8	2.8	0.32	0.649	0.2 U	0.2 U	1.79				0.2 U
Boron	6/19/2017	2.09	2.57	0.371	0.679	0.2 U	0.2 U	1.48				0.2 U
Boron	7/31/2017	2.26	3.01	0.423	0.753	0.2 U	0.2 U	1.81				0.2 U
Boron	11/07/2017	1.71	4.13		0.66	0.2 U	0.2 U	1.59				0.2 U
Boron	3/09/2018	1.98	4.1		0.745	0.2 U	0.2 U	1.88		0.8 U		
Boron	3/20/2018											0.2 U
Boron	6/05/2018	1.78	3.26		0.745	0.2 U	0.2 U	1.15	0.58	0.589	1.54	0.2 U
Boron	10/09/2018	1.77	2.48			0.2 U	0.2 U	1.98		0.415		0.2 U
Boron	10/10/2018				0.615				0.528		1.52	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Cadmium



Notes: Outliers reported.  
Non-detects reported as 1/2 the reporting limit.

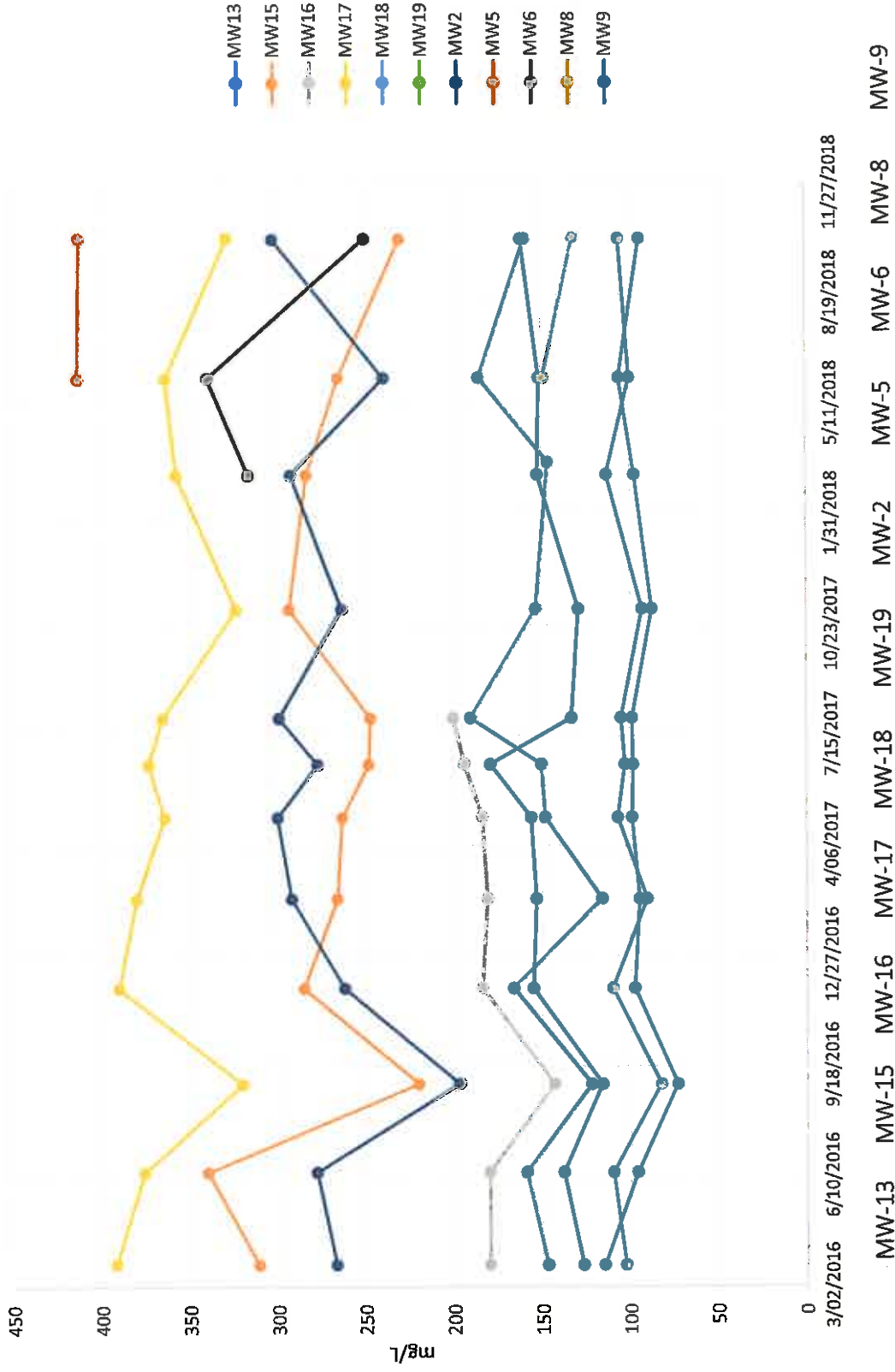
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Cadmium	3/22/2016	0.0005 U	0.0005 U	0.0005 U		0.0005 U	0.0005 U	0.0005 U	0.0005 U			0.0005 U
Cadmium	3/23/2016				0.0005 U							
Cadmium	6/14/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	9/02/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	11/28/2016	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	2/17/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U			0.0005 U
Cadmium	5/02/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	6/19/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	7/31/2017	0.0005 U	0.0005 U	0.0005 U		0.0005 U	0.0005 U	0.0005 U	0.0005 U			0.0005 U
Cadmium	11/07/2017	0.0005 U	0.0005 U		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000959	0.0005 U	0.0005 U
Cadmium	3/09/2018	0.0005 U	0.0005 U		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.02 U		
Cadmium	3/20/2018											0.0005 U
Cadmium	6/05/2018	0.0005 U	0.0005 U		0.0005 U	0.000537	0.0005 U	0.0005 U	0.0005 U	0.000564	0.0005 U	0.0005 U
Cadmium	10/09/2018					0.00005 U				0.000834		

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Calcium



Notes: Outliers reported.  
 Non-detects reported as ½ the reporting limit.

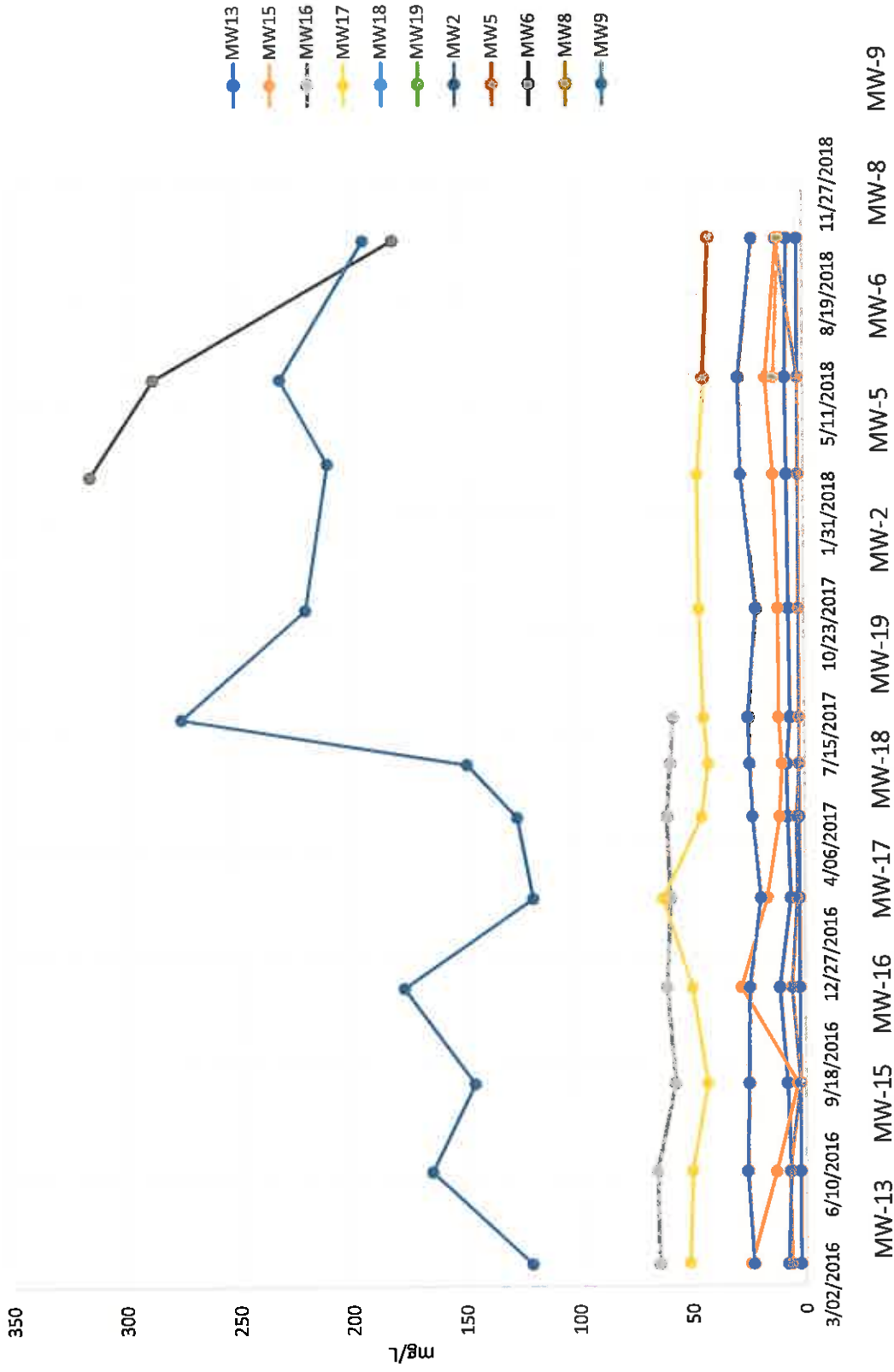
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Calcium	3/22/2016	127	911	180		115	108	267				147
Calcium	3/23/2016				392							
Calcium	6/14/2016	138	340	180	376	96.1	110	278				159
Calcium	9/02/2016	116	220	143	320	73.4	82.8	197				122
Calcium	11/28/2016	155	285	184	390	97.6	110	262				166
Calcium	2/17/2017	153	266	181	380	94.8	90.5	292				116
Calcium	5/02/2017	156	263	184	364	98.9	107	300				148
Calcium	6/19/2017	179	248	194	373	98.4	108	277				150
Calcium	7/31/2017	133	247	200	365	98.8	105	299				190
Calcium	11/07/2017	129	293		323	87.5	93	263				153
Calcium	3/09/2018	152	283		357	97.3	113	292		316		
Calcium	3/20/2018											146
Calcium	6/05/2018	151	265		363	106	100	239	413	339	149	285
Calcium	10/09/2018	161	230			94.2	106	302		250		159
Calcium	10/10/2018				328				412		192	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Chloride



Notes: Outliers reported.  
 Non-detects reported as ½ the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Chloride	3/22/2016	7.97	24.3	64.7		5 U	6.5	23.1				121
Chloride	3/23/2016				51.3							
Chloride	6/14/2016	6.7	13	65.5	50	5 U	7.2	25.7				165
Chloride	9/02/2016	8.06	9.52	57.3	43	5 U	5 U	24.9				146
Chloride	11/28/2016	11.3	28.2	60.7	49.7	5 U	6.02	24.4				177
Chloride	2/17/2017	6.35	16.8	59.2	62.6	5 U	3.55	19.3				120
Chloride	5/02/2017	7.52	11.2	60.7	45.3	5 U	3.7	22.9				127
Chloride	6/19/2017	7.83	9.99	59.3	42.3	5 U	5 U	24.1				149
Chloride	7/31/2017	6.3	11.4	57.9	44.4	5 U	5 U	24.8				275
Chloride	11/07/2017	6.81	11.6		46.2	5 U	5 U	21.2				220
Chloride	3/09/2018	7.35	13.4		46.8	5 U	5 U	27.4		315		
Chloride	3/20/2018											210
Chloride	6/05/2018	7.93	16.6		43.6	5 U	5 U	28.5	44.2	287	12.9	231
Chloride	10/09/2018	7.05	11.5			5 U	11.9	22.2		181		194
Chloride	10/10/2018				41.9				41.6		10.8	

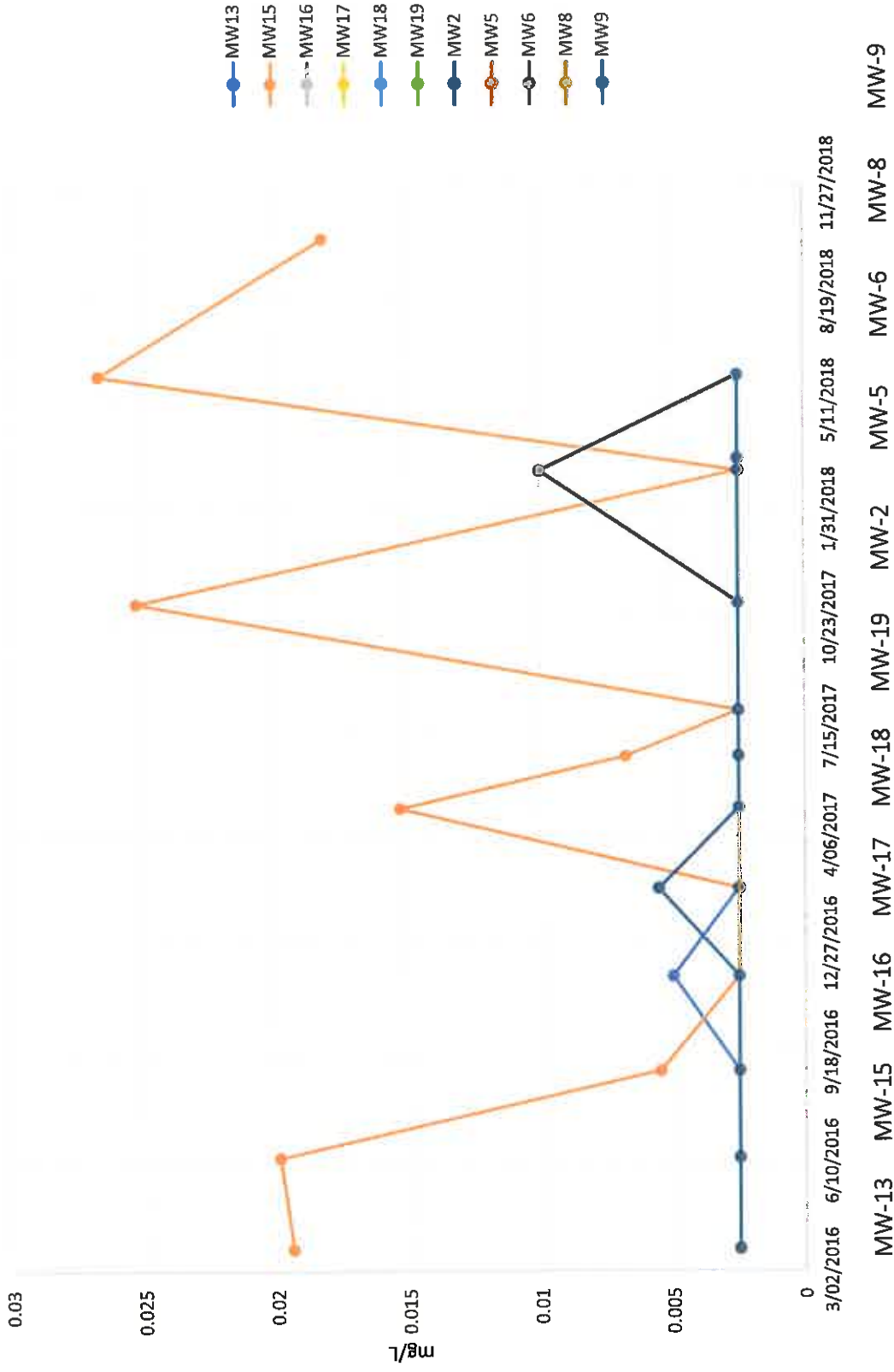
**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



# Chromium



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

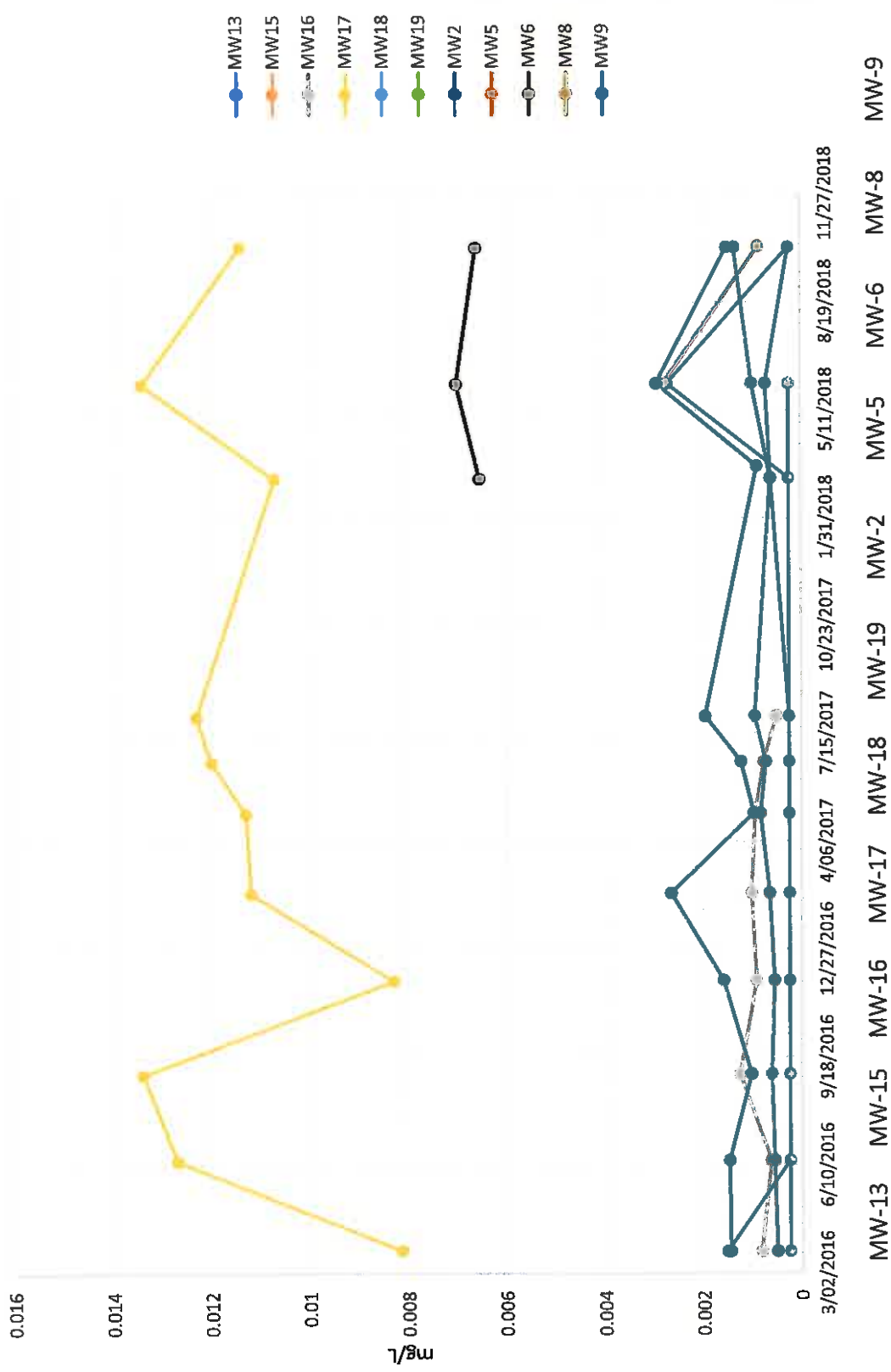
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Chromium	3/22/2016	0.005 U	0.0194	0.005 U		0.005 U	0.005 U	0.005 U				0.005 U
Chromium	3/23/2016				0.005 U							
Chromium	6/14/2016	0.005 U	0.0199	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	9/32/2016	0.005 U	0.00548	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	11/28/2016	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	2/17/2017	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U			0.00555
Chromium	5/02/2017	0.005 U	0.0153	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	6/19/2017	0.005 U	0.00678	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U			0.005 U
Chromium	7/31/2017	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U			0.005 U
Chromium	11/07/2017	0.005 U	0.0253		0.005 U			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	3/09/2018	0.005 U	0.005 U		0.005 U	0.005 U	0.005 U	0.005 U		0.02 U		
Chromium	3/20/2018											0.005 U
Chromium	6/05/2018	0.005 U	0.0267		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	10/09/2018		0.0182									

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Cobalt



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

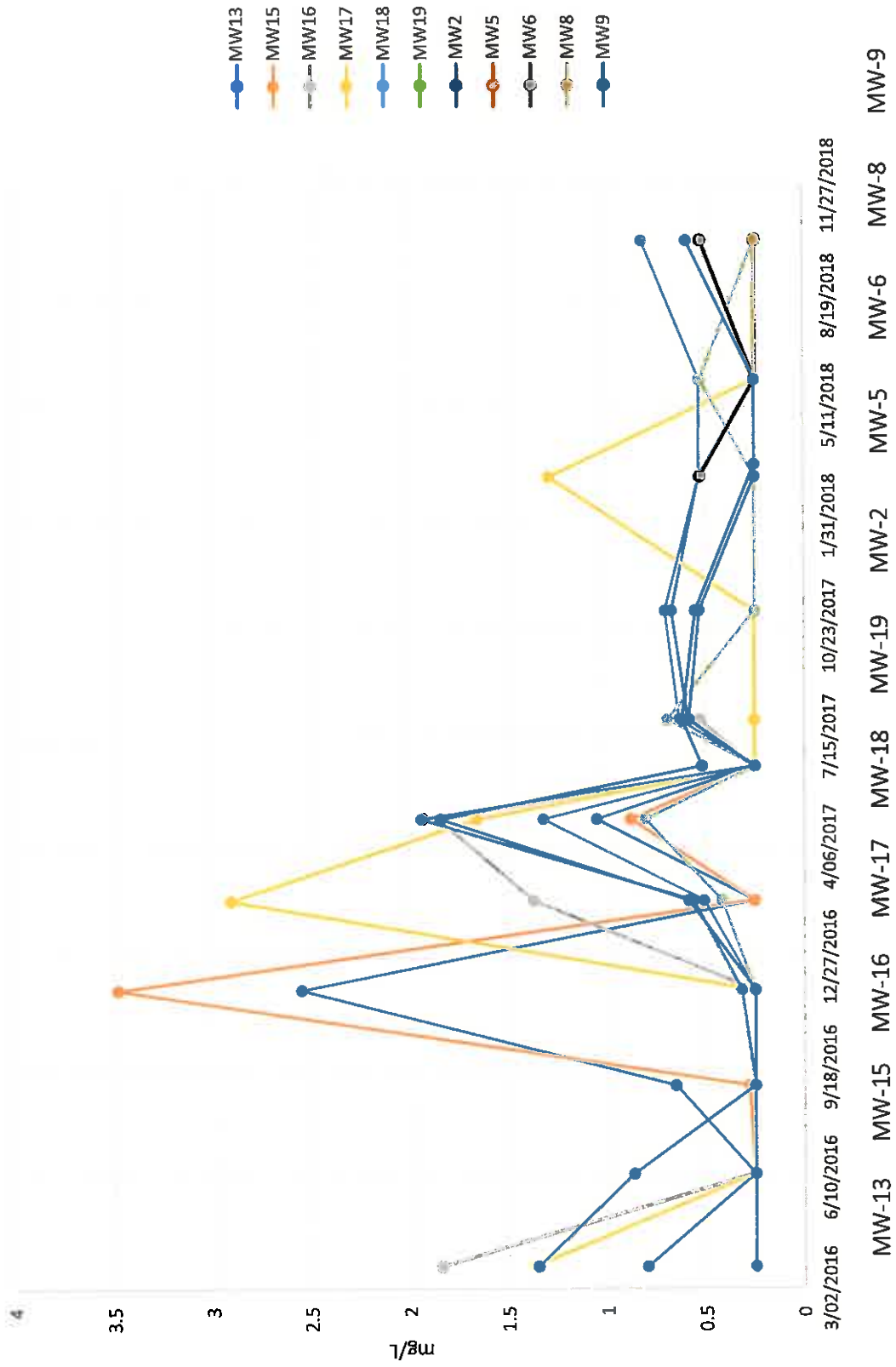
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Cobalt	3/22/2016	0.0005 U	0.0005 U	0.00083		0.00152	0.0005 U	0.000514				0.00146
Cobalt	3/23/2016				0.00813							
Cobalt	6/14/2016	0.0005 U	0.0005 U	0.000634	0.0127	0.0005 U	0.0005 U	0.000566				0.00148
Cobalt	9/02/2016	0.0005 U	0.0005 U	0.00126	0.0134	0.0005 U	0.0005 U	0.000619				0.00103
Cobalt	11/28/2016	0.0005 U	0.0005 U	0.000925	0.00829	0.0005 U	0.0005 U	0.000559				0.00159
Cobalt	2/17/2017	0.0005 U	0.0005 U	0.00102	0.0112	0.0005 U	0.0005 U	0.000656				0.00265
Cobalt	5/02/2017	0.0005 U	0.0005 U	0.000952	0.0113	0.0005 U	0.0005 U	0.000833				0.000974
Cobalt	6/19/2017	0.0005 U	0.0005 U	0.000769	0.012	0.0005 U	0.0005 U	0.000725				0.00123
Cobalt	7/31/2017	0.0005 U	0.0005 U	0.000519	0.0123	0.0005 U	0.0005 U	0.000953				0.00195
Cobalt	3/09/2018	0.000613	0.0005 U		0.0107	0.0005 U	0.0005 U	0.00062		0.00654		
Cobalt	3/20/2018											0.000895
Cobalt	6/05/2018	0.000718	0.0005 U		0.0134	0.00271	0.0005 U	0.000997	0.0005 U	0.007	0.00281	0.00293
Cobalt	10/09/2018	0.0005 U				0.0005 U		0.00135		0.00661		0.0015
Cobalt	10/10/2018				0.0114						0.000864	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Fluoride



