2018 NC1 CCR Landfill Annual Groundwater Monitoring and Corrective Action Report

Nebraska City Generating Station NC1 Ash Disposal Area

Nebraska City, Nebraska

January 31, 2019

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Professional Engineer Certification

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am duly licensed Professional Engineer under the laws of the Sate of Nebraska.

Print Name: Megan B. Seymour

Signature: Megan Seymour

Date: 1-31-2019

License #: E-15931

My license renewal date is December 31, 2020.

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1 Introduction

On April 17, 2015 the U.S. Environmental Protection Agency (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 Omaha Public Power District (OPPD), Nebraska City Generating Station currently has two (2) active CCR landfills. Section 40 CFR 257.90(e) specifies that an owner or operator of an existing 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 ground water monitoring system.

1.1 Purpose

The CCR rule established requirements for annual reporting of groundwater monitoring and corrective action in 40 CFR Section 257.90. The information included in this report complies with the requirements established in Section 257.90(e) of the CCR Rule. This report provides a summary of CCR groundwater monitoring system activities for calendar year 2018.

1.2 Facility Information

OPPD has a two-unit fossil fuel-fired generating station (NC1 and NC2), located 5.5 miles southeast of Nebraska City, Nebraska, along the west shore of the Missouri River. This Station has two (2) existing CCR landfills that are permitted under the current NDEQ Title 132 regulations for fossil fuel combustion ash disposal area; the NC1 Ash Disposal Area and NC2 Ash Disposal Area that are active after the CCR rule effective date of October 19, 2015. This annual report covers the NC1 Ash Disposal Area (NDEQ Permit No. NE0054712, Facility ID 58343). The NC1 Ash Disposal Area is an unlined CCR landfill of approximately 52 acres that has historically received CCR for disposal. Figure 1 identifies the relevant CCR unit for this report and the supporting monitoring well network (§ 257.105(h)(1)).

2 Monitoring Program Summary

The groundwater monitoring system currently consists of seven monitoring wells. Monitoring well details for the monitoring network, including the date of installation, is provided in Table 1 (attached). Table 1 provides a summary of monitoring well network identified in the “CCR Groundwater Monitoring System” dated June 2016. The location of the monitoring wells in the groundwater monitoring program in respect to the CCR unit are shown in the attached Figure 1.

2.1 Groundwater Monitoring Network Condition Assessment

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 time 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. During 2018 no wells have been added or abandoned from the NC1 monitoring well network.

2.2 Groundwater Purging and Sampling

Groundwater sampling events were conducted by OPPD personnel in March 2018 as part of an ASD evaluation, 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 unit for each current background and downgradient well in the monitoring network, as specified in Table 1. The number of samples collected for each background and downgradient well during each groundwater sample event, whether the sample was required by detection or assessment monitoring programs, and the date of each event is summarized in Table 2 (attached).

Groundwater sampling was conducted by OPPD personnel in accordance with the facility's Sampling and Analysis Plan (SAP) dated December 2015. Field sampling forms are provided in Appendix A. The collected groundwater samples were analyzed by TestAmerica Laboratories, Inc. The laboratory analytical reports are provided in Appendix B.

2.3 Groundwater Elevations & Flow Direction

Static groundwater level measurements were recorded at the monitoring wells specified in Table 1 prior to purging and sampling activities conducted during the groundwater sampling events. Groundwater measurements were used to determine elevations, as provided in Table 3. Groundwater flow observed during the initial assessment monitoring event completed in June 2018 indicated groundwater flow to the southeast near the NC2 landfill and west near the NC1 landfill. Groundwater flow near NC1 in June may have been influenced by nearby irrigation wells, as it was not consistent with historical flow observed. Groundwater flow observed during the October 2018 assessment monitoring event was to the south/southeast; consistent with CCR background and detection monitoring sampling events. Groundwater flow observed during 2018 indicated an average flow velocity of 0.01 ft/day to 0.11 ft/day (based on a range of hydraulic conductivity at the Site of 3.94 ft/day to 39 ft/day, respectively [*Groundwater Sampling & Analysis Plan*, HDR, 2019]).

2.4 Transition of Monitoring Programs

The following Statistically Significant Increases (SSIs) were detected and reported in the 2017 NC1 CCR Annual Groundwater Report: Boron, Calcium, Chloride, Sulfate, and Total Dissolved Solids (TDS).

On January 31, 2018, OPPD published statistically significant increases (SSIs) in downgradient monitoring wells at the NC1 Ash Disposal Area (OPPD, 2018). An alternative source demonstration (ASD) evaluation was conducted for the published SSIs (dated May 1, 2018). The ASD evaluation, provided in Appendix D, confirmed the SSIs for the NC1 CCR unit. As a result, OPPD initiated an assessment monitoring program, as required in the CCR Rule, for the NC1 Ash Disposal Area within the 90-day period specified in §257.95.

2.5 Assessment Monitoring Groundwater Sampling

Groundwater sampling was completed as part of an assessment monitoring program for the NC1 CCR unit in June 2018 [as specified in §257.95(b)] and October 2018 [as specified in §257.95(d)]. As specified in §257.95(b), the June 2018 sampling event was analyzed for the full Appendix III and Appendix IV constituent lists. As specified in §257.95(d)(1), the October 2018 sampling event was analyzed for all parameters in the Appendix III list and those constituents in Appendix IV that are detected in response to §257.95(b).The results of the assessment monitoring events in June 2018 and October 2018 are presented in Table 4 and Table 5 (attached). Samples were collected in compliance with 40 CFR Section §257.90(e).

2.6 Statistical Analysis Results

A summary of the statistically-derived background threshold values (BTVs) for the Appendix III & IV constituents in assessment monitoring, and the results of testing for statistically significant increases (SSIs) above background and statistically significant levels (SSLs) above the groundwater protection standards (GWPS) at designated in-network downgradient monitoring wells is provided in Appendix C.

2.7 Other Information Required under §257.90 through §257.98

No other information is required under Sections §257.90 through §257.98 at this time.

2.8 Key Activities for Upcoming Year

OPPD will prepare a notification in accordance with §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 and initiating an assessment of corrective measures, if necessary.

Figures

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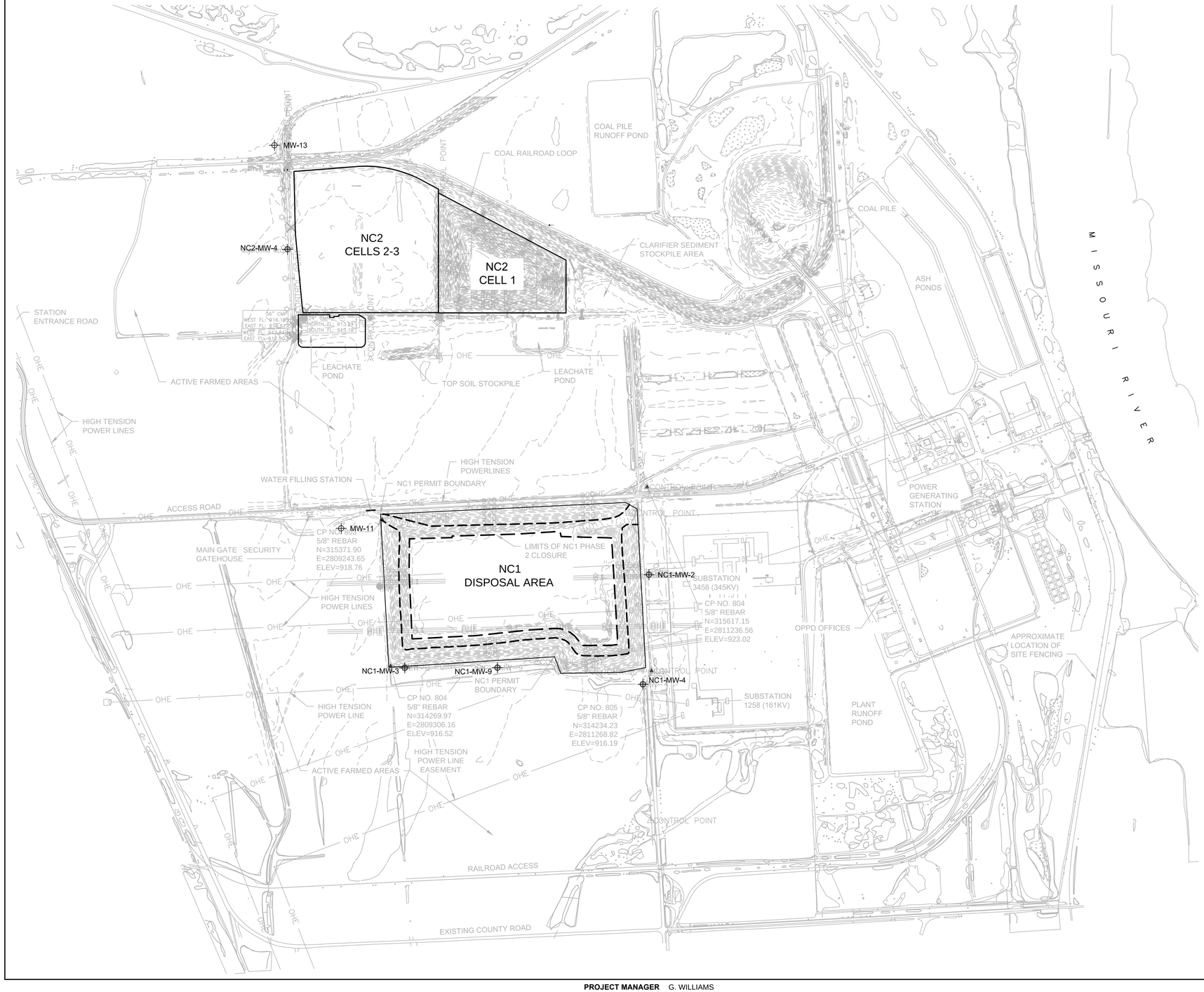

MONITORING WELL NETWORK					
Monitoring Well	Northing	Easting	Elevation (Top of Casing)	Well Depth (Feet BGS)	Location with Respect to Temporary Ash Disposal Area
MW-11	315305.25	2808934.10	918.35	20.0	Background/Upgradient
MW-13	318188.13	2808432.22	917.69	13.0	Background/Upgradient
NC1-MW-2	314956.73	2811248.97	919.39	17.8	Downgradient
NC1-MW-3	314256.41	2809411.71	919.80	19.5	Downgradient/Cross-gradient
NC1-MW-4	314132.72	2811203.44	919.81	20.3	Downgradient
NC1-MW-9	314257.61	2810108.96	920.14	20.0	Downgradient
NC2-MW-4	317405.00	2808530.00	919.40	14.0	Background/Upgradient

NOTES:
BGS = BELOW GROUND SURFACE

ISSUE	DATE	DESCRIPTION
0	01/2019	ISSUED FOR NDEQ REVIEW

PROJECT MANAGER	G. WILLIAMS
ENVIRONMENTAL	M. SEYMOUR
CAD	L. CUNNINGHAM
PROJECT NUMBER	10111074

Omaha Public Power District

OPPD Nebraska City Ash Landfill
2018 NC1/NC2 CCR Landfill Annual Groundwater Monitoring and Corrective Action Report

MONITORING WELL LOCATION MAP

0 1" 2"

FILENAME: Figure 1 - NC1.dwg
SCALE: 1" = 400'
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Tables

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Table 1 - Groundwater Monitoring System
Annual Groundwater Monitoring and Corrective Action Report
Omaha Public Power District - NC1 Ash Disposal Area
January 2019

Monitoring Well ID	Date Installed	Well Depth (feet bgs)	Location w/ respect to Temporary Ash Disposal Area	Top of Well Casing Elevation (ft AMSL)
NC2-MW-4	9/8/2004	14.0	Background/Upgradient	919.40
MW-11	1/16/2004	20.0	Background/Upgradient	918.35
MW-13	1/26/2016	13.0	Background/Upgradient	917.69
NC1-MW-2	3/14/1995	17.8	Downgradient	919.39
NC1-MW-3	3/13/1995	19.5	Downgradient/Cross-gradient	919.80
NC1-MW4	3/13/1995	20.3	Downgradient	919.81
NC1-MW-9	1/21/1999	20.0	Downgradient	920.14

Table 2 - Groundwater Sampling Event Summary
Annual Groundwater Monitoring and Corrective Action Report
Omaha Public Power District - NC1 Ash Disposal Area
January 2019

Monitoring Well ID	# of Initial Background Samples	Initial Background Sample Dates	# of Detection Monitoring Samples	Detection Monitoring Sample Dates	# of Assessment Monitoring Samples	Assessment Monitoring Sample Dates[2]
Current Background Monitoring Wells						
NC2-MW-4	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018
MW-11	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018
MW-13	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018
Downgradient Monitoring Wells						
NC1-MW-2	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018
NC1-MW-3	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018
NC1-MW-4	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018
NC1-MW-9	8	3/9/2016, 6/7/2016, 10/3/2016, 11/18/2016, 2/14/2017, 4/25/2017, 6/20/2017, 7/13/2017	2	11/8/2017, 3/13/2018[1]	2	6/6/2018, 10/4/2018

Notes:
[1] The March 13, 2018 Detection Monitoring event was completed as an Alternative Source Evaluation (ASD) due to detected SSIs in November 2017.
[2] The June 6, 2018 sampling event was completed for initiation of the Assessment Monitoring Program.

Table 3 - Groundwater Elevations

Annual Groundwater Monitoring and Corrective Action Report

Omaha Public Power District - NC1 Ash Disposal Area

January 2019

	NC2-MW-4		MW-11		MW-13		NC1-MW-2		NC1-MW-3		NC1-MW-4		NC1-MW-9	
	TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation	
	919.40		918.35		917.69		919.39		919.80		919.81		920.14	
Date	Measured Depth to Water (ft)	GW Elevation (AMSL)	Measured Depth to Water (ft)	GW Elevation (AMSL)	Measured Depth to Water (ft)	GW Elevation (AMSL)	Measured Depth to Water (ft)	GW Elevation (AMSL)	Measured Depth to Water (ft)	GW Elevation (AMSL)	Measured Depth to Water (ft)	GW Elevation (AMSL)	Measured Depth to Water (ft)	GW Elevation (AMSL)
3/9/2016	6.95	912.45	6.90	911.45	4.61	913.08	8.90	910.49	8.95	910.85	9.50	910.31	9.30	910.84
6/7/2016	6.06	913.34	5.85	912.50	3.95	913.74	7.04	912.35	7.75	912.05	7.41	N.M.	7.88	912.26
10/3/2016	6.25	913.15	6.34	912.01	4.03	913.66	8.45	910.94	8.35	911.45	9.10	N.M.	8.76	911.38
11/18/2016	6.79	912.61	7.37	910.98	4.43	913.26	9.30	910.09	9.36	910.44	10.10	909.71	7.75	912.39
2/14/2017	7.52	911.88	7.95	910.40	5.20	912.49	10.10	909.29	9.91	909.89	10.85	908.96	10.41	909.73
4/25/2017	6.20	913.20	6.24	912.11	4.02	913.67	8.10	911.29	8.25	911.55	8.84	910.97	8.65	911.49
6/20/2017	6.75	912.65	7.85	910.50	4.72	912.97	7.60	911.79	7.95	911.85	8.20	911.61	8.15	911.99
7/13/2017	7.10	912.30	6.25	912.10	5.00	912.69	8.40	910.99	8.75	911.05	9.10	910.71	9.10	911.04
11/8/2017	12.20	907.20	10.95	907.40	8.25	909.44	11.55	907.84	11.90	907.90	11.60	908.21	12.10	908.04
3/13/2018	10.18	909.22	9.85	908.50	8.10	909.59	11.50	907.89	11.85	907.95	12.16	907.65	12.22	907.92
6/6/2018	6.80	912.60	6.80	911.55	4.56	913.13	5.30	914.09	7.15	912.65	7.10	912.71	8.90	911.24
10/4/2018	4.14	915.26	4.45	913.90	1.63	916.06	5.78	913.61	6.60	913.20	6.66	913.15	6.87	913.27

Notes:

TOC: Top of PVC well casing

N.M. = not measured

AMSL = above mean sea level

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Table 4 - Appendix III Constituents in Groundwater

Annual Groundwater Monitoring and Corrective Action Report

Omaha Public Power District - NC1 Ash Disposal Area

January 2019

		Appendix III Constituents						
	Constituent	Boron	Calcium	Chloride	Fluoride*	pH	Sulfate	TDS
	Reporting Unit	mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
NC2-MW-4	3/9/2016	<0.2	131	<5	<0.5	6.94	46.2	546
	6/7/2016	<0.2	129	<5	<0.5	6.95	45.6	660
	10/3/2016	<0.2	127	<5	<0.5	7.33	32	542
	11/18/2016	<0.2	132	<5	1.1	7.30	33.6	574
	2/14/2017	<0.2	148	<5	<0.5	7.72	39.3	544
	4/25/2017	<0.2	122	<5	<0.5	7.28	38.3	594
	6/20/2017	<0.2	119	<5	<0.5	7.13	33.1	558
	7/13/2017	<0.2	112	<5	<0.5	7.98	32.7	664
	11/8/2017	<0.2	133	<5	<0.5	7.15	43.5	556
	3/13/2018	<0.2	138	<5	0.53	6.71 / 7.28 **	42.6	478
	6/6/2018	<0.2	128	<5	<0.5	7.15	43.9	542
	10/4/2018	<0.2	117	<5	<0.5	6.81	42.4	520
MW-11	3/9/2016	0.811	99.6	<5	<0.5	7.07	128	468
	6/7/2016	0.704	93.4	5.16	<0.5	7.16	27.1	536
	10/3/2016	1.35	107	<5	<0.5	7.36	122	528
	11/18/2016	1.38	115	<5	0.95	7.32	119	512
	2/14/2017	1.25	118	8.57	2.09	7.18	113	532
	4/25/2017	1.02	102	6.17	1.44	7.26	94.7	508
	6/20/2017	0.843	76.1	<5	0.562	7.19	80.4	400
	7/13/2017	1.01	69.9	<5	0.538	7.62	74.2	520
	11/8/2017	1.05	87.2	<5	0.62	6.95	120	492
	3/13/2018	0.63	77.1	<5	<0.5	7.00 / 7.69 **	109	302
	6/6/2018	0.737	86.5	5.09	<0.5	7.16	145	428
	10/4/2018	1.14	96.5	5.60	0.568	6.93	148	486
MW-13	3/9/2016	<0.2	96.3	11.8	<0.5	7.20	44.8	408
	6/7/2016	<0.2	87.1	11.7	<0.5	7.14	39.3	484
	10/3/2016	<0.2	85.4	10.7	<0.5	7.37	29.7	388
	11/18/2016	<0.2	86.2	9.65	0.647	7.14	34.4	410
	2/14/2017	<0.2	106	20.7	3.64	7.29	39.9	472
	4/25/2017	<0.2	93.5	12.1	0.80	7.36	38.9	430
	6/20/2017	<0.2	88.6	12.7	0.51	7.17	35.6	456
	7/13/2017	<0.2	94.1	12.5	<0.5	8.09	39.8	592
	11/8/2017	<0.2	90.2	12.7	0.608	7.00	37.4	498
	3/13/2018	<0.2	93.8	12.7	<0.5	6.89 / 7.51**	38.2	388
	6/6/2018	<0.2	99.4	12.6	<0.5	6.84	70.4	504
	10/4/2018	<0.2	87.3	14.1	0.738	6.88	33.6	410
NC1-MW-2	3/9/2016	0.301	122	<5	0.664	6.84	90.2	456
	6/7/2016	0.205	94.4	<5	<0.5	6.99	60.1	404
	10/3/2016	0.327	103	<5	<0.5	7.29	39.8	370
	11/18/2016	0.333	121	<5	1.82	7.01	59.5	516
	2/14/2017	0.427	122	<5	<0.5	7.48	99.1	580
	4/25/2017	0.226	87	<5	1.4	7.40	59.8	536
	6/20/2017	<0.2	112	<5	<0.5	7.12	54.4	496
	7/13/2017	0.225	110	<5	<0.5	7.48	44.5	524
	11/8/2017	<0.2	135	<5	0.55	7.02	121	592
	3/13/2018	<0.2	94	<5	0.57	6.85 / 7.53 **	61	362
	6/6/2018	0.27	88.8	<5	<0.5	7.06	48.3	344
	10/4/2018	<0.2	115	<5	<0.5	6.78	70.0	400
NC1-MW-3	3/9/2016	1.88	227	14.3	0.508	6.73	457	1150
	6/7/2016	2.56	213	18.4	<0.5	6.9	446	1180
	10/3/2016	1.63	147	10.5	<0.5	7.33	326	794
	11/18/2016	1.66	156	9	3.91	7.05	149	732
	2/14/2017	1.66	170	11	2.97	7.56	286	852
	4/25/2017	1.97	166	10.1	0.974	7.27	338	924
	6/20/2017	2.42	155	10.5	0.591	6.99	361	1070
	7/13/2017	2.55	169	7.81	0.603	7.85	334	1080
	11/8/2017	2.04	144	9.53	0.648	7.14	339	852
	3/13/2018	1.97	154	10.8	<0.5	6.85 / 7.42 **	362	846
	6/6/2018	2.6	155	12.5	<0.5	6.40	324	948
	10/4/2018	2.32	163	8.88	0.541	7.15	432	944
NC1-MW-4	3/9/2016	1.83	227	10.5	<0.5	7.25	373	896
	6/7/2016	1.22	107	<5	<0.5	7.29	344	667
	10/3/2016	1.29	104	<5	<0.5	7.52	262	546
	11/18/2016	1.4	124	<5	0.876	7.25	310	712
	2/14/2017	1.59	139	<5	<0.5	7.48	295	760
	4/25/2017	1.39	102	5.19	<0.5	7.39	244	582
	6/20/2017	1.16	89.9	<5	<0.5	7.22	210	448
	7/13/2017	1.41	88.2	<5	<0.5	7.62	196	696

Table 4 - Appendix III Constituents in Groundwater

Annual Groundwater Monitoring and Corrective Action Report

Omaha Public Power District - NC1 Ash Disposal Area

January 2019

		Appendix III Constituents						
	Constituent	Boron	Calcium	Chloride	Fluoride*	pH	Sulfate	TDS
	Reporting Unit	mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
NC1-MW-4	11/8/2017	1.13	97.6	6.39	<0.5	7.05	234	480
	3/13/2018	1.21	111	6.04	<0.5	7.16 / 7.31 **	250	560
	6/6/2018	1.45	145	<5	<0.5	7.60	294	822
	10/4/2018	1.15	115	5.39	0.569	7.41	263	580
NC1-MW-9	3/9/2016	3.65 [B]	125	<5	0.547	7.08	284	808
	6/7/2016	2.44	126	<5	<0.5	6.90	133	660
	10/3/2016	3.57	149	<5	0.578	7.58	244	740
	11/18/2016	4.44	181	6.31	3.4	7.08	270	944
	2/14/2017	2.5	139	5.95	1.78	7.52	247	770
	4/25/2017	2.5	164	5.8	0.934	7.12	291	1100
	6/20/2017	1.39	174	5.69	<0.5	7.06	218	870
	7/13/2017	1.68	144	<5	0.68	7.58	159	792
	11/8/2017	2.65	167	5.77	0.735	7.16	344	846
	3/13/2018	2.6	132	5.74	<0.5	6.93 / 7.48 **	276	754
	6/6/2018	2.45	149.0	<5	0.732	5.80	221	708
	10/4/2018	1.28	148	8.56	0.777	7.27	158	678

Notes:

* Fluoride is listed in both Appendix III and Appendix IV of the CCR Final Rule (40 CFR Part 257).