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

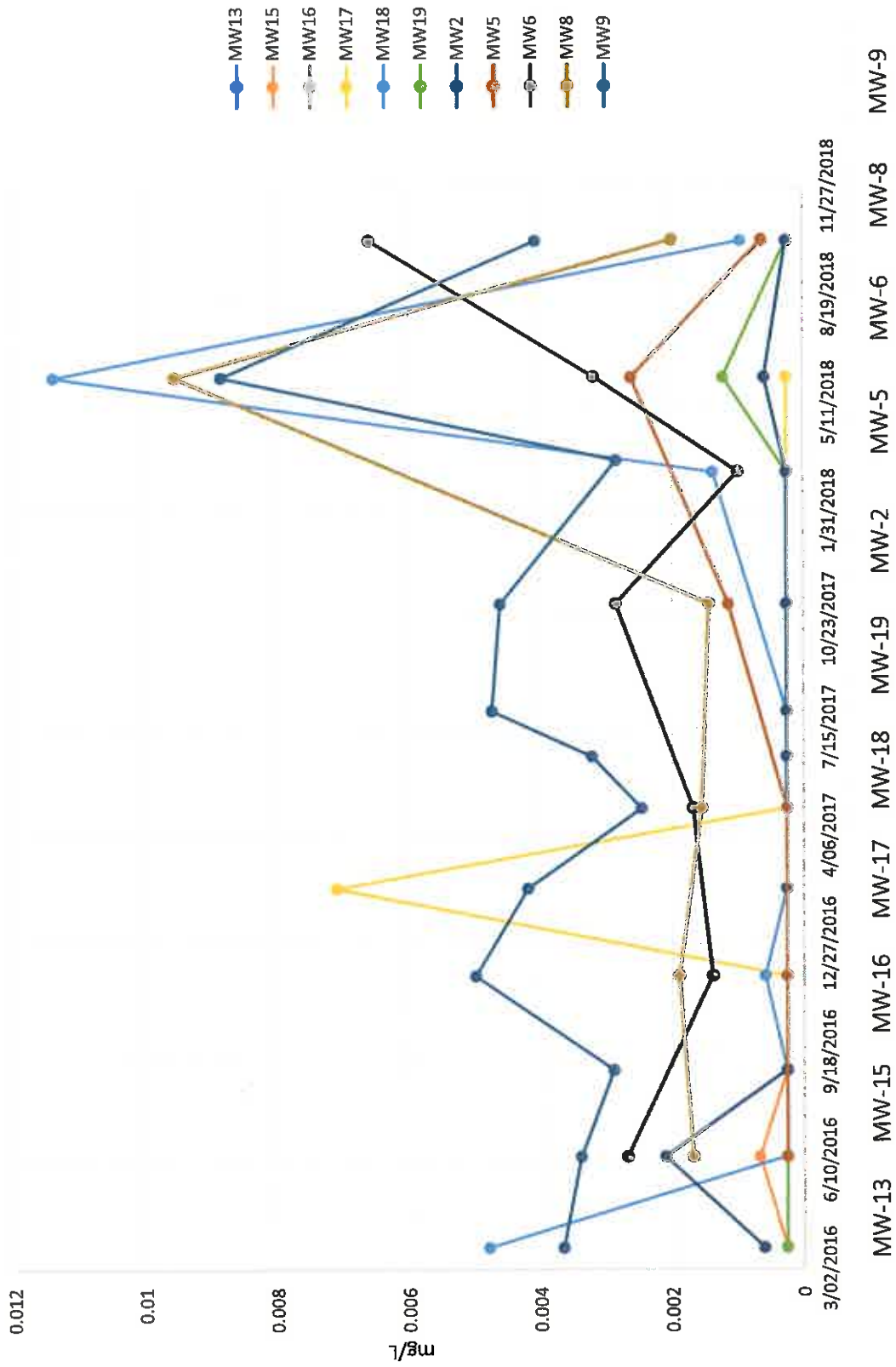
Analyte	sample_date	MW23	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Fluoride	3/22/2016	0.796	0.5 U	1.84		0.5 U	0.5 U	0.5 U				1.85
Fluoride	3/23/2016				1.36							
Fluoride	6/14/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.864
Fluoride	9/02/2016	0.652	0.278	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U
Fluoride	11/28/2016	2.55	3.48	0.5 U	0.5 U	0.5 U	0.5 U	0.318				0.5 U
Fluoride	2/17/2017	0.5 U	0.5 U	1.37	2.91	0.508	0.418	0.563				0.585
Fluoride	5/02/2017	1.05	0.878	1.85	1.66	1.32	0.804	1.94				1.84
Fluoride	6/19/2017	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.517
Fluoride	7/31/2017	0.587	0.5 U	0.528	0.5 U	0.632	0.693	0.583				0.617
Fluoride	11/07/2017	0.67	0.5 U		0.5 U	0.704	0.5 U	0.529				0.55
Fluoride	3/09/2018	0.53	0.5 U		1.29	0.53	0.5 U	0.5 U		0.525		
Fluoride	3/20/2018											0.5 U
Fluoride	6/05/2018	0.5 U	0.5 U		0.5 U	0.528	0.524	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluoride	10/09/2018	0.5 U	0.5 U			0.817	0.5 U	0.5 U		0.52		0.592
Fluoride	10/10/2018				0.5 U				0.5 U		0.5 U	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Lead



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Lead	3/22/2016	0.0005 U	0.0005 U	0.0005 U		0.00479	0.0005 U	0.000601				0.00366
Lead	3/23/2016				0.0005 U							
Lead	6/14/2016	0.0005 U	0.000668	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.00211	0.0005 U	0.00269	0.00169	0.00339
Lead	9/02/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U			0.00289
Lead	11/28/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000577	0.0005 U	0.0005 U	0.0005 U	0.00139	0.0019	0.00499
Lead	2/17/2017	0.0005 U	0.0005 U	0.0005 U	0.0071	0.0005 U	0.0005 U	0.0005 U				0.00419
Lead	5/02/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.00169	0.00155	0.00246
Lead	6/19/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.00322
Lead	7/31/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.00474
Lead	11/07/2017	0.0005 U	0.0005 U		0.0005 U			0.0005 U	0.00114	0.00286	0.00144	0.00461
Lead	3/09/2018	0.0005 U	0.0005 U		0.0005 U	0.00137	0.0005 U	0.0005 U		0.002 U		
Lead	3/20/2018											0.00284
Lead	6/05/2018	0.0005 U	0.0005 U		0.0005 U	0.0114	0.00121	0.000586	0.00262	0.00319	0.00956	0.00885
Lead	10/09/2018					0.000938	0.0005 U	0.0005 U		0.0066		0.00407
Lead	10/10/2018								0.000627		0.002	

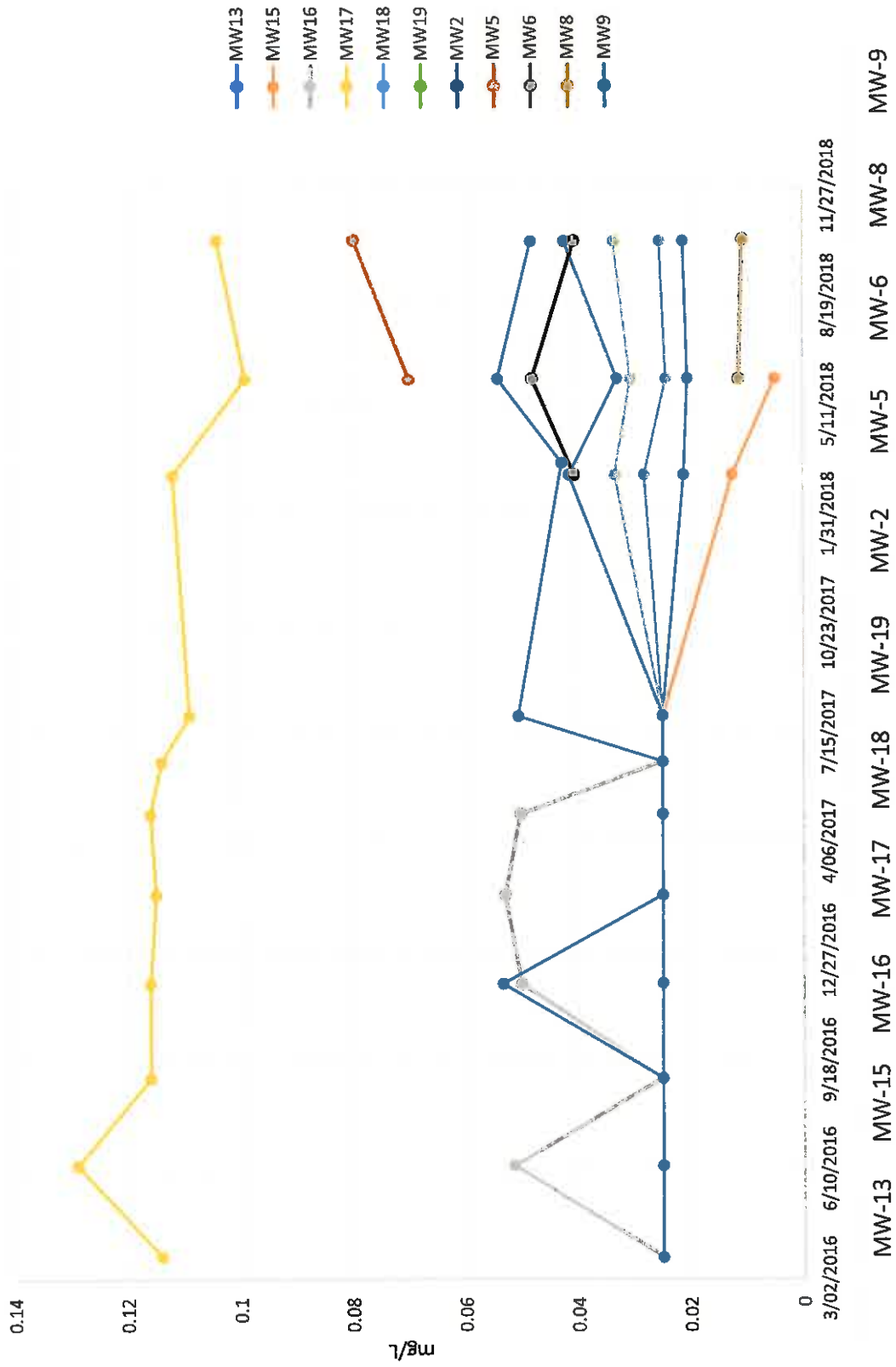
**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



# Lithium



Notes: Outliers reported.  
 Non-detects reported as ½ the reporting limit.

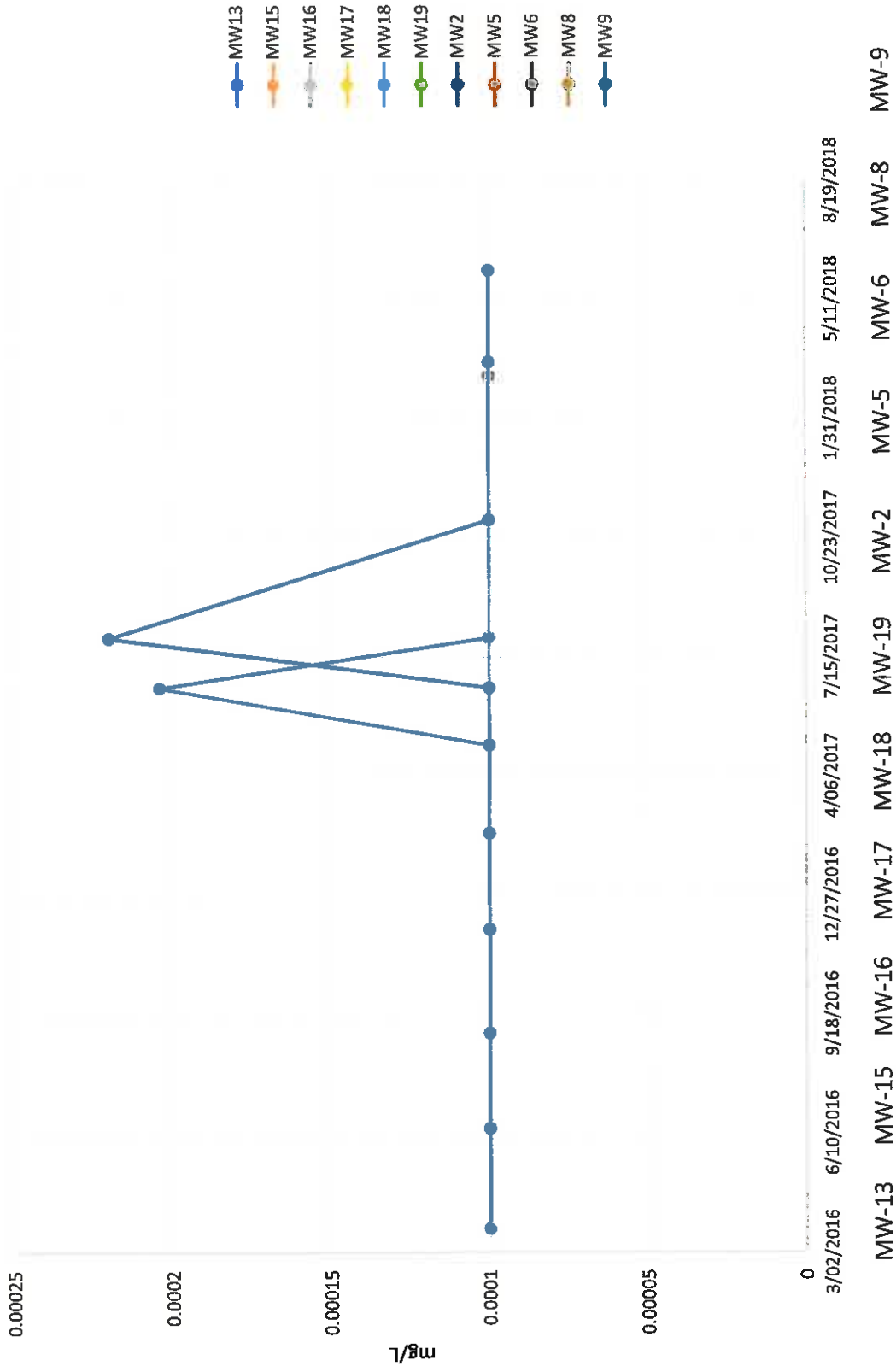
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Lithium	3/22/2016	0.05 U	0.05 U	0.05 U		0.05 U	0.05 U	0.05 U				0.05 U
Lithium	3/23/2016				0.114							
Lithium	6/14/2016	0.05 U	0.05 U	0.0514	0.129	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	9/02/2016	0.05 U	0.05 U	0.05 U	0.116	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	11/28/2016	0.05 U	0.05 U	0.0501	0.116	0.05 U	0.05 U	0.05 U				0.0533
Lithium	2/17/2017	0.05 U	0.05 U	0.053	0.115	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	5/02/2017	0.05 U	0.05 U	0.0503	0.116	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	6/19/2017	0.05 U	0.05 U	0.05 U	0.114	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	7/31/2017	0.05 U	0.05 U	0.05 U	0.109	0.05 U	0.05 U	0.05 U				0.0505
Lithium	3/09/2018	0.0212	0.0126		0.112	0.0282	0.0334	0.0415		0.0407		
Lithium	3/20/2018											0.0428
Lithium	6/05/2018	0.0205	0.01 U		0.099	0.0243	0.0306	0.033	0.07	0.048	0.0115	0.0541
Lithium	10/09/2018	0.0213				0.0254	0.0336	0.0423		0.0407		0.0482
Lithium	10/10/2018				0.104				0.0797		0.0108	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Mercury



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

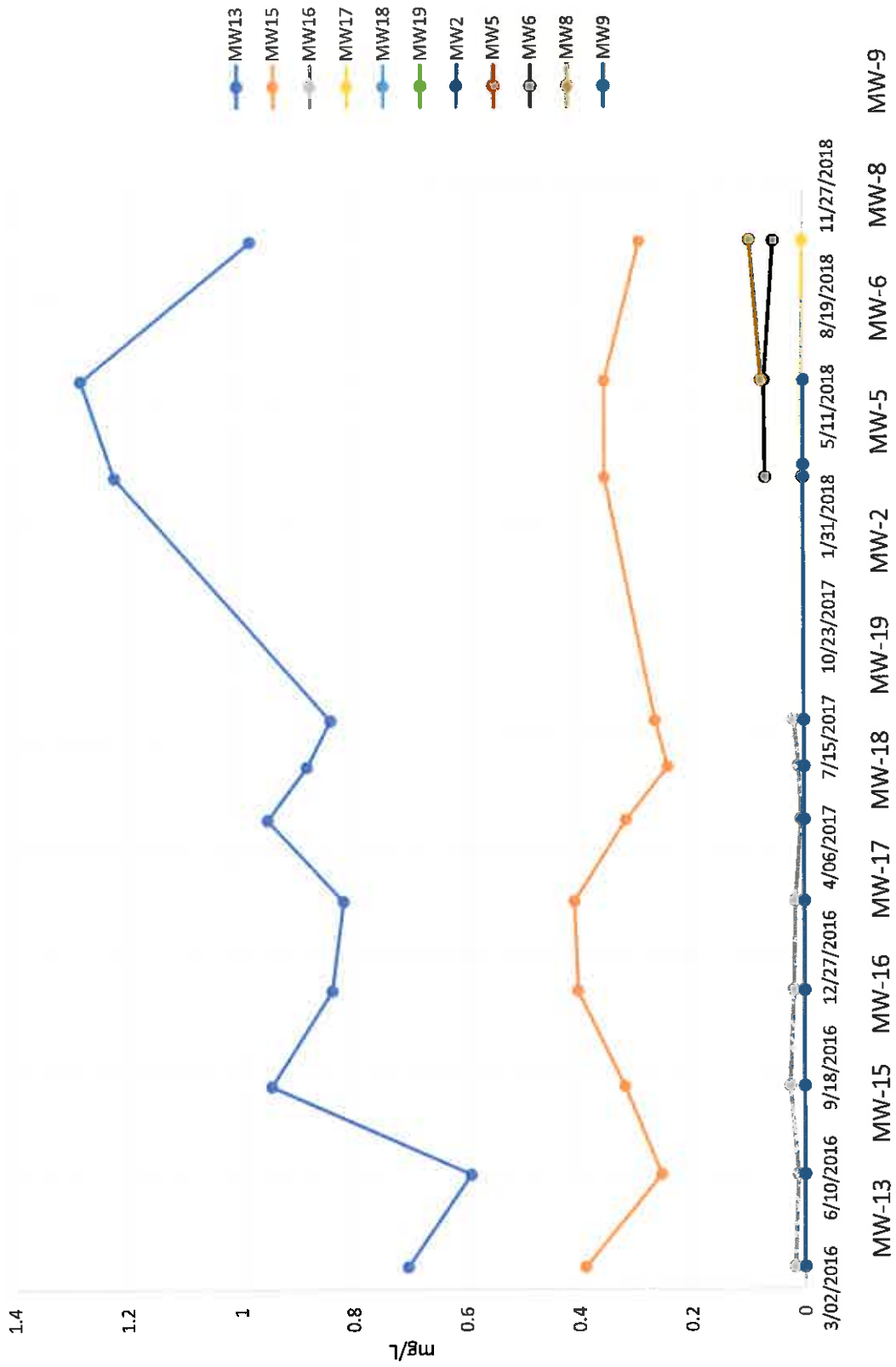
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Mercury	3/22/2016	0.0002 U	0.0002 U	0.0002 U		0.0002 U	0.0002 U	0.0002 U				0.0002 U
Mercury	3/23/2016				0.0002 U							
Mercury	6/14/2016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	9/02/2016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	11/28/2016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	2/17/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U				0.0002 U
Mercury	5/02/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	6/19/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000204	0.0002 U	0.0002 U				0.0002 U
Mercury	7/31/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U				0.00022
Mercury	11/07/2017	0.0002 U	0.0002 U		0.0002 U			0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	3/09/2018	0.0002 U	0.0002 U		0.0002 U	0.0002 U	0.0002 U	0.0002 U		0.0002 U		
Mercury	3/20/2018											0.0002 U
Mercury	6/05/2018	0.0002 U	0.0002 U		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Molybdenum



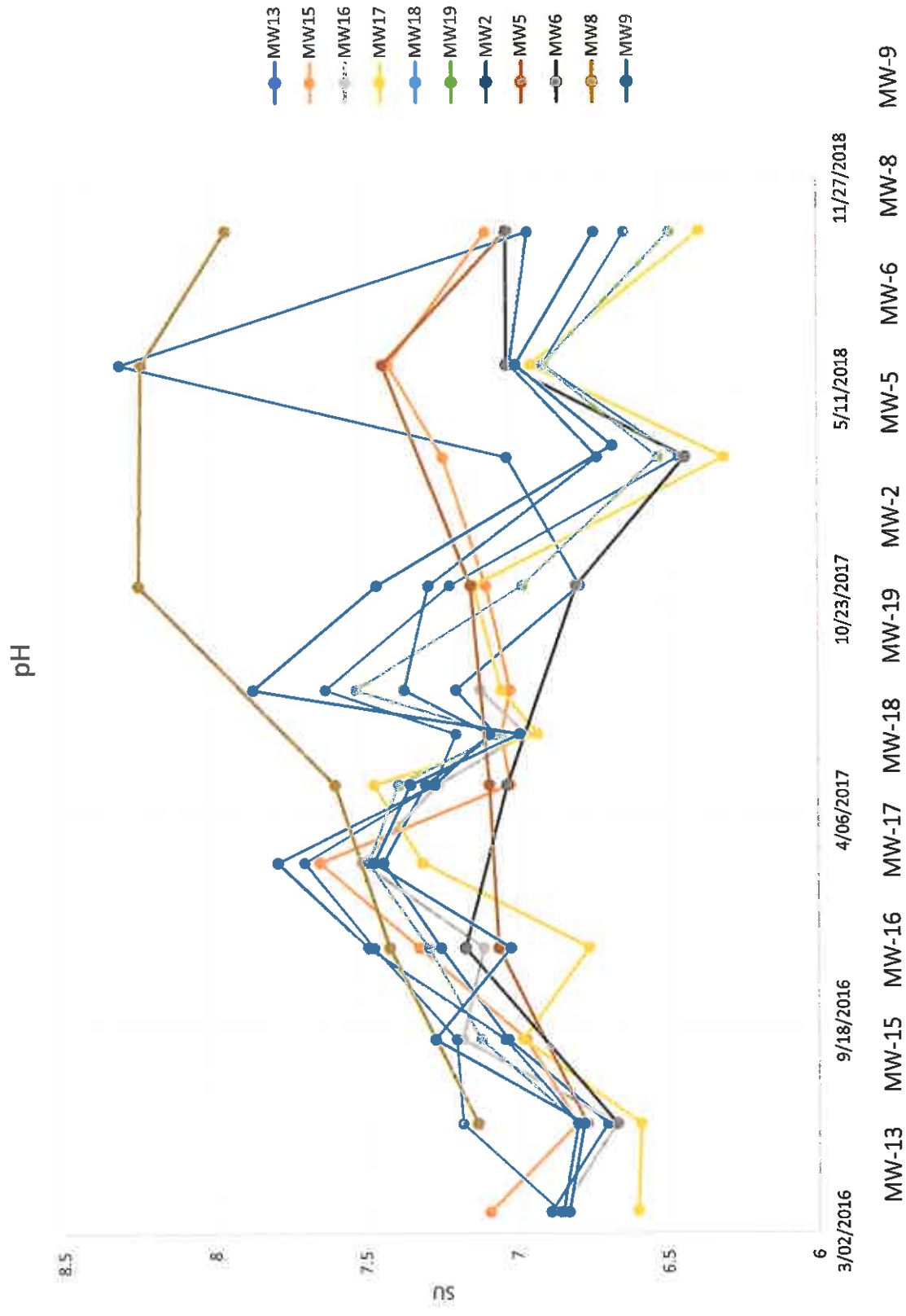
Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Molybdenum	3/22/2016	0.704	0.389	0.018	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	6/14/2016	0.592	0.254	0.0125	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	9/02/2016	0.945	0.319	0.0262	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	11/28/2016	0.837	0.402	0.0193	0.00219	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	2/17/2017	0.817	0.408	0.0164	0.00214	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	5/02/2017	0.951	0.316	0.00651	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	6/19/2017	0.881	0.242	0.0105	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	7/31/2017	0.899	0.264	0.0185	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	3/09/2018	1.22	0.353		0.0032	0.002 U	0.002 U	0.002 U		0.0683		
Molybdenum	3/20/2018											0.002 U
Molybdenum	6/05/2018	1.28	0.353		0.00356	0.002 U	0.002 U	0.002 U	0.002 U	0.0702	0.0753	0.002 U
Molybdenum	10/09/2018	0.98	0.29							0.0537		
Molybdenum	10/10/2018				0.002 U						0.095	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
pH	3/22/2016	6.89	7.09	6.86		6.86	6.85	6.85				6.83
pH	3/23/2016				6.6							
pH	6/14/2016	6.7	6.8	6.67	6.59	7.18	6.8	6.8	6.77	6.67	7.13	6.78
pH	9/02/2016	7.03	6.97	7.18	6.98	7.2	7.12	7.04				7.27
pH	11/28/2016	7.25	7.32	7.11	6.76	7.47	7.29	7.49	7.06	7.17	7.42	7.02
pH	2/17/2017	7.44	7.65	7.51	7.31	7.7	7.49	7.79				7.47
pH	5/02/2017	7.3	7.02	7.26	7.47	7.27	7.99	7.27	7.09	7.03	7.5	7.35
pH	6/19/2017	7.07	7.05	6.97	6.93	7.2	7.05	7.09				6.99
pH	7/31/2017	7.2	7.02	7.12	7.05	7.63	7.53	7.97				7.87
pH	11/07/2017	6.79	7.1		7.14	7.22	6.98	7.29	7.15	6.8	8.25	7.46
pH	3/09/2018	7.03	7.24		6.31	6.46	6.53	6.73		6.44		
pH	3/20/2018											6.68
pH	6/05/2018	8.31	7.42		6.95	6.91	6.91	7.02	7.44	7.03	8.24	7
pH	10/09/2018	6.96	7.1			6.64	6.49	6.96		7.03		6.74
pH	10/10/2018				6.39				7.03		7.96	