** The first pH value obtained in the field during the ASD sampling event on March 13, 2018 and was found to be an outlier due to equipment errors. The second pH value was a verification sample obtained in the field on March 19, 2018.

[B] = Constituent detected in both the sample and the method blank

Table 5 - Appendix IV Constituents in Groundwater
Annual Groundwater Monitoring and Corrective Action Report
Omaha Public Power District - NC1 Ash Disposal Area
January 2019

	Constituent	Appendix IV Constituents														
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride*	Lead	Lithium	Mercury	Molybdenum	Combined Radium (Ra 226 + Ra 228)	Selenium	Thallium
	Reporting Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pCi/L	mg/L	mg/L
NC2-MW-4	3/9/2016	<0.001	<0.002	0.281	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.00199	<0.05	<0.0002	0.00272	1.54	<0.005	<0.001
	6/7/2016	<0.001	<0.002	0.293	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000951	<0.05	<0.0002	0.00283	1.21	<0.005	<0.001
	10/3/2016	<0.001	<0.002	0.283	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.00421	1.19	<0.005	<0.001
	11/18/2016	<0.001	<0.002	0.283	<0.001	<0.0005	<0.005	<0.0005	1.1	0.00127	<0.05	<0.0002	0.00288	0.984	<0.005	<0.001
	2/14/2017	<0.001	<0.002	0.300	<0.001	<0.0005	<0.005	0.00129	<0.5	0.0032	<0.05	<0.0002	0.0028	0.894	<0.005	<0.001
	4/25/2017	<0.001	<0.002	0.300	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000714	<0.05	<0.0002	0.00323	1.23	<0.005	<0.001
	6/20/2017	<0.001	<0.002	0.258	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000754	<0.05	<0.0002	0.00551	1.16	0.00593	<0.001
	7/13/2017	<0.001	<0.002	0.236	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000787	<0.05	<0.0002	0.00326	0.76	<0.005	<0.001
	3/13/2018	<0.001	<0.002	0.297	<0.001	<0.0005	<0.005	<0.0005	0.53	0.00192	0.0318	<0.0002	<0.002	1.71	0.0112	<0.001
	6/6/2018	<0.001	<0.002	0.329	<0.001	<0.0005	<0.005	0.000502	<0.5	0.00154	0.0292	<0.0002	0.0049	1.9	0.008	<0.001
	10/4/2018	N.S.[1]	<0.002	0.321	N.S.[1]	N.S.[1]	N.S.[1]	<0.0005	<0.500	0.000565	0.0332	N.S.[1]	0.00707	1.13	<0.005	N.S.[1]
MW-11	3/9/2016	<0.001	<0.002	0.215	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.00361	0.714	<0.005	<0.001
	6/7/2016	<0.001	<0.002	0.212	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.00477	0.589	<0.005	<0.001
	10/3/2016	<0.001	<0.002	0.233	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0082	1.1	<0.005	<0.001
	11/18/2016	<0.001	<0.002	0.251	<0.001	<0.0005	<0.005	<0.0005	0.95	<0.0005	<0.05	<0.0002	0.00659	1.13	<0.005	<0.001
	2/14/2017	<0.001	<0.002	0.246	<0.001	<0.0005	<0.005	<0.0005	2.09	<0.0005	<0.05	<0.0002	0.00471	0.225	<0.005	<0.001
	4/25/2017	<0.001	<0.002	0.249	<0.001	<0.0005	<0.005	<0.0005	1.44	<0.0005	<0.05	<0.0002	0.005	0.358	<0.005	<0.001
	6/20/2017	0.00235	<0.002	0.156	<0.001	<0.0005	<0.005	0.000549	0.562	<0.0005	<0.05	<0.0002	0.00788	0.398	<0.005	<0.001
	7/13/2017	<0.001	<0.002	0.146	<0.001	<0.0005	<0.005	0.00085	0.538	<0.0005	<0.05	0.000262	0.00905	0.397	<0.005	<0.001
	3/13/2018	<0.001	0.00272	0.154	<0.001	<0.0005	<0.005	0.00104	<0.5	<0.0005	0.0143	<0.0002	0.00269	0.414	0.00503	<0.001
	6/6/2018	<0.001	<0.002	0.172	<0.001	<0.0005	<0.005	0.000779	<0.5	0.00118	0.0123	<0.0002	0.00996	0.494	0.0071	<0.001
	10/4/2018	N.S.[1]	<0.002	0.185	N.S.[1]	N.S.[1]	N.S.[1]	<0.0005	0.568	<0.0005	0.0197	N.S.[1]	0.00883	0.958	<0.005	N.S.[1]
MW-13	3/9/2016	<0.001	0.00492	0.302	<0.001	<0.0005	<0.0005	0.000817	<0.5	<0.0005	<0.05	<0.0002	<0.002	1.14	<0.005	<0.001
	6/7/2016	<0.001	0.00591	0.317	<0.001	<0.0005	<0.0005	0.00118	<0.5	0.000623	<0.05	<0.0002	<0.002	0.69	<0.005	<0.001
	10/3/2016	<0.001	0.00709	0.319	<0.001	<0.0005	<0.0005	0.00103	<0.5	<0.0005	<0.05	<0.0002	0.00264	1.01	<0.005	<0.001
	11/18/2016	<0.001	0.0058	0.333	<0.001	<0.0005	<0.0005	0.000916	0.647	<0.0005	<0.05	<0.0002	0.00235	0.745	<0.005	<0.001
	2/14/2017	<0.001	0.00304	0.349	<0.001	<0.0005	<0.0005	0.000925	3.64	<0.0005	<0.05	<0.0002	0.00228	0.532	<0.005	<0.001
	4/25/2017	<0.001	0.00269	0.358	<0.001	<0.0005	<0.0005	0.00141	0.80	0.000522	<0.05	<0.0002	<0.002	0.429	<0.005	<0.001
	6/20/2017	<0.001	0.00268	0.311	<0.001	<0.0005	<0.0005	0.00119	0.51	0.00171	<0.05	<0.0002	<0.002	0.483	<0.005	<0.001
	7/13/2017	<0.001	0.00325	0.33	<0.001	<0.0005	<0.0005	0.00108	<0.5	<0.0005	<0.05	<0.0002	0.00206	0.502	<0.005	<0.001
	3/13/2018	<0.001	0.00283	0.305	<0.001	<0.0005	<0.0005	0.00222	<0.5	0.00102	0.0265	<0.0002	<0.002	0.412	<0.005	<0.001
	6/6/2018	<0.001	0.00262	0.282	<0.001	<0.0005	<0.0005	0.00236	<0.5	0.00577	0.0423	<0.0002	<0.002	1.89	0.00553	<0.001
	10/4/2018	N.S.[1]	0.00965	0.388	N.S.[1]	N.S.[1]	N.S.[1]	0.00191	0.738	0.00216	0.0316	N.S.[1]	0.00243	1.62	<0.005	N.S.[1]
NC1-MW-2	3/9/2016	<0.001	<0.002	0.123	<0.001	<0.0005	<0.0005	<0.0005	0.664	<0.0005	<0.05	<0.0002	0.0444	0.495	<0.005	<0.001
	6/7/2016	<0.001	<0.002	0.0956	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0718	0.305	<0.005	<0.001
	10/3/2016	<0.001	<0.002	0.104	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.12	0.586	<0.005	<0.001
	11/18/2016	<0.001	<0.002	0.126	<0.001	<0.0005	<0.0005	<0.0005	1.82	<0.0005	<0.05	<0.0002	0.095	0.415	<0.005	<0.001
	2/14/2017	<0.001	<0.002	0.123	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0654	0.254	<0.005	<0.001
	4/25/2017	<0.001	<0.002	0.0889	<0.001	<0.0005	<0.0005	<0.0005	1.4	<0.0005	<0.05	<0.0002	0.0489	0.396	<0.005	<0.001
	6/20/2017	<0.001	<0.002	0.116	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.038	0.174	<0.005	<0.001
	7/13/2017	<0.001	<0.002	0.122	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0374	0.375	<0.005	<0.001
	3/13/2018	<0.001	<0.002	0.125	<0.001	<0.0005	<0.0005	<0.0005	0.57	<0.0005	<0.01	<0.0002	0.0446	0.656	<0.005	<0.001
	6/6/2018	<0.001	<0.002	0.122	<0.001	<0.0005	<0.0005	0.00143	<0.5	0.000713	<0.01	<0.0002	0.0711	0.615	<0.005	<0.001
	10/4/2018	N.S.[1]	<0.002	0.153	N.S.[1]	N.S.[1]	N.S.[1]	<0.0005	<0.500	0.000795	<0.01	N.S.[1]	0.0680	1.01	<0.005	N.S.[1]
NC1-MW-3	3/9/2016	<0.001	0.0135	0.112	<0.001	<0.0005	<0.0005	0.00239	0.508	<0.0005	<0.05	<0.0002	<0.002	0.0759	<0.005	<0.001
	6/7/2016	<0.001	0.00901	0.111	<0.001	<0.0005	<0.0005	0.00364	<0.5	<0.0005	<0.05	<0.0002	<0.002	0.81	<0.005	<0.001
	10/3/2016	<0.001	0.00761	0.0887	<0.001	<0.0005	<0.0005	0.00267	<0.5	<0.0005	<0.05	<0.0002	<0.002	0.15	<0.005	<0.001
	11/18/2016	<0.001	0.031	0.101	<0.001	<0.0005	<0.0005	0.00334	3.91	<0.0005	<0.05	<0.0002	<0.002	0.736	<0.005	<0.001

Table 5 - Appendix IV Constituents in Groundwater
Annual Groundwater Monitoring and Corrective Action Report
Omaha Public Power District - NC1 Ash Disposal Area
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	Constituent	Appendix IV Constituents														
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride*	Lead	Lithium	Mercury	Molybdenum	Combined Radium (Ra 226 + Ra 228)	Selenium	Thallium
	Reporting Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pCi/L	mg/L	mg/L
NC1-MW-3	2/14/2017	<0.001	0.0248	0.092	<0.001	<0.0005	<0.0005	0.00268	2.97	0.000553	<0.05	<0.0002	<0.002	0.436	<0.005	<0.001
	4/25/2017	<0.001	0.0131	0.106	<0.001	<0.0005	<0.0005	0.00144	0.974	<0.0005	<0.05	<0.0002	<0.002	0.242	<0.005	<0.001
	6/20/2017	<0.001	0.0195	0.115	<0.001	<0.0005	<0.0005	0.00196	0.591	<0.0005	<0.05	<0.0002	<0.002	0.711	<0.005	<0.001
	7/13/2017	<0.001	0.0302	0.116	<0.001	<0.0005	<0.0005	0.00257	0.603	<0.0005	<0.05	<0.0002	<0.002	0.339	<0.005	<0.001
	3/13/2018	<0.001	0.0111	0.0786	<0.001	<0.0005	<0.0005	0.00192	<0.5	<0.0005	0.0262	<0.0002	<0.002	0.728	<0.005	<0.001
	6/6/2018	<0.001	0.0412	0.128	<0.001	<0.0005	<0.0005	0.00219	<0.5	0.00296	0.0325	<0.0002	0.0021	0.922	<0.005	<0.001
	10/4/2018	N.S.[1]	0.0352	0.141	N.S.[1]	N.S.[1]	N.S.[1]	0.00120	0.541	0.000833	0.0326	N.S.[1]	<0.002	1.12	<0.005	N.S.[1]
NC1-MW-4	3/9/2016	<0.001	0.00336	0.195	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0053	0.753	<0.005	<0.001
	6/7/2016	<0.001	0.0029	0.100	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.017	0.37	<0.005	<0.001
	10/3/2016	<0.001	0.0032	0.090	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0297	0.343	<0.005	<0.001
	11/18/2016	<0.001	0.00254	0.115	<0.001	<0.0005	<0.0005	<0.0005	0.876	<0.0005	<0.05	<0.0002	0.0199	0.182	<0.005	<0.001
	2/14/2017	<0.001	0.00433	0.119	<0.001	<0.0005	<0.0005	<0.0005	<0.5	0.00052	<0.05	<0.0002	0.0139	0.301	<0.005	<0.001
	4/25/2017	<0.001	0.00344	0.0968	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0249	0.313	<0.005	<0.001
	6/20/2017	<0.001	0.00334	0.0679	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0356	0.0408	<0.005	<0.001
	7/13/2017	<0.001	0.00381	0.0687	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0317	0.0901	<0.005	<0.001
	3/13/2018	<0.001	0.00265	0.0781	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	0.0114	<0.0002	0.0207	0.286	<0.005	<0.001
	6/6/2018	<0.001	0.00821	0.129	<0.001	<0.0005	<0.0005	0.000636	<0.5	<0.0005	0.01	<0.0002	0.0422	0.577	<0.005	<0.001
	10/4/2018	N.S.[1]	0.00641	0.0975	N.S.[1]	N.S.[1]	N.S.[1]	<0.0005	0.569	<0.0005	0.0135	N.S.[1]	0.0233	0.802	<0.005	N.S.[1]
NC1-MW-9	3/9/2016	<0.001	0.00995	0.0865	<0.001	<0.0005	<0.0005	0.00121	0.547	<0.0005	<0.05	<0.0002	0.0111	0.629	0.0634	<0.001
	6/7/2016	<0.001	0.00624	0.0816	<0.001	<0.0005	<0.0005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0204	0.577	0.00958	<0.001
	10/3/2016	<0.001	0.00605	0.0847	<0.001	<0.0005	<0.0005	0.000683	0.578	<0.0005	<0.05	<0.0002	0.0435	0.23	0.0388	<0.001
	11/18/2016	<0.001	0.00828	0.106	<0.001	<0.0005	<0.0005	0.000648	3.4	<0.0005	<0.05	<0.0002	0.0222	1.13	0.0162	<0.001
	2/14/2017	<0.001	0.0122	0.0836	<0.001	<0.0005	<0.0005	0.00147	1.78	<0.0005	<0.05	<0.0002	0.0169	0.425	0.0138	<0.001
	4/25/2017	<0.001	0.0164	0.115	<0.001	<0.0005	<0.0005	0.00124	0.934	<0.0005	<0.05	<0.0002	0.0473	0.592	0.0101	<0.001
	6/20/2017	<0.001	0.01	0.114	<0.001	<0.0005	<0.0005	0.00295	<0.5	<0.0005	<0.05	<0.0002	0.0486	0.473	<0.005	<0.001
	7/13/2017	<0.001	0.00885	0.0952	<0.001	<0.0005	<0.0005	0.000878	0.68	<0.0005	<0.05	<0.0002	0.0302	0.294	<0.005	<0.001
	3/13/2018	<0.001	0.0107	0.0838	<0.001	<0.0005	<0.0005	0.00063	<0.5	<0.0005	0.0198	<0.0002	0.0354	0.412	<0.005	<0.001
	6/6/2018	<0.001	0.0114	0.111	<0.001	<0.0005	<0.0005	0.00109	0.732	<0.0005	0.0189	<0.0002	0.0474	0.827	<0.005	<0.001
	10/4/2018	N.S.[1]	0.0101	0.109	N.S.[1]	N.S.[1]	N.S.[1]	0.00492	0.777	<0.0005	0.0201	N.S.[1]	0.0399	1.39	<0.005	N.S.[1]

Notes:
* Fluoride is listed in both Appendix III and Appendix IV of the CCR Final Rule (40 CFR Part 257).
< symbol indicates analyte not detected above the reporting limit, which is the value shown following the "<" symbol.
N.S. = Not Sampled
[1] = Constituent not sampled because only detected Appendix IV constituents were tested, in accordance with 40 CFR 257.95(d)(1)

Table 6 - Background Threshold Values for Assessment Monitoring
Annual Groundwater Monitoring and Corrective Action Report
Omaha Public Power District - NC1 Ash Disposal Area
January 2019

Constituents	Units	Background Threshold Values (UTLs)
Appendix III		
Boron	mg/l	1.38
Calcium	mg/l	141
Chloride	mg/l	20.7
Fluoride [1]	mg/l	3.64
pH (LPL) [2]	SU	6.67
pH (UPL) [3]	SU	7.80
Sulfate	mg/l	148
TDS	mg/l	160
Appendix IV		
Antimony	mg/l	0.00235
Arsenic	mg/l	0.00965
Barium	mg/l	0.4000
Beryllium	mg/l	0.001
Cadmium	mg/l	0.0005
Chromium	mg/l	0.0050
Cobalt	mg/l	0.00236
Lead	mg/l	0.00577
Lithium	mg/l	0.0423
Mercury	mg/l	0.000262
Molybdenum	mg/l	0.0100
Radium 226 + 228	pCi/l	1.84
Selenium	mg/l	0.011
Thallium	mg/l	0.001

Notes:

[1] Fluoride is listed in both Appendix III and Appendix IV of the CCR Final Rule (40 CFR Part 257).

[2] Indicates the lower bound of the range is the lower prediction limit (LPL).

[3] Indicates the upper bound is the upper prediction limit (UPL).

Table 7 - Established Groundwater Protection Standards
Annual Groundwater Monitoring and Corrective Action Report
Omaha Public Power District - NC1 Ash Disposal Area
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Constituents	Units	Established Groundwater Protection Standard (GWPS)[1]
Appendix IV		
Antimony	mg/l	0.006
Arsenic	mg/l	0.01
Barium	mg/l	2
Beryllium	mg/l	0.004
Cadmium	mg/l	0.005
Chromium	mg/l	0.1
Cobalt	mg/l	0.006
Flouride	mg/l	4.0
Lead	mg/l	0.015
Lithium	mg/l	0.0423[2]
Mercury	mg/l	0.002
Molybdenum	mg/l	0.1
Radium 226 + 228[2]	pCi/l	5.0
Selenium	mg/l	0.05
Thallium	mg/l	0.002

Notes:

[1] GWPS is established as the U.S. EPA Maximum Contaminant Level (MCL) or the GWPS specified in §257.95(h)(2); unless otherwise specified.

[2] GWPS is established as the upper tolerance limit (UTL) when the background level is higher than the U.S. EPA MCL or the GWPS specified in §257.95(h)(2).

Appendix A

Field Sampling Forms

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Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-2	Date: March 13, 2018
Sample Number: MW-2	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	11.5	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	8:20 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	16.4	10.) Purge Rate (mL/min)	100
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	12
5.) Casing Volume (L)	3.0256	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	3.60	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	10:34 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)
10:38 AM	1.20	11.40	3.78	2.58	7.04	646	
10:40 AM	0.60	11.43	2.49	2.61	6.92	632	
10:42 AM	0.60	11.49	1.70	2.65	6.89	622	
10:44 AM	0.60	11.41	1.59	2.80	6.84	620	
10:46 AM	0.60	11.48	1.4	2.25	6.85	614	

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	10:46 AM	11.48	1.40	2.25	6.85	614	
Dup							

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/3 20 psi
2.) Pump Rate (mL/Min)	100 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance Clearity	Clear	Instrument Calibration Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-3	Date: March 13, 2018
Sample Number: MW-3	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	11.85	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	8:35 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	22.2	10.) Purge Rate (mL/min)	300
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	9
5.) Casing Volume (L)	6.3907	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	4.50	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	12:41 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)
12:46 PM	2.50	11.38	1.19	23	6.86	1193	11.86
12:48 PM	1.00	11.41	1.23	12.2	6.85	1184	11.86
12:50 PM	1.00	11.39	1.09	8.45	6.85	1184	11.86

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-3	12:50 PM	11.39	1.09	8.45	6.85	1184	11.86

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/3 20 psi
2.) Pump Rate (mL/Min)	300 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance Clearity	Clear	Instrument Calibration Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-4	Date: March 13, 2018
Sample Number: MW-4	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	12.16	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	11:16 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	17.7	10.) Purge Rate (mL/min)	250
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	11
5.) Casing Volume (L)	3.4207	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	5.50	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	11:17 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)
11:22 AM	2.50	12.40°	1.20	5.03	7.11	786	12.16
11:24 AM	1.00	12.49°	0.77	2.69	7.15	783	12.16
11:26 AM	1.00	12.46°	0.63	1.69	7.17	780	12.16
11:28 AM	1.00	12.46°	0.56	1.54	7.16	780	12.16

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-4	11:28 AM	11.46	0.56	1.54	7.16	780	12.16

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/3 20 psi
2.) Pump Rate (mL/Min)	250 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance Clearity	Clear	Instrument Calibration Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: NC2MW-4	Date: March 13, 2018
Sample Number: NC2MW-4	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	10.18	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	9:24 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	15.19	10.) Purge Rate (mL/min)	300
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	10
5.) Casing Volume (L)	3.0935	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	3.00	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	9:24 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)
9:28 AM	1.20	7.07	4.00	27.2	6.96	913	10.20
9:32 AM	1.20	7.10	3.94	30.8	9.73	912	10.20
9:34 AM	0.60	7.86	4.00	21.5	6.71	912	10.20

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)
NC2-MW4	9:34 AM	7.86	4.00	21.5	6.71	912	10.20

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/3 20 psi
2.) Pump Rate (mL/Min)	300 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance Clearity	Clear	Instrument Calibration Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-9	Date: March 13, 2018
Sample Number: MW-9	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	12.22	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	8:38 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	22.4	10.) Purge Rate (mL/min)	500
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	8
5.) Casing Volume (L)	6.2858	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	4.00	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	1:06 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)
1:10 PM	2.00	11.90	0.88	31.7	6.97	1102	12.24
1:12 PM	1.00	11.55	0.64	14.1	6.94	1111	12.20
1:14 PM	1.00	11.86	0.65	9.22	6.93	1112	12.24

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	1:14 PM	11.86	0.65	9.22	6.93	1112	12.24

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/3 20 psi
2.) Pump Rate (mL/Min)	500 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance Clearity	Clear	Instrument Calibration Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-11	Date: March 13, 2018
Sample Number: MW-11	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	9.85	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	8:15 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	21.85	10.) Purge Rate (mL/min)	50
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	12
5.) Casing Volume (L)	7.4096	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	3.60	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	10:07 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)
10:09 AM	0.60	11.45	3.50	22.6	7.20	578	9.85
10:11 AM	0.60	11.69	2.35	17.5	7.10	576	9.85
10:13 AM	0.60	11.60	2.00	13.7	7.12	575	9.85
10:15 AM	0.60	11.49	1.82	12.8	7.05	576	9.85
10:17 AM	0.60	11.53	1.65	8.2	7.03	576	9.85
10:19 AM	0.60	11.49	1.52	7.9	7.00	577	9.85

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-11	10:19 AM	11.49	1.52	7.9	7.00	577	9.85

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/2 20 psi
2.) Pump Rate (mL/Min)	50 mL/Min	Decontamination Procedure	CPM-2 27/3 20 psi
3.) Sample Appearance		Instrument Calibration	Alconex, DI Rinse
Clearity	Clear	Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City I	Sampler Name(s): Ryan Layman (#79647)
Monitoring Well Identification Number: MW-13	Date: March 13, 2018
Sample Number: MW-13	Weather Condition: High of 48° and Low of 24°, Sunny with no Precipitation
OVA Readings: N/A	Wellhead Inspection (Note Conditions) Compliant

Groundwater Measurements and Purge Data

1.) Static Water Level (+/- 0.01ft) (ft)	8.10	8.) Purge Equipment Used	Pump
2.) Time of Water Level Measurement	8:47 AM	9.) Dedicated?	Yes
3.) Bottom of Casing (+/- 0.01 ft) (ft)	15.19	10.) Purge Rate (mL/min)	200
4.) Casing Diameter (in)	2	11.) Time to purge Well (min)	0:11
5.) Casing Volume (L)	4.3778	12.) Immiscole Layers observed?	No
6.) Actual Volume of Water Purged (L)	3.20	13.) Thickness of immiscole Layer (if present)	N/A
7.) Water Level Measuring Equipment	Electronic	14.) Pump Start	8:49 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)
8:54 AM	2.0	8.74	1.70	19.9	7.15	651	8.10
8:56 AM	0.4	8.85	0.67	20.8	7.00	652	8.10
8:58 AM	0.4	8.88	0.50	17.1	6.91	651	8.10
9:00 AM	0.4	8.91	0.47	13.2	6.89	652	8.10

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	9:00 AM	8.91	0.47	13.2	6.89	652	8.10

1.) Sample Equipment Used	Pump	Other Information	CPM-2 27/3 20 psi
2.) Pump Rate (mL/Min)	200 mL/Min	Decontamination Procedure	Alconex, DI Rinse
3.) Sample Appearance Clearity	Clear	Instrument Calibration Prior to sampling by:	R. Layman/P. Finigan
Color	Colorless	Unusual Occurences	
4.) Odor	Odorless		
5.) Method or Sample Preservation	Cool/HNO_3		

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-2	Date: 6/6/2018
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	10:25 AM	Pump Start	4:40 PM
Static Water Level (+/- 0.01ft) (ft)	5.30	Purge Rate (mL/min)	1267
Bottom of Casing (+/- 0.01 ft) (ft)	16.4	Time to purge Well (min)	0:19
Casing Volume (L)	6.8538	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	7.60		

*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 PM	1.60	17.58	0.38	249	7.18	0.525	8.20
4:47 PM	1.20	17.53	0.00	114	7.15	0.523	8.20
4:50 PM	1.20	17.20	0.00	50	7.11	0.524	8.20
4:53 PM	1.20	17.14	0.00	37	7.08	0.525	8.20
4:56 PM	1.20	17.02	0.00	35.05	7.06	0.523	8.20
4:59 PM	1.20	17.01	0.00	36.07	7.06	0.526	8.20

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	4:59 PM	17.01	0.00	36.07	7.06	0.53	8.20
Duplicate	No						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-3	Date: 6/6/2018
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	9:13 AM	Pump Start	6:00 PM
Static Water Level (+/- 0.01ft) (ft)	7.15	Purge Rate (mL/min)	450
Bottom of Casing (+/- 0.01 ft) (ft)	22.2	Time to purge Well (min)	0:21
Casing Volume (L)	9.2928	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	9.45		

*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)
6:03 PM	1.35	13.36	1.65	350	5.25	1.180	8.90
6:06 PM	1.35	13.28	2.33	191	6.19	1.180	8.90
6:09 PM	1.35	13.09	2.61	90.06	6.33	1.180	8.90
6:12 PM	1.35	13.00	2.69	80.03	6.35	1.190	8.90
6:15 PM	1.35	13.00	2.76	50.03	6.38	1.180	8.90
6:18 PM	1.35	13.00	2.76	49.03	6.39	1.190	8.90
6:21 PM	1.35	13.00	2.79	48.07	6.40	1.190	8.90

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-3	6:21:00 PM	13.00	2.79	48.07	6.40	1.190	8.90
Duplicate	No						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-4	Date: 6/6/2018
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	9:21 AM	Pump Start	5:17 PM
Static Water Level (+/- 0.01ft) (ft)	7.10	Purge Rate (mL/min)	450
Bottom of Casing (+/- 0.01 ft) (ft)	17.7	Time to purge Well (min)	0:15
Casing Volume (L)	6.5451	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	6.75		

*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)
5:20 PM	1.35	22.55	0.40	160	7.55	0.768	9.10
5:23 PM	1.35	22.66	0.00	110	7.66	0.784	9.10
5:26 PM	1.35	22.41	0.00	58	7.50	0.785	9.10
5:29 PM	1.35	22.33	0.00	38	7.51	0.781	9.10
5:32 PM	1.35	22.31	0.00	24.05	7.60	0.780	9.10

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-4	5:32:00 PM	22.31	0.00	24.05	7.60	0.78	9.10
Duplicate	Yes						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-4NC2	Date: 6/6/2018
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	8:28 AM	Pump Start	9:40 AM
Static Water Level (+/- 0.01ft) (ft)	6.80	Purge Rate (mL/min)	100
Bottom of Casing (+/- 0.01 ft) (ft)	14.5	Time to purge Well (min)	0:46
Casing Volume (L)	4.7545	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)
9:43 AM	0.30	21.31	1.67	1000	7.15	0.894	7.50
9:46 AM	0.30	21.30	1.53	1000	7.15	0.899	7.50
9:49 AM	0.30	21.35	1.38	1000	7.16	0.903	7.50
9:52 AM	0.30	21.50	1.68	1000	7.18	0.885	7.50
9:55 AM	0.30	21.60	1.96	998	7.17	0.888	7.50
9:58 AM	0.30	21.50	2.04	893	7.16	0.894	7.60
10:01 AM	0.30	21.68	2.23	716	7.16	0.895	7.70
10:04 AM	0.30	21.96	2.45	540	7.16	0.892	7.70
10:08 AM	0.30	22.15	2.91	380	7.16	0.890	7.70
10:11 AM	0.30	22.19	2.84	340	7.15	0.888	7.80
10:14 AM	0.30	22.50	3.18	238	7.15	0.886	7.80
10:17 AM	0.30	22.50	3.25	229	7.15	0.888	7.80
10:20 AM	0.30	22.50	3.30	174	7.15	0.884	7.80
10:23 AM	0.30	22.58	3.30	158	7.15	0.881	7.80
10:26 AM	0.30	22.58	3.39	160	7.15	0.882	7.80

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-4NC2	10:26:00 AM	22.58	3.39	160.00	7.15	0.88	7.80
Duplicate	No						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-9	Date: 6/6/2018
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	10:04 AM	Pump Start	6:40 PM
Static Water Level (+/- 0.01ft) (ft)	8.90	Purge Rate (mL/min)	450
Bottom of Casing (+/- 0.01 ft) (ft)	22.4	Time to purge Well (min)	0:12
Casing Volume (L)	8.3358	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)
6:43 PM	1.35	14.45	0.80	136	7.29	1.030	9.20
6:46 PM	1.35	14.10	0.40	55	5.68	1.000	9.20
6:49 PM	1.35	14.07	0.50	32	5.70	0.997	9.20
6:52 PM	1.35	14.00	0.50	23.9	5.80	1.000	9.20

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-9	6:52:00 PM	14.00	0.50	23.90	5.80	1.00	9.20
Duplicate	No						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-11	Date: 6/6/2018
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	10:32 AM	Pump Start	3:55 PM
Static Water Level (+/- 0.01ft) (ft)	6.80	Purge Rate (mL/min)	400
Bottom of Casing (+/- 0.01 ft) (ft)	21.85	Time to purge Well (min)	0:26
Casing Volume (L)	9.29	Purge Equipment Dedicated Pump with Nitrogen Gas	
Actual Volume of Water Purged (L)	10.40		

*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)
4:00 PM	2.00	17.00	2.41	1000	7.31	0.611	6.75
4:03 PM	1.20	16.20	1.03	377	7.11	0.624	6.75
4:06 PM	1.20	16.18	1.12	223	7.13	0.622	6.75
4:09 PM	1.20	16.00	1.11	170	7.14	0.624	6.75
4:12 PM	1.20	15.92	0.90	140	7.14	0.626	6.75
4:15 PM	1.20	15.95	0.86	108	7.15	0.625	6.75
4:18 PM	1.20	15.96	0.97	103	7.16	0.626	6.75
4:21 PM	1.20	15.98	0.88	100	7.16	0.628	6.75

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-11	4:21:00 PM	15.98	0.88	100.00		0.63	6.75
Duplicate	No						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: Nebraska City Station NC1	Sampler Name(s): Ryan Layman
Monitoring Well Id #/ Sample #: MW-13	Date: 6/6/2018
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	8:20 AM	Pump Start	8:40 AM
Static Water Level (+/- 0.01ft) (ft)	4.56	Purge Rate (mL/min)	300
Bottom of Casing (+/- 0.01 ft) (ft)	15.19	Time to purge Well (min)	0:20
Casing Volume (L)	6.5636	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)
8:43 AM	0.90	16.00	0.00	445	6.89	0.826	4.78
8:46 AM	0.90	15.99	0.00	974	6.85	0.828	4.70
8:49 AM	0.90	15.45	0.00	871	6.86	0.810	4.70
8:52 AM	0.90	15.38	0.00	780	6.84	0.804	4.70
8:54 AM	0.90	15.38	0.00	702	6.84	0.797	4.70
8:57 AM	0.90	15.28	0.00	685	6.84	0.786	4.70
9:00 AM	0.90	15.27	0.00	680	6.84	0.785	4.70

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	9:00:00 AM	15.27	0.00	680.00	6.84	0.79	4.70
Duplicate	No						

Physical Characteristics

Sample Clearity	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 immiscole Layer	No	Time and Date of Calibration	6/5/2018 8:00:00 AM
Unusual Occurences:			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 1	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW2 - 5**	Date: 10/4/2018
Wellhead Inspection (Condition): Compliant (See Notes)	Weather Conditions: Clear, Sunny, 47°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:44	Pump Start Time	11:18
Static Water Level (+/- 0.01 feet)*	5.78	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	16.40	Time to Purge Well (hours:minutes)	0:14
2" Well Casing Volume (L)	6.56	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	2,800		

*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)
11:23	1,000	17.92	2.17	30.4	6.78	0.707	5.89
11:26	1,600	17.98	2.22	22.8	6.78	0.681	5.86
11:29	2,200	17.99	2.11	22.4	6.78	0.675	5.75
11:32	2,800	18.02	2.23	15.2	6.78	0.674	5.73

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)
11:32	2,800	18.02	2.23	15.2	6.78	0.67	5.73
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 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	10/4/2018, 6:01

Notes / Unusual Occurrences: Discovered a potential leak in the dedicated pump tubing - tubing needs to be replaced.

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 1	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW3 - 8**	Date: 10/4/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Overcast, Windy, 47°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:24	Pump Start Time	13:30
Static Water Level (+/- 0.01 feet)*	6.60	Purge Rate (mL/minute)	250
Bottom of Well Casing (+/- 0.01 feet)*	22.20	Time to Purge Well (hours:minutes)	0:17
2" Well Casing Volume (L)	9.63	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	4,250		

*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)
13:35	1,250	14.62	8.34	26.9	7.14	1.34	6.57
13:38	2,000	14.62	7.75	17.5	7.11	1.34	6.56
13:41	2,750	14.57	1.47	11.9	7.10	1.33	6.56
13:44	3,500	14.57	1.37	11.5	7.12	1.33	6.56
13:47	4,250	14.58	1.29	10.9	7.15	1.33	6.56

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)
13:47	4,250	14.58	1.29	10.9	7.15	1.33	6.56
Duplicate?	Yes, DUP 1	Preservation?	Cool on Ice, HNO_3 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	10/4/2018, 6:01

Notes / Unusual Occurrences: None

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 1	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW4 - 6**	Date: 10/4/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, 50°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:36	Pump Start Time	11:57
Static Water Level (+/- 0.01 feet)*	6.66	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	17.70	Time to Purge Well (hours:minutes)	0:17
2" Well Casing Volume (L)	6.82	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	4,250		

*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)
12:02	1,250	16.78	2.22	8.1	7.48	0.856	6.82
12:05	2,000	16.72	2.07	10.7	7.40	0.836	6.85
12:08	2,750	16.78	1.09	11.7	7.39	0.832	6.84
12:11	3,500	16.77	1.06	7.6	7.40	0.832	6.83
12:14	4,250	16.74	0.99	6.5	7.41	0.827	6.82

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)
12:14	4,250	16.74	0.99	6.5	7.41	0.83	6.82
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 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	10/4/2018, 6:01
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Mark Hansen
Monitoring Well Identification - Sample Number: **MW4 - 2**	Date: 10/3/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Partly Cloudy, Windy, 75°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:11	Pump Start Time	9:05
Static Water Level (+/- 0.01 feet)*	4.14	Purge Rate (mL/minute)	100
Bottom of Well Casing (+/- 0.01 feet)*	14.50	Time to Purge Well (hours:minutes)	0:43
2" Well Casing Volume (L)	6.40	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	4,200		

*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)
9:10	500	17.36	0.72	357	6.78	0.910	4.42
9:13	800	18.37	0.62	181	6.76	0.913	4.62
9:16	1,100	18.70	0.78	116	6.78	0.910	4.70
9:19	1,400	18.81	0.74	93.3	6.78	0.912	5.33
9:22	1,700	18.91	0.72	62.5	6.77	0.909	5.75
9:27	2,200	19.03	0.74	49.0	6.75	0.908	6.30
9:33	2,700	19.17	0.90	32.9	6.78	0.901	6.25
9:36	3,000	19.15	0.99	29.2	6.78	0.892	6.30
9:39	3,300	19.17	1.12	23.1	6.79	0.888	6.35
9:42	3,600	19.22	1.28	31.1	6.80	0.885	6.40
9:45	3,900	19.30	1.30	26.1	6.80	0.881	6.44
9:48	4,200	19.35	1.31	18.1	6.81	0.879	6.50

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)
9:48	4,200	19.35	1.31	18.1	6.81	0.88	6.50
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 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	10/3/2018, 6:03

Notes / Unusual Occurrences: None

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 1	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW9 - 10**	Date: 10/4/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Overcast, 45°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:30	Pump Start Time	15:02
Static Water Level (+/- 0.01 feet)*	6.87	Purge Rate (mL/minute)	250
Bottom of Well Casing (+/- 0.01 feet)*	22.40	Time to Purge Well (hours:minutes)	0:23
2" Well Casing Volume (L)	9.59	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	5,750		

*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)
15:07	1,250	14.74	3.04	140	7.28	1.03	6.80
15:10	2,000	14.65	2.27	141	7.31	1.04	6.80
15:13	2,750	14.69	2.22	100	7.27	1.04	6.80
15:16	3,500	14.69	2.27	73.3	7.29	1.04	6.80
15:19	4,250	14.72	2.27	42.4	7.27	1.04	6.80
15:22	5,000	14.75	2.33	27.7	7.27	1.04	6.78
15:25	5,750	14.75	2.33	22.0	7.27	1.04	6.78

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)
15:25	5,750	14.75	2.33	22.0	7.27	1.04	6.78
Duplicate?	Yes, DUP 2	Preservation?	Cool on Ice, HNO_3 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	10/4/2018, 6:01
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 1	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW11 - 4**	Date: 10/4/2018
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Windy, 45°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:15	Pump Start Time	10:33
Static Water Level (+/- 0.01 feet)*	4.45	Purge Rate (mL/minute)	250
Bottom of Well Casing (+/- 0.01 feet)*	21.85	Time to Purge Well (hours:minutes)	0:26
2" Well Casing Volume (L)	10.74	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	6,500		

*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)
10:38	1,250	16.17	2.35	48.4	6.96	0.756	4.46
10:41	2,000	16.19	1.38	46.8	6.94	0.774	4.46
10:44	2,750	16.51	1.04	26.5	6.95	0.776	4.46
10:47	3,500	16.92	0.75	10.0	6.94	0.776	4.44
10:50	4,250	16.65	0.99	5.0	6.94	0.779	4.43
10:53	5,000	15.94	0.80	9.5	6.94	0.774	4.45
10:56	5,750	15.99	0.77	6.5	6.93	0.774	4.44
10:59	6,500	16.05	0.69	4.6	6.93	0.770	4.45

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)
10:59	6,500	16.05	0.69	4.6	6.93	0.77	4.45
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 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	10/4/2018, 6:01

Notes / Unusual Occurrences: None

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Mark Hansen
Monitoring Well Identification - Sample Number: **MW13 - 1**	Date: 10/3/2018
Wellhead Inspection (Condition): Compliant (See Notes)	Weather Conditions: Partly Cloudy, Slight Wind, 75°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:05	Pump Start Time	8:26
Static Water Level (+/- 0.01 feet)*	1.63	Purge Rate (mL/minute)	125
Bottom of Well Casing (+/- 0.01 feet)*	15.19	Time to Purge Well (hours:minutes)	0:17
2" Well Casing Volume (L)	8.37	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas	
Actual Volume of Water Purged (mL)	2,125		

*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)
8:28	250	19.56	2.78	279	6.86	0.660	1.72
8:33	875	18.93	2.14	253	6.90	0.652	1.74
8:38	1,500	18.88	2.20	275	6.89	0.651	1.76
8:43	2,125	18.92	2.10	235	6.88	0.652	1.77

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)
8:43	2,125	18.92	2.10	235.0	6.88	0.65	1.77
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		125

Physical Characteristics

Sample Clarity	Very Turbid	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	10/3/2018, 6:03

Notes / Unusual Occurrences: Concrete pad was submerged under water.