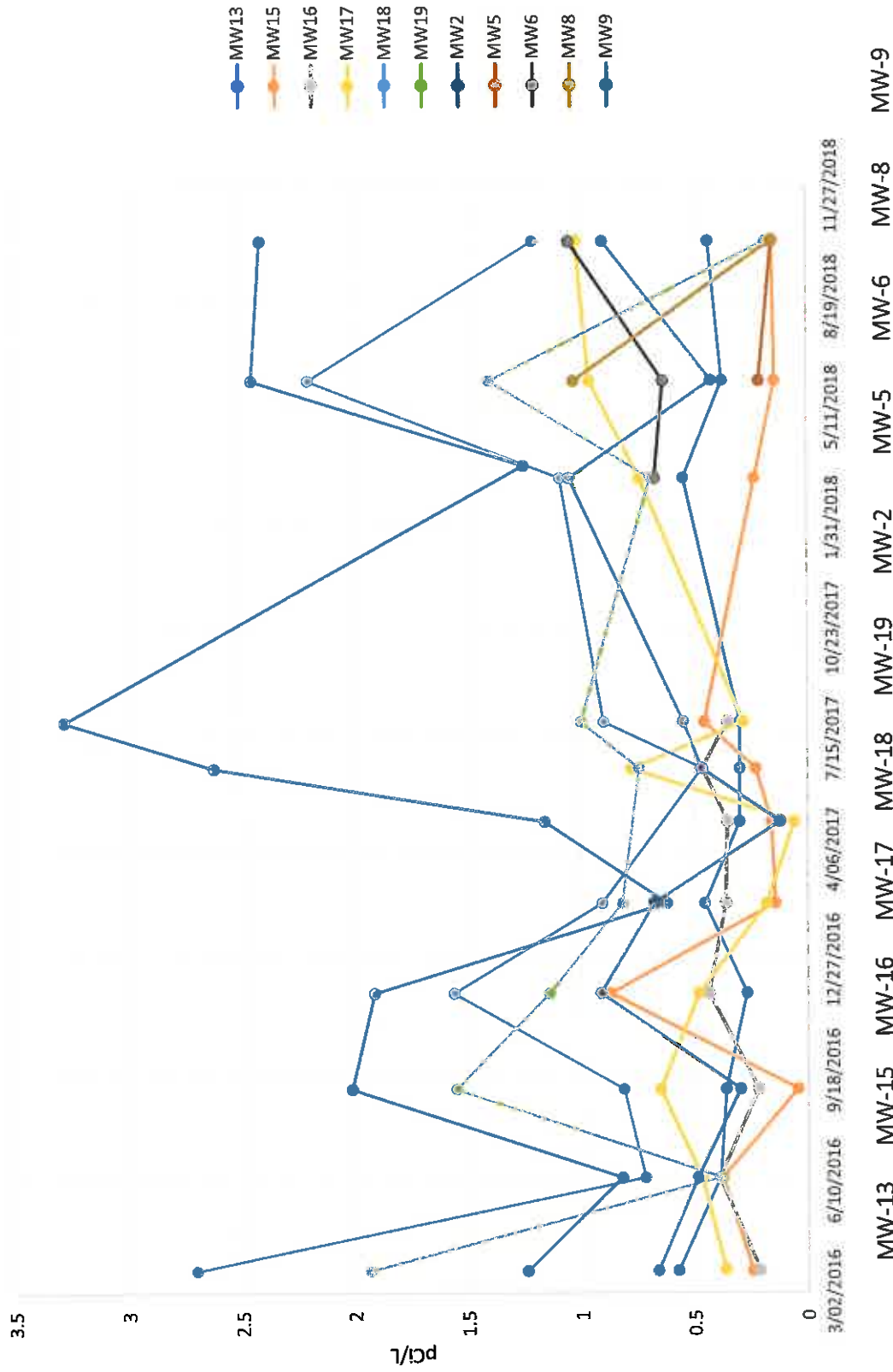
**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



# Ra 226+228



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.

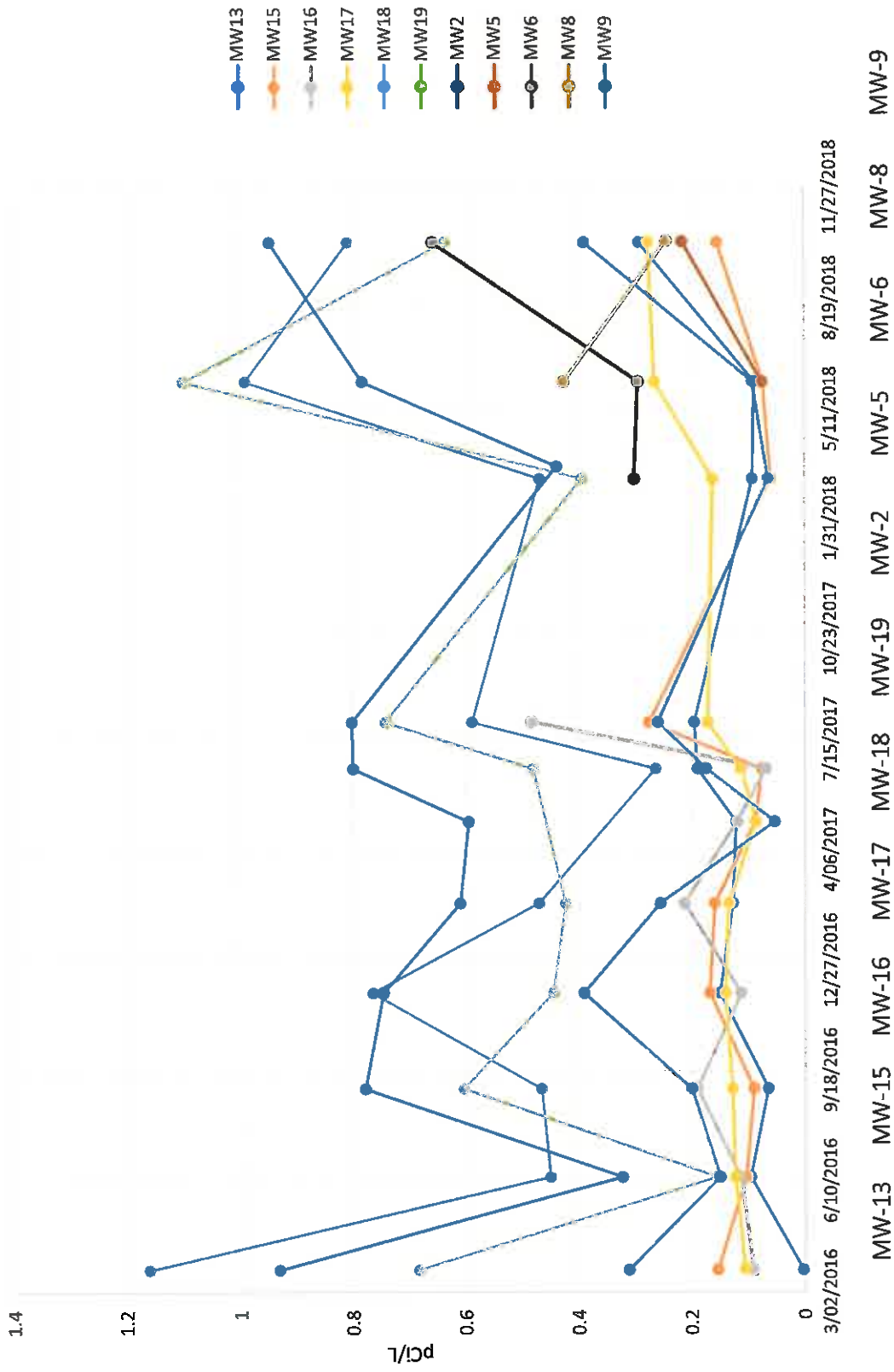
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Ra 226+228	3/22/2016	0.575	0.245	0.214		2.7	1.93	0.664				1.24
Ra 226+228	3/23/2016				0.366							
Ra 226+228	6/14/2016	0.389	0.378	0.392	0.469	0.72	0.386	0.488				0.822
Ra 226+228	9/02/2016	0.362	0.0439	0.22	0.651	0.814	1.55	0.3				2.01
Ra 226+228	11/28/2016	0.27	0.871	0.436	0.479	1.56	1.14	0.914				1.91
Ra 226+228	2/17/2017	0.455	0.143	0.362	0.181	0.907	0.82	0.679				0.623
Ra 226+228	5/02/2017	0.301	0.158	0.354	0.059			0.123				1.16
Ra 226+228	6/19/2017	0.3	0.229	0.463	0.777	0.465	0.744	0.469				2.62
Ra 226+228	7/31/2017	0.298	0.455	0.353	0.284	0.899	1	0.549				3.28
Ra 226+228	3/09/2018	0.546	0.232		0.738	1.09	0.691	1.05		0.673		
Ra 226+228	3/20/2018											1.25
Ra 226+228	6/05/2018	0.374	0.282 U		0.96	2.2	1.4	0.422	0.212	0.634	1.03	2.45
Ra 226+228	10/09/2018	0.435	0.303 U			1.21	0.364 U	0.901		1.05		2.41
Ra 226+228	10/10/2018				1.02				0.305 U		0.31 U	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Ra-226



**Notes:** Outliers reported.  
 Non-detects reported as ½ the reporting limit.

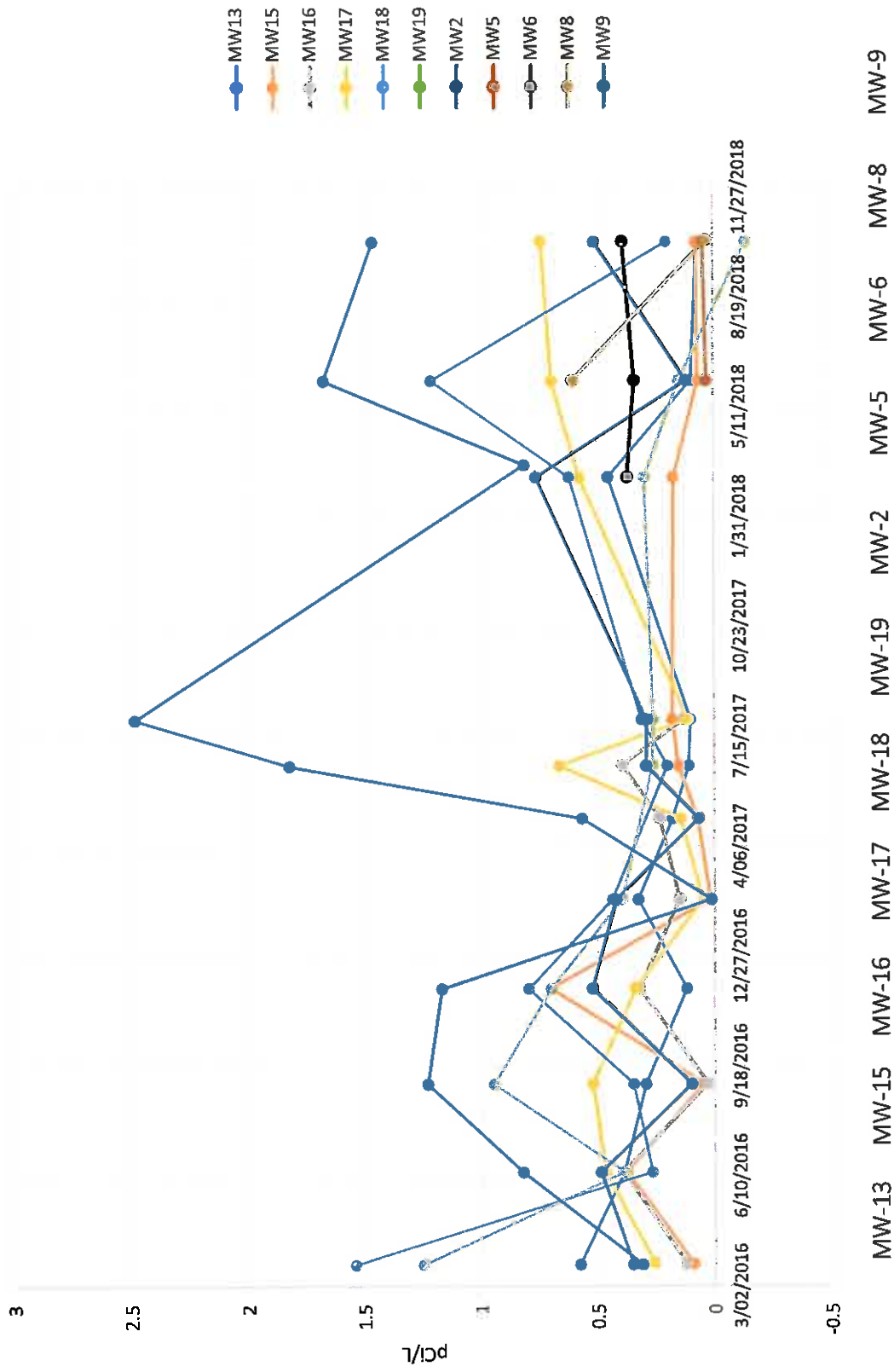
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Ra-226	3/22/2016	0.00428	0.154	0.0926		1.16	0.583	0.912				0.931
Ra-226	3/23/2016				0.106							
Ra-226	6/14/2016	0.0971	0.104	0.114	0.123	0.45	0.156	0.151				0.323
Ra-226	9/02/2016	0.0658	0.0903	0.19	0.128	0.466	0.603	0.201				0.778
Ra-226	11/28/2016	0.151	0.168	0.113	0.141	0.764	0.445	0.391				0.745
Ra-226	2/17/2017	0.128	0.159	0.213	0.134	0.47	0.423	0.256				0.609
Ra-226	5/02/2017	0.122	0.0875	0.12	0.0863			0.0541				0.594
Ra-226	6/19/2017	0.19	0.0759	0.0686	0.113	0.264	0.48	0.175				0.799
Ra-226	7/31/2017	0.196	0.275	0.483	0.171	0.588	0.742	0.26				0.801
Ra-226	3/09/2018	0.0929	0.0594		0.162	0.468	0.394	0.0653		0.303		
Ra-226	3/23/2018											0.438
Ra-226	6/05/2018	0.179 U	0.147 U		0.265	0.99	1.1	0.186 U	0.152 U	0.296	0.427	0.782
Ra-226	10/09/2018	0.293	0.154			0.808	0.636	0.39		0.658		0.947
Ra-226	10/10/2018				0.277				0.216		0.246	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Ra-228



Notes: Outliers reported.  
 Non-detects reported as ½ the reporting limit.

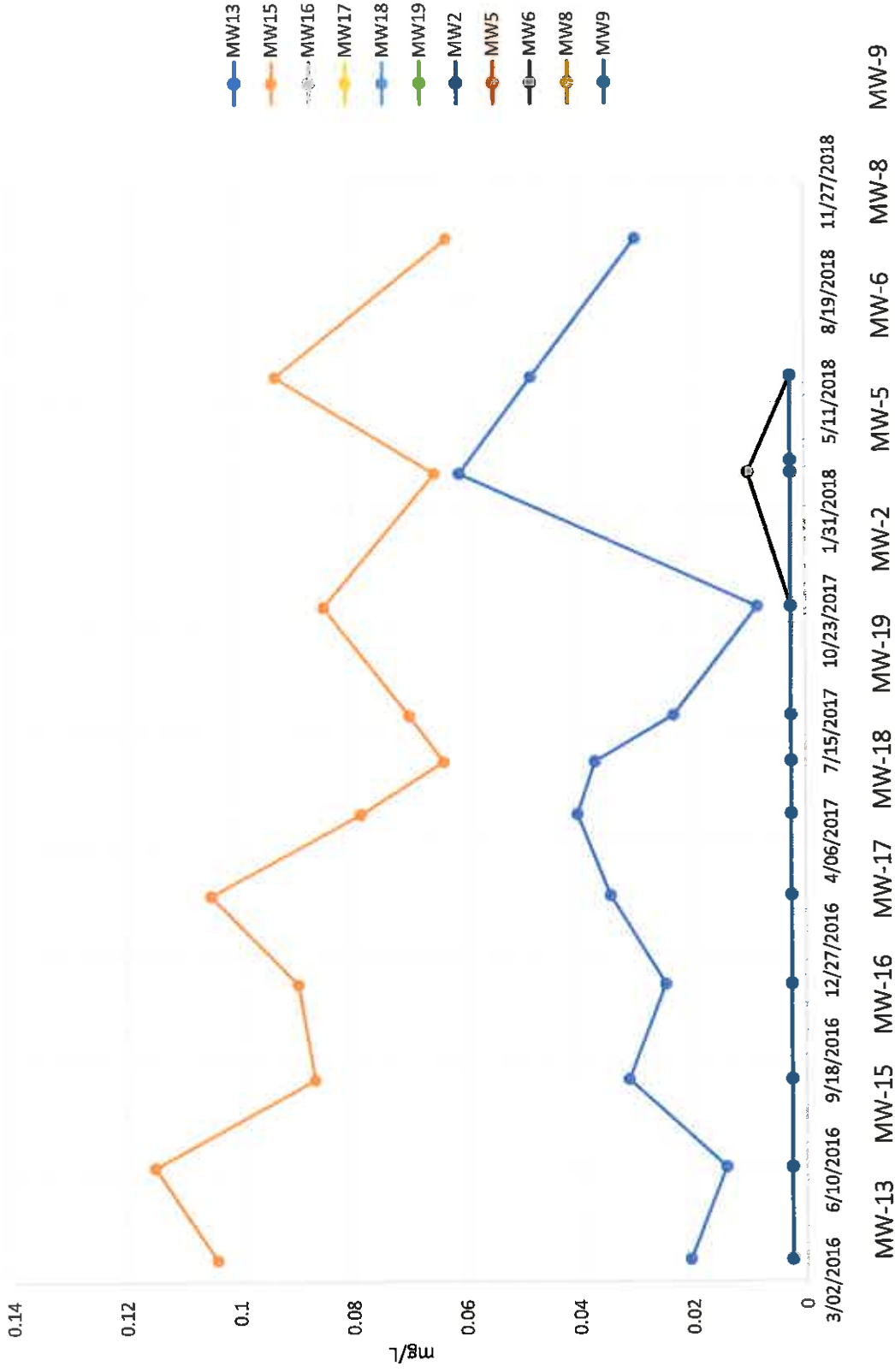
Analyte	sample date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Ra-228	3/22/2016	0.579	0.0906	0.121		1.54	1.25	0.352				0.311
Ra-228	3/23/2016				0.26							
Ra-228	6/14/2016	0.389	0.378	0.392	0.469	0.269	0.386	0.488				0.822
Ra-228	9/02/2016	0.296	0.0464	0.03	0.523	0.348	0.947	0.0993				1.23
Ra-228	11/28/2016	0.12	0.703	0.323	0.338	0.797	0.7	0.524				1.17
Ra-228	2/17/2017	0.327	0.0158	0.149	0.0475	0.437	0.396	0.423				0.0135
Ra-228	5/02/2017	0.179	0.0704	0.234	0.145			0.0684				0.567
Ra-228	6/19/2017	0.11	0.154	0.394	0.664	0.201	0.264	0.294				1.82
Ra-228	7/31/2017	0.102	0.179	0.13	0.113	0.311	0.262	0.289				2.48
Ra-228	3/09/2018	0.453	0.173		0.577	0.62	0.297	0.762		0.37		
Ra-228	3/20/2018											0.812
Ra-228	6/05/2018	0.195 U	0.135 U		0.695	1.21	0.297 U	0.237 U	0.0597 U	0.338	0.603	1.67
Ra-228	10/09/2018	0.143 U	0.149 U			0.404 U	-0.272 U	0.511		0.389		1.46
Ra-228	10/10/2018				0.739				0.0883 U		0.0643 U	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Selenium



Notes: Outliers reported.  
 Non-detects reported as ½ the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Selenium	3/22/2016	0.0205	0.104	0.005 U		0.005 U	0.005 U	0.005 U				0.005 U
Selenium	3/23/2016				0.005 U							
Selenium	6/14/2016	0.0141	0.115	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	9/02/2016	0.0313	0.0867	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	11/28/2016	0.0248	0.0896	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U		0.005 U	0.005 U
Selenium	2/17/2017	0.0345	0.105	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	5/02/2017	0.0403	0.0785	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	6/29/2017	0.0372	0.0638	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	7/31/2017	0.0233	0.0699	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	11/07/2017	0.00837	0.085		0.005 U			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	3/09/2018	0.0609	0.0653		0.005 U	0.005 U	0.005 U	0.005 U		0.02 U		
Selenium	3/23/2018											0.005 U
Selenium	6/05/2018	0.0483	0.0934		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	10/09/2018	0.0298	0.0631									

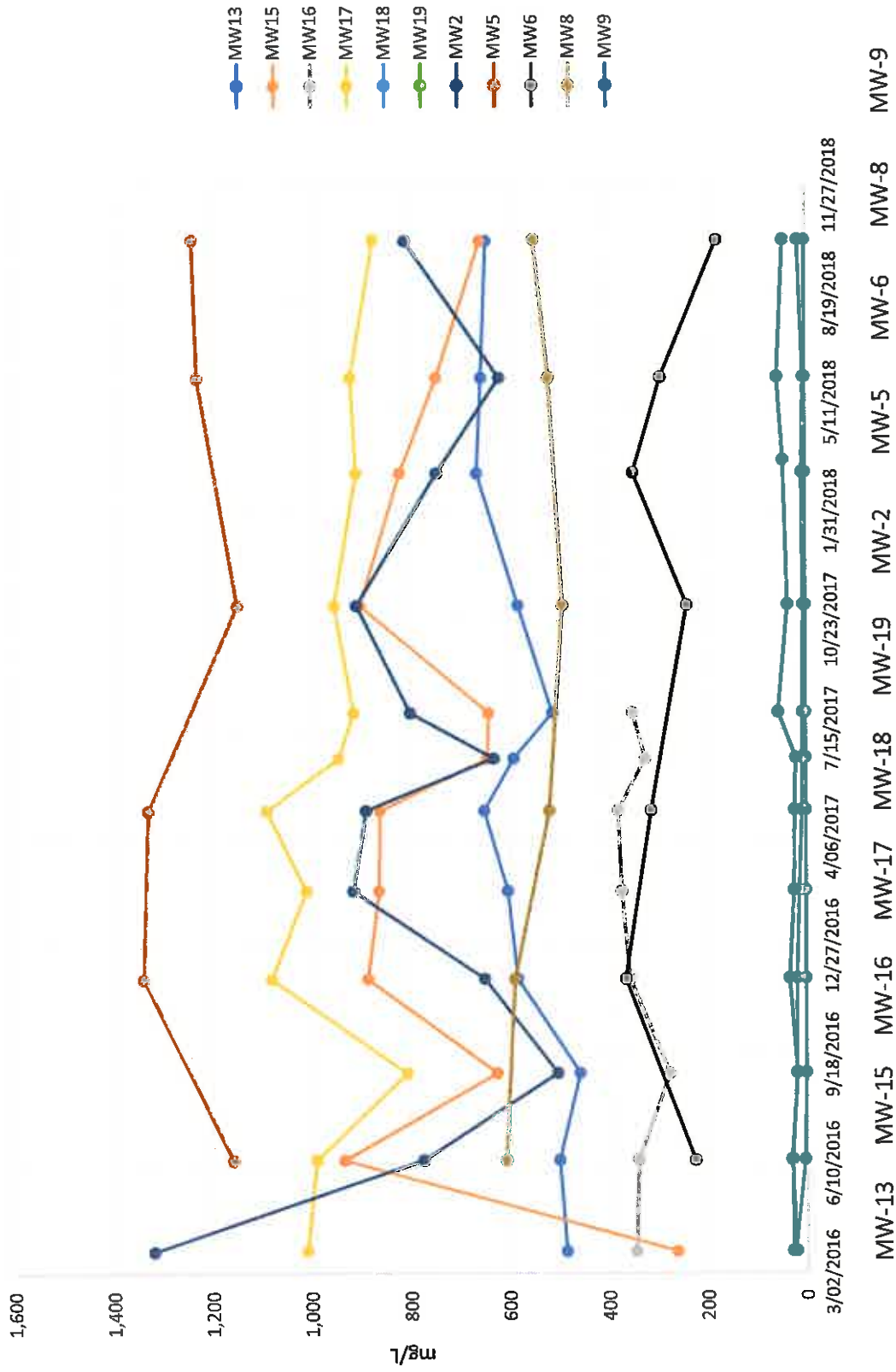
**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