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Appendix B

Laboratory Analytical Reports

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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: 310-125899-1
Client Project/Site: Nebraska City Unit 1 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 1:18:18 PM

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

Table of Contents

Case Narrative

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Job ID: 310-125899-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-125899-1

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 1.3º C and 6.0º 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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-125899-1	MW13	Ground Water	03/13/18 09:00	03/15/18 09:25
310-125899-2	MW4NC2	Ground Water	03/13/18 09:34	03/15/18 09:25
310-125899-3	MW11	Ground Water	03/13/18 10:19	03/15/18 09:25
310-125899-4	MW3	Ground Water	03/13/18 12:50	03/15/18 09:25
310-125899-5	MW4	Ground Water	03/13/18 10:28	03/15/18 09:25
310-125899-6	MW9	Ground Water	03/13/18 13:14	03/15/18 09:25
310-125899-7	MW2	Ground Water	03/13/18 10:46	03/15/18 09:25
310-125899-8	DUP	Ground Water	03/13/18 00:00	03/15/18 09:25

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW13 — Lab Sample ID: 310-125899-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	38.2		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00283		0.00200		mg/L	1		6020A	Total/NA
Barium	0.305		0.00200		mg/L	1		6020A	Total/NA
Calcium	93.8		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00222		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0265		0.0100		mg/L	1		6020A	Total/NA
Lead	0.00102		0.000500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	388		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW4NC2 — Lab Sample ID: 310-125899-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.530		0.500		mg/L	5		9056A	Total/NA
Sulfate	42.6		5.00		mg/L	5		9056A	Total/NA
Barium	0.297		0.00200		mg/L	1		6020A	Total/NA
Calcium	138		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0318		0.0100		mg/L	1		6020A	Total/NA
Lead	0.00192		0.000500		mg/L	1		6020A	Total/NA
Selenium	0.0112		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	478		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW11 — Lab Sample ID: 310-125899-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	109		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00272		0.00200		mg/L	1		6020A	Total/NA
Barium	0.154		0.00200		mg/L	1		6020A	Total/NA
Boron	0.631		0.200		mg/L	1		6020A	Total/NA
Calcium	77.1		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00104		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0143		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00269		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.00503		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	302		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW3 — Lab Sample ID: 310-125899-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	362		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.0111		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0786		0.00200		mg/L	1		6020A	Total/NA
Boron	1.97		0.200		mg/L	1		6020A	Total/NA
Calcium	154		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00192		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0262		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	846		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW4 — Lab Sample ID: 310-125899-5

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW4 (Continued) — Lab Sample ID: 310-125899-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.04		5.00		mg/L	5		9056A	Total/NA
Sulfate	250		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00265		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0781		0.00200		mg/L	1		6020A	Total/NA
Boron	1.21		0.200		mg/L	1		6020A	Total/NA
Calcium	111		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0114		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0207		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	560		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW9 — Lab Sample ID: 310-125899-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.74		5.00		mg/L	5		9056A	Total/NA
Sulfate	276		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.0107		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0838		0.00200		mg/L	1		6020A	Total/NA
Boron	2.60		0.200		mg/L	1		6020A	Total/NA
Calcium	132		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000630		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0198		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0354		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	754		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW2 — Lab Sample ID: 310-125899-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.571		0.500		mg/L	5		9056A	Total/NA
Sulfate	61.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.125		0.00200		mg/L	1		6020A	Total/NA
Calcium	94.1		0.200		mg/L	1		6020A	Total/NA
Molybdenum	0.0446		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	362		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 310-125899-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	59.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.130		0.00200		mg/L	1		6020A	Total/NA
Calcium	92.3		0.200		mg/L	1		6020A	Total/NA
Molybdenum	0.0458		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	348		30.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW13
Date Collected: 03/13/18 09:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.7**		5.00		mg/L			03/20/18 16:35	5
Fluoride	<0.500		0.500		mg/L			03/20/18 16:35	5
Sulfate	**38.2**		5.00		mg/L			03/20/18 16:35	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 09:53	03/27/18 20:53	1
Arsenic	**0.00283**		0.00200		mg/L		03/19/18 09:53	03/27/18 20:53	1
Barium	**0.305**		0.00200		mg/L		03/19/18 09:53	03/27/18 20:53	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 20:53	1
Boron	<0.200		0.200		mg/L		03/19/18 09:53	03/27/18 20:53	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 14:56	1
Calcium	**93.8**		0.200		mg/L		03/19/18 09:53	03/28/18 14:56	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 20:53	1
Cobalt	**0.00222**		0.000500		mg/L		03/19/18 09:53	03/27/18 20:53	1
Lithium	**0.0265**		0.0100		mg/L		03/19/18 09:53	03/27/18 20:53	1
Lead	**0.00102**		0.000500		mg/L		03/19/18 09:53	03/28/18 14:56	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 20:53	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 20:53	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 20:53	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	03/23/18 07:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**388**		30.0		mg/L			03/19/18 11:41	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW4NC2

Date Collected: 03/13/18 09:34
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-2

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 16:35	5
Fluoride	**0.530**		0.500		mg/L			03/20/18 16:35	5
Sulfate	**42.6**		5.00		mg/L			03/20/18 16:35	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 09:53	03/27/18 20:56	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 20:56	1
Barium	**0.297**		0.00200		mg/L		03/19/18 09:53	03/27/18 20:56	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 20:56	1
Boron	<0.200		0.200		mg/L		03/19/18 09:53	03/27/18 20:56	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:00	1
Calcium	**138**		0.200		mg/L		03/19/18 09:53	03/28/18 15:00	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 20:56	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 20:56	1
Lithium	**0.0318**		0.0100		mg/L		03/19/18 09:53	03/27/18 20:56	1
Lead	**0.00192**		0.000500		mg/L		03/19/18 09:53	03/28/18 15:00	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 20:56	1
Selenium	**0.0112**		0.00500		mg/L		03/19/18 09:53	03/27/18 20:56	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 20:56	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	03/23/18 07:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**478**		30.0		mg/L			03/19/18 11:41	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW11
Date Collected: 03/13/18 10:19
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-3
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 16:35	5
Fluoride	<0.500		0.500		mg/L			03/20/18 16:35	5
Sulfate	**109**		5.00		mg/L			03/20/18 16:35	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 09:53	03/27/18 20:59	1
Arsenic	**0.00272**		0.00200		mg/L		03/19/18 09:53	03/27/18 20:59	1
Barium	**0.154**		0.00200		mg/L		03/19/18 09:53	03/27/18 20:59	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 20:59	1
Boron	**0.631**		0.200		mg/L		03/19/18 09:53	03/27/18 20:59	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:12	1
Calcium	**77.1**		0.200		mg/L		03/19/18 09:53	03/28/18 15:12	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 20:59	1
Cobalt	**0.00104**		0.000500		mg/L		03/19/18 09:53	03/27/18 20:59	1
Lithium	**0.0143**		0.0100		mg/L		03/19/18 09:53	03/27/18 20:59	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:12	1
Molybdenum	**0.00269**		0.00200		mg/L		03/19/18 09:53	03/27/18 20:59	1
Selenium	**0.00503**		0.00500		mg/L		03/19/18 09:53	03/27/18 20:59	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 20:59	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	03/23/18 07:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**302**		30.0		mg/L			03/19/18 11:41	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW3
Date Collected: 03/13/18 12:50
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-4
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10.8**		5.00		mg/L			03/20/18 16:35	5
Fluoride	<0.500		0.500		mg/L			03/20/18 16:35	5
Sulfate	**362**		10.0		mg/L			03/20/18 16:35	10

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 09:53	03/27/18 21:03	1
Arsenic	**0.0111**		0.00200		mg/L		03/19/18 09:53	03/27/18 21:03	1
Barium	**0.0786**		0.00200		mg/L		03/19/18 09:53	03/27/18 21:03	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 21:03	1
Boron	**1.97**		0.200		mg/L		03/19/18 09:53	03/27/18 21:03	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:16	1
Calcium	**154**		0.200		mg/L		03/19/18 09:53	03/28/18 15:16	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:03	1
Cobalt	**0.00192**		0.000500		mg/L		03/19/18 09:53	03/27/18 21:03	1
Lithium	**0.0262**		0.0100		mg/L		03/19/18 09:53	03/27/18 21:03	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:16	1
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 21:03	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:03	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 21:03	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	03/23/18 07:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**846**		30.0		mg/L			03/19/18 11:41	1

Client Sample ID: MW4
Date Collected: 03/13/18 10:28
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-5
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.04**		5.00		mg/L			03/20/18 16:35	5
Fluoride	<0.500		0.500		mg/L			03/20/18 16:35	5
Sulfate	**250**		5.00		mg/L			03/20/18 16:35	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 09:53	03/27/18 21:06	1
Arsenic	**0.00265**		0.00200		mg/L		03/19/18 09:53	03/27/18 21:06	1
Barium	**0.0781**		0.00200		mg/L		03/19/18 09:53	03/27/18 21:06	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 21:06	1
Boron	**1.21**		0.200		mg/L		03/19/18 09:53	03/27/18 21:06	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:19	1
Calcium	**111**		0.200		mg/L		03/19/18 09:53	03/28/18 15:19	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:06	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 21:06	1
Lithium	**0.0114**		0.0100		mg/L		03/19/18 09:53	03/27/18 21:06	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:19	1
Molybdenum	**0.0207**		0.00200		mg/L		03/19/18 09:53	03/27/18 21:06	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:06	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 21:06	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	03/23/18 07:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**560**		30.0		mg/L			03/19/18 11:41	1

Client Sample ID: MW9

Date Collected: 03/13/18 13:14
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.74**		5.00		mg/L			03/20/18 16:35	5
Fluoride	<0.500		0.500		mg/L			03/20/18 16:35	5
Sulfate	**276**		10.0		mg/L			03/20/18 16:35	10

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 09:53	03/27/18 21:19	1
Arsenic	**0.0107**		0.00200		mg/L		03/19/18 09:53	03/27/18 21:19	1
Barium	**0.0838**		0.00200		mg/L		03/19/18 09:53	03/28/18 15:22	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/28/18 15:22	1
Boron	**2.60**		0.200		mg/L		03/19/18 09:53	03/28/18 15:22	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:22	1
Calcium	**132**		0.200		mg/L		03/19/18 09:53	03/27/18 21:19	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/28/18 15:22	1
Cobalt	**0.000630**		0.000500		mg/L		03/19/18 09:53	03/27/18 21:19	1
Lithium	**0.0198**		0.0100		mg/L		03/19/18 09:53	03/28/18 15:22	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:22	1
Molybdenum	**0.0354**		0.00200		mg/L		03/19/18 09:53	03/28/18 15:22	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:19	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/28/18 15:22	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	03/23/18 07:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**754**		30.0		mg/L			03/19/18 11:41	1

Client Sample ID: MW2

Date Collected: 03/13/18 10:46
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-7

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 16:35	5
Fluoride	**0.571**		0.500		mg/L			03/20/18 16:35	5
Sulfate	**61.3**		5.00		mg/L			03/20/18 16:35	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 09:53	03/27/18 21:22	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 21:22	1
Barium	**0.125**		0.00200		mg/L		03/19/18 09:53	03/28/18 15:25	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/28/18 15:25	1
Boron	<0.200		0.200		mg/L		03/19/18 09:53	03/28/18 15:25	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:25	1
Calcium	**94.1**		0.200		mg/L		03/19/18 09:53	03/27/18 21:22	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/28/18 15:25	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 21:22	1
Lithium	<0.0100		0.0100		mg/L		03/19/18 09:53	03/28/18 15:25	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:25	1
Molybdenum	**0.0446**		0.00200		mg/L		03/19/18 09:53	03/28/18 15:25	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:22	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/28/18 15:25	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	03/23/18 07:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**362**		30.0		mg/L			03/19/18 11:41	1

Client Sample ID: DUP

Date Collected: 03/13/18 00:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-8

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 16:35	5
Fluoride	<0.500		0.500		mg/L			03/20/18 16:35	5
Sulfate	**59.8**		5.00		mg/L			03/20/18 16:35	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 09:53	03/27/18 21:25	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 21:25	1
Barium	**0.130**		0.00200		mg/L		03/19/18 09:53	03/28/18 15:28	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/28/18 15:28	1
Boron	<0.200		0.200		mg/L		03/19/18 09:53	03/28/18 15:28	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:28	1
Calcium	**92.3**		0.200		mg/L		03/19/18 09:53	03/27/18 21:25	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/28/18 15:28	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 21:25	1
Lithium	<0.0100		0.0100		mg/L		03/19/18 09:53	03/28/18 15:28	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/28/18 15:28	1
Molybdenum	**0.0458**		0.00200		mg/L		03/19/18 09:53	03/28/18 15:28	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 21:25	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/28/18 15:28	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	03/23/18 07:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**348**		30.0		mg/L			03/19/18 11:41	1

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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-197766/3
Matrix: Water
Analysis Batch: 197766

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 16:35	1
Fluoride	<0.100		0.100		mg/L			03/20/18 16:35	1
Sulfate	<1.00		1.00		mg/L			03/20/18 16:35	1

Lab Sample ID: LCS 310-197766/4
Matrix: Water
Analysis Batch: 197766

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	7.521		mg/L		100	90 - 110
Fluoride	1.50	1.559		mg/L		104	90 - 110
Sulfate	7.50	7.700		mg/L		103	90 - 110

Lab Sample ID: 310-125899-1 MS
Matrix: Ground Water
Analysis Batch: 197766

Client Sample ID: MW13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.7		25.0	37.12		mg/L		98	80 - 120
Fluoride	<0.500		5.00	5.602		mg/L		112	80 - 120
Sulfate	38.2		25.0	63.41		mg/L		101	80 - 120

Lab Sample ID: 310-125899-1 MSD
Matrix: Ground Water
Analysis Batch: 197766

Client Sample ID: MW13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.7		25.0	37.22		mg/L		98	80 - 120	0	15
Fluoride	<0.500		5.00	5.560		mg/L		111	80 - 120	1	15
Sulfate	38.2		25.0	63.46		mg/L		101	80 - 120	0	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-197119/1-A
Matrix: Water
Analysis Batch: 198125

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 197119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 14:36	1
Arsenic	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 14:36	1
Barium	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 14:36	1
Beryllium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 14:36	1
Boron	<0.200		0.200		mg/L		03/19/18 09:53	03/27/18 14:36	1
Cadmium	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 14:36	1
Calcium	<0.200		0.200		mg/L		03/19/18 09:53	03/27/18 14:36	1
Chromium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 14:36	1
Cobalt	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 14:36	1
Lithium	<0.0100		0.0100		mg/L		03/19/18 09:53	03/27/18 14:36	1
Lead	<0.000500		0.000500		mg/L		03/19/18 09:53	03/27/18 14:36	1

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

Lab Sample ID: MB 310-197119/1-A
Matrix: Water
Analysis Batch: 198125

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 197119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.00200		0.00200		mg/L		03/19/18 09:53	03/27/18 14:36	1
Selenium	<0.00500		0.00500		mg/L		03/19/18 09:53	03/27/18 14:36	1
Thallium	<0.00100		0.00100		mg/L		03/19/18 09:53	03/27/18 14:36	1

Lab Sample ID: LCS 310-197119/2-A
Matrix: Water
Analysis Batch: 198125

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 197119

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02261		mg/L		113	80 - 120
Arsenic	0.0400	0.04275		mg/L		107	80 - 120
Barium	0.0400	0.04319		mg/L		108	80 - 120
Beryllium	0.0200	0.02101		mg/L		105	80 - 120
Boron	0.880	0.9252		mg/L		105	80 - 120
Cadmium	0.0200	0.01991		mg/L		100	80 - 120
Calcium	2.00	2.224		mg/L		111	80 - 120
Chromium	0.0400	0.04063		mg/L		102	80 - 120
Cobalt	0.0200	0.02144		mg/L		107	80 - 120
Lithium	0.100	0.09911		mg/L		99	80 - 120
Lead	0.0200	0.02020		mg/L		101	80 - 120
Molybdenum	0.0400	0.03977		mg/L		99	80 - 120
Selenium	0.0400	0.04065		mg/L		102	80 - 120
Thallium	0.0160	0.01751		mg/L		109	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-197307/1-A
Matrix: Water
Analysis Batch: 197721

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 197307

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 21:52	1

Lab Sample ID: LCS 310-197307/2-A
Matrix: Water
Analysis Batch: 197721

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 197307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001760		mg/L		106	80 - 120

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

Lab Sample ID: MB 310-197148/1
Matrix: Water
Analysis Batch: 197148

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			03/19/18 11:41	1

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

Lab Sample ID: LCS 310-197148/2
Matrix: Water
Analysis Batch: 197148

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	922.0		mg/L		92	90 - 110		

Lab Sample ID: 310-125899-1 DU
Matrix: Ground Water
Analysis Batch: 197148

Client Sample ID: MW13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	388			394.0		mg/L				2	24

Lab Sample ID: MB 310-197345/1
Matrix: Water
Analysis Batch: 197345

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			03/20/18 14:45	1

Lab Sample ID: LCS 310-197345/2
Matrix: Water
Analysis Batch: 197345

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	962.0		mg/L		96	90 - 110		

HPLC/IC

Analysis Batch: 197766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	9056A	
310-125899-2	MW4NC2	Total/NA	Ground Water	9056A	
310-125899-3	MW11	Total/NA	Ground Water	9056A	
310-125899-4	MW3	Total/NA	Ground Water	9056A	
310-125899-4	MW3	Total/NA	Ground Water	9056A	
310-125899-5	MW4	Total/NA	Ground Water	9056A	
310-125899-6	MW9	Total/NA	Ground Water	9056A	
310-125899-6	MW9	Total/NA	Ground Water	9056A	
310-125899-7	MW2	Total/NA	Ground Water	9056A	
310-125899-8	DUP	Total/NA	Ground Water	9056A	
MB 310-197766/3	Method Blank	Total/NA	Water	9056A	
LCS 310-197766/4	Lab Control Sample	Total/NA	Water	9056A	
310-125899-1 MS	MW13	Total/NA	Ground Water	9056A	
310-125899-1 MSD	MW13	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 197119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	3010A	
310-125899-2	MW4NC2	Total/NA	Ground Water	3010A	
310-125899-3	MW11	Total/NA	Ground Water	3010A	
310-125899-4	MW3	Total/NA	Ground Water	3010A	
310-125899-5	MW4	Total/NA	Ground Water	3010A	
310-125899-6	MW9	Total/NA	Ground Water	3010A	
310-125899-7	MW2	Total/NA	Ground Water	3010A	
310-125899-8	DUP	Total/NA	Ground Water	3010A	
MB 310-197119/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-197119/2-A	Lab Control Sample	Total/NA	Water	3010A	

Prep Batch: 197307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	7470A	
310-125899-2	MW4NC2	Total/NA	Ground Water	7470A	
310-125899-3	MW11	Total/NA	Ground Water	7470A	
310-125899-4	MW3	Total/NA	Ground Water	7470A	
310-125899-5	MW4	Total/NA	Ground Water	7470A	
310-125899-6	MW9	Total/NA	Ground Water	7470A	
310-125899-7	MW2	Total/NA	Ground Water	7470A	
310-125899-8	DUP	Total/NA	Ground Water	7470A	
MB 310-197307/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-197307/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 197721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	7470A	197307
310-125899-2	MW4NC2	Total/NA	Ground Water	7470A	197307
310-125899-3	MW11	Total/NA	Ground Water	7470A	197307
310-125899-4	MW3	Total/NA	Ground Water	7470A	197307
310-125899-5	MW4	Total/NA	Ground Water	7470A	197307

Metals (Continued)

Analysis Batch: 197721 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-6	MW9	Total/NA	Ground Water	7470A	197307
310-125899-7	MW2	Total/NA	Ground Water	7470A	197307
310-125899-8	DUP	Total/NA	Ground Water	7470A	197307
MB 310-197307/1-A	Method Blank	Total/NA	Water	7470A	197307
LCS 310-197307/2-A	Lab Control Sample	Total/NA	Water	7470A	197307