# Sulfate



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

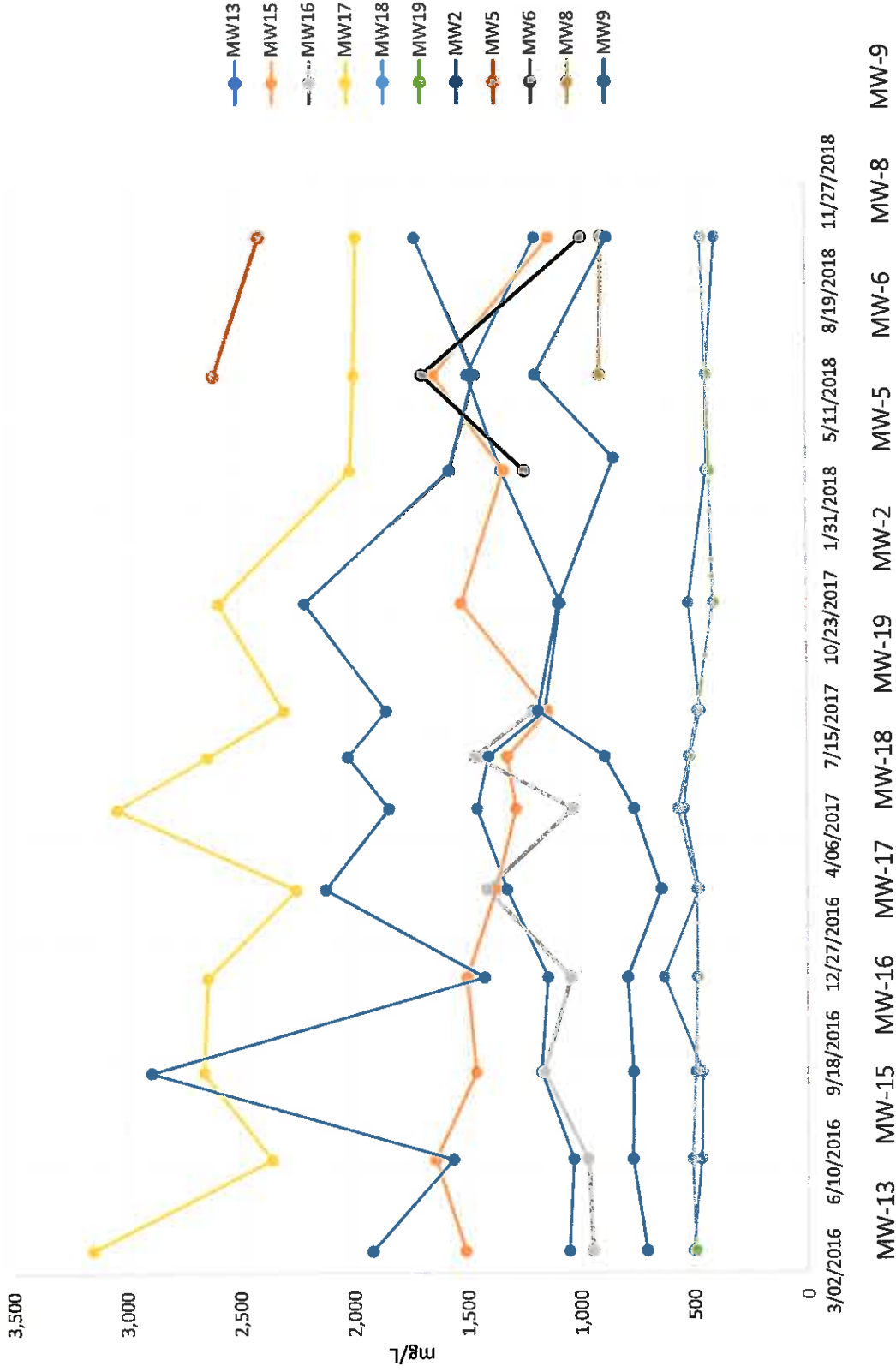
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Sulfate	3/22/2016	486	262	345								
Sulfate	3/23/2016				1010							23
Sulfate	6/14/2016	500	934	340	990	5	29.9	774	1160	226	608	31.7
Sulfate	9/02/2016	458	625	277	807	5 U	21.5	503				19.9
Sulfate	11/28/2016	583	886	357	1080	5 U	20.7	650	1340	366	589	35.4
Sulfate	2/17/2017	603	863	374	1010	5 U	15.7	915				26.2
Sulfate	5/02/2017	650	861	381	1090	5 U	10.6	889	1330	314	519	25.5
Sulfate	6/19/2017	590	643	326	944	5 U	10.2	631				22
Sulfate	7/31/2017	512	641	352	913	5 U	8.35	799				57.1
Sulfate	11/07/2017	581	900		952	5 U	6.91	907	1150	241	492	37.7
Sulfate	3/09/2018	663	819		907	5 U	8.89	745		349		
Sulfate	3/20/2018											46.1
Sulfate	6/05/2018	654	745		918	5 U	5.53	618	1230	293	519	57.5
Sulfate	10/09/2018	644	656			5 U	16.5	808		179		45.5
Sulfate	10/10/2018				872				1240		548	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Total Dissolved Solids



Notes: Outliers reported.  
 Non-detects reported as ½ the reporting limit.

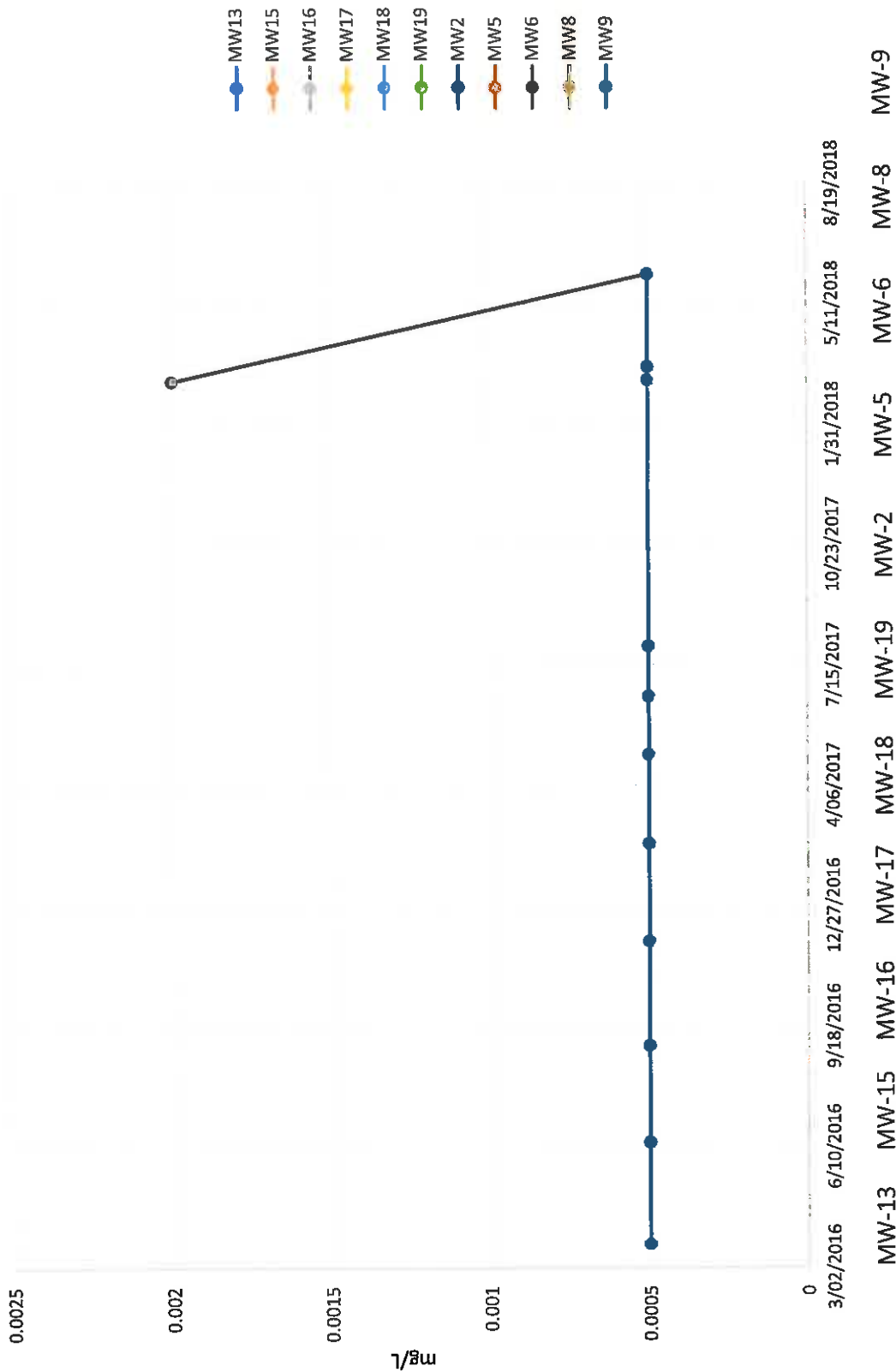
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
TDS	3/22/2016	1050	1510	948		504	494	1920				708
TDS	3/23/2016				3150							
TDS	6/14/2016	1030	1640	968	2360	468	508	1560				770
TDS	9/02/2016	1170	1460	1160	2660	460	492	2890				766
TDS	11/28/2016	1140	1500	1040	2640	628	484	1420				790
TDS	2/17/2017	1320	1370	1410	2250	474	484	2120				640
TDS	5/02/2017	1450	1280	1030	3040	542	566	1840				760
TDS	6/19/2017	1400	1320	1460	2640	514	518	2020				888
TDS	7/31/2017	1150	1140	1200	2300	468	480	1850				1180
TDS	11/07/2017	1080	1520		2590	518	410	2210				1090
TDS	3/09/2018	1340	1330		2010	438	426	1570		1240		
TDS	3/20/2018											844
TDS	6/05/2018	1490	1640		1990	438	440	1460	2610	1690	908	1190
TDS	10/09/2018	1190	1130			398	460	1720		988		872
TDS	10/10/2018				1980				2410		900	

**Notes:**

**U = compound was analyzed, but not detected**

**Non-detects are reported as 1/2 the reporting limit given**

# Thallium



Notes: Outliers reported.  
Non-detects reported as ½ the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Thallium	3/22/2016	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U				0.001 U
Thallium	3/23/2016				0.001 U							
Thallium	6/14/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	9/02/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	11/28/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	2/17/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	5/02/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	6/19/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	7/31/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	3/09/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U		0.004 U		0.001 U
Thallium	3/20/2018											0.001 U
Thallium	6/05/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes:

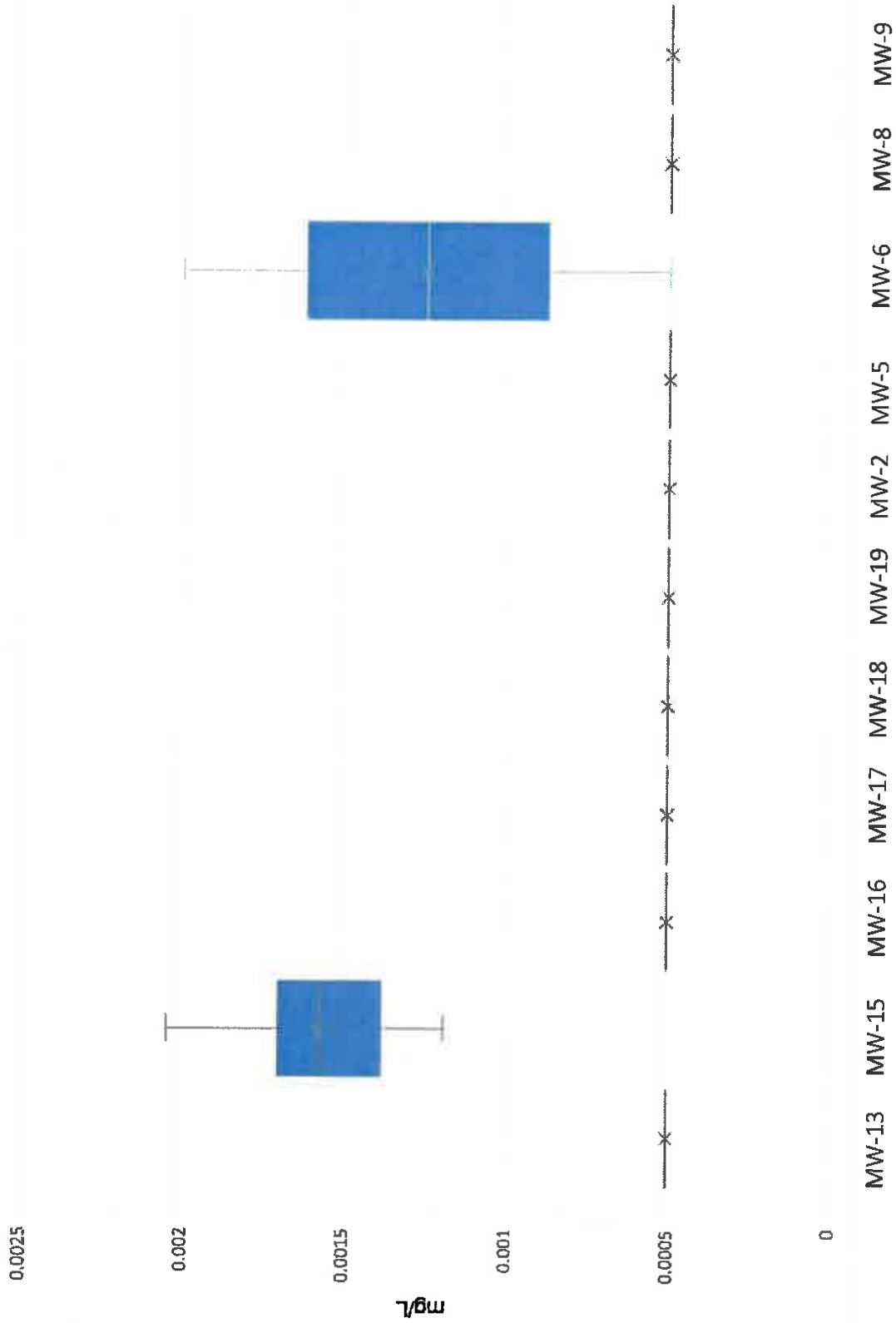
U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Box & Whisker Plots

Graphs shown include data for all site monitoring wells.

# Antimony



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.



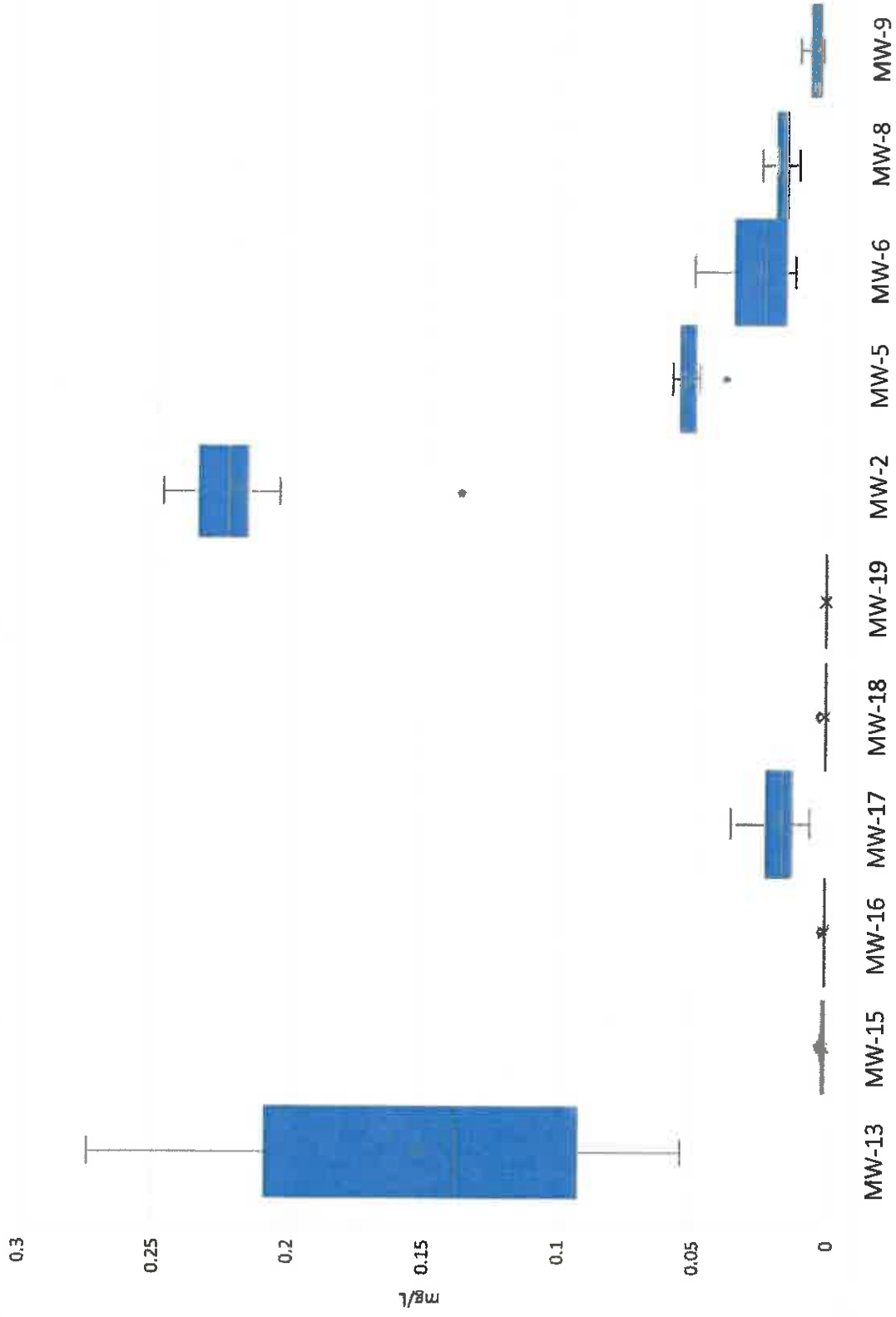
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Antimony	3/22/2016	0.001 U	0.00145	0.001 U		0.001 U	0.001 U	0.001 U				0.001 U
Antimony	3/23/2016				0.001 U							
Antimony	6/14/2016	0.001 U	0.00195	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	9/02/2016	0.001 U	0.0015	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	11/28/2016	0.001 U	0.00166	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	2/17/2017	0.001 U	0.00204	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	5/02/2017	0.001 U	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	6/19/2017	0.001 U	0.00119	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	7/31/2017	0.001 U	0.00131	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Antimony	3/09/2018	0.001 U	0.00172		0.001 U	0.001 U	0.001 U	0.001 U		0.004 U		
Antimony	3/20/2018											0.001 U
Antimony	6/05/2018	0.001 U	0.00157		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Antimony	10/09/2018		0.00168									

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Arsenic



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

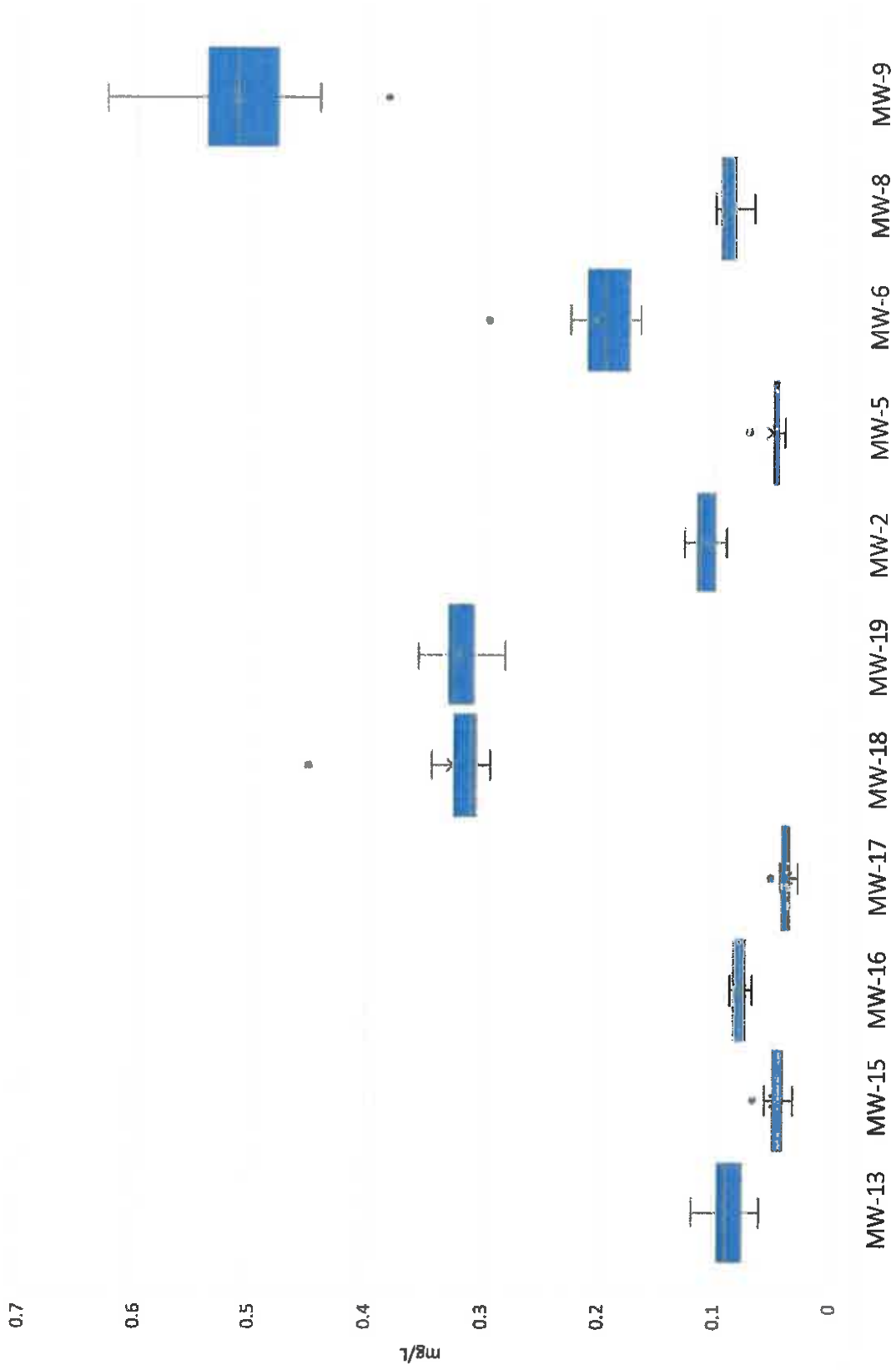
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Arsenic	3/22/2016	0.0923	0.002 U	0.002 U		0.00345	0.002 U	0.245				0.00454
Arsenic	3/23/2016				0.00735							
Arsenic	6/14/2016	0.217	0.002 U	0.002 U	0.036	0.002 U	0.002 U	0.234	0.0389	0.0324	0.0162	0.00542
Arsenic	9/02/2016	0.142	0.002 U	0.00233	0.0152	0.002 U	0.002 U	0.22				0.00397
Arsenic	11/28/2016	0.154	0.002 U	0.002 U	0.00691	0.002 U	0.002 U	0.204	0.0564	0.0133	0.021	0.00572
Arsenic	2/17/2017	0.112	0.00241	0.002 U	0.0219	0.002 U	0.002 U	0.234				0.0118
Arsenic	5/02/2017	0.133	0.002 U	0.002 U	0.03	0.002 U	0.002 U	0.231	0.0544	0.0243	0.0256	0.00423
Arsenic	6/19/2017	0.26	0.002 U	0.002 U	0.0163	0.002 U	0.002 U	0.212				0.00345
Arsenic	7/31/2017	0.274	0.002 U	0.002 U	0.0159	0.002 U	0.002 U	0.217				0.00662
Arsenic	11/07/2017	0.0925	0.0024		0.00794			0.137	0.0588	0.0506	0.0164	0.00772
Arsenic	3/09/2018	0.205	0.00337		0.0257	0.002 U	0.002 U	0.219		0.0194		
Arsenic	3/20/2018											0.00777
Arsenic	6/05/2018	0.0544	0.002 U		0.0224	0.00327	0.002 U	0.225	0.0486	0.0136	0.0189	0.00768
Arsenic	10/09/2018	0.0782				0.002 U		0.247		0.0393		0.00571
Arsenic	10/10/2018				0.0173				0.0549		0.0121	

**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Barium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

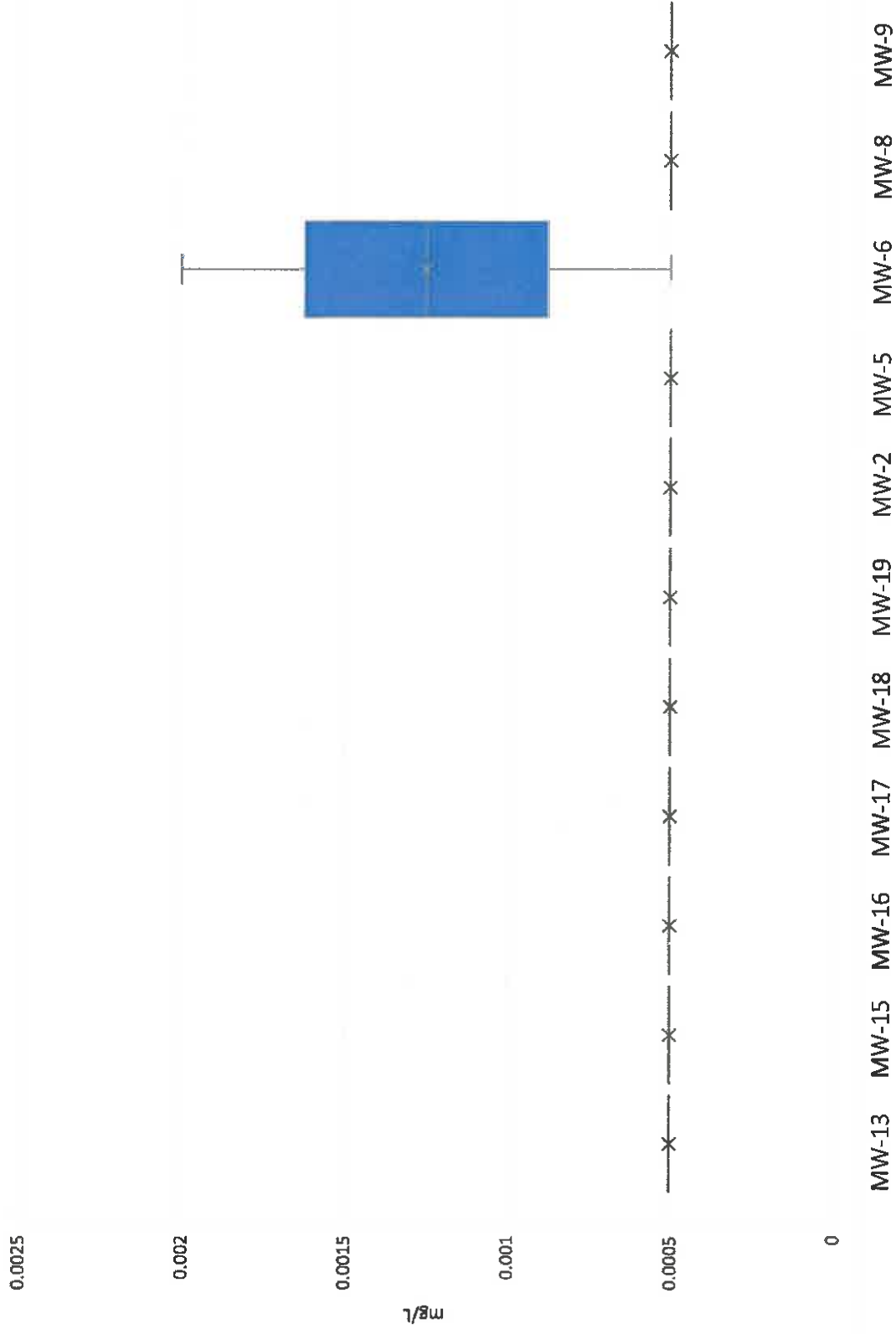
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Barium	3/22/2016	0.0652	0.0314	0.0665		0.343	0.33	0.115				0.442
Barium	3/23/2016				0.0276							
Barium	6/14/2016	0.0906	0.0552	0.073	0.0396	0.319	0.324	0.113	0.0701	0.225	0.1	0.542
Barium	9/02/2016	0.0825	0.066	0.0837	0.0424	0.307	0.325	0.104				0.538
Barium	11/28/2016	0.0959	0.0523	0.0794	0.0356	0.306	0.317	0.0952	0.0491	0.166	0.0954	0.536
Barium	2/17/2017	0.0946	0.0448	0.0857	0.0406	0.314	0.281	0.126				0.383
Barium	5/02/2017	0.0882	0.0382	0.0818	0.0411	0.329	0.328	0.118	0.0488	0.195	0.0813	0.487
Barium	6/19/2017	0.118	0.0447	0.0752	0.0361	0.304	0.297	0.101				0.481
Barium	7/31/2017	0.112	0.0467	0.0722	0.0373	0.309	0.296	0.117				0.624
Barium	11/07/2017	0.0682	0.0428		0.0305			0.0923	0.047	0.183	0.0667	0.5
Barium	3/09/2018	0.0982	0.0405		0.0351	0.303	0.323	0.113		0.165		
Barium	3/20/2018											0.526
Barium	6/05/2018	0.0605	0.0424		0.0505	0.449	0.355	0.0896	0.0447	0.196	0.0954	0.625
Barium	10/09/2018	0.0775	0.0394			0.293	0.334	0.112		0.295		0.469
Barium	10/10/2018				0.0346				0.0402		0.0892	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Beryllium



Notes: Outliers reported.  
Non-detects reported as ½ the reporting limit.

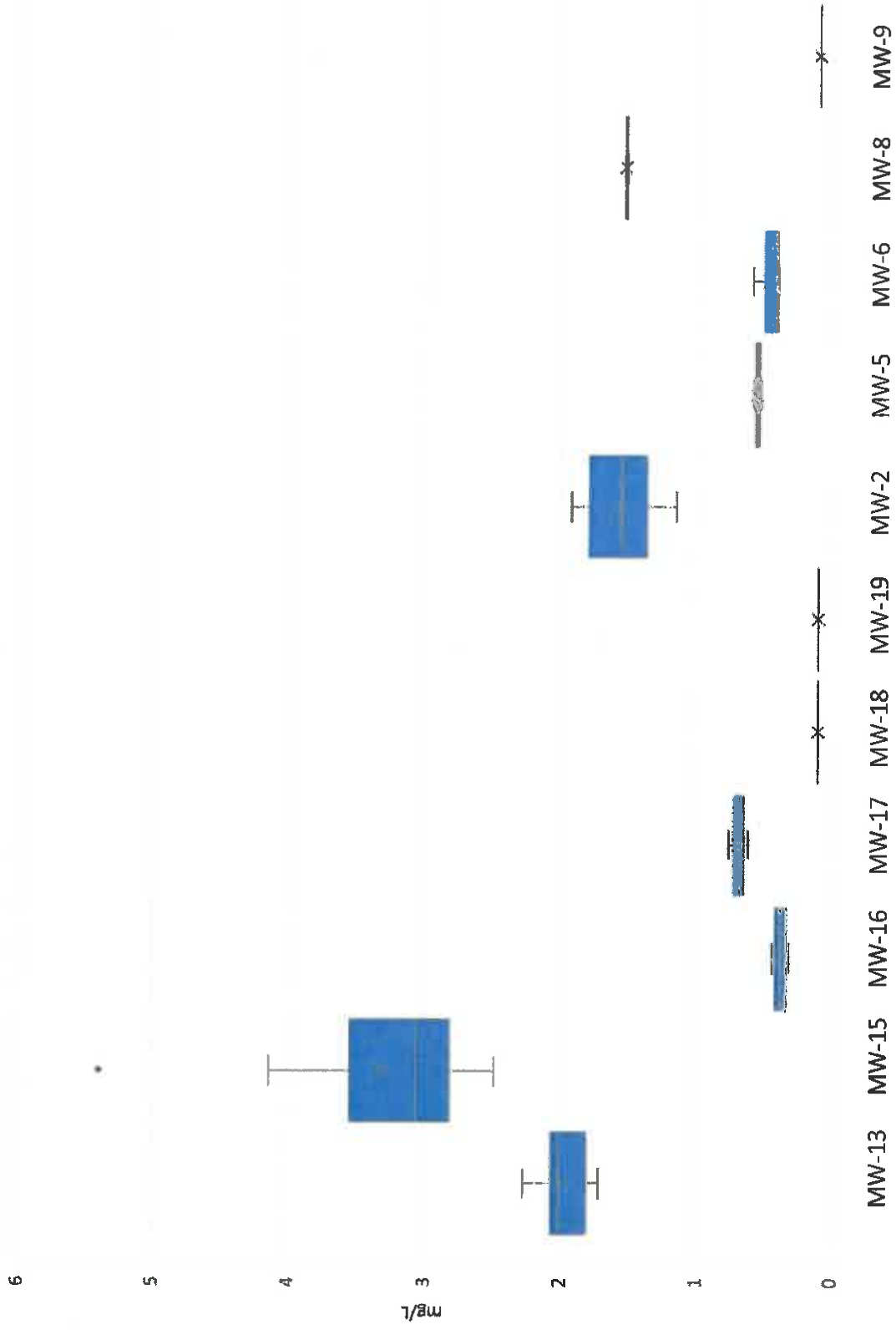
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Beryllium	3/22/2016	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	3/23/2016				0.001 U							
Beryllium	6/14/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	9/02/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	11/28/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	2/17/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	5/02/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	6/19/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	7/31/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Beryllium	3/09/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U		0.004 U		
Beryllium	3/20/2018											0.001 U
Beryllium	6/05/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Boron



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.



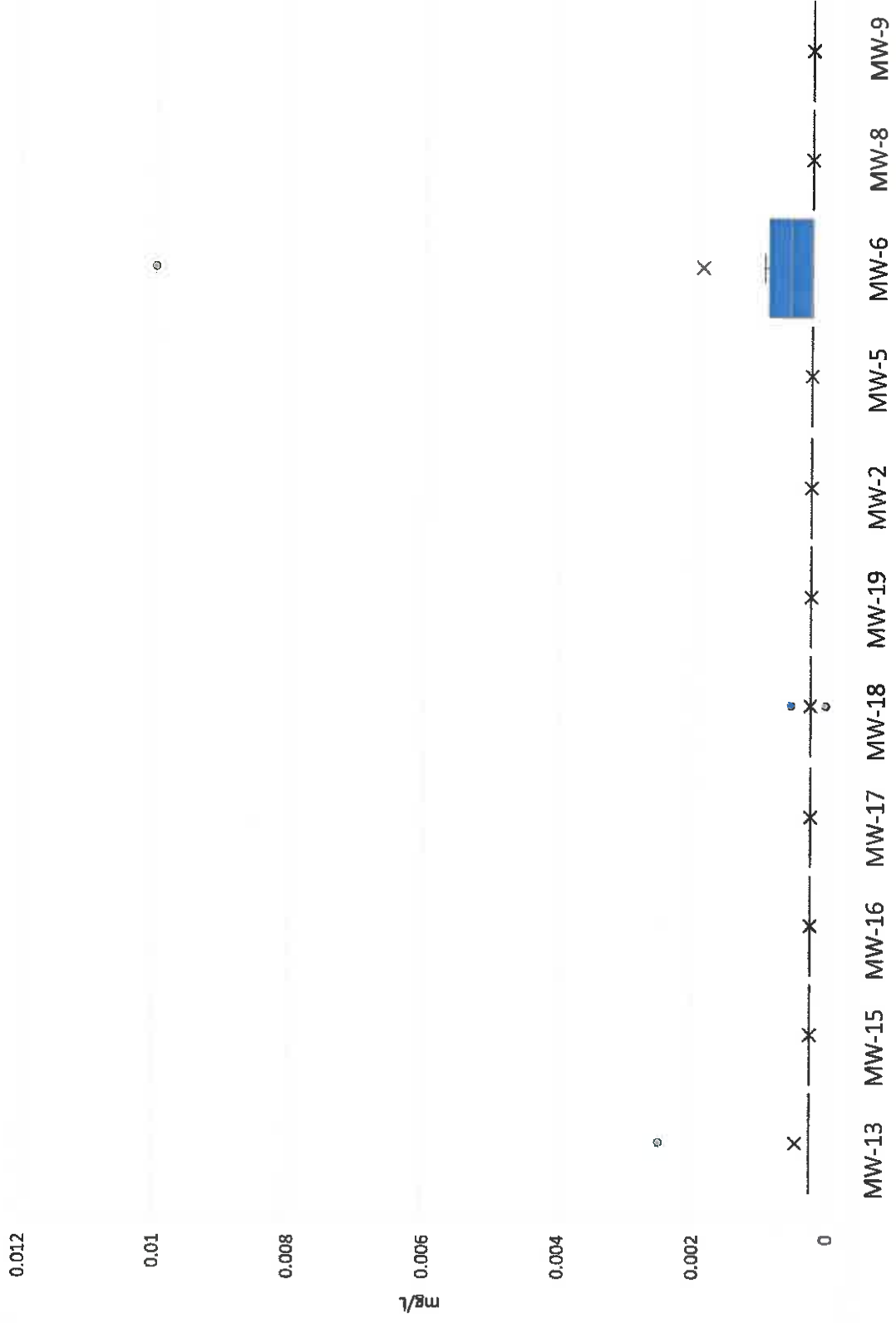
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Boron	3/22/2016	2.05	3.11	0.367		0.2 U	0.2 U	1.6				0.2 U
Boron	3/23/2016				0.668							
Boron	6/14/2016	1.97	5.39	0.409	0.706	0.2 U	0.2 U	1.52				0.2 U
Boron	9/02/2016	2.02	3.35	0.333	0.637	0.2 U	0.2 U	1.22				0.2 U
Boron	11/28/2016	2.21	2.87	0.312	0.644	0.2 U	0.2 U	1.31				0.2 U
Boron	2/17/2017	2.02	2.81	0.433	0.7	0.2 U	0.2 U	1.92				0.2 U
Boron	5/02/2017	1.8	2.8	0.32	0.649	0.2 U	0.2 U	1.79				0.2 U
Boron	6/19/2017	2.09	2.57	0.371	0.679	0.2 U	0.2 U	1.48				0.2 U
Boron	7/31/2017	2.26	3.01	0.423	0.753	0.2 U	0.2 U	1.81				0.2 U
Boron	11/07/2017	1.71	4.13		0.66	0.2 U	0.2 U	1.59				0.2 U
Boron	3/09/2018	1.98	4.1		0.745	0.2 U	0.2 U	1.88		0.8 U		
Boron	3/20/2018											0.2 U
Boron	6/05/2018	1.78	3.26		0.745	0.2 U	0.2 U	1.15	0.58	0.589	1.54	0.2 U
Boron	10/09/2018	1.77	2.48			0.2 U	0.2 U	1.38		0.415		0.2 U
Boron	10/10/2018				0.615				0.528		1.52	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Cadmium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

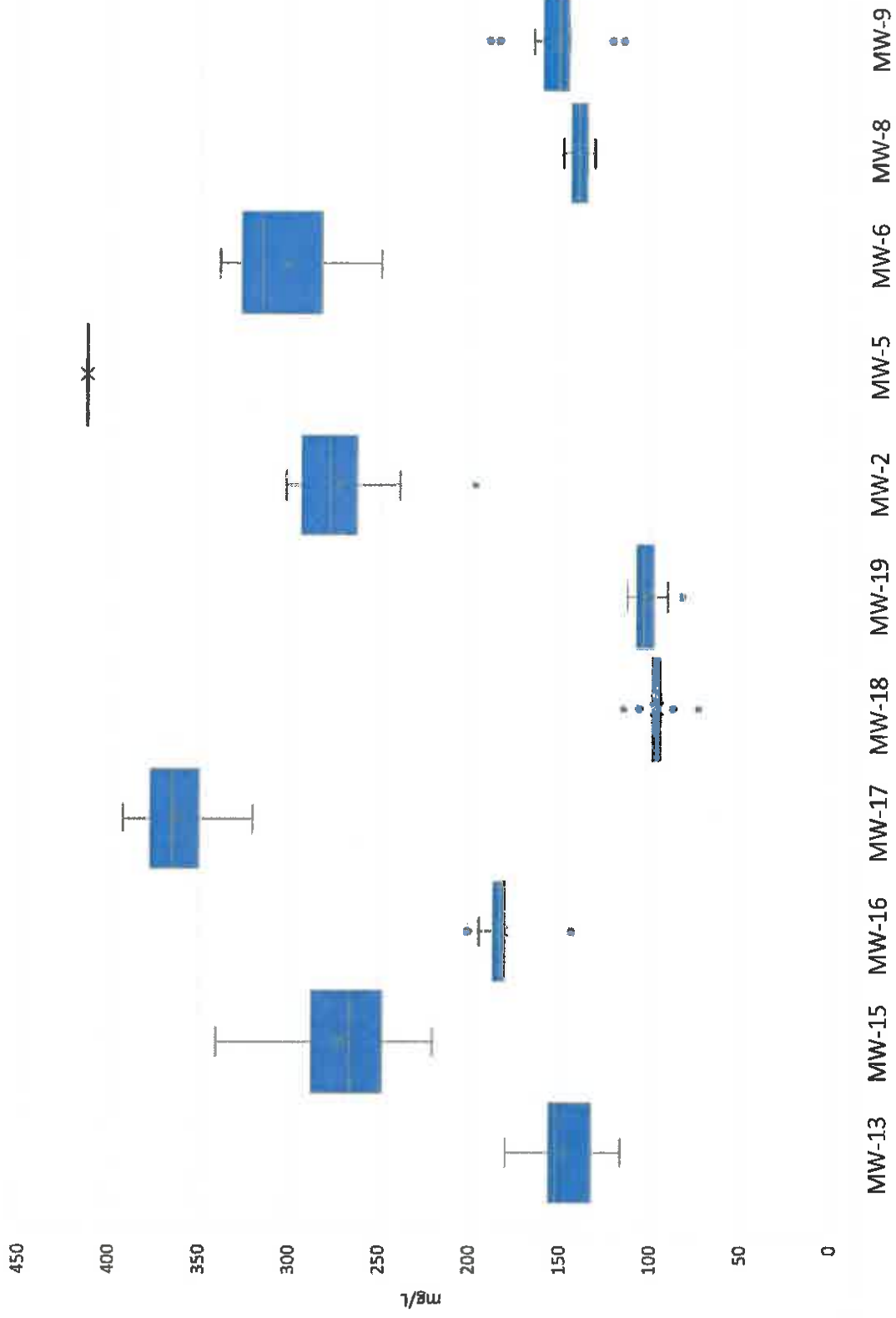
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Cadmium	3/22/2016	0.0005 U	0.0005 U	0.0005 U		0.0005 U	0.0005 U	0.0005 U				0.0005 U
Cadmium	3/23/2016				0.0005 U							
Cadmium	6/14/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	9/02/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.0005 U
Cadmium	11/28/2016	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	2/17/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.0005 U
Cadmium	5/02/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium	6/19/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.0005 U
Cadmium	7/31/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.0005 U
Cadmium	11/07/2017	0.0005 U	0.0005 U		0.0005 U			0.0005 U	0.0005 U	0.000959	0.0005 U	0.0005 U
Cadmium	3/09/2018	0.0005 U	0.0005 U		0.0005 U	0.0005 U	0.0005 U	0.0005 U		0.02 U		
Cadmium	3/20/2018											0.0005 U
Cadmium	6/05/2018	0.0005 U	0.0005 U		0.0005 U	0.000537	0.0005 U	0.0005 U	0.0005 U	0.000564	0.0005 U	0.0005 U
Cadmium	10/09/2018					0.00005 U				0.000834		

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Calcium



Notes: Outliers reported.

Non-detects reported as ½ the reporting limit.

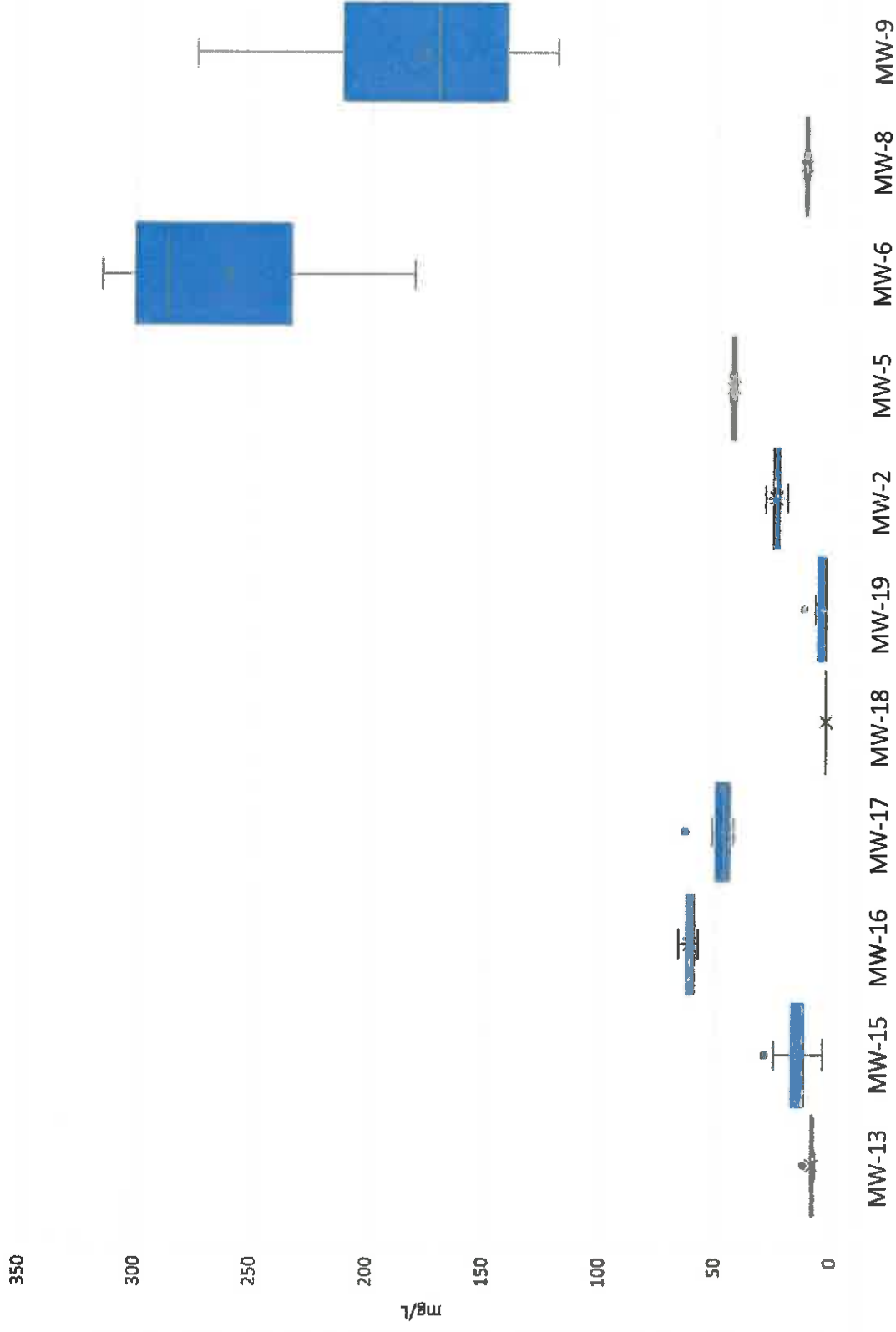
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Calcium	3/22/2016	127	311	180		115	103	267				147
Calcium	3/23/2016				392							
Calcium	6/14/2016	138	340	180	376	96.1	110	278				159
Calcium	9/02/2016	116	220	143	320	73.4	82.8	197				122
Calcium	11/28/2016	155	285	184	390	97.6	110	262				166
Calcium	2/17/2017	153	266	181	380	94.8	90.5	292				116
Calcium	5/02/2017	156	263	184	364	98.9	107	300				148
Calcium	6/19/2017	179	248	194	373	98.4	103	277				150
Calcium	7/31/2017	133	247	200	365	98.8	105	299				190
Calcium	11/07/2017	129	293		323	87.5	93	263				153
Calcium	3/09/2018	152	283		357	97.3	113	292		316		
Calcium	3/20/2018											146
Calcium	6/05/2018	151	265		363	106	100	239	413	339	149	185
Calcium	10/09/2018	161	230			94.2	106	302		250		159
Calcium	10/10/2018				328				412		132	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Chloride



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

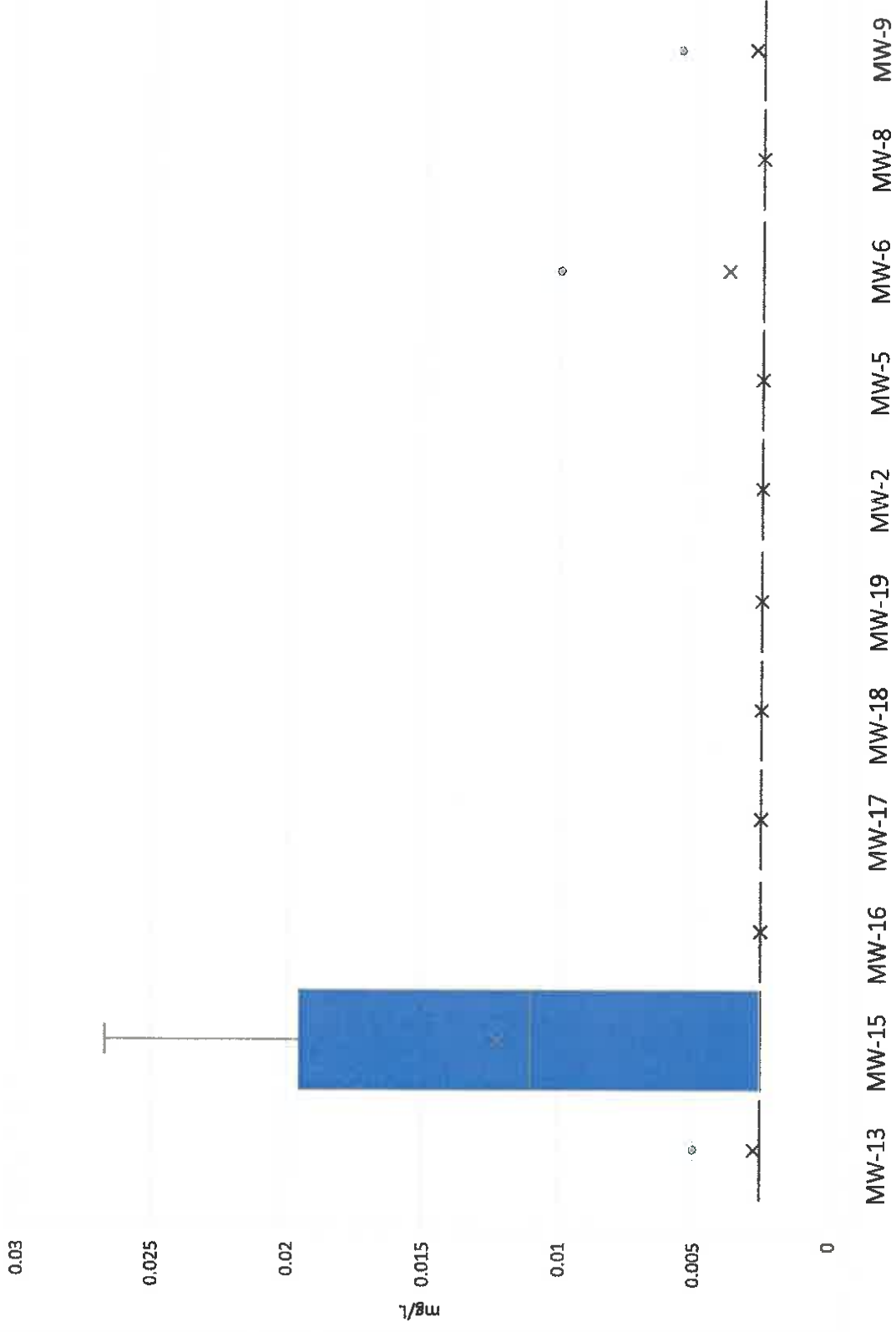
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Chloride	3/22/2016	7.97	24.3	64.7		5 U	6.5	23.1				121
Chloride	3/23/2016				51.3							
Chloride	6/14/2016	6.7	13	65.5	50	5 U	7.2	25.7				165
Chloride	9/02/2016	8.06	3.52	57.3	43	5 U	5 U	24.9				146
Chloride	11/28/2016	11.3	28.2	60.7	49.7	5 U	6.02	24.4				177
Chloride	2/17/2017	6.35	16.8	59.2	62.6	5 U	3.55	19.3				120
Chloride	5/02/2017	7.52	11.2	60.7	45.3	5 U	3.7	22.9				127
Chloride	6/19/2017	7.83	9.99	59.3	42.3	5 U	5 U	24.1				149
Chloride	7/31/2017	6.3	11.4	57.9	44.4	5 U	5 U	24.8				275
Chloride	11/07/2017	6.81	11.6		46.2	5 U	5 U	21.2				220
Chloride	3/09/2018	7.35	13.4		46.8	5 U	5 U	27.4		315		
Chloride	3/20/2018											210
Chloride	6/05/2018	7.93	16.6		43.6	5 U	5 U	28.5	44.2	287	12.9	231
Chloride	10/09/2018	7.05	11.5			5 U	11.9	22.2		181		194
Chloride	10/10/2018				41.9				41.6		10.8	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Chromium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.