Analysis Batch: 198125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	6020A	197119
310-125899-2	MW4NC2	Total/NA	Ground Water	6020A	197119
310-125899-3	MW11	Total/NA	Ground Water	6020A	197119
310-125899-4	MW3	Total/NA	Ground Water	6020A	197119
310-125899-5	MW4	Total/NA	Ground Water	6020A	197119
310-125899-6	MW9	Total/NA	Ground Water	6020A	197119
310-125899-7	MW2	Total/NA	Ground Water	6020A	197119
310-125899-8	DUP	Total/NA	Ground Water	6020A	197119
MB 310-197119/1-A	Method Blank	Total/NA	Water	6020A	197119
LCS 310-197119/2-A	Lab Control Sample	Total/NA	Water	6020A	197119

Analysis Batch: 198290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	6020A	197119
310-125899-2	MW4NC2	Total/NA	Ground Water	6020A	197119
310-125899-3	MW11	Total/NA	Ground Water	6020A	197119
310-125899-4	MW3	Total/NA	Ground Water	6020A	197119
310-125899-5	MW4	Total/NA	Ground Water	6020A	197119
310-125899-6	MW9	Total/NA	Ground Water	6020A	197119
310-125899-7	MW2	Total/NA	Ground Water	6020A	197119
310-125899-8	DUP	Total/NA	Ground Water	6020A	197119

General Chemistry

Analysis Batch: 197148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	SM 2540C	
310-125899-2	MW4NC2	Total/NA	Ground Water	SM 2540C	
310-125899-3	MW11	Total/NA	Ground Water	SM 2540C	
310-125899-4	MW3	Total/NA	Ground Water	SM 2540C	
310-125899-5	MW4	Total/NA	Ground Water	SM 2540C	
310-125899-6	MW9	Total/NA	Ground Water	SM 2540C	
310-125899-7	MW2	Total/NA	Ground Water	SM 2540C	
310-125899-8	DUP	Total/NA	Ground Water	SM 2540C	
MB 310-197148/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-197148/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-125899-1 DU	MW13	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 197345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-197345/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-197345/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW13

Date Collected: 03/13/18 09:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 20:53	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 14:56	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:46	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Client Sample ID: MW4NC2

Date Collected: 03/13/18 09:34
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 20:56	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:00	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:47	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Client Sample ID: MW11

Date Collected: 03/13/18 10:19
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 20:59	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:12	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:49	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW3

Date Collected: 03/13/18 12:50
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 21:03	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:16	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:50	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Client Sample ID: MW4

Date Collected: 03/13/18 10:28
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 21:06	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:19	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:52	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Client Sample ID: MW9

Date Collected: 03/13/18 13:14
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 21:19	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:22	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:54	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

Client Sample ID: MW2

Date Collected: 03/13/18 10:46
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 21:22	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:25	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:55	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	SAS	TAL CF

Client Sample ID: DUP

Date Collected: 03/13/18 00:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	197766	03/20/18 16:35	LBB	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198125	03/27/18 21:25	SAD	TAL CF
Total/NA	Prep	3010A			197119	03/19/18 09:53	JNR	TAL CF
Total/NA	Analysis	6020A		1	198290	03/28/18 15:28	SAD	TAL CF
Total/NA	Prep	7470A			197307	03/22/18 10:00	CJT	TAL CF
Total/NA	Analysis	7470A		1	197721	03/23/18 07:57	CJT	TAL CF
Total/NA	Analysis	SM 2540C		1	197148	03/19/18 11:41	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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-1

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

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310-125899 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: OPPD

City/State: Omaha, NE

Project: Nebraska City Unit 1 LF / 29278

Receipt Information

Date/Time Received: 7/5/18 925

Received By: [signature]

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: 776

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☑ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: J

Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.2

Corrected Temp (°C): ~~1.2~~ 1.3

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C):

Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: OPPD

City/State: Omaha, NE | Project: Nebraska City Unit 1 LF / 29278

Receipt Information

Date/Time Received: 3/15/18 925 | Received By: [illegible]

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: D.15

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☑ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: J | Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.9 | Corrected Temp (°C): 6.0

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica

Client Information	Sampler: R. Layman	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Brad Sojka	Phone:	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: Omaha Public Power District			Analysis Requested *	Job #:
Address: 444 South 16th Street Mall 9E/EP1	Due Date 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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: NE, 68102-2247	PO #			
Phone: 402-636-2515(Tel)	WO #			Other:
Email: bsojka@oppd.com				
Project Name: Nebraska City Unit 1 Landfill	TestAmerica Project #: 31007558			
Site: Neb City	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A Lanfill List - As, Ba, Cd, Cr, Fe, Pb, Se, Ag	7470A Mercury	9056A Sulfate															Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N																
MW13	3-13-18	9:00a	G	GW																					
MW4NC2	3-13-18	9:34a	G	GW																					
MW11	3-13-18	10:19a	G	GW																					
MW3	3-13-18	12:58	G	GW																					
MW4	3-13-18	10:28a	G	GW																					
MW9	3-13-18	13:14	G	GW																					
MW2	3-13-18	10:46a	G	GW																					
DUP	3-13-18		G	GW																					

* Incorrect COC Submitted
Needs full CCR parameter list SA
3/15/18

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	[signature]	3-14-18 15:00	OPPD	[signature]	3-15-18 925	TACF
	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

3/29/2018

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW13	310-125899-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-125899-B-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-125899-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4NC2	310-125899-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW4NC2	310-125899-B-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4NC2	310-125899-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW11	310-125899-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW11	310-125899-B-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW11	310-125899-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW3	310-125899-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW3	310-125899-B-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW3	310-125899-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4	310-125899-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW4	310-125899-B-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4	310-125899-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-125899-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-125899-B-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-125899-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-125899-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-125899-B-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-125899-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP	310-125899-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP	310-125899-B-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP	310-125899-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-125899-1

Login Number: 125899
List Number: 1
Creator: Patrick, Kathryn E

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.	False	Received wrong 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.	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	

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ANALYTICAL REPORT

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

TestAmerica Job ID: 310-125899-2
Client Project/Site: Nebraska City Unit 1 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 6:04:29 PM

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

Table of Contents

Case Narrative

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Job ID: 310-125899-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-125899-2

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 1.3º C and 6.0º C.

RAD
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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-125899-1	MW13	Ground Water	03/13/18 09:00	03/15/18 09:25
310-125899-2	MW4NC2	Ground Water	03/13/18 09:34	03/15/18 09:25
310-125899-3	MW11	Ground Water	03/13/18 10:19	03/15/18 09:25
310-125899-4	MW3	Ground Water	03/13/18 12:50	03/15/18 09:25
310-125899-5	MW4	Ground Water	03/13/18 10:28	03/15/18 09:25
310-125899-6	MW9	Ground Water	03/13/18 13:14	03/15/18 09:25
310-125899-7	MW2	Ground Water	03/13/18 10:46	03/15/18 09:25
310-125899-8	DUP	Ground Water	03/13/18 00:00	03/15/18 09:25

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Client Sample ID: MW13
Date Collected: 03/13/18 09:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-1
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	0.212		0.0777	0.0801	1.00	0.0723	pCi/L	03/20/18 09:58	04/11/18 06:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/20/18 09:58*	*04/11/18 06:08*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.550		0.251	0.256	1.00	0.362	pCi/L	03/20/18 10:28	03/26/18 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:49*	*1*
Y Carrier	*87.9*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:49*	*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	0.762		0.263	0.268	5.00	0.362	pCi/L		04/12/18 14:16	1

Client Sample ID: MW4NC2

Date Collected: 03/13/18 09:34
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-2

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	0.484		0.110	0.119	1.00	0.0816	pCi/L	03/20/18 09:58	04/11/18 06:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*03/20/18 09:58*	*04/11/18 06:08*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.22		0.286	0.307	1.00	0.334	pCi/L	03/20/18 10:28	03/26/18 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:49*	*1*
Y Carrier	*91.6*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:49*	*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	1.71		0.306	0.329	5.00	0.334	pCi/L		04/12/18 14:16	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Client Sample ID: MW11

Date Collected: 03/13/18 10:19
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-3

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	**0.207**		0.0783	0.0805	1.00	0.0742	pCi/L	03/20/18 09:58	04/11/18 06:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*03/20/18 09:58*	*04/11/18 06:08*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.207	U	0.223	0.224	1.00	0.366	pCi/L	03/20/18 10:28	03/26/18 17:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:49*	*1*
Y Carrier	*83.7*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:49*	*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	**0.414**		0.236	0.238	5.00	0.366	pCi/L		04/12/18 14:16	1

Client Sample ID: MW3

Date Collected: 03/13/18 12:50
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-4

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	0.257		0.0851	0.0882	1.00	0.0695	pCi/L	03/20/18 09:58	04/11/18 06:08	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*03/20/18 09:58*	*04/11/18 06:08*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.472		0.244	0.247	1.00	0.356	pCi/L	03/20/18 10:28	03/26/18 17:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*1*
Y Carrier	*82.2*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*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	0.728		0.258	0.262	5.00	0.356	pCi/L		04/12/18 14:16	1

Client Sample ID: MW4

Date Collected: 03/13/18 10:28
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-5

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	0.143		0.0687	0.0699	1.00	0.0772	pCi/L	03/20/18 09:58	04/11/18 06:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*03/20/18 09:58*	*04/11/18 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	0.144	U	0.229	0.229	1.00	0.385	pCi/L	03/20/18 10:28	03/26/18 17:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*1*
Y Carrier	*84.9*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*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	0.286	U	0.239	0.239	5.00	0.385	pCi/L		04/12/18 14:16	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Client Sample ID: MW9

Date Collected: 03/13/18 13:14
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-6

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	**0.213**		0.0776	0.0799	1.00	0.0689	pCi/L	03/20/18 09:58	04/11/18 06:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*03/20/18 09:58*	*04/11/18 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	0.199	U	0.205	0.206	1.00	0.335	pCi/L	03/20/18 10:28	03/26/18 17:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*1*
Y Carrier	*93.1*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*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	**0.412**		0.219	0.221	5.00	0.335	pCi/L		04/12/18 14:16	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Client Sample ID: MW2

Date Collected: 03/13/18 10:46
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-7

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	0.166		0.0686	0.0702	1.00	0.0648	pCi/L	03/20/18 09:58	04/11/18 06:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*03/20/18 09:58*	*04/11/18 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	0.490		0.220	0.224	1.00	0.305	pCi/L	03/20/18 10:28	03/26/18 17:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*1*
Y Carrier	*87.1*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*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	0.656		0.230	0.235	5.00	0.305	pCi/L		04/12/18 14:16	1

Client Sample ID: DUP

Date Collected: 03/13/18 00:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-8

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	**0.161**		0.0750	0.0763	1.00	0.0862	pCi/L	03/20/18 09:58	04/11/18 06:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*03/20/18 09:58*	*04/11/18 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	0.316	U	0.215	0.217	1.00	0.331	pCi/L	03/20/18 10:28	03/26/18 17:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*1*
Y Carrier	*88.6*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:50*	*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	**0.477**		0.228	0.230	5.00	0.331	pCi/L		04/12/18 14:16	1

Definitions/Glossary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

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)

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-356692/23-A
Matrix: Water
Analysis Batch: 360147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 356692

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04843	U	0.0416	0.0418	1.00	0.0574	pCi/L	03/20/18 09:58	04/11/18 06:11	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/20/18 09:58*	*04/11/18 06:11*	*1*

Lab Sample ID: LCS 160-356692/1-A
Matrix: Water
Analysis Batch: 360146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356692

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.8	10.66		1.08	1.00	0.0859	pCi/L	90	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-356698/23-A
Matrix: Water
Analysis Batch: 357682

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 356698

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2484	U	0.203	0.205	1.00	0.321	pCi/L	03/20/18 10:28	03/26/18 17:51	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:51*	*1*
Y Carrier	*87.5*		*40 - 110*	*03/20/18 10:28*	*03/26/18 17:51*	*1*

Lab Sample ID: LCS 160-356698/1-A
Matrix: Water
Analysis Batch: 357682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356698

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.45	7.891		0.941	1.00	0.371	pCi/L	93	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*
Y Carrier	*85.6*		*40 - 110*

Rad

Prep Batch: 356692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	PrecSep-21	
310-125899-2	MW4NC2	Total/NA	Ground Water	PrecSep-21	
310-125899-3	MW11	Total/NA	Ground Water	PrecSep-21	
310-125899-4	MW3	Total/NA	Ground Water	PrecSep-21	
310-125899-5	MW4	Total/NA	Ground Water	PrecSep-21	
310-125899-6	MW9	Total/NA	Ground Water	PrecSep-21	
310-125899-7	MW2	Total/NA	Ground Water	PrecSep-21	
310-125899-8	DUP	Total/NA	Ground Water	PrecSep-21	
MB 160-356692/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-356692/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 356698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-125899-1	MW13	Total/NA	Ground Water	PrecSep_0	
310-125899-2	MW4NC2	Total/NA	Ground Water	PrecSep_0	
310-125899-3	MW11	Total/NA	Ground Water	PrecSep_0	
310-125899-4	MW3	Total/NA	Ground Water	PrecSep_0	
310-125899-5	MW4	Total/NA	Ground Water	PrecSep_0	
310-125899-6	MW9	Total/NA	Ground Water	PrecSep_0	
310-125899-7	MW2	Total/NA	Ground Water	PrecSep_0	
310-125899-8	DUP	Total/NA	Ground Water	PrecSep_0	
MB 160-356698/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-356698/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Client Sample ID: MW13
Date Collected: 03/13/18 09:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 06:08	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:49	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

Client Sample ID: MW4NC2
Date Collected: 03/13/18 09:34
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 06:08	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:49	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

Client Sample ID: MW11
Date Collected: 03/13/18 10:19
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 06:08	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:49	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

Client Sample ID: MW3
Date Collected: 03/13/18 12:50
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 06:08	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:50	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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Client Sample ID: MW4
Date Collected: 03/13/18 10:28
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 06:09	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:50	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

Client Sample ID: MW9
Date Collected: 03/13/18 13:14
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360146	04/11/18 06:09	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:50	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

Client Sample ID: MW2
Date Collected: 03/13/18 10:46
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360147	04/11/18 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:50	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	360617	04/12/18 14:16	RTM	TAL SL

Client Sample ID: DUP
Date Collected: 03/13/18 00:00
Date Received: 03/15/18 09:25

Lab Sample ID: 310-125899-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			356692	03/20/18 09:58	TJT	TAL SL
Total/NA	Analysis	9315		1	360147	04/11/18 06:10	ALD	TAL SL
Total/NA	Prep	PrecSep_0			356698	03/20/18 10:28	TJT	TAL SL
Total/NA	Analysis	9320		1	357682	03/26/18 17:50	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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-125899 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: OPPD

City/State: Omaha, NE

Project: Nebraska City Unit 1 LF / 29278

Receipt Information

Date/Time Received: 7/5/18 925

Received By: [illegible]

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: 776

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☑ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: J

Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.2

Corrected Temp (°C): ~~1.2~~ 1.3

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C):

Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: OPPD

City/State: Omaha, NE | Project: Nebraska City Unit 1 LF / 29278

Receipt Information

Date/Time Received: 3/15/18 925 | Received By: [illegible]

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: D.15

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☑ Yes ☐ No *If yes:* Cooler custody seals intact? ☑ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☑ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: J | Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.9 | Corrected Temp (°C): 6.0

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica

Client Information	Sampler: R. Layman	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Brad Sojka	Phone:	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: Omaha Public Power District		Analysis Requested *		Job #:
Address: 444 South 16th Street Mall 9E/EP1	Due Date 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; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify)
State, Zip: NE, 68102-2247	PO #:			
Phone: 402-636-2515(Tel)	WO #:			Other:
Email: bsojka@oppd.com				
Project Name: Nebraska City Unit 1 Landfill	TestAmerica Project #: 31007558			
Site: Neb City	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A Lanfill List - As, Ba, Cd, Cr, Fe, Pb, Se, Ag	7470A Mercury	9056A Sulfate															Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N																
MW13	3-13-18	9:00a	G	GW																					
MW4NC2	3-13-18	9:34a	G	GW																					
MW11	3-13-18	10:19a	G	GW																					
MW3	3-13-18	12:58	G	GW																					
MW4	3-13-18	10:28a	G	GW																					
MW9	3-13-18	13:14	G	GW																					
MW2	3-13-18	10:46a	G	GW																					
DUP	3-13-18		G	GW																					

* Incorrect COC Submitted
Needs full CCR parameter list SA
3/15/18

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	3-14-18 15:00	OPPD	[signature]	3-15-18 925	TACF
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

4/12/2018

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW13	310-125899-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-125899-B-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-125899-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4NC2	310-125899-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW4NC2	310-125899-B-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4NC2	310-125899-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW11	310-125899-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW11	310-125899-B-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW11	310-125899-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW3	310-125899-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW3	310-125899-B-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW3	310-125899-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4	310-125899-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW4	310-125899-B-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4	310-125899-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-125899-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-125899-B-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-125899-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-125899-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-125899-B-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-125899-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP	310-125899-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP	310-125899-B-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP	310-125899-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-125899-2

Login Number: 125899
List Number: 1
Creator: Patrick, Kathryn E

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.	False	Received wrong 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.	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: 310-125899-2

Login Number: 125899
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	18,18
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: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
310-125899-1	MW13	102
310-125899-2	MW4NC2	99.4
310-125899-3	MW11	97.9
310-125899-4	MW3	97.6
310-125899-5	MW4	100
310-125899-6	MW9	103
310-125899-7	MW2	101
310-125899-8	DUP	99.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9315 - Radium-226 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
LCS 160-356692/1-A	Lab Control Sample	103
MB 160-356692/23-A	Method Blank	102

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
310-125899-1	MW13	102	87.9
310-125899-2	MW4NC2	99.4	91.6
310-125899-3	MW11	97.9	83.7
310-125899-4	MW3	97.6	82.2
310-125899-5	MW4	100	84.9
310-125899-6	MW9	103	93.1
310-125899-7	MW2	101	87.1
310-125899-8	DUP	99.1	88.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
LCS 160-356698/1-A	Lab Control Sample	103	85.6

Tracer/Carrier Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1 CCR

TestAmerica Job ID: 310-125899-2

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

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)									
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)								
MB 160-356698/23-A	Method Blank	102	87.5								

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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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: 310-132091-1
Client Project/Site: Nebraska City Unit 1
Sampling Event: CCR and Landfill 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 4:32:22 PM

Shawn Hayes, Senior Project Manager
(319)229-8211
shawn.hayes@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.

Table of Contents

Case Narrative

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Job ID: 310-132091-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-132091-1

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 1.6º C and 2.4º 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.