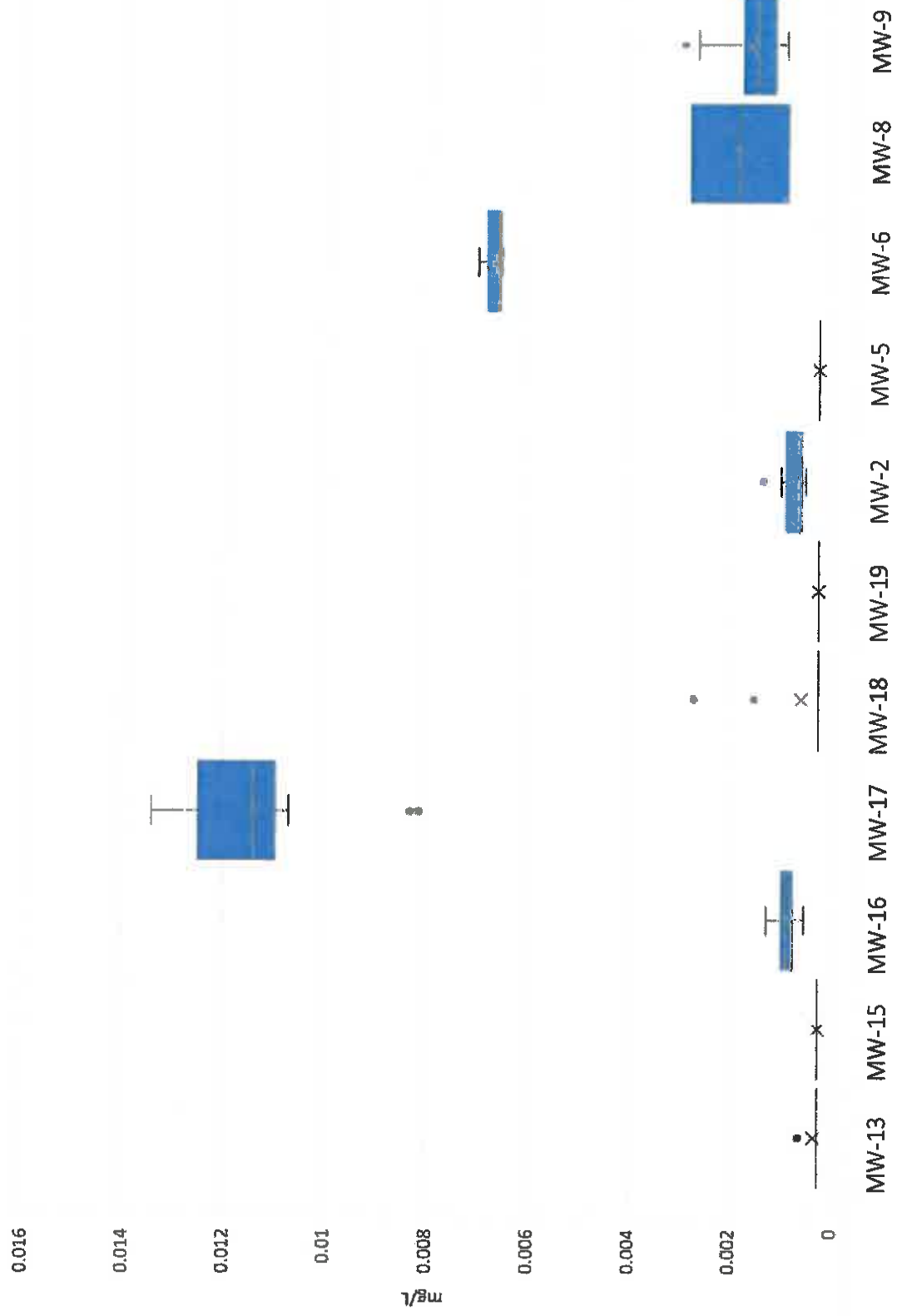
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Chromium	3/22/2016	0.005 U	0.0194	0.005 U		0.005 U	0.005 U	0.005 U				0.005 U
Chromium	3/23/2016				0.005 U							
Chromium	6/14/2016	0.005 U	0.0199	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	9/02/2016	0.005 U	0.00548	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Chromium	11/28/2016	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	2/17/2017	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.00555
Chromium	5/02/2017	0.005 U	0.0153	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	6/19/2017	0.005 U	0.00678	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Chromium	7/31/2017	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Chromium	11/07/2017	0.005 U	0.0253		0.005 U			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	3/09/2018	0.005 U	0.005 U		0.005 U	0.005 U	0.005 U	0.005 U		0.02 U		
Chromium	3/20/2018											0.005 U
Chromium	6/05/2018	0.005 U	0.0267		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium	10/09/2018		0.0182									

**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Cobalt



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

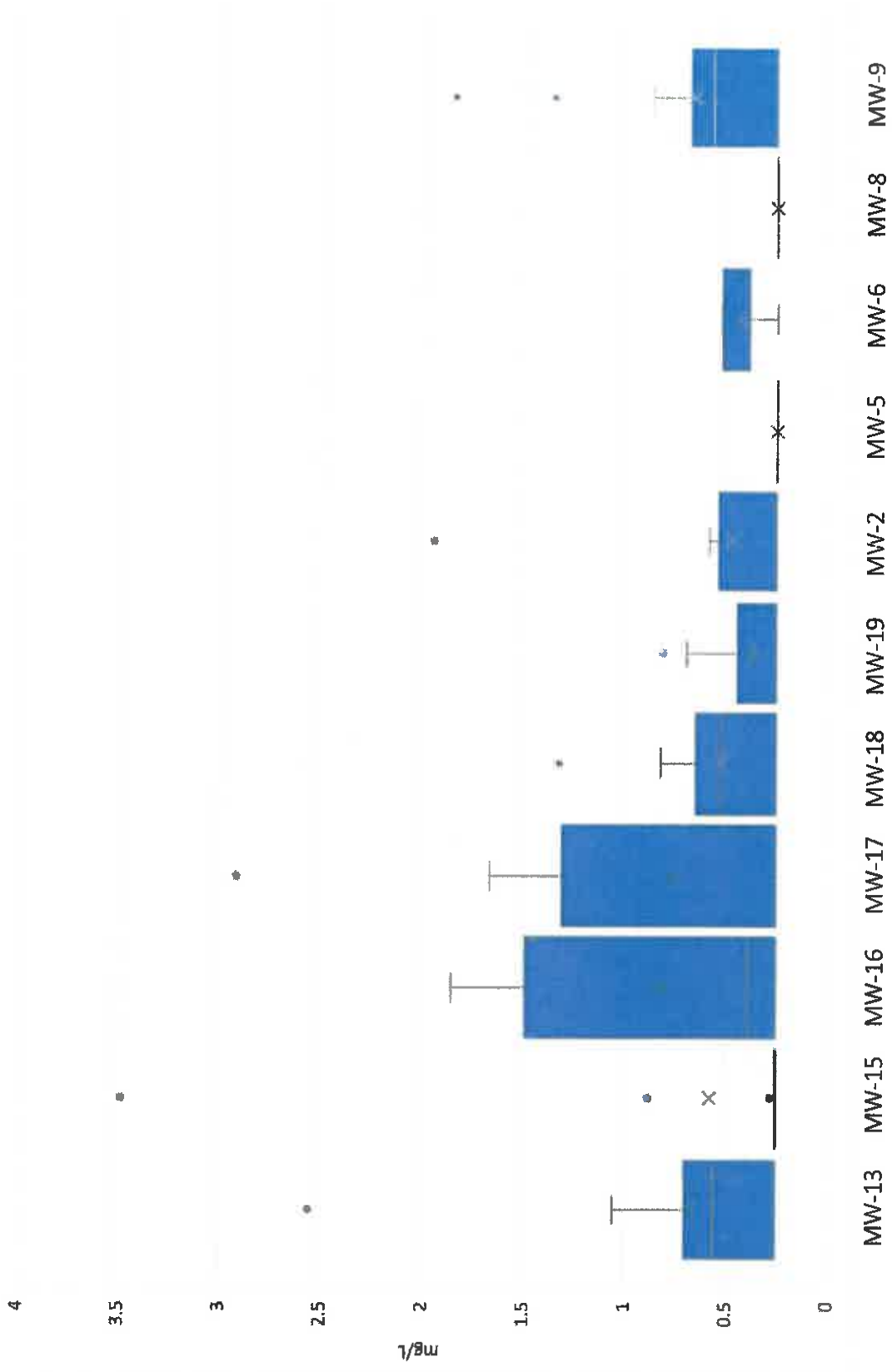
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Cobalt	3/22/2016	0.0005 U	0.0005 U	0.00083		0.00152	0.0005 U	0.000514				0.00146
Cobalt	3/23/2016				0.00813							
Cobalt	6/14/2016	0.0005 U	0.0005 U	0.000634	0.0127	0.0005 U	0.0005 U	0.000566				0.00148
Cobalt	9/02/2016	0.0005 U	0.0005 U	0.00126	0.0134	0.0005 U	0.0005 U	0.000619				0.00103
Cobalt	11/28/2016	0.0005 U	0.0005 U	0.000925	0.00829	0.0005 U	0.0005 U	0.000559				0.00159
Cobalt	2/17/2017	0.0005 U	0.0005 U	0.00102	0.0112	0.0005 U	0.0005 U	0.000656				0.00265
Cobalt	5/02/2017	0.0005 U	0.0005 U	0.000952	0.0113	0.0005 U	0.0005 U	0.000833				0.000974
Cobalt	6/19/2017	0.0005 U	0.0005 U	0.000769	0.012	0.0005 U	0.0005 U	0.000725				0.00123
Cobalt	7/31/2017	0.0005 U	0.0005 U	0.000519	0.0123	0.0005 U	0.0005 U	0.000953				0.00195
Cobalt	3/09/2018	0.000613	0.0005 U		0.0107	0.0005 U	0.0005 U	0.00062		0.00654		
Cobalt	3/20/2018											0.000895
Cobalt	6/05/2018	0.000718	0.0005 U		0.0134	0.00271	0.0005 U	0.000997	0.0005 U	0.007	0.00281	0.00293
Cobalt	10/09/2018	0.0005 U				0.0005 U		0.00135		0.00661		0.0015
Cobalt	10/10/2018				0.0114						0.000864	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Fluoride



Notes: Outliers reported.

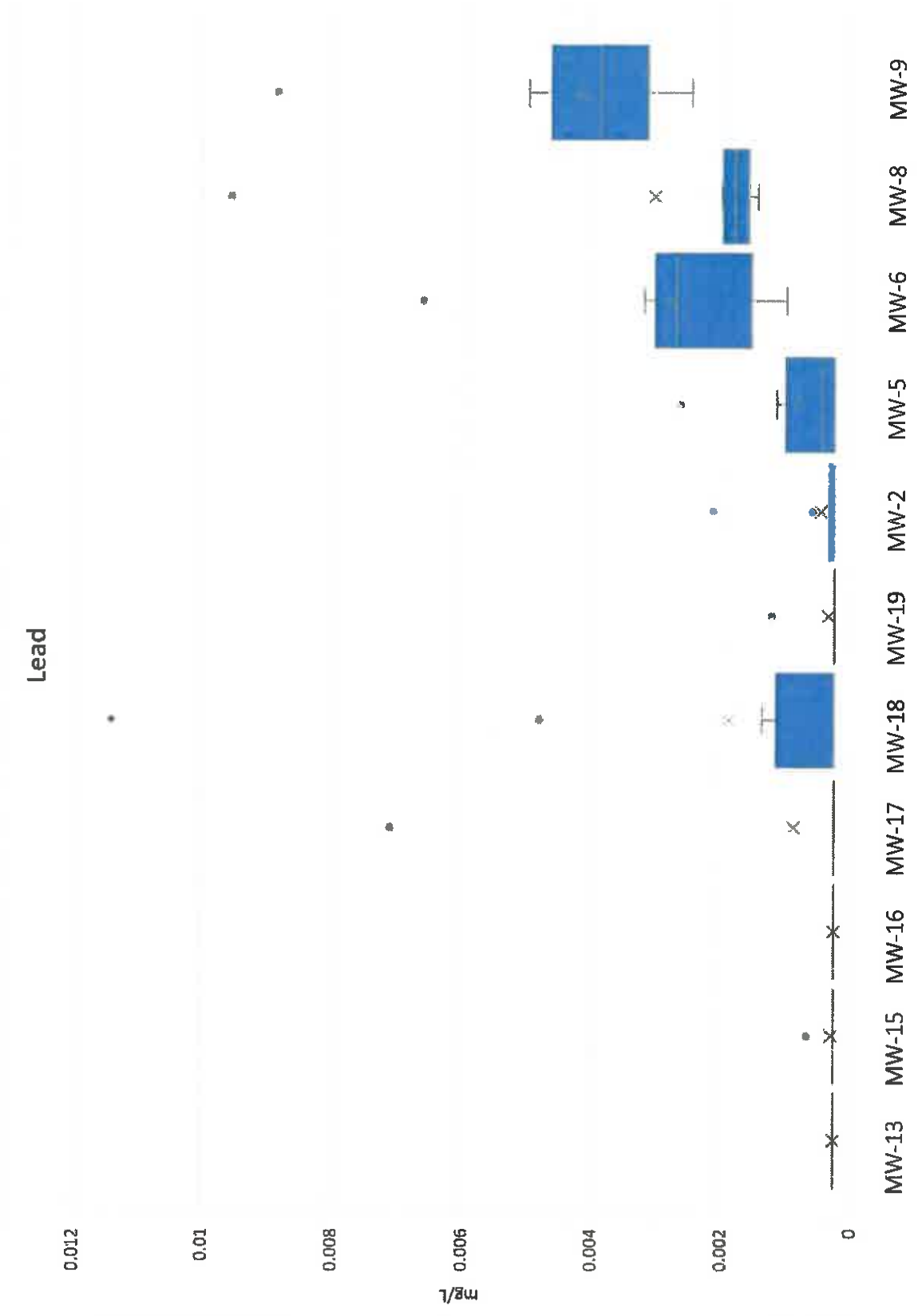
Non-detects reported as 1/2 the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Fluoride	3/22/2016	0.796	0.5 U	1.84		0.5 U	0.5 U	0.5 U				1.35
Fluoride	3/23/2016				1.36							
Fluoride	6/14/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.864
Fluoride	9/02/2016	0.652	0.278	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U
Fluoride	11/28/2016	2.55	3.48	0.5 U	0.5 U	0.5 U	0.5 U	0.318				0.5 U
Fluoride	2/17/2017	0.5 U	0.5 U	1.37	2.91	0.508	0.418	0.563				0.585
Fluoride	5/02/2017	1.05	0.878	1.85	1.66	1.32	0.804	1.94				1.84
Fluoride	6/19/2017	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.517
Fluoride	7/31/2017	0.587	0.5 U	0.528	0.5 U	0.632	0.693	0.583				0.617
Fluoride	11/07/2017	0.67	0.5 U		0.5 U	0.704	0.5 U	0.529				0.55
Fluoride	3/09/2018	0.53	0.5 U		1.29	0.53	0.5 U	0.5 U		0.525		
Fluoride	3/20/2018											0.5 U
Fluoride	6/05/2018	0.5 U	0.5 U		0.5 U	0.528	0.524	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluoride	10/09/2018	0.5 U	0.5 U			0.817	0.5 U	0.5 U		0.52		0.592
Fluoride	10/10/2018				0.5 U				0.5 U		0.5 U	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

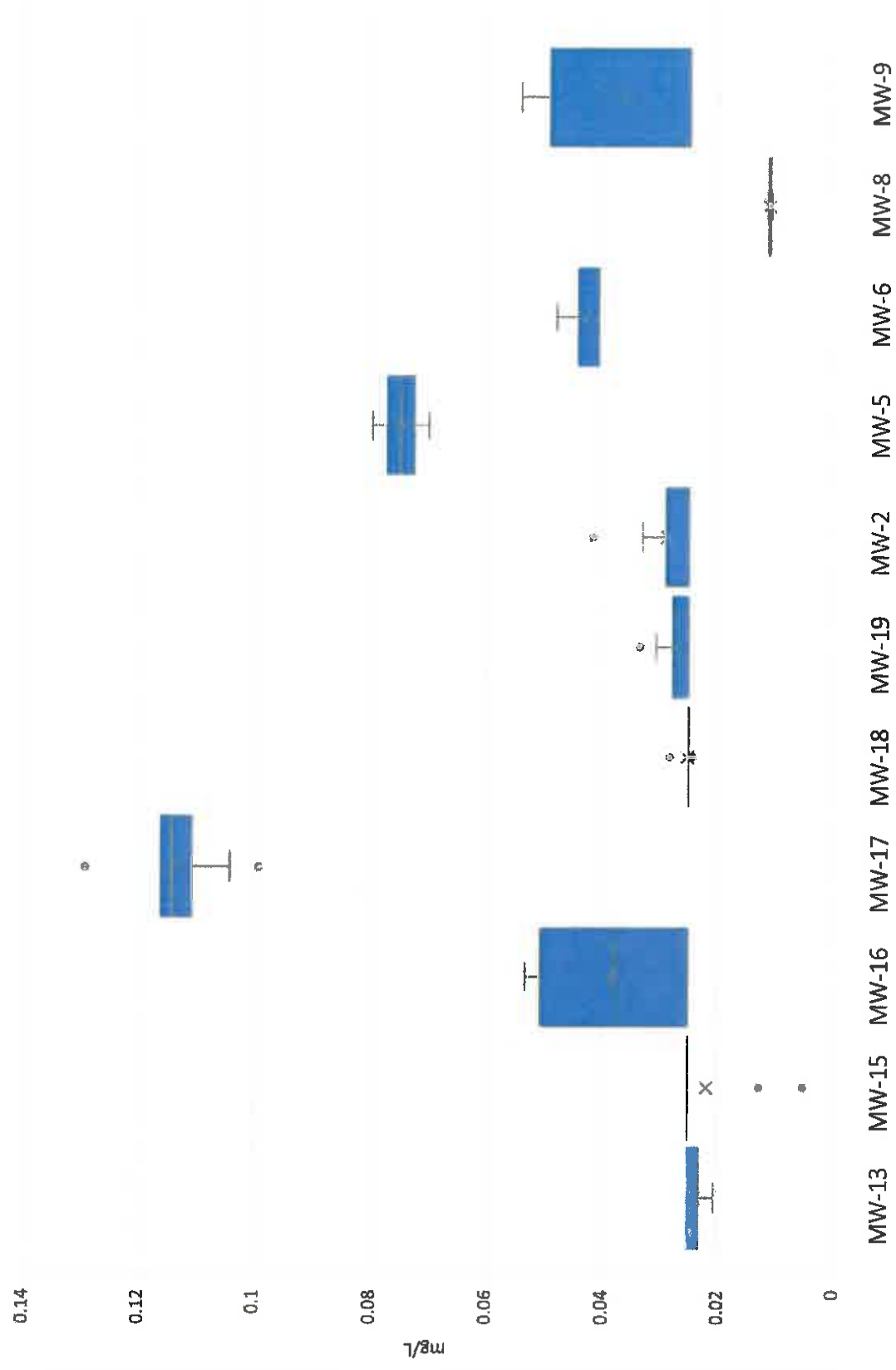
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Lead	3/22/2016	0.0005 U	0.0005 U	0.0005 U		0.00479	0.0005 U	0.000601				0.00366
Lead	3/23/2016				0.0005 U							
Lead	6/14/2016	0.0005 U	0.000668	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.00211	0.0005 U	0.00269	0.00169	0.00339
Lead	9/02/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.00289
Lead	11/28/2016	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.000577	0.0005 U	0.0005 U	0.0005 U	0.00139	0.0019	0.00499
Lead	2/17/2017	0.0005 U	0.0005 U	0.0005 U	0.0071	0.0005 U	0.0005 U	0.0005 U				0.00419
Lead	5/02/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.00169	0.00155	0.00246
Lead	6/19/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.00322
Lead	7/31/2017	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U				0.00474
Lead	11/07/2017	0.0005 U	0.0005 U		0.0005 U			0.0005 U	0.00114	0.00286	0.00144	0.00461
Lead	3/09/2018	0.0005 U	0.0005 U		0.0005 U	0.00137	0.0005 U	0.0005 U		0.002 U		
Lead	3/20/2018											0.00284
Lead	6/05/2018	0.0005 U	0.0005 U		0.0005 U	0.0114	0.00121	0.000586	0.00262	0.00319	0.00956	0.00885
Lead	10/09/2018					0.000938	0.0005 U	0.0005 U		0.0066		0.00407
Lead	10/10/2018								0.000627		0.002	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Lithium



Notes: Outliers reported.  
 Non-detects reported as 1/2 the reporting limit.



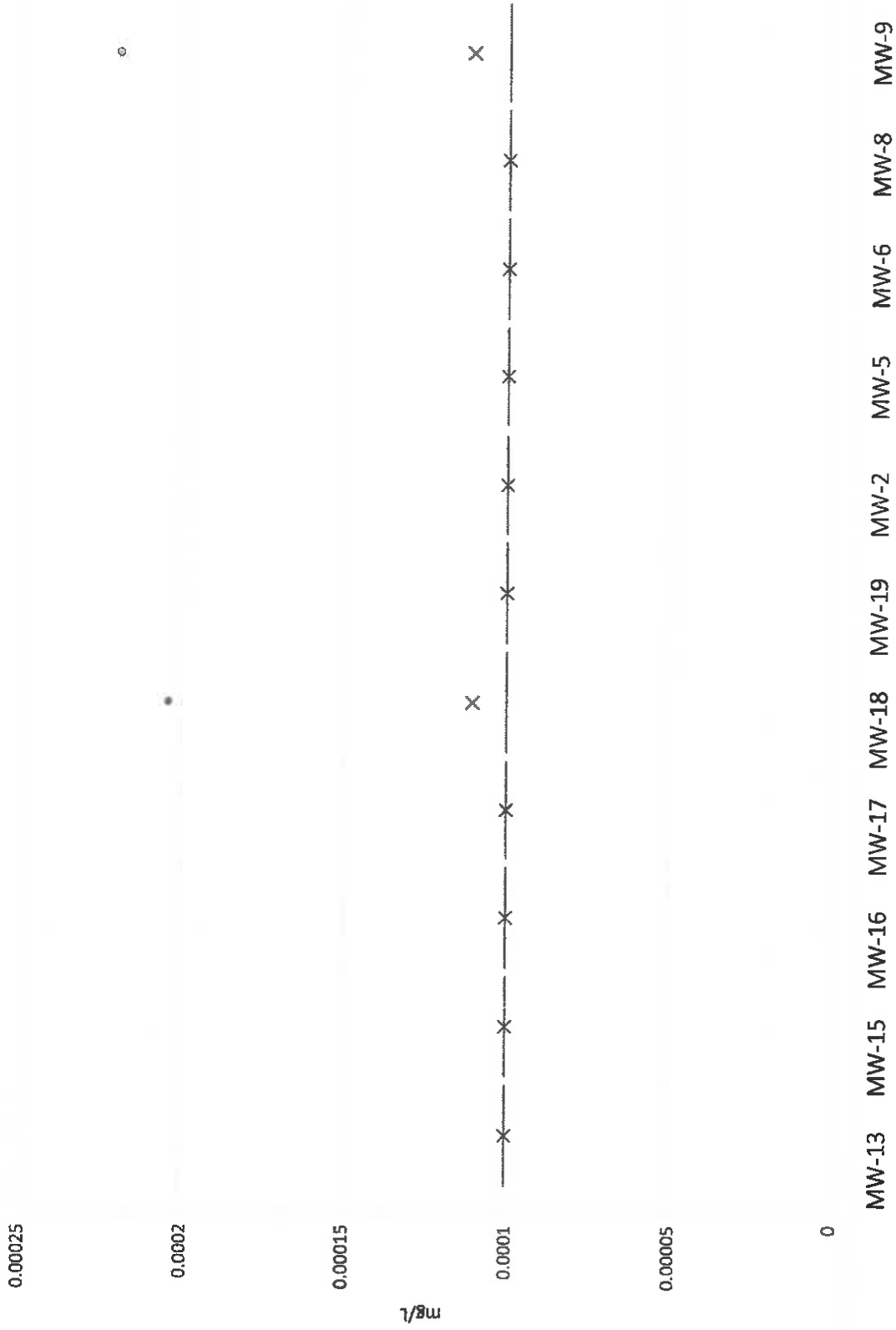
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Lithium	3/22/2016	0.05 U	0.05 U	0.05 U		0.05 U	0.05 U	0.05 U				0.05 U
Lithium	3/23/2016				0.114							
Lithium	6/14/2016	0.05 U	0.05 U	0.0514	0.129	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	9/02/2016	0.05 U	0.05 U	0.05 U	0.116	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	11/28/2016	0.05 U	0.05 U	0.0501	0.116	0.05 U	0.05 U	0.05 U				0.0533
Lithium	2/17/2017	0.05 U	0.05 U	0.053	0.115	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	5/02/2017	0.05 U	0.05 U	0.0503	0.116	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	6/19/2017	0.05 U	0.05 U	0.05 U	0.114	0.05 U	0.05 U	0.05 U				0.05 U
Lithium	7/31/2017	0.05 U	0.05 U	0.05 U	0.109	0.05 U	0.05 U	0.05 U				0.0505
Lithium	3/09/2018	0.0212	0.0126		0.112	0.0282	0.0334	0.0415		0.0407		
Lithium	3/20/2018											0.0428
Lithium	6/05/2018	0.0205	0.01 U		0.099	0.0243	0.0306	0.033	0.07	0.048	0.0115	0.0541
Lithium	10/09/2018	0.0213				0.0254	0.0336	0.0423		0.0407		0.0482
Lithium	10/10/2018				0.104				0.0797		0.0108	

**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Mercury



Notes: Outliers reported.

Non-detects reported as ½ the reporting limit.

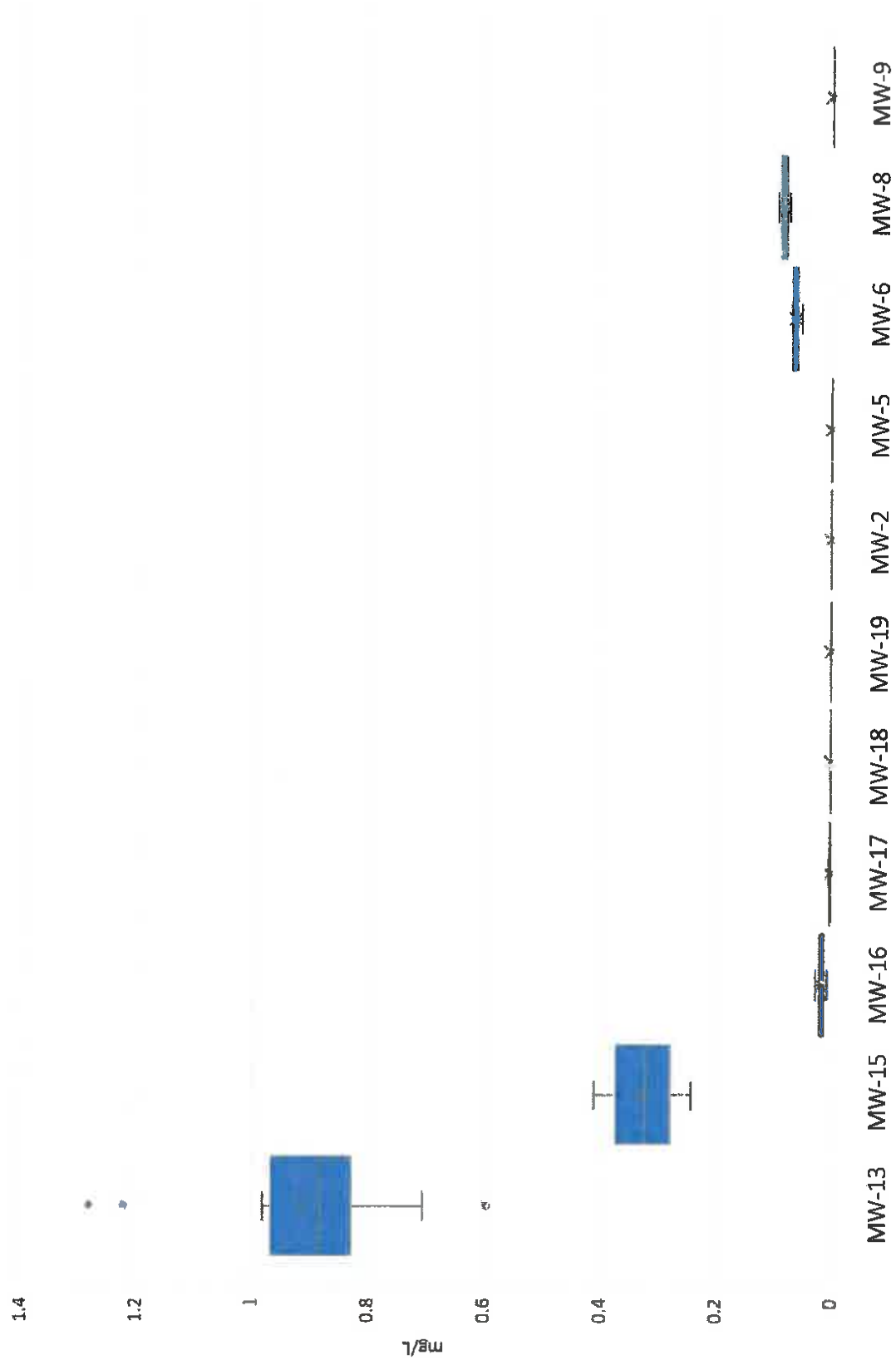
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Mercury	3/22/2016	0.0002 U	0.0002 U	0.0002 U		0.0002 U	0.0002 U	0.0002 U				0.0002 U
Mercury	3/23/2016				0.0002 U							
Mercury	6/14/2016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	9/02/2016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U				0.0002 U
Mercury	11/28/2016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	2/17/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U				0.0002 U
Mercury	5/02/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	6/19/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000204	0.0002 U	0.0002 U				0.0002 U
Mercury	7/31/2017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U				0.00022
Mercury	11/07/2017	0.0002 U	0.0002 U		0.0002 U			0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury	3/09/2018	0.0002 U	0.0002 U		0.0002 U	0.0002 U	0.0002 U	0.0002 U		0.0002 U		
Mercury	3/20/2018											0.0002 U
Mercury	6/05/2018	0.0002 U	0.0002 U		0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Molybdenum



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

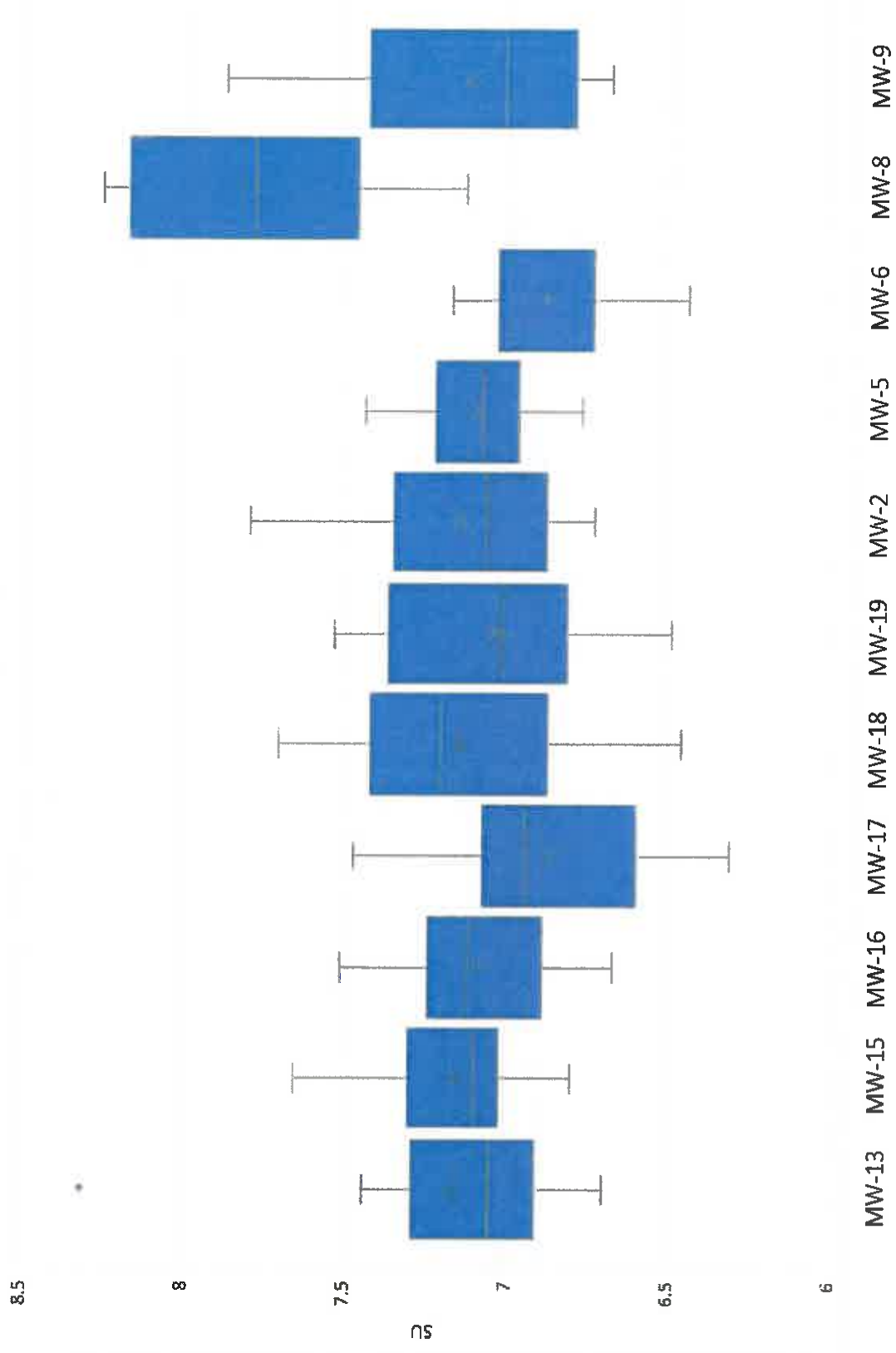
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Molybdenum	3/22/2016	0.704	0.389	0.018		0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	3/23/2016				0.002 U							
Molybdenum	6/14/2016	0.592	0.254	0.0125	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	9/02/2016	0.945	0.319	0.0262	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	11/28/2016	0.837	0.402	0.0193	0.00219	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	2/17/2017	0.817	0.408	0.0164	0.00214	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	5/02/2017	0.951	0.316	0.00651	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	6/19/2017	0.881	0.242	0.0105	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	7/31/2017	0.839	0.264	0.0185	0.002 U	0.002 U	0.002 U	0.002 U				0.002 U
Molybdenum	3/09/2018	1.22	0.353		0.0032	0.002 U	0.002 U	0.002 U		0.0683		
Molybdenum	3/20/2018											0.002 U
Molybdenum	6/05/2018	1.28	0.353		0.00356	0.002 U	0.002 U	0.002 U	0.002 U	0.0702	0.0753	0.002 U
Molybdenum	10/09/2018	0.98	0.29							0.0537		
Molybdenum	10/10/2018				0.002 U						0.095	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

pH



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

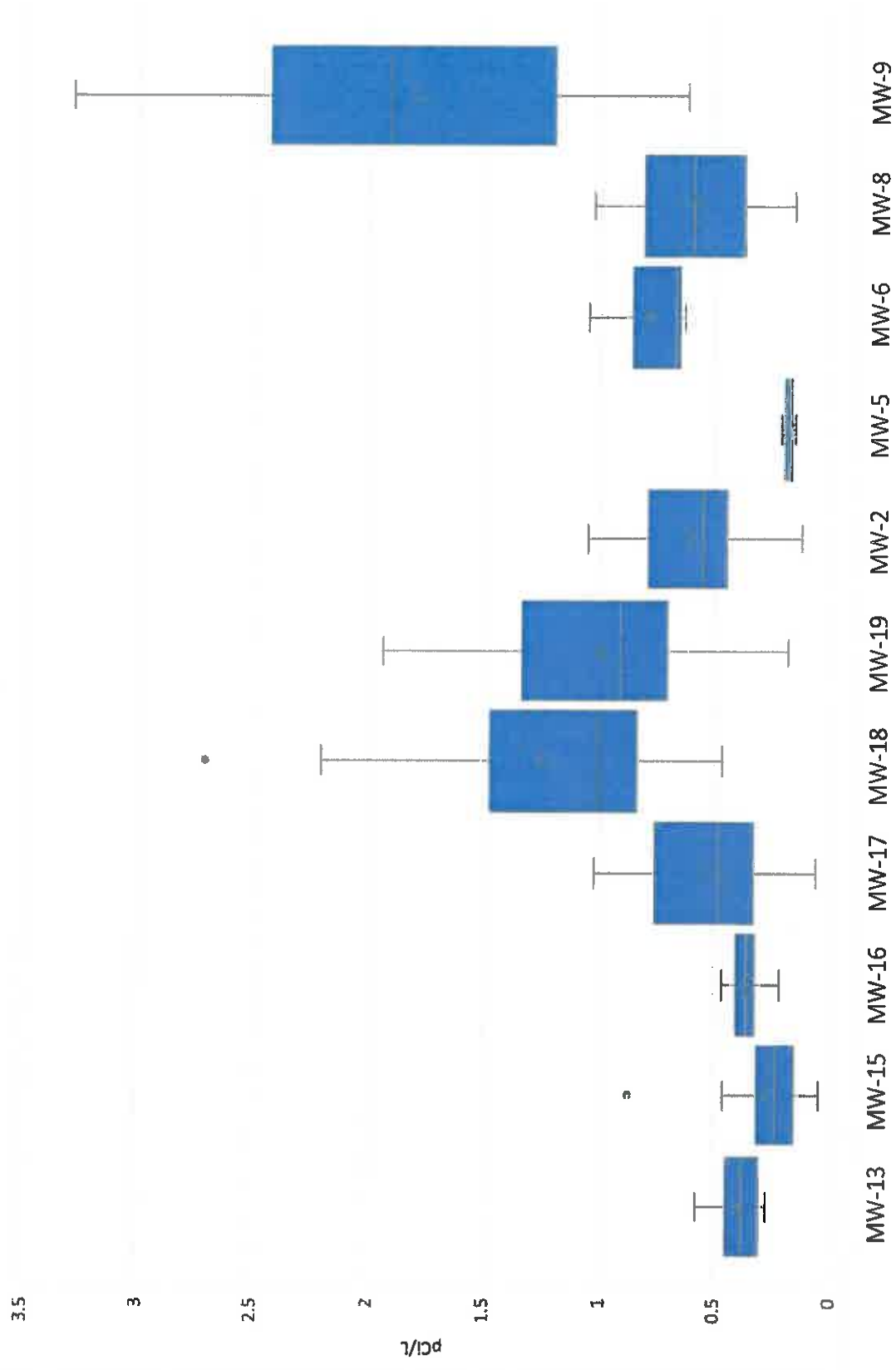
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW6	MW9
pH	3/22/2016	6.89	7.09	6.86		6.86	6.85	6.85				6.83
pH	3/23/2016				6.6							
pH	6/14/2016	6.7	6.8	6.67	6.59	7.18	6.8	6.8	6.77	6.67	7.13	6.78
pH	9/02/2016	7.03	6.97	7.18	6.98	7.2	7.12	7.04				7.27
pH	11/28/2016	7.25	7.32	7.11	6.76	7.47	7.29	7.49	7.06	7.17	7.42	7.02
pH	2/17/2017	7.44	7.65	7.51	7.31	7.7	7.49	7.79				7.47
pH	5/02/2017	7.3	7.02	7.26	7.47	7.27	7.39	7.27	7.09	7.03	7.6	7.35
pH	6/19/2017	7.07	7.05	6.97	6.93	7.2	7.05	7.09				6.99
pH	7/31/2017	7.2	7.02	7.12	7.05	7.63	7.53	7.37				7.87
pH	11/07/2017	6.79	7.1		7.14	7.22	6.98	7.29	7.15	6.8	8.25	7.46
pH	3/09/2018	7.03	7.24		6.31	6.46	6.53	6.73		6.44		
pH	3/20/2018											6.68
pH	6/05/2018	8.31	7.42		6.95	6.91	6.91	7.02	7.44	7.03	8.24	7
pH	10/09/2018	6.96	7.1			6.64	6.49	6.96		7.03		6.74
pH	10/10/2018				6.39				7.03		7.96	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Ra 226+228



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.



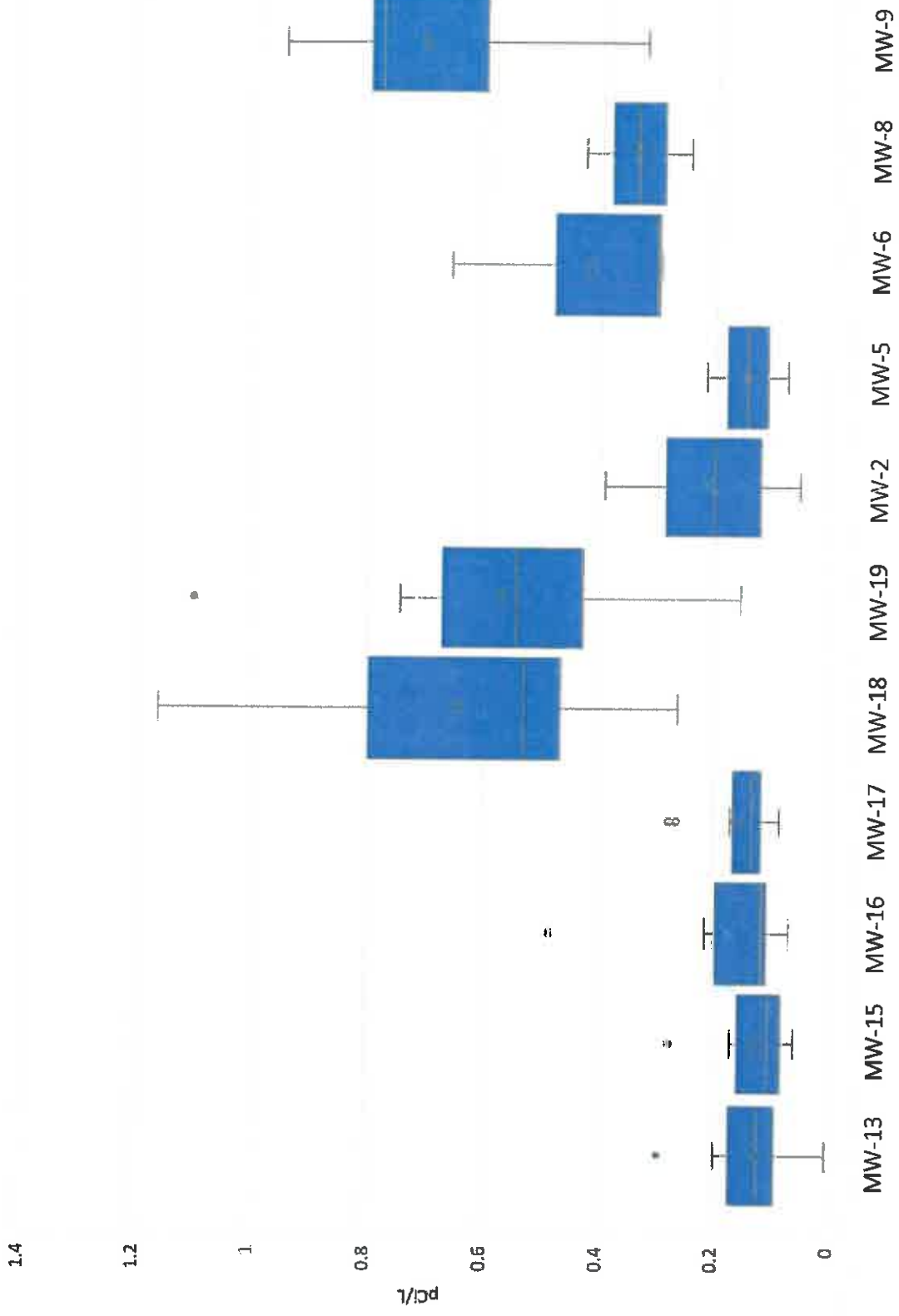
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Ra 226+228	3/22/2016	0.575	0.245	0.214		2.7	1.93	0.664				1.24
Ra 226+228	3/23/2016				0.366							
Ra 226+228	6/14/2016	0.389	0.378	0.392	0.469	0.72	0.386	0.488				0.822
Ra 226+228	9/02/2016	0.362	0.0439	0.22	0.651	0.814	1.55	0.3				2.01
Ra 226+228	11/28/2016	0.27	0.871	0.436	0.479	1.56	1.14	0.914				1.91
Ra 226+228	2/17/2017	0.455	0.143	0.362	0.181	0.907	0.82	0.679				0.623
Ra 226+228	5/02/2017	0.301	0.158	0.354	0.059			0.123				1.16
Ra 226+228	6/19/2017	0.3	0.229	0.463	0.777	0.465	0.744	0.469				2.62
Ra 226+228	7/31/2017	0.298	0.455	0.353	0.284	0.899	1	0.549				3.28
Ra 226+228	3/09/2018	0.546	0.232		0.738	1.09	0.691	1.05		0.673		
Ra 226+228	3/20/2018											1.25
Ra 226+228	6/05/2018	0.374	0.282 U		0.96	2.2	1.4	0.422	0.212	0.634	1.03	2.45
Ra 226+228	10/09/2018	0.435	0.303 U			1.21	0.364 U	0.901		1.05		2.41
Ra 226+228	10/10/2018				1.02				0.305 U		0.31 U	