Job ID: 310-132091-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-132091-2

RAD
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: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-132091-1	MW13	Ground Water	06/06/18 09:00	06/08/18 09:30
310-132091-2	MW4NC2	Ground Water	06/06/18 10:08	06/08/18 09:30
310-132091-3	MW11	Ground Water	06/06/18 16:21	06/08/18 09:30
310-132091-4	MW3	Ground Water	06/06/18 18:21	06/08/18 09:30
310-132091-5	MW4	Ground Water	06/06/18 17:32	06/08/18 09:30
310-132091-6	MW9	Ground Water	06/06/18 18:52	06/08/18 09:30
310-132091-7	MW2	Ground Water	06/06/18 16:59	06/08/18 09:30
310-132091-8	DUP	Ground Water	06/06/18 00:00	06/08/18 09:30

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW13 — Lab Sample ID: 310-132091-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	70.4		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00262		0.00200		mg/L	1		6020A	Total/NA
Barium	0.282		0.00200		mg/L	1		6020A	Total/NA
Calcium	99.4		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00236		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00577		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0423		0.0100		mg/L	1		6020A	Total/NA
Selenium	0.00553		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	504		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW4NC2 — Lab Sample ID: 310-132091-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	43.9		5.00		mg/L	5		9056A	Total/NA
Barium	0.329		0.00200		mg/L	1		6020A	Total/NA
Calcium	128		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000502		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00154		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0292		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00490		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.00754		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	542		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW11 — Lab Sample ID: 310-132091-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.09		5.00		mg/L	5		9056A	Total/NA
Sulfate	145		5.00		mg/L	5		9056A	Total/NA
Barium	0.172		0.00200		mg/L	1		6020A	Total/NA
Boron	0.737		0.200		mg/L	1		6020A	Total/NA
Calcium	86.5		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000779		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00118		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0123		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00996		0.00200		mg/L	1		6020A	Total/NA
Selenium	0.00710		0.00500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	428		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW3 — Lab Sample ID: 310-132091-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12.5		10.0		mg/L	10		9056A	Total/NA
Sulfate	324		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.0412		0.00200		mg/L	1		6020A	Total/NA
Barium	0.128		0.00200		mg/L	1		6020A	Total/NA
Boron	2.60		0.200		mg/L	1		6020A	Total/NA
Calcium	155		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00219		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00296		0.000500		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW3 (Continued) — Lab Sample ID: 310-132091-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0325		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00206		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	948		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW4 — Lab Sample ID: 310-132091-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	294		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.00821		0.00200		mg/L	1		6020A	Total/NA
Barium	0.129		0.00200		mg/L	1		6020A	Total/NA
Boron	1.45		0.200		mg/L	1		6020A	Total/NA
Calcium	145		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000636		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0100		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0422		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	822		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW9 — Lab Sample ID: 310-132091-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.732		0.500		mg/L	5		9056A	Total/NA
Sulfate	221		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0114		0.00200		mg/L	1		6020A	Total/NA
Barium	0.111		0.00200		mg/L	1		6020A	Total/NA
Boron	2.45		0.200		mg/L	1		6020A	Total/NA
Calcium	149		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00109		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0189		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0474		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	708		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW2 — Lab Sample ID: 310-132091-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	48.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.122		0.00200		mg/L	1		6020A	Total/NA
Boron	0.270		0.200		mg/L	1		6020A	Total/NA
Calcium	88.8		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00143		0.000500		mg/L	1		6020A	Total/NA
Lead	0.000713		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.0711		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	344		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP — Lab Sample ID: 310-132091-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.03		5.00		mg/L	5		9056A	Total/NA
Sulfate	307		10.0		mg/L	10		9056A	Total/NA
Arsenic	0.00708		0.00200		mg/L	1		6020A	Total/NA
Barium	0.124		0.00200		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: DUP (Continued)

Lab Sample ID: 310-132091-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.40		0.200		mg/L	1		6020A	Total/NA
Calcium	141		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.000519		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.0429		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	722		30.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW13
Date Collected: 06/06/18 09:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-1
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.6**		5.00		mg/L			06/14/18 11:58	5
Fluoride	<0.500		0.500		mg/L			06/14/18 11:58	5
Sulfate	**70.4**		5.00		mg/L			06/14/18 11:58	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 14:43	1
Arsenic	**0.00262**		0.00200		mg/L		06/18/18 10:00	06/26/18 14:43	1
Barium	**0.282**		0.00200		mg/L		06/18/18 10:00	06/26/18 14:43	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:43	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 14:43	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 14:43	1
Calcium	**99.4**		0.200		mg/L		06/18/18 10:00	06/26/18 14:43	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 14:43	1
Cobalt	**0.00236**		0.000500		mg/L		06/18/18 10:00	06/26/18 14:43	1
Lead	**0.00577**		0.000500		mg/L		06/18/18 10:00	06/26/18 14:43	1
Lithium	**0.0423**		0.0100		mg/L		06/18/18 10:00	06/26/18 14:43	1
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 14:43	1
Selenium	**0.00553**		0.00500		mg/L		06/18/18 10:00	06/26/18 14:43	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**504**		30.0		mg/L			06/11/18 09:27	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.563**		0.251	0.257	1.00	0.263	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.33**		0.435	0.452	1.00	0.580	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*93.8*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW13
Date Collected: 06/06/18 09:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-1
Matrix: Ground Water

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	1.89		0.502	0.520	5.00	0.580	pCi/L		07/08/18 16:53	1

Client Sample ID: MW4NC2

Date Collected: 06/06/18 10:08
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-2

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			06/14/18 13:41	5
Fluoride	<0.500		0.500		mg/L			06/14/18 13:41	5
Sulfate	**43.9**		5.00		mg/L			06/14/18 13:41	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 14:46	1
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 14:46	1
Barium	**0.329**		0.00200		mg/L		06/18/18 10:00	06/26/18 14:46	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:46	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 14:46	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 14:46	1
Calcium	**128**		0.200		mg/L		06/18/18 10:00	06/26/18 14:46	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 14:46	1
Cobalt	**0.000502**		0.000500		mg/L		06/18/18 10:00	06/26/18 14:46	1
Lead	**0.00154**		0.000500		mg/L		06/18/18 10:00	06/26/18 14:46	1
Lithium	**0.0292**		0.0100		mg/L		06/18/18 10:00	06/26/18 14:46	1
Molybdenum	**0.00490**		0.00200		mg/L		06/18/18 10:00	06/26/18 14:46	1
Selenium	**0.00754**		0.00500		mg/L		06/18/18 10:00	06/26/18 14:46	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**542**		30.0		mg/L			06/11/18 09:27	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.488**		0.217	0.222	1.00	0.219	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.41**		0.426	0.445	1.00	0.566	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*90.1*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW4NC2
Date Collected: 06/06/18 10:08
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-2
Matrix: Ground Water

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	1.90		0.478	0.497	5.00	0.566	pCi/L		07/08/18 16:53	1

Client Sample ID: MW11
Date Collected: 06/06/18 16:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-3
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.09**		5.00		mg/L			06/14/18 13:57	5
Fluoride	<0.500		0.500		mg/L			06/14/18 13:57	5
Sulfate	**145**		5.00		mg/L			06/14/18 13:57	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 14:58	1
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 14:58	1
Barium	**0.172**		0.00200		mg/L		06/18/18 10:00	06/26/18 14:58	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:58	1
Boron	**0.737**		0.200		mg/L		06/18/18 10:00	06/26/18 14:58	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 14:58	1
Calcium	**86.5**		0.200		mg/L		06/18/18 10:00	06/26/18 14:58	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 14:58	1
Cobalt	**0.000779**		0.000500		mg/L		06/18/18 10:00	06/26/18 14:58	1
Lead	**0.00118**		0.000500		mg/L		06/18/18 10:00	06/26/18 14:58	1
Lithium	**0.0123**		0.0100		mg/L		06/18/18 10:00	06/26/18 14:58	1
Molybdenum	**0.00996**		0.00200		mg/L		06/18/18 10:00	06/26/18 14:58	1
Selenium	**0.00710**		0.00500		mg/L		06/18/18 10:00	06/26/18 14:58	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**428**		30.0		mg/L			06/11/18 11:45	1

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	0.128	0.129	1.00	0.192	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.352	U	0.287	0.288	1.00	0.458	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.0*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*90.5*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW11
Date Collected: 06/06/18 16:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-3
Matrix: Ground Water

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	0.494		0.314	0.316	5.00	0.458	pCi/L		07/08/18 16:53	1

Client Sample ID: MW3

Date Collected: 06/06/18 18:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12.5**		10.0		mg/L			06/14/18 14:13	10
Fluoride	<0.500		0.500		mg/L			06/14/18 14:28	5
Sulfate	**324**		10.0		mg/L			06/14/18 14:13	10

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 15:14	1
Arsenic	**0.0412**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:14	1
Barium	**0.128**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:14	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:14	1
Boron	**2.60**		0.200		mg/L		06/18/18 10:00	06/26/18 15:14	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:14	1
Calcium	**155**		0.200		mg/L		06/18/18 10:00	06/26/18 15:14	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:14	1
Cobalt	**0.00219**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:14	1
Lead	**0.00296**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:14	1
Lithium	**0.0325**		0.0100		mg/L		06/18/18 10:00	06/26/18 15:14	1
Molybdenum	**0.00206**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:14	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:14	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:14	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**948**		60.0		mg/L			06/11/18 11:45	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0932	U	0.136	0.136	1.00	0.232	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.829**		0.347	0.355	1.00	0.489	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.2*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*92.0*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW3
Date Collected: 06/06/18 18:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-4
Matrix: Ground Water

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	0.922		0.373	0.380	5.00	0.489	pCi/L		07/08/18 16:53	1

Client Sample ID: MW4

Date Collected: 06/06/18 17:32
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-5

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			06/14/18 14:59	5
Fluoride	<0.500		0.500		mg/L			06/14/18 14:59	5
Sulfate	**294**		10.0		mg/L			06/14/18 14:44	10

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 15:17	1
Arsenic	**0.00821**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:17	1
Barium	**0.129**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:17	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:17	1
Boron	**1.45**		0.200		mg/L		06/18/18 10:00	06/26/18 15:17	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:17	1
Calcium	**145**		0.200		mg/L		06/18/18 10:00	06/26/18 15:17	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:17	1
Cobalt	**0.000636**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:17	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:17	1
Lithium	**0.0100**		0.0100		mg/L		06/18/18 10:00	06/26/18 15:17	1
Molybdenum	**0.0422**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:17	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:17	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:17	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**822**		30.0		mg/L			06/11/18 11:45	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.237**		0.145	0.146	1.00	0.183	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.7*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.340	U	0.233	0.235	1.00	0.360	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.7*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*91.2*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW4
Date Collected: 06/06/18 17:32
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-5
Matrix: Ground Water

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	0.577		0.274	0.277	5.00	0.360	pCi/L		07/08/18 16:53	1

Client Sample ID: MW9

Date Collected: 06/06/18 18:52
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-6

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			06/14/18 15:30	5
Fluoride	**0.732**		0.500		mg/L			06/14/18 15:30	5
Sulfate	**221**		5.00		mg/L			06/14/18 15:30	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 15:20	1
Arsenic	**0.0114**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:20	1
Barium	**0.111**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:20	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:20	1
Boron	**2.45**		0.200		mg/L		06/18/18 10:00	06/26/18 15:20	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:20	1
Calcium	**149**		0.200		mg/L		06/18/18 10:00	06/26/18 15:20	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:20	1
Cobalt	**0.00109**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:20	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:20	1
Lithium	**0.0189**		0.0100		mg/L		06/18/18 10:00	06/26/18 15:20	1
Molybdenum	**0.0474**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:20	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:20	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:20	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**708**		30.0		mg/L			06/11/18 11:45	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.163	U	0.125	0.125	1.00	0.174	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.3*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.664**		0.270	0.277	1.00	0.382	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.3*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*90.5*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW9
Date Collected: 06/06/18 18:52
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-6
Matrix: Ground Water

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	0.827		0.298	0.304	5.00	0.382	pCi/L		07/08/18 16:53	1

Client Sample ID: MW2

Date Collected: 06/06/18 16:59
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-7

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			06/14/18 15:46	5
Fluoride	<0.500		0.500		mg/L			06/14/18 15:46	5
Sulfate	**48.3**		5.00		mg/L			06/14/18 15:46	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 15:23	1
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 15:23	1
Barium	**0.122**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:23	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:23	1
Boron	**0.270**		0.200		mg/L		06/18/18 10:00	06/26/18 15:23	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:23	1
Calcium	**88.8**		0.200		mg/L		06/18/18 10:00	06/26/18 15:23	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:23	1
Cobalt	**0.00143**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:23	1
Lead	**0.000713**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:23	1
Lithium	<0.0100		0.0100		mg/L		06/18/18 10:00	06/26/18 15:23	1
Molybdenum	**0.0711**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:23	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:23	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:23	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**344**		30.0		mg/L			06/11/18 11:45	1

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	U	0.162	0.162	1.00	0.253	pCi/L	06/14/18 09:54	07/06/18 20:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.6*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:06*	*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	U	0.341	0.343	1.00	0.536	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.6*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*88.2*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW2
Date Collected: 06/06/18 16:59
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-7
Matrix: Ground Water

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	0.615		0.378	0.379	5.00	0.536	pCi/L		07/08/18 16:53	1

Client Sample ID: DUP

Date Collected: 06/06/18 00:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-8

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.03**		5.00		mg/L			06/14/18 16:49	5
Fluoride	<0.500		0.500		mg/L			06/14/18 16:49	5
Sulfate	**307**		10.0		mg/L			06/14/18 16:33	10

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 15:26	1
Arsenic	**0.00708**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:26	1
Barium	**0.124**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:26	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:26	1
Boron	**1.40**		0.200		mg/L		06/18/18 10:00	06/26/18 15:26	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:26	1
Calcium	**141**		0.200		mg/L		06/18/18 10:00	06/26/18 15:26	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:26	1
Cobalt	**0.000519**		0.000500		mg/L		06/18/18 10:00	06/26/18 15:26	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 15:26	1
Lithium	<0.0100		0.0100		mg/L		06/18/18 10:00	06/26/18 15:26	1
Molybdenum	**0.0429**		0.00200		mg/L		06/18/18 10:00	06/26/18 15:26	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 15:26	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 15:26	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**722**		30.0		mg/L			06/11/18 11:45	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.225**		0.136	0.137	1.00	0.168	pCi/L	06/14/18 09:54	07/06/18 20:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:07*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0833	U	0.207	0.207	1.00	0.357	pCi/L	06/14/18 10:34	07/05/18 13:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*
Y Carrier	*93.5*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:56*	*1*

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: DUP
Date Collected: 06/06/18 00:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-8
Matrix: Ground Water

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	0.308	U	0.248	0.248	5.00	0.357	pCi/L		07/08/18 16:53	1

Definitions/Glossary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Qualifiers

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.

Rad

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-206685/3
Matrix: Water
Analysis Batch: 206685

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			06/14/18 11:27	1
Fluoride	<0.100		0.100		mg/L			06/14/18 11:27	1
Sulfate	<1.00		1.00		mg/L			06/14/18 11:27	1

Lab Sample ID: LCS 310-206685/4
Matrix: Water
Analysis Batch: 206685

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	7.532		mg/L		100	90 - 110
Fluoride	1.50	1.527		mg/L		102	90 - 110
Sulfate	7.50	7.609		mg/L		101	90 - 110

Lab Sample ID: 310-132091-1 MS
Matrix: Ground Water
Analysis Batch: 206685

Client Sample ID: MW13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.6		25.0	37.09		mg/L		98	80 - 120
Fluoride	<0.500		5.00	4.990		mg/L		100	80 - 120
Sulfate	70.4		25.0	94.33		mg/L		96	80 - 120

Lab Sample ID: 310-132091-1 MSD
Matrix: Ground Water
Analysis Batch: 206685

Client Sample ID: MW13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.6		25.0	37.55		mg/L		100	80 - 120	1	15
Fluoride	<0.500		5.00	5.589		mg/L		112	80 - 120	11	15
Sulfate	70.4		25.0	95.43		mg/L		100	80 - 120	1	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-206582/1-A
Matrix: Water
Analysis Batch: 207740

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 206582

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 14:37	1
Arsenic	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 14:37	1
Barium	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 14:37	1
Beryllium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:37	1
Boron	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 14:37	1
Cadmium	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 14:37	1
Calcium	<0.200		0.200		mg/L		06/18/18 10:00	06/26/18 14:37	1
Chromium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 14:37	1
Cobalt	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 14:37	1
Lead	<0.000500		0.000500		mg/L		06/18/18 10:00	06/26/18 14:37	1
Lithium	<0.0100		0.0100		mg/L		06/18/18 10:00	06/26/18 14:37	1

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

Lab Sample ID: MB 310-206582/1-A
Matrix: Water
Analysis Batch: 207740

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 206582

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.00200		0.00200		mg/L		06/18/18 10:00	06/26/18 14:37	1
Selenium	<0.00500		0.00500		mg/L		06/18/18 10:00	06/26/18 14:37	1
Thallium	<0.00100		0.00100		mg/L		06/18/18 10:00	06/26/18 14:37	1

Lab Sample ID: LCS 310-206582/2-A
Matrix: Water
Analysis Batch: 207740

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 206582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02071		mg/L		104	80 - 120
Arsenic	0.0400	0.03875		mg/L		97	80 - 120
Barium	0.0400	0.04256		mg/L		106	80 - 120
Beryllium	0.0200	0.02281		mg/L		114	80 - 120
Boron	0.880	0.8984		mg/L		102	80 - 120
Cadmium	0.0200	0.02170		mg/L		108	80 - 120
Calcium	2.00	2.049		mg/L		102	80 - 120
Chromium	0.0400	0.04340		mg/L		108	80 - 120
Cobalt	0.0200	0.02132		mg/L		107	80 - 120
Lead	0.0200	0.02174		mg/L		109	80 - 120
Lithium	0.100	0.09872		mg/L		99	80 - 120
Molybdenum	0.0400	0.04197		mg/L		105	80 - 120
Selenium	0.0400	0.03824		mg/L		96	80 - 120
Thallium	0.0160	0.01748		mg/L		109	80 - 120

Lab Sample ID: 310-132091-3 MS
Matrix: Ground Water
Analysis Batch: 207740

Client Sample ID: MW11
Prep Type: Total/NA
Prep Batch: 206582

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.00100		0.0200	0.02044		mg/L		102	75 - 125
Arsenic	<0.00200		0.0400	0.04201		mg/L		100	75 - 125
Barium	0.172		0.0400	0.2146	4	mg/L		107	75 - 125
Beryllium	<0.00100		0.0200	0.02195		mg/L		110	75 - 125
Boron	0.737		0.880	1.638		mg/L		102	75 - 125
Cadmium	<0.000500		0.0200	0.02169		mg/L		108	75 - 125
Calcium	86.5		2.00	87.92	4	mg/L		70	75 - 125
Chromium	<0.00500		0.0400	0.04330		mg/L		106	75 - 125
Cobalt	0.000779		0.0200	0.02163		mg/L		104	75 - 125
Lead	0.00118		0.0200	0.02290		mg/L		109	75 - 125
Lithium	0.0123		0.100	0.1038		mg/L		91	75 - 125
Molybdenum	0.00996		0.0400	0.05269		mg/L		107	75 - 125
Selenium	0.00710		0.0400	0.04550		mg/L		96	75 - 125
Thallium	<0.00100		0.0160	0.01704		mg/L		107	75 - 125

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

Lab Sample ID: 310-132091-3 MSD
Matrix: Ground Water
Analysis Batch: 207740

Client Sample ID: MW11
Prep Type: Total/NA
Prep Batch: 206582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.00100		0.0200	0.02090		mg/L		105	75 - 125	2	20
Arsenic	<0.00200		0.0400	0.04233		mg/L		101	75 - 125	1	20
Barium	0.172		0.0400	0.2192	4	mg/L		119	75 - 125	2	20
Beryllium	<0.00100		0.0200	0.02178		mg/L		109	75 - 125	1	20
Boron	0.737		0.880	1.671		mg/L		106	75 - 125	2	20
Cadmium	<0.000500		0.0200	0.02187		mg/L		109	75 - 125	1	20
Calcium	86.5		2.00	87.84	4	mg/L		66	75 - 125	0	20
Chromium	<0.00500		0.0400	0.04508		mg/L		110	75 - 125	4	20
Cobalt	0.000779		0.0200	0.02190		mg/L		106	75 - 125	1	20
Lead	0.00118		0.0200	0.02333		mg/L		111	75 - 125	2	20
Lithium	0.0123		0.100	0.1043		mg/L		92	75 - 125	1	20
Molybdenum	0.00996		0.0400	0.05391		mg/L		110	75 - 125	2	20
Selenium	0.00710		0.0400	0.04621		mg/L		98	75 - 125	2	20
Thallium	<0.00100		0.0160	0.01726		mg/L		108	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-206100/1-A
Matrix: Water
Analysis Batch: 206448

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 206100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		06/12/18 10:00	06/13/18 12:26	1

Lab Sample ID: LCS 310-206100/2-A
Matrix: Water
Analysis Batch: 206448

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 206100

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001638		mg/L		98	80 - 120

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

Lab Sample ID: MB 310-206090/1
Matrix: Water
Analysis Batch: 206090

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			06/11/18 09:27	1

Lab Sample ID: LCS 310-206090/2
Matrix: Water
Analysis Batch: 206090

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	1024		mg/L		102	90 - 110

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

Lab Sample ID: MB 310-206117/1
Matrix: Water
Analysis Batch: 206117

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			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 Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	966.0		mg/L		97	90 - 110

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-370361/21-A
Matrix: Water
Analysis Batch: 374349

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370361

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.08753	U	0.109	0.109	1.00	0.178	pCi/L	06/14/18 09:54	07/06/18 20:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*06/14/18 09:54*	*07/06/18 20:02*	*1*

Lab Sample ID: LCS 160-370361/1-A
Matrix: Water
Analysis Batch: 374218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370361

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	10.33		1.19	1.00	0.199	pCi/L	88	68 - 137

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*

Lab Sample ID: LCSD 160-370361/2-A
Matrix: Water
Analysis Batch: 374349

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 370361

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.8	11.00		1.27	1.00	0.166	pCi/L	93	68 - 137	0.27	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-370435/21-A
Matrix: Water
Analysis Batch: 374200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370435

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1112	U	0.224	0.225	1.00	0.382	pCi/L	06/14/18 10:34	07/05/18 13:57	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:57*	*1*
Y Carrier	*92.7*		*40 - 110*	*06/14/18 10:34*	*07/05/18 13:57*	*1*

Lab Sample ID: LCS 160-370435/1-A
Matrix: Water
Analysis Batch: 374195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370435

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.17	9.740		1.10	1.00	0.297	pCi/L	119	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*40 - 110*
Y Carrier	*91.2*		*40 - 110*

Lab Sample ID: LCSD 160-370435/2-A
Matrix: Water
Analysis Batch: 374195

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 370435

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.17	9.392		1.06	1.00	0.323	pCi/L	115	56 - 140	0.16	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*
Y Carrier	*91.2*		*40 - 110*