**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Ra-226



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

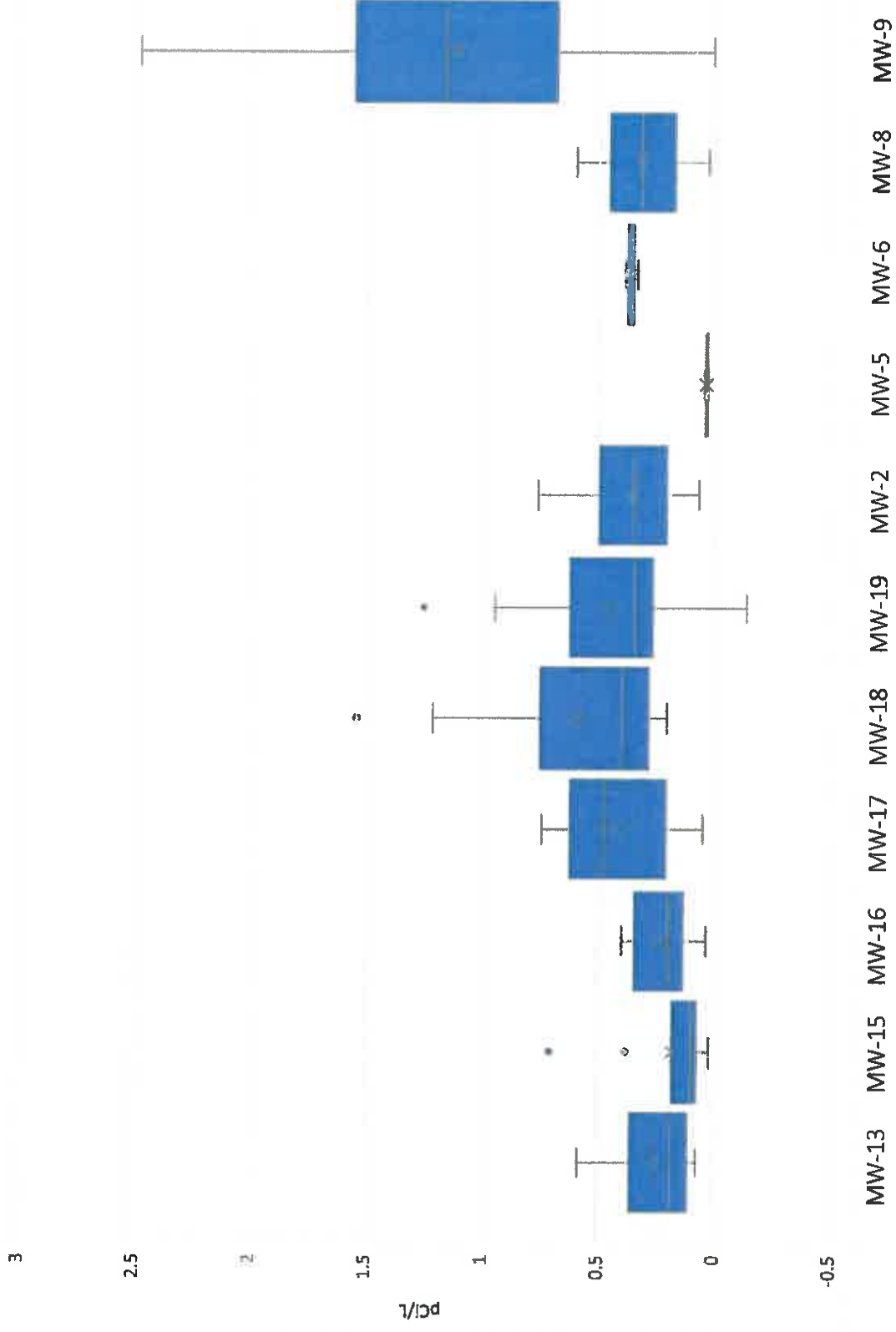
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Ra-226	3/22/2016	0.00428	0.154	0.0926		1.16	0.683	0.312				0.931
Ra-226	3/23/2016				0.106							
Ra-226	6/14/2016	0.0971	0.104	0.114	0.123	0.45	0.156	0.151				0.323
Ra-226	9/02/2016	0.0658	0.0903	0.19	0.128	0.466	0.603	0.201				0.778
Ra-226	11/28/2016	0.151	0.168	0.113	0.141	0.764	0.445	0.391				0.745
Ra-226	2/17/2017	0.128	0.159	0.213	0.134	0.47	0.423	0.256				0.609
Ra-226	5/02/2017	0.122	0.0875	0.12	0.0863			0.0541				0.594
Ra-226	6/19/2017	0.19	0.0759	0.0686	0.113	0.264	0.48	0.175				0.799
Ra-226	7/31/2017	0.196	0.275	0.483	0.171	0.588	0.742	0.26				0.801
Ra-226	3/09/2018	0.0929	0.0594		0.162	0.468	0.394	0.0653		0.303		
Ra-226	3/20/2018											0.438
Ra-226	6/05/2018	0.179 U	0.147 U		0.265	0.99	1.1	0.186 U	0.152 U	0.296	0.427	0.782
Ra-226	10/09/2018	0.293	0.154			0.808	0.636	0.39		0.658		0.947
Ra-226	10/10/2018				0.277				0.216		0.246	

**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

Ra-228



Notes: Outliers reported.  
Non-detects reported as 1/2 the reporting limit.

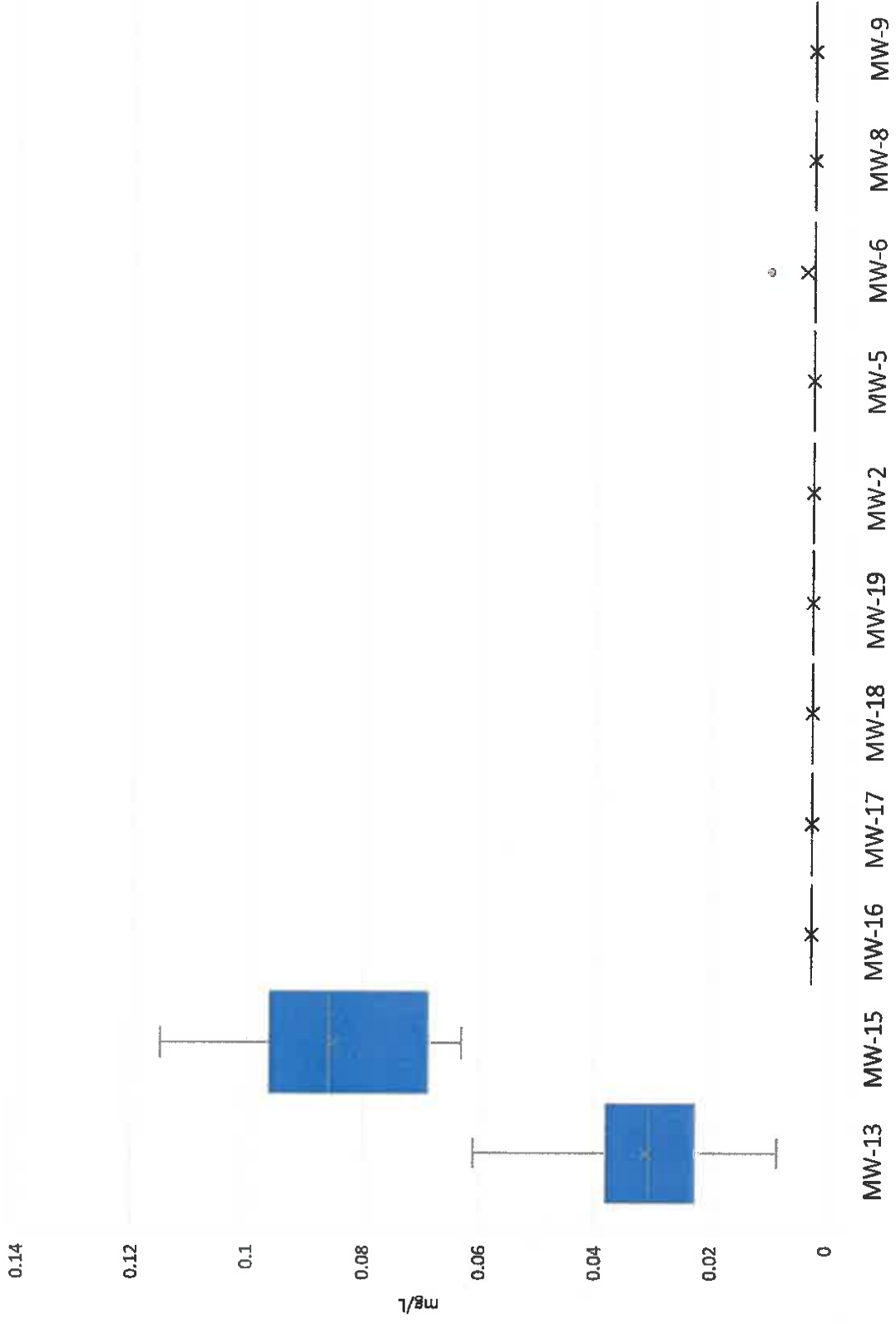
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Ra-228	3/22/2016	0.579	0.0906	0.121		1.54	1.25	0.352				0.911
Ra-228	3/23/2016				0.26							
Ra-228	6/14/2016	0.389	0.378	0.392	0.469	0.269	0.386	0.488				0.822
Ra-228	9/02/2016	0.296	0.0464	0.03	0.523	0.348	0.947	0.0993				1.23
Ra-228	11/28/2016	0.12	0.703	0.323	0.338	0.797	0.7	0.524				1.17
Ra-228	2/17/2017	0.927	0.0158	0.149	0.0475	0.437	0.396	0.423				0.0135
Ra-228	5/02/2017	0.179	0.0704	0.234	0.145			0.0684				0.567
Ra-228	6/19/2017	0.11	0.154	0.994	0.664	0.201	0.264	0.294				1.82
Ra-228	7/31/2017	0.102	0.179	0.13	0.113	0.311	0.262	0.289				2.48
Ra-228	3/09/2018	0.453	0.173		0.577	0.62	0.297	0.762		0.37		
Ra-228	3/20/2018											0.812
Ra-228	6/05/2018	0.195 U	0.135 U		0.695	1.21	0.297 U	0.237 U	0.0597 U	0.338	0.603	1.67
Ra-228	10/09/2018	0.143 U	0.149 U			0.404 U	-0.272 U	0.511		0.389		1.46
Ra-228	10/10/2018				0.739				0.0883 U		0.0643 U	

**Notes:**

**U = compound was analyzed, but not detected**

**Non-detects are reported as 1/2 the reporting limit given**

# Selenium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

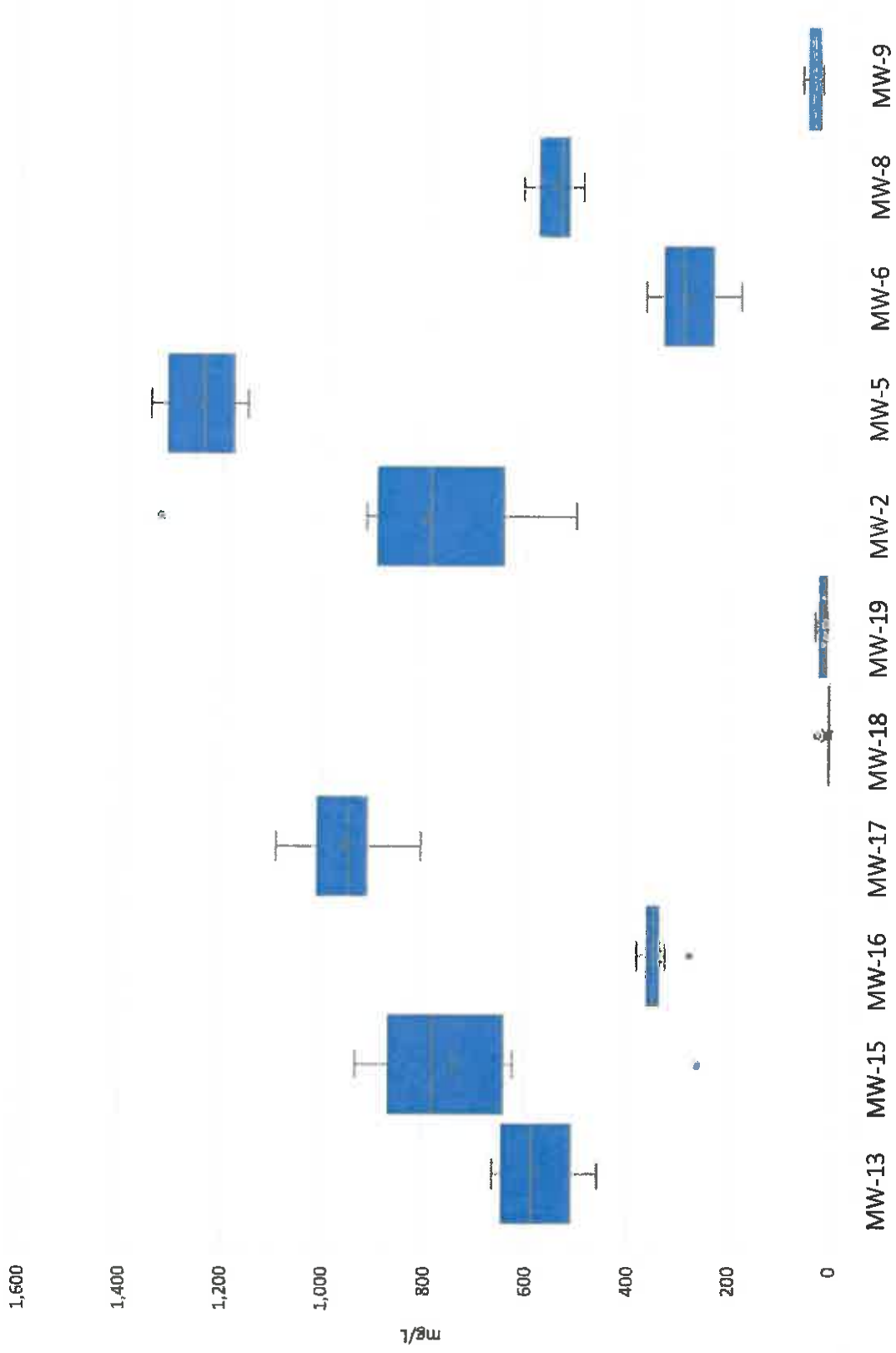
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Selenium	3/22/2016	0.0205	0.104	0.005 U		0.005 U	0.005 U	0.005 U				0.005 U
Selenium	3/23/2016				0.005 U							
Selenium	6/14/2016	0.0141	0.115	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	9/02/2016	0.0313	0.0867	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	11/28/2016	0.0248	0.0896	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	2/17/2017	0.0345	0.105	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	5/02/2017	0.0403	0.0785	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	6/19/2017	0.0372	0.0638	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	7/31/2017	0.0233	0.0699	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U				0.005 U
Selenium	11/07/2017	0.00837	0.085		0.005 U			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	3/09/2018	0.0609	0.0653		0.005 U	0.005 U	0.005 U	0.005 U		0.02 U		
Selenium	3/20/2018											0.005 U
Selenium	6/05/2018	0.0483	0.0934		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium	10/09/2018	0.0298	0.0631									

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Sulfate



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.



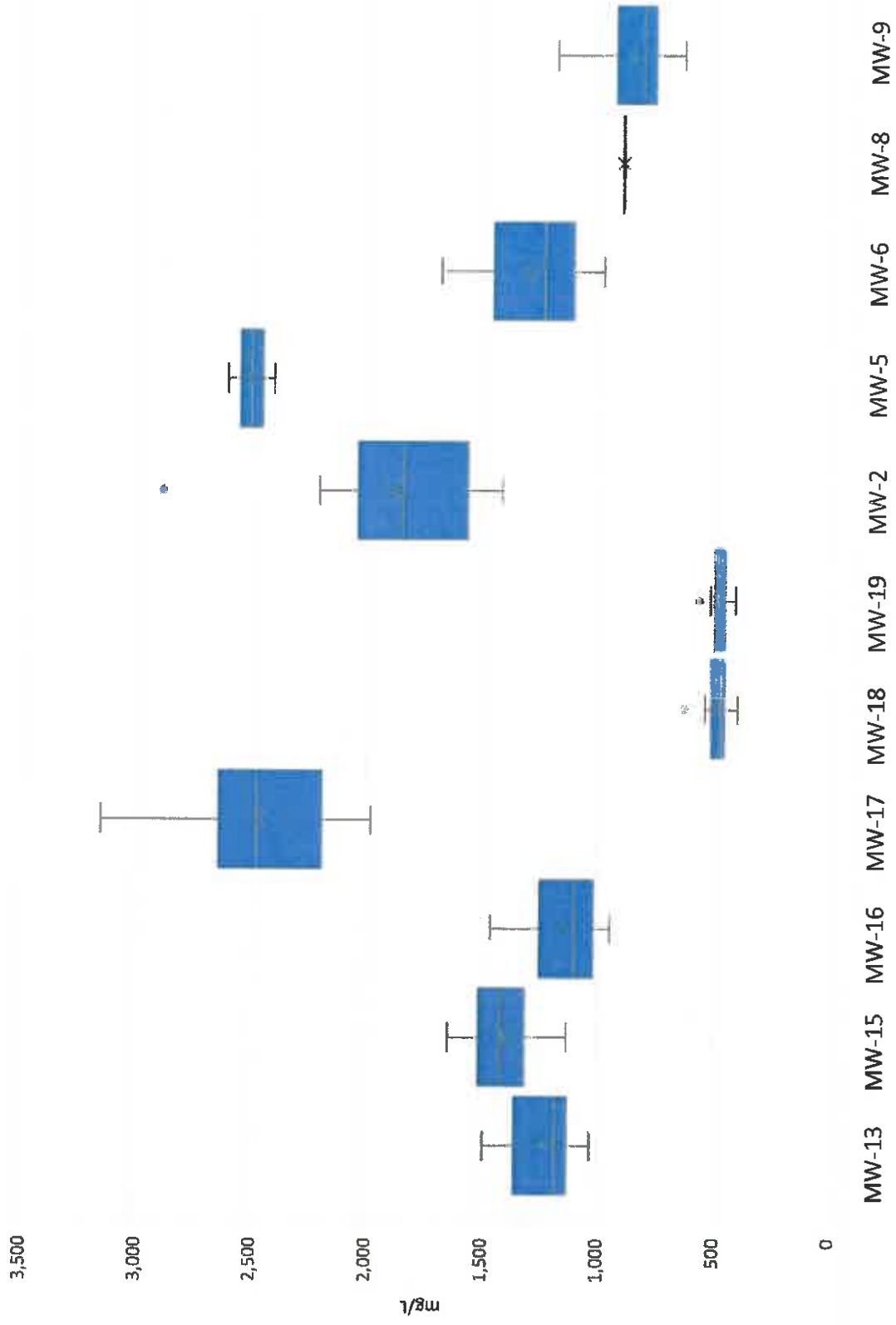
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Sulfate	3/22/2016	486	262	345		24.8	29.5	1320				23
Sulfate	3/23/2016				1010							
Sulfate	6/14/2016	500	934	340	990	5	29.9	774	1160	226	608	31.7
Sulfate	9/02/2016	458	625	277	807	5 U	21.5	503				19.9
Sulfate	11/28/2016	583	886	357	1080	5 U	20.7	650	1340	366	589	35.4
Sulfate	2/17/2017	603	863	374	1010	5 U	15.7	915				26.2
Sulfate	5/02/2017	650	861	381	1090	5 U	10.6	889	1330	314	519	25.5
Sulfate	6/19/2017	590	643	326	944	5 U	10.2	631				22
Sulfate	7/31/2017	512	641	352	913	5 U	8.35	799				57.1
Sulfate	11/07/2017	581	900		952	5 U	6.91	907	1150	241	492	37.7
Sulfate	3/09/2018	663	819		907	5 U	8.89	745		349		
Sulfate	3/20/2018											46.1
Sulfate	6/05/2018	654	745		918	5 U	5.53	618	1230	293	519	57.5
Sulfate	10/09/2018	644	656			5 U	16.5	808		179		45.5
Sulfate	10/10/2018				872				1240		548	

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Total Dissolved Solids



Notes: Outliers reported.

Non-detects reported as ½ the reporting limit.

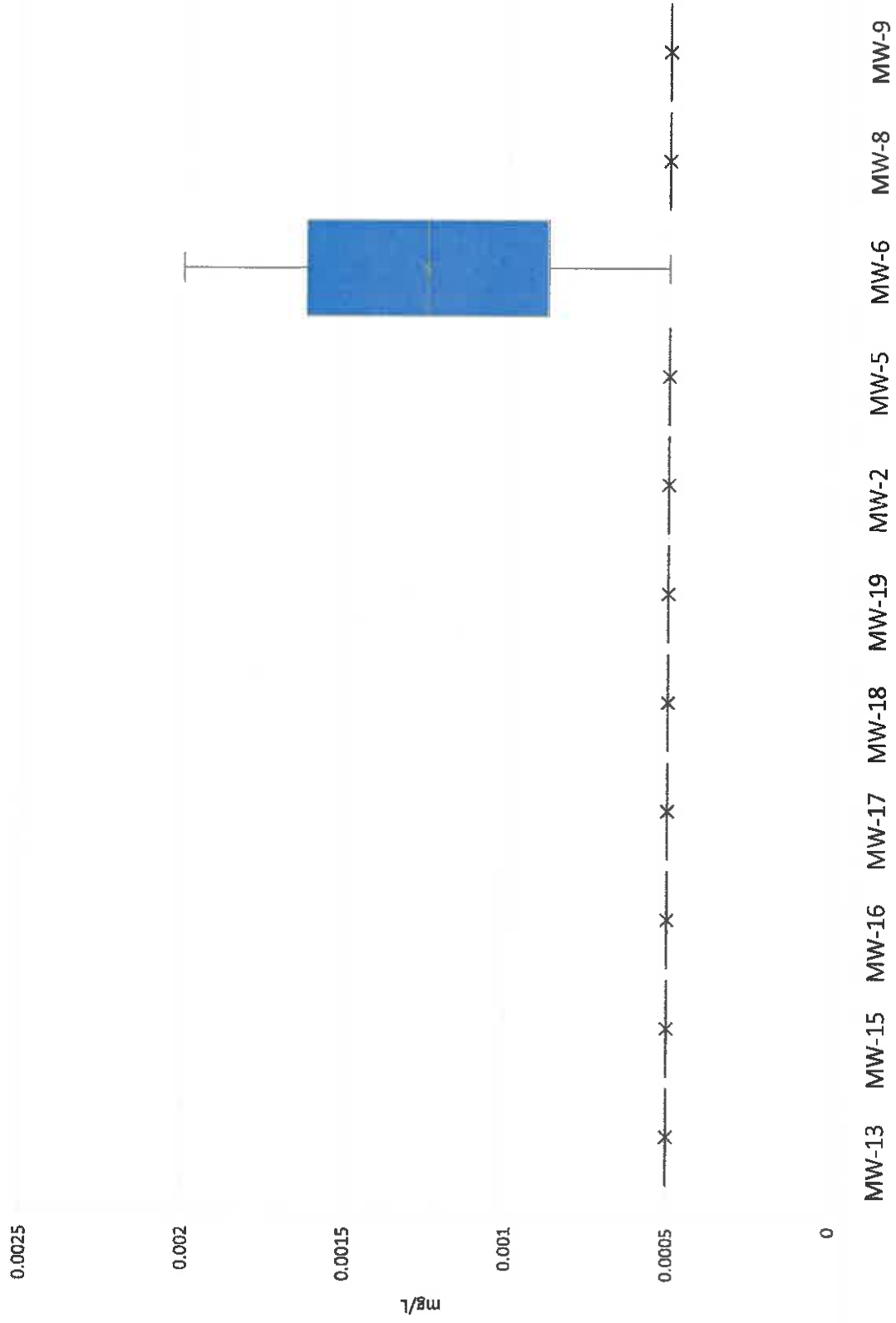
Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
TDS	3/22/2016	1050	1510	948		504	494	1920				708
TDS	3/23/2016				3150							
TDS	6/14/2016	1030	1640	968	2360	468	508	1560				770
TDS	9/02/2016	1170	1460	1160	2660	460	492	2890				766
TDS	11/28/2016	1140	1500	1040	2640	628	484	1420				790
TDS	2/17/2017	1320	1370	1410	2250	474	484	2120				640
TDS	5/02/2017	1450	1280	1030	3040	542	566	1840				760
TDS	6/19/2017	1400	1320	1460	2640	514	518	2020				888
TDS	7/31/2017	1150	1140	1200	2300	468	480	1850				1180
TDS	11/07/2017	1080	1520		2590	518	410	2210				1090
TDS	3/09/2018	1340	1330		2010	438	426	1570		1240		
TDS	3/20/2018											844
TDS	6/05/2018	1490	1640		1990	438	440	1460	2610	1690	908	1190
TDS	10/09/2018	1190	1130			398	460	1720		988		872
TDS	10/10/2018				1980				2410		900	

**Notes:**

**U** = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

# Thallium



Notes: Outliers reported.

Non-detects reported as 1/2 the reporting limit.

Analyte	sample_date	MW13	MW15	MW16	MW17	MW18	MW19	MW2	MW5	MW6	MW8	MW9
Thallium	3/22/2016	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U				0.001 U
Thallium	3/23/2016				0.001 U							
Thallium	6/14/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	9/02/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	11/28/2016	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	2/17/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	5/02/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	6/19/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	7/31/2017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.001 U
Thallium	3/09/2018	0.001 U	0.001 U			0.001 U	0.001 U	0.001 U		0.004 U		
Thallium	3/20/2018											0.001 U
Thallium	6/05/2018	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

**Notes:**

U = compound was analyzed, but not detected

Non-detects are reported as 1/2 the reporting limit given

## **APPENDIX E**



May 29, 2018  
18-EA-160

Via FedEx

Mr. Jim Macy, Director  
Nebraska Department of Environmental Quality  
1200 N Street, Suite 400  
P.O. Box 98922  
Lincoln, Nebraska 68509

**RE: CCR Rule Notification – Alternate Source Demonstration**  
Omaha Public Power North Omaha Power Station, North Omaha Ash Disposal  
Area, NDEQ Permit No. NE0054739, Facility ID No. IWM 59763

Dear Mr. Macy:

The Omaha Public Power District completed and Alternate Source Demonstration (ASD) in accordance with the Coal Combustion Residuals Rule (CCR) 40 CFR 257.94e(3). This investigation performed for the North Omaha landfill failed to demonstrate an alternate source, the facility will initiate an assessment monitoring program in accordance with 40 CFR 257.95.

Sincerely

Mark Hansen  
Environmental Affairs Administrator

Cc Morgan Leibrandt  
Russ Baker, Brian Langel, Joel Johnston