HPLC/IC

Analysis Batch: 206685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	9056A	
310-132091-2	MW4NC2	Total/NA	Ground Water	9056A	
310-132091-3	MW11	Total/NA	Ground Water	9056A	
310-132091-4	MW3	Total/NA	Ground Water	9056A	
310-132091-4	MW3	Total/NA	Ground Water	9056A	
310-132091-5	MW4	Total/NA	Ground Water	9056A	
310-132091-5	MW4	Total/NA	Ground Water	9056A	
310-132091-6	MW9	Total/NA	Ground Water	9056A	
310-132091-7	MW2	Total/NA	Ground Water	9056A	
310-132091-8	DUP	Total/NA	Ground Water	9056A	
310-132091-8	DUP	Total/NA	Ground Water	9056A	
MB 310-206685/3	Method Blank	Total/NA	Water	9056A	
LCS 310-206685/4	Lab Control Sample	Total/NA	Water	9056A	
310-132091-1 MS	MW13	Total/NA	Ground Water	9056A	
310-132091-1 MSD	MW13	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 206100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	7470A	
310-132091-2	MW4NC2	Total/NA	Ground Water	7470A	
310-132091-3	MW11	Total/NA	Ground Water	7470A	
310-132091-4	MW3	Total/NA	Ground Water	7470A	
310-132091-5	MW4	Total/NA	Ground Water	7470A	
310-132091-6	MW9	Total/NA	Ground Water	7470A	
310-132091-7	MW2	Total/NA	Ground Water	7470A	
310-132091-8	DUP	Total/NA	Ground Water	7470A	
MB 310-206100/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-206100/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 206448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	7470A	206100
310-132091-2	MW4NC2	Total/NA	Ground Water	7470A	206100
310-132091-3	MW11	Total/NA	Ground Water	7470A	206100
310-132091-4	MW3	Total/NA	Ground Water	7470A	206100
310-132091-5	MW4	Total/NA	Ground Water	7470A	206100
310-132091-6	MW9	Total/NA	Ground Water	7470A	206100
310-132091-7	MW2	Total/NA	Ground Water	7470A	206100
310-132091-8	DUP	Total/NA	Ground Water	7470A	206100
MB 310-206100/1-A	Method Blank	Total/NA	Water	7470A	206100
LCS 310-206100/2-A	Lab Control Sample	Total/NA	Water	7470A	206100

Prep Batch: 206582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	3010A	
310-132091-2	MW4NC2	Total/NA	Ground Water	3010A	
310-132091-3	MW11	Total/NA	Ground Water	3010A	
310-132091-4	MW3	Total/NA	Ground Water	3010A	

Metals (Continued)

Prep Batch: 206582 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-5	MW4	Total/NA	Ground Water	3010A	
310-132091-6	MW9	Total/NA	Ground Water	3010A	
310-132091-7	MW2	Total/NA	Ground Water	3010A	
310-132091-8	DUP	Total/NA	Ground Water	3010A	
MB 310-206582/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-206582/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-132091-3 MS	MW11	Total/NA	Ground Water	3010A	
310-132091-3 MSD	MW11	Total/NA	Ground Water	3010A	

Analysis Batch: 207740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	6020A	206582
310-132091-2	MW4NC2	Total/NA	Ground Water	6020A	206582
310-132091-3	MW11	Total/NA	Ground Water	6020A	206582
310-132091-4	MW3	Total/NA	Ground Water	6020A	206582
310-132091-5	MW4	Total/NA	Ground Water	6020A	206582
310-132091-6	MW9	Total/NA	Ground Water	6020A	206582
310-132091-7	MW2	Total/NA	Ground Water	6020A	206582
310-132091-8	DUP	Total/NA	Ground Water	6020A	206582
MB 310-206582/1-A	Method Blank	Total/NA	Water	6020A	206582
LCS 310-206582/2-A	Lab Control Sample	Total/NA	Water	6020A	206582
310-132091-3 MS	MW11	Total/NA	Ground Water	6020A	206582
310-132091-3 MSD	MW11	Total/NA	Ground Water	6020A	206582

General Chemistry

Analysis Batch: 206090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	SM 2540C	
310-132091-2	MW4NC2	Total/NA	Ground Water	SM 2540C	
MB 310-206090/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-206090/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 206117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-3	MW11	Total/NA	Ground Water	SM 2540C	
310-132091-4	MW3	Total/NA	Ground Water	SM 2540C	
310-132091-5	MW4	Total/NA	Ground Water	SM 2540C	
310-132091-6	MW9	Total/NA	Ground Water	SM 2540C	
310-132091-7	MW2	Total/NA	Ground Water	SM 2540C	
310-132091-8	DUP	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	

Rad

Prep Batch: 370361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	PrecSep-21	
310-132091-2	MW4NC2	Total/NA	Ground Water	PrecSep-21	

Rad (Continued)

Prep Batch: 370361 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-3	MW11	Total/NA	Ground Water	PrecSep-21	
310-132091-4	MW3	Total/NA	Ground Water	PrecSep-21	
310-132091-5	MW4	Total/NA	Ground Water	PrecSep-21	
310-132091-6	MW9	Total/NA	Ground Water	PrecSep-21	
310-132091-7	MW2	Total/NA	Ground Water	PrecSep-21	
310-132091-8	DUP	Total/NA	Ground Water	PrecSep-21	
MB 160-370361/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-370361/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-370361/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 370435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-132091-1	MW13	Total/NA	Ground Water	PrecSep_0	
310-132091-2	MW4NC2	Total/NA	Ground Water	PrecSep_0	
310-132091-3	MW11	Total/NA	Ground Water	PrecSep_0	
310-132091-4	MW3	Total/NA	Ground Water	PrecSep_0	
310-132091-5	MW4	Total/NA	Ground Water	PrecSep_0	
310-132091-6	MW9	Total/NA	Ground Water	PrecSep_0	
310-132091-7	MW2	Total/NA	Ground Water	PrecSep_0	
310-132091-8	DUP	Total/NA	Ground Water	PrecSep_0	
MB 160-370435/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-370435/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-370435/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW13

Date Collected: 06/06/18 09:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	206685	06/14/18 11:58	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 14:43	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:29	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206090	06/11/18 09:27	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Client Sample ID: MW4NC2

Date Collected: 06/06/18 10:08
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	206685	06/14/18 13:41	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 14:46	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:31	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206090	06/11/18 09:27	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Client Sample ID: MW11

Date Collected: 06/06/18 16:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	206685	06/14/18 13:57	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 14:58	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:33	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW11

Date Collected: 06/06/18 16:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Client Sample ID: MW3

Date Collected: 06/06/18 18:21
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	206685	06/14/18 14:13	HED	TAL CF
Total/NA	Analysis	9056A		5	206685	06/14/18 14:28	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 15:14	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:34	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Client Sample ID: MW4

Date Collected: 06/06/18 17:32
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	206685	06/14/18 14:44	HED	TAL CF
Total/NA	Analysis	9056A		5	206685	06/14/18 14:59	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 15:17	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:36	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: MW9

Date Collected: 06/06/18 18:52
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	206685	06/14/18 15:30	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 15:20	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:37	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Client Sample ID: MW2

Date Collected: 06/06/18 16:59
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	206685	06/14/18 15:46	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 15:23	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:39	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL
Total/NA	Analysis	9315		1	374218	07/06/18 20:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Client Sample ID: DUP

Date Collected: 06/06/18 00:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	206685	06/14/18 16:33	HED	TAL CF
Total/NA	Analysis	9056A		5	206685	06/14/18 16:49	HED	TAL CF
Total/NA	Prep	3010A			206582	06/18/18 10:00	CJT	TAL CF
Total/NA	Analysis	6020A		1	207740	06/26/18 15:26	SAD	TAL CF
Total/NA	Prep	7470A			206100	06/12/18 10:00	JNR	TAL CF
Total/NA	Analysis	7470A		1	206448	06/13/18 12:40	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	206117	06/11/18 11:45	SAS	TAL CF
Total/NA	Prep	PrecSep-21			370361	06/14/18 09:54	JLC	TAL SL

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

Client Sample ID: DUP

Date Collected: 06/06/18 00:00
Date Received: 06/08/18 09:30

Lab Sample ID: 310-132091-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1	374218	07/06/18 20:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			370435	06/14/18 10:34	JLC	TAL SL
Total/NA	Analysis	9320		1	374200	07/05/18 13:56	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	374406	07/08/18 16:53	RTM	TAL SL

Laboratory References:

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

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: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

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

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: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

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
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
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None
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.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-132091 Chain of Custody

Cooler/Sample Receipt and Temperature Log

Client Information

Client: Omaha Public Power

City/State: Omaha NE | Project: Nebraska City Unit 1 Landfill CCR

Receipt Information

Date/Time Received: 06/8/18 0930 | Received By: LAB

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:	
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler # 1 of 2	
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact?	☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler? ↓	

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.4 | Corrected Temp (°C): 2.4

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Des Moines
310503

Cooler/Sample Receipt and Temperature

Client Information

Client: Omaha Public Power

City/State: Omaha NE | Project: Nebraska City Unit 1 Landfill CCR

Receipt Information

Date/Time Received: 6/8/18 0930 | Received By: LAB

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 2
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.6 | Corrected Temp (°C): 1.6

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

#31078

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

Client Information	Sampler:	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Bryan Lorence	Phone:	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: Omaha Public Power District				Job #:
Address: 444 South 16th Street Mall 9E/EP1	Due Date Requested:			
City: Omaha	TAT Requested (days):			
State, Zip: NE, 68102-2247				
Phone: 402-636-2515(Tel)	PO #:			
Email: balorenc@oppd.com	WO #:			
Project Name: Nebraska City Unit 1 Landfill CCR	TestAmerica Project #: 31007558			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Combined Ra226 and Ra228	6020A CCR List, 7470A Mercury	2540C TDS, 9056A Chloride, Fluoride, Sulfate													Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N														
MW13	6/6/2018	9:00	G	GW			X	X	X														Refer to NCTL report
MW4NC2	6/6/2018	10:08	G	GW			X	X	X														" " " "
MW11	6/6/2018	16:21	G	GW			X	X	X														
MW3	6/6/2018	18:21	G	GW			X	X	X														
MW4	6/6/2018	17:32	G	GW			X	X	X														
MW9	6/6/2018	18:52	G	GW			X	X	X														
MW2	6/6/2018	16:54	G	GW			X	X	X														
DUP			G	GW			X	X	X														

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: DRV	Date/Time: 6/7/2018 1300	Company: OPPD	Received by: MWTW
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Date/Time: 6/8/18 0930	Company: TA-CF		
Date/Time:	Company:		
Date/Time:	Company:		

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW13	310-132091-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW13	310-132091-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW13	310-132091-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4NC2	310-132091-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW4NC2	310-132091-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4NC2	310-132091-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW11	310-132091-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW11	310-132091-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW11	310-132091-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW3	310-132091-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW3	310-132091-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW3	310-132091-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4	310-132091-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW4	310-132091-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW4	310-132091-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-132091-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW9	310-132091-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW9	310-132091-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-132091-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
MW2	310-132091-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
MW2	310-132091-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP	310-132091-A-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP	310-132091-C-8	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP	310-132091-D-8	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-132091-1

Login Number: 132091
List Number: 1
Creator: Hummel, Matt R

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.	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: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

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)
310-132091-1	MW13	80.8
310-132091-2	MW4NC2	93.8
310-132091-3	MW11	95.0
310-132091-4	MW3	93.2
310-132091-5	MW4	94.7
310-132091-6	MW9	97.3
310-132091-7	MW2	95.6
310-132091-8	DUP	97.6

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 160-370361/1-A	Lab Control Sample	101
LCSD 160-370361/2-A	Lab Control Sample Dup	103
MB 160-370361/21-A	Method Blank	103

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)
310-132091-1	MW13	80.8	93.8
310-132091-2	MW4NC2	93.8	90.1
310-132091-3	MW11	95.0	90.5
310-132091-4	MW3	93.2	92.0
310-132091-5	MW4	94.7	91.2
310-132091-6	MW9	97.3	90.5
310-132091-7	MW2	95.6	88.2
310-132091-8	DUP	97.6	93.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Tracer/Carrier Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-132091-1

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 160-370435/1-A	Lab Control Sample	101	91.2								
LCSD 160-370435/2-A	Lab Control Sample Dup	103	91.2								
MB 160-370435/21-A	Method Blank	103	92.7								

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

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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: 310-141086-1
Client Project/Site: Nebraska City Unit 1
Revision: 1

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:
11/23/2018 3:35:06 PM

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

Table of Contents

Case Narrative

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Job ID: 310-141085-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-141085-1

Comments
No additional comments.

Receipt
The samples were received on 10/6/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.2º C, 0.8º C, 1.1º C, 1.4º C and 2.0º 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.

Job ID: 310-141086-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-141086-1

Comments
No additional comments.

Receipt
The samples were received on 10/6/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.2º C, 0.8º C, 1.1º C, 1.4º C and 2.0º C.

HPLC/IC
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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: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-141085-1	MW4/MW4NC2	Ground Water	10/03/18 09:48	10/06/18 13:48
310-141085-2	MW13	Ground Water	10/03/18 08:43	10/06/18 13:48
310-141086-1	MW2	Ground Water	10/04/18 11:32	10/06/18 09:30
310-141086-2	MW3	Ground Water	10/04/18 13:47	10/06/18 09:30
310-141086-3	MW4	Ground Water	10/04/18 12:14	10/06/18 09:30
310-141086-4	MW9	Ground Water	10/04/18 15:25	10/06/18 09:30
310-141086-5	MW11	Ground Water	10/04/18 10:59	10/06/18 09:30
310-141086-6	DUP 1	Ground Water	10/04/18 00:00	10/06/18 09:30
310-141086-7	DUP 2	Ground Water	10/04/18 00:00	10/06/18 09:30

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW4/MW4NC2 — Lab Sample ID: 310-141085-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	42.4		5.00		mg/L	5		9056A	Total/NA
Barium	0.321		0.00200		mg/L	1		6020A	Total/NA
Calcium	117		0.200		mg/L	1		6020A	Total/NA
Lead	0.000565		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0332		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00707		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	520		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW13 — Lab Sample ID: 310-141085-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14.1		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.738		0.500		mg/L	5		9056A	Total/NA
Sulfate	33.6		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00965		0.00200		mg/L	1		6020A	Total/NA
Barium	0.388		0.00200		mg/L	1		6020A	Total/NA
Calcium	87.3		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00191		0.000500		mg/L	1		6020A	Total/NA
Lead	0.00216		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0316		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	410		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW2 — Lab Sample ID: 310-141086-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	70.0		5.00		mg/L	5		9056A	Total/NA
Barium	0.153		0.00200		mg/L	1		6020A	Total/NA
Calcium	115		0.200		mg/L	1		6020A	Total/NA
Lead	0.000795		0.000500		mg/L	1		6020A	Total/NA
Molybdenum	0.0680		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	400		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW3 — Lab Sample ID: 310-141086-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.88		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.541		0.500		mg/L	5		9056A	Total/NA
Sulfate	432		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.0352		0.00200		mg/L	1		6020A	Total/NA
Barium	0.141		0.00200		mg/L	1		6020A	Total/NA
Boron	2.32		0.200		mg/L	1		6020A	Total/NA
Calcium	163		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00120		0.000500		mg/L	1		6020A	Total/NA
Lead	0.000833		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0326		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	944		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW4 — Lab Sample ID: 310-141086-3

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW4 (Continued) — Lab Sample ID: 310-141086-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.39		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.569		0.500		mg/L	5		9056A	Total/NA
Sulfate	263		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00641		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0975		0.00200		mg/L	1		6020A	Total/NA
Boron	1.15		0.200		mg/L	1		6020A	Total/NA
Calcium	115		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0135		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0233		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	580		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW9 — Lab Sample ID: 310-141086-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.56		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.777		0.500		mg/L	5		9056A	Total/NA
Sulfate	158		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0101		0.00200		mg/L	1		6020A	Total/NA
Barium	0.109		0.00200		mg/L	1		6020A	Total/NA
Boron	1.28		0.200		mg/L	1		6020A	Total/NA
Calcium	148		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00492		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0201		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0399		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	678		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW11 — Lab Sample ID: 310-141086-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.60		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.568		0.500		mg/L	5		9056A	Total/NA
Sulfate	148		5.00		mg/L	5		9056A	Total/NA
Barium	0.185		0.00200		mg/L	1		6020A	Total/NA
Boron	1.14		0.200		mg/L	1		6020A	Total/NA
Calcium	96.5		0.200		mg/L	1		6020A	Total/NA
Lithium	0.0197		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00883		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	486		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP 1 — Lab Sample ID: 310-141086-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.40		5.00		mg/L	5		9056A	Total/NA
Sulfate	448		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.0365		0.00200		mg/L	1		6020A	Total/NA
Barium	0.143		0.00200		mg/L	1		6020A	Total/NA
Boron	2.42		0.200		mg/L	1		6020A	Total/NA
Calcium	164		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00124		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0300		0.0100		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: DUP 1 (Continued) — Lab Sample ID: 310-141086-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	1020		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP 2 — Lab Sample ID: 310-141086-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.86		5.00		mg/L	5		9056A	Total/NA
Sulfate	160		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0101		0.00200		mg/L	1		6020A	Total/NA
Barium	0.109		0.00200		mg/L	1		6020A	Total/NA
Boron	1.29		0.200		mg/L	1		6020A	Total/NA
Calcium	145		0.200		mg/L	1		6020A	Total/NA
Cobalt	0.00488		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0181		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0402		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	724		30.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW4/MW4NC2
Date Collected: 10/03/18 09:48
Date Received: 10/06/18 13:48

Lab Sample ID: 310-141085-1
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			10/13/18 07:32	5
Fluoride	<0.500		0.500		mg/L			10/13/18 07:32	5
Sulfate	**42.4**		5.00		mg/L			10/13/18 07:32	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.321**		0.00200		mg/L		10/10/18 08:08	10/11/18 23:52	1
Boron	<0.200		0.200		mg/L		10/10/18 08:08	10/12/18 13:24	1
Calcium	**117**		0.200		mg/L		10/10/18 08:08	10/11/18 23:52	1
Cobalt	<0.000500		0.000500		mg/L		10/10/18 08:08	10/11/18 23:52	1
Lead	**0.000565**		0.000500		mg/L		10/10/18 08:08	10/11/18 23:52	1
Lithium	**0.0332**		0.0100		mg/L		10/10/18 08:08	10/12/18 13:24	1
Molybdenum	**0.00707**		0.00200		mg/L		10/10/18 08:08	10/11/18 23:52	1
Selenium	<0.00500		0.00500		mg/L		10/10/18 08:08	10/11/18 23:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**520**		30.0		mg/L			10/09/18 12:27	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW13
Date Collected: 10/03/18 08:43
Date Received: 10/06/18 13:48

Lab Sample ID: 310-141085-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.1		5.00		mg/L			10/13/18 07:48	5
Fluoride	0.738		0.500		mg/L			10/13/18 07:48	5
Sulfate	33.6		5.00		mg/L			10/13/18 07:48	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00965		0.00200		mg/L		10/10/18 08:08	10/11/18 23:55	1
Barium	0.388		0.00200		mg/L		10/10/18 08:08	10/11/18 23:55	1
Boron	<0.200		0.200		mg/L		10/10/18 08:08	10/12/18 13:27	1
Calcium	87.3		0.200		mg/L		10/10/18 08:08	10/11/18 23:55	1
Cobalt	0.00191		0.000500		mg/L		10/10/18 08:08	10/11/18 23:55	1
Lead	0.00216		0.000500		mg/L		10/10/18 08:08	10/11/18 23:55	1
Lithium	0.0316		0.0100		mg/L		10/10/18 08:08	10/12/18 13:27	1
Selenium	<0.00500		0.00500		mg/L		10/10/18 08:08	10/11/18 23:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	410		30.0		mg/L			10/09/18 12:27	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW2
Date Collected: 10/04/18 11:32
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-1
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			10/13/18 08:03	5
Fluoride	<0.500		0.500		mg/L			10/13/18 08:03	5
Sulfate	**70.0**		5.00		mg/L			10/13/18 08:03	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.153**		0.00200		mg/L		10/10/18 08:08	10/11/18 23:58	1
Boron	<0.200		0.200		mg/L		10/10/18 08:08	10/12/18 13:30	1
Calcium	**115**		0.200		mg/L		10/10/18 08:08	10/11/18 23:58	1
Cobalt	<0.000500		0.000500		mg/L		10/10/18 08:08	10/11/18 23:58	1
Lead	**0.000795**		0.000500		mg/L		10/10/18 08:08	10/11/18 23:58	1
Molybdenum	**0.0680**		0.00200		mg/L		10/10/18 08:08	10/11/18 23:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**400**		30.0		mg/L			10/09/18 12:27	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW3
Date Collected: 10/04/18 13:47
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-2
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.88		5.00		mg/L			10/13/18 08:19	5
Fluoride	0.541		0.500		mg/L			10/13/18 08:19	5
Sulfate	432		20.0		mg/L			10/13/18 08:36	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0352		0.00200		mg/L		10/10/18 08:08	10/12/18 00:02	1
Barium	0.141		0.00200		mg/L		10/10/18 08:08	10/12/18 00:02	1
Boron	2.32		0.200		mg/L		10/10/18 08:08	10/12/18 13:34	1
Calcium	163		0.200		mg/L		10/10/18 08:08	10/12/18 00:02	1
Cobalt	0.00120		0.000500		mg/L		10/10/18 08:08	10/12/18 00:02	1
Lead	0.000833		0.000500		mg/L		10/10/18 08:08	10/12/18 00:02	1
Lithium	0.0326		0.0100		mg/L		10/10/18 08:08	10/12/18 13:34	1
Molybdenum	<0.00200		0.00200		mg/L		10/10/18 08:08	10/12/18 00:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	944		60.0		mg/L			10/09/18 12:27	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW4
Date Collected: 10/04/18 12:14
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-3
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.39		5.00		mg/L			10/13/18 09:25	5
Fluoride	0.569		0.500		mg/L			10/13/18 09:25	5
Sulfate	263		20.0		mg/L			10/13/18 09:41	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00641		0.00200		mg/L		10/10/18 08:08	10/12/18 00:05	1
Barium	0.0975		0.00200		mg/L		10/10/18 08:08	10/12/18 00:05	1
Boron	1.15		0.200		mg/L		10/10/18 08:08	10/12/18 13:37	1
Calcium	115		0.200		mg/L		10/10/18 08:08	10/12/18 00:05	1
Cobalt	<0.000500		0.000500		mg/L		10/10/18 08:08	10/12/18 00:05	1
Lithium	0.0135		0.0100		mg/L		10/10/18 08:08	10/12/18 13:37	1
Molybdenum	0.0233		0.00200		mg/L		10/10/18 08:08	10/12/18 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	580		30.0		mg/L			10/09/18 12:27	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW9
Date Collected: 10/04/18 15:25
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-4
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.56		5.00		mg/L			10/13/18 09:58	5
Fluoride	0.777		0.500		mg/L			10/13/18 09:58	5
Sulfate	158		5.00		mg/L			10/13/18 09:58	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0101		0.00200		mg/L		10/10/18 08:08	10/12/18 00:08	1
Barium	0.109		0.00200		mg/L		10/10/18 08:08	10/12/18 00:08	1
Boron	1.28		0.200		mg/L		10/10/18 08:08	10/12/18 13:40	1
Calcium	148		0.200		mg/L		10/10/18 08:08	10/12/18 00:08	1
Cobalt	0.00492		0.000500		mg/L		10/10/18 08:08	10/12/18 00:08	1
Lithium	0.0201		0.0100		mg/L		10/10/18 08:08	10/12/18 13:40	1
Molybdenum	0.0399		0.00200		mg/L		10/10/18 08:08	10/12/18 00:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	678		30.0		mg/L			10/09/18 12:27	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW11
Date Collected: 10/04/18 10:59
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-5
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.60		5.00		mg/L			10/13/18 10:14	5
Fluoride	0.568		0.500		mg/L			10/13/18 10:14	5
Sulfate	148		5.00		mg/L			10/13/18 10:14	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.185		0.00200		mg/L		10/10/18 08:08	10/12/18 00:11	1
Boron	1.14		0.200		mg/L		10/10/18 08:08	10/12/18 13:43	1
Calcium	96.5		0.200		mg/L		10/10/18 08:08	10/12/18 00:11	1
Cobalt	<0.000500		0.000500		mg/L		10/10/18 08:08	10/12/18 00:11	1
Lead	<0.000500		0.000500		mg/L		10/10/18 08:08	10/12/18 00:11	1
Lithium	0.0197		0.0100		mg/L		10/10/18 08:08	10/12/18 13:43	1
Molybdenum	0.00883		0.00200		mg/L		10/10/18 08:08	10/12/18 00:11	1
Selenium	<0.00500		0.00500		mg/L		10/10/18 08:08	10/12/18 00:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	486		30.0		mg/L			10/09/18 12:27	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: DUP 1

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-6

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.40**		5.00		mg/L			10/13/18 10:30	5
Fluoride	<0.500		0.500		mg/L			10/13/18 10:30	5
Sulfate	**448**		20.0		mg/L			10/13/18 10:47	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0365**		0.00200		mg/L		10/10/18 08:08	10/12/18 00:24	1
Barium	**0.143**		0.00200		mg/L		10/10/18 08:08	10/12/18 00:24	1
Boron	**2.42**		0.200		mg/L		10/10/18 08:08	10/12/18 13:56	1
Calcium	**164**		0.200		mg/L		10/10/18 08:08	10/12/18 00:24	1
Cobalt	**0.00124**		0.000500		mg/L		10/10/18 08:08	10/12/18 00:24	1
Lead	<0.000500		0.000500		mg/L		10/10/18 08:08	10/12/18 00:24	1
Lithium	**0.0300**		0.0100		mg/L		10/10/18 08:08	10/12/18 00:24	1
Molybdenum	<0.00200		0.00200		mg/L		10/10/18 08:08	10/12/18 00:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1020**		60.0		mg/L			10/09/18 12:27	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: DUP 2
Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-7
Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.86		5.00		mg/L			10/13/18 11:03	5
Fluoride	<0.500		0.500		mg/L			10/13/18 11:03	5
Sulfate	160		5.00		mg/L			10/13/18 11:03	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0101		0.00200		mg/L		10/10/18 08:08	10/12/18 00:27	1
Barium	0.109		0.00200		mg/L		10/10/18 08:08	10/12/18 00:27	1
Boron	1.29		0.200		mg/L		10/10/18 08:08	10/12/18 13:59	1
Calcium	145		0.200		mg/L		10/10/18 08:08	10/12/18 00:27	1
Cobalt	0.00488		0.000500		mg/L		10/10/18 08:08	10/12/18 00:27	1
Lithium	0.0181		0.0100		mg/L		10/10/18 08:08	10/12/18 00:27	1
Molybdenum	0.0402		0.00200		mg/L		10/10/18 08:08	10/12/18 00:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	724		30.0		mg/L			10/09/18 12:27	1

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)

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-219062/3
Matrix: Water
Analysis Batch: 219062

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			10/13/18 01:49	1
Fluoride	<0.100		0.100		mg/L			10/13/18 01:49	1
Sulfate	<1.00		1.00		mg/L			10/13/18 01:49	1

Lab Sample ID: LCS 310-219062/4
Matrix: Water
Analysis Batch: 219062

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	7.783		mg/L		104	90 - 110
Fluoride	1.50	1.609		mg/L		107	90 - 110
Sulfate	7.50	7.731		mg/L		103	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-218356/1-A
Matrix: Water
Analysis Batch: 218768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 218356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		10/10/18 08:08	10/11/18 22:37	1
Barium	<0.00200		0.00200		mg/L		10/10/18 08:08	10/11/18 22:37	1
Calcium	<0.200		0.200		mg/L		10/10/18 08:08	10/11/18 22:37	1
Cobalt	<0.000500		0.000500		mg/L		10/10/18 08:08	10/11/18 22:37	1
Lead	<0.000500		0.000500		mg/L		10/10/18 08:08	10/11/18 22:37	1
Lithium	<0.0100		0.0100		mg/L		10/10/18 08:08	10/11/18 22:37	1
Molybdenum	<0.00200		0.00200		mg/L		10/10/18 08:08	10/11/18 22:37	1
Selenium	<0.00500		0.00500		mg/L		10/10/18 08:08	10/11/18 22:37	1

Lab Sample ID: MB 310-218356/1-A
Matrix: Water
Analysis Batch: 218941

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 218356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.200		0.200		mg/L		10/10/18 08:08	10/12/18 12:34	1

Lab Sample ID: LCS 310-218356/2-A
Matrix: Water
Analysis Batch: 218768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 218356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.04127		mg/L		103	80 - 120
Barium	0.0400	0.04056		mg/L		101	80 - 120
Cadmium	0.0400	0.04082		mg/L		102	80 - 120
Calcium	4.00	4.001		mg/L		100	80 - 120
Chromium	0.0400	0.03949		mg/L		99	80 - 120
Cobalt	0.0400	0.03819		mg/L		95	80 - 120
Iron	4.00	4.072		mg/L		102	80 - 120
Lead	0.0400	0.03987		mg/L		100	80 - 120

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

Lab Sample ID: LCS 310-218356/2-A
Matrix: Water
Analysis Batch: 218768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 218356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.100	0.09387		mg/L		94	80 - 120
Molybdenum	0.0400	0.03999		mg/L		100	80 - 120
Silver	0.0400	0.03918		mg/L		98	80 - 120

Lab Sample ID: LCS 310-218356/2-A
Matrix: Water
Analysis Batch: 218941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 218356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.900	0.8644		mg/L		96	80 - 120

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

Lab Sample ID: MB 310-218417/1
Matrix: Water
Analysis Batch: 218417

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			10/09/18 12:27	1

Lab Sample ID: LCS 310-218417/2
Matrix: Water
Analysis Batch: 218417

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	978.0		mg/L		98	90 - 110

Lab Sample ID: 310-141086-2 DU
Matrix: Ground Water
Analysis Batch: 218417

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	944		944.0		mg/L		0	24

HPLC/IC

Analysis Batch: 219062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	9056A	
310-141085-2	MW13	Total/NA	Ground Water	9056A	
310-141086-1	MW2	Total/NA	Ground Water	9056A	
310-141086-2	MW3	Total/NA	Ground Water	9056A	
310-141086-2	MW3	Total/NA	Ground Water	9056A	
310-141086-3	MW4	Total/NA	Ground Water	9056A	
310-141086-3	MW4	Total/NA	Ground Water	9056A	
310-141086-4	MW9	Total/NA	Ground Water	9056A	
310-141086-5	MW11	Total/NA	Ground Water	9056A	
310-141086-6	DUP 1	Total/NA	Ground Water	9056A	
310-141086-6	DUP 1	Total/NA	Ground Water	9056A	
310-141086-7	DUP 2	Total/NA	Ground Water	9056A	
MB 310-219062/3	Method Blank	Total/NA	Water	9056A	
LCS 310-219062/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 218356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	3010A	
310-141085-2	MW13	Total/NA	Ground Water	3010A	
310-141086-1	MW2	Total/NA	Ground Water	3010A	
310-141086-2	MW3	Total/NA	Ground Water	3010A	
310-141086-3	MW4	Total/NA	Ground Water	3010A	
310-141086-4	MW9	Total/NA	Ground Water	3010A	
310-141086-5	MW11	Total/NA	Ground Water	3010A	
310-141086-6	DUP 1	Total/NA	Ground Water	3010A	
310-141086-7	DUP 2	Total/NA	Ground Water	3010A	
MB 310-218356/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-218356/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 218768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	6020A	218356
310-141085-2	MW13	Total/NA	Ground Water	6020A	218356
310-141086-1	MW2	Total/NA	Ground Water	6020A	218356
310-141086-2	MW3	Total/NA	Ground Water	6020A	218356
310-141086-3	MW4	Total/NA	Ground Water	6020A	218356
310-141086-4	MW9	Total/NA	Ground Water	6020A	218356
310-141086-5	MW11	Total/NA	Ground Water	6020A	218356
310-141086-6	DUP 1	Total/NA	Ground Water	6020A	218356
310-141086-7	DUP 2	Total/NA	Ground Water	6020A	218356
MB 310-218356/1-A	Method Blank	Total/NA	Water	6020A	218356
LCS 310-218356/2-A	Lab Control Sample	Total/NA	Water	6020A	218356

Analysis Batch: 218941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	6020A	218356
310-141085-2	MW13	Total/NA	Ground Water	6020A	218356
310-141086-1	MW2	Total/NA	Ground Water	6020A	218356

Metals (Continued)

Analysis Batch: 218941 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141086-2	MW3	Total/NA	Ground Water	6020A	218356
310-141086-3	MW4	Total/NA	Ground Water	6020A	218356
310-141086-4	MW9	Total/NA	Ground Water	6020A	218356
310-141086-5	MW11	Total/NA	Ground Water	6020A	218356
310-141086-6	DUP 1	Total/NA	Ground Water	6020A	218356
310-141086-7	DUP 2	Total/NA	Ground Water	6020A	218356
MB 310-218356/1-A	Method Blank	Total/NA	Water	6020A	218356
LCS 310-218356/2-A	Lab Control Sample	Total/NA	Water	6020A	218356

General Chemistry

Analysis Batch: 218417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	SM 2540C	
310-141085-2	MW13	Total/NA	Ground Water	SM 2540C	
310-141086-1	MW2	Total/NA	Ground Water	SM 2540C	
310-141086-2	MW3	Total/NA	Ground Water	SM 2540C	
310-141086-3	MW4	Total/NA	Ground Water	SM 2540C	
310-141086-4	MW9	Total/NA	Ground Water	SM 2540C	
310-141086-5	MW11	Total/NA	Ground Water	SM 2540C	
310-141086-6	DUP 1	Total/NA	Ground Water	SM 2540C	
310-141086-7	DUP 2	Total/NA	Ground Water	SM 2540C	
MB 310-218417/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-218417/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-141086-2 DU	MW3	Total/NA	Ground Water	SM 2540C	

Client Sample ID: MW4/MW4NC2

Lab Sample ID: 310-141085-1

Date Collected: 10/03/18 09:48

Matrix: Ground Water

Date Received: 10/06/18 13:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 07:32	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/11/18 23:52	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:24	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: MW13

Lab Sample ID: 310-141085-2

Date Collected: 10/03/18 08:43

Matrix: Ground Water

Date Received: 10/06/18 13:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 07:48	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/11/18 23:55	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:27	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: MW2

Lab Sample ID: 310-141086-1

Date Collected: 10/04/18 11:32

Matrix: Ground Water

Date Received: 10/06/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 08:03	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/11/18 23:58	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:30	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: MW3

Lab Sample ID: 310-141086-2

Date Collected: 10/04/18 13:47

Matrix: Ground Water

Date Received: 10/06/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 08:19	SAD	TAL CF
Total/NA	Analysis	9056A		20	219062	10/13/18 08:36	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/12/18 00:02	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:34	SAD	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: MW3
Date Collected: 10/04/18 13:47
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-2
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	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: MW4
Date Collected: 10/04/18 12:14
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 09:25	SAD	TAL CF
Total/NA	Analysis	9056A		20	219062	10/13/18 09:41	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/12/18 00:05	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:37	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: MW9
Date Collected: 10/04/18 15:25
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 09:58	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/12/18 00:08	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:40	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: MW11
Date Collected: 10/04/18 10:59
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 10:14	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/12/18 00:11	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

Client Sample ID: DUP 1

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 10:30	SAD	TAL CF
Total/NA	Analysis	9056A		20	219062	10/13/18 10:47	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/12/18 00:24	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:56	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	SAS	TAL CF

Client Sample ID: DUP 2

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	219062	10/13/18 11:03	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218768	10/12/18 00:27	SAD	TAL CF
Total/NA	Prep	3010A			218356	10/10/18 08:08	JNR	TAL CF
Total/NA	Analysis	6020A		1	218941	10/12/18 13:59	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	218417	10/09/18 12:27	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: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

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	12-31-18
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

Method Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-1

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-141086 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Station Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 01

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 5

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.2 | Corrected Temp (°C): 0.2

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Station Unit

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:	02
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler #	2 of 5
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact?	☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.0 | Corrected Temp (°C): 2.0

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:	03
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler #	3 of 5
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact?	☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.1 | Corrected Temp (°C): 1.1

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 04

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 4 of 5

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.4 | Corrected Temp (°C): 1.4

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 05

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 5 of 5

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.8 | Corrected Temp (°C): 0.8

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica Omaha SC
268

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	Phone: (402) 636-2515	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: Omaha Public Power District				Job #:

Address: 444 South 16th Street Mall 9E/EP1	Due Date Requested:
City: Omaha	TAT Requested (days):
State, Zip: NE, 68102-2247	
Phone: 402-636-2515	PO #:
Email: kkuhing@oppd.com	WO #:
Project Name: Nebraska City Station Unit 1 CCR / Landfill	TestAmerica Project #: 31007558
Site: Nebraska City Station Unit 1	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Combined Ra226 and Ra228	Total 6020A CCR List, see attached list	2540C TDS, 9056A Chloride, Fluoride, Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N		
MW2	10/4/18	11:32	G	W	N		X	X	X	4	See attached list for specific analysis.
MW3	10/4/18	13:47	G	W	N		X	X	X	4	See attached list for specific analysis.
MW4	10/4/18	12:14	G	W	N		X	X	X	4	See attached list for specific analysis.
MW4NC2	10/3/18	9:48	G	W	N		X	X	X	4	See attached list for specific analysis.
MW9	10/4/18	15:25	G	W	N		X	X	X	4	See attached list for specific analysis.
MW11	10/4/18	10:59	G	W	N		X	X	X	4	See attached list for specific analysis.
MW13	10/3/18	8:43	G	W	N		X	X	X	4	See attached list for specific analysis.
DUP1 (NCI)	10/4/18	---	G	W	N		X	X	X	4	See attached list for specific analysis.
DUP2 (NCI)	10/4/18	---	G	W	N		X	X	X	4	See attached list for specific analysis.

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kyle K. Uhing	10/5/18 1504	OPPD		10/5/18 1504	TestA
2		10/5/18 1700	TestA	Matt Tod	10/6/18 0930	TA-CF
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW2	310-141086-A-1	Plastic 250ml - with Nitric Acid	<2		
MW2	310-141086-C-1	Plastic 1 liter - Nitric Acid	<2		
MW2	310-141086-D-1	Plastic 1 liter - Nitric Acid	<2		
MW3	310-141086-A-2	Plastic 250ml - with Nitric Acid	<2		
MW3	310-141086-C-2	Plastic 1 liter - Nitric Acid	<2		
MW3	310-141086-D-2	Plastic 1 liter - Nitric Acid	<2		
MW4	310-141086-A-3	Plastic 250ml - with Nitric Acid	<2		
MW4	310-141086-C-3	Plastic 1 liter - Nitric Acid	<2		
MW4	310-141086-D-3	Plastic 1 liter - Nitric Acid	<2		
MW9	310-141086-A-4	Plastic 250ml - with Nitric Acid	<2		
MW9	310-141086-C-4	Plastic 1 liter - Nitric Acid	<2		
MW9	310-141086-D-4	Plastic 1 liter - Nitric Acid	<2		
MW11	310-141086-A-5	Plastic 250ml - with Nitric Acid	<2		
MW11	310-141086-C-5	Plastic 1 liter - Nitric Acid	<2		
MW11	310-141086-D-5	Plastic 1 liter - Nitric Acid	<2		
DUP 1	310-141086-A-6	Plastic 250ml - with Nitric Acid	<2		
DUP 1	310-141086-C-6	Plastic 1 liter - Nitric Acid	<2		
DUP 1	310-141086-D-6	Plastic 1 liter - Nitric Acid	<2		
DUP 2	310-141086-A-7	Plastic 250ml - with Nitric Acid	<2		
DUP 2	310-141086-C-7	Plastic 1 liter - Nitric Acid	<2		
DUP 2	310-141086-D-7	Plastic 1 liter - Nitric Acid	<2		

Groundwater Sampling October 2018

Nebraska City 1

CCR/Title 132 Landfill

MW13 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lead, lithium, selenium, radium 226+228

MW4NC2 – boron, calcium, chloride, fluoride, sulfate, TDS, barium, cobalt, lead, lithium, molybdenum, selenium, radium 226+228

MW11 – boron, calcium, chloride, fluoride, sulfate, TDS, barium, cobalt, lead, lithium, molybdenum, selenium, radium 226+228

MW2 – boron, calcium, chloride, fluoride, sulfate, TDS, barium, cobalt, lead, molybdenum, radium 226+228

MW4 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lithium, molybdenum, radium 226+228

MW3 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lead, lithium, molybdenum, radium 226+228

MW9 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lithium, molybdenum, radium 226+228

DUP1 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lead, lithium, molybdenum, radium 226+228

DUP2 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lithium, molybdenum, radium 226+228

New Monitoring Wells / CCR

MW14 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW16 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW17 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW5 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW6 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW6D – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-141086-1

Login Number: 141086
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.	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	

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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: 310-141086-2
Client Project/Site: Nebraska City Unit 1

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 5:31:34 PM

Shawn Hayes, Senior Project Manager
(319)229-8211
shawn.hayes@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.

Table of Contents

Case Narrative

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Job ID: 310-141085-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-141085-2

Comments
No additional comments.

Receipt
The samples were received on 10/6/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.2º C, 0.8º C, 1.1º C, 1.4º C and 2.0º C.

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

Job ID: 310-141086-2

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-141086-2

Comments
No additional comments.

Receipt
The samples were received on 10/6/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.2º C, 0.8º C, 1.1º C, 1.4º C and 2.0º C.

RAD
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: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-141085-1	MW4/MW4NC2	Ground Water	10/03/18 09:48	10/06/18 13:48
310-141085-2	MW13	Ground Water	10/03/18 08:43	10/06/18 13:48
310-141086-1	MW2	Ground Water	10/04/18 11:32	10/06/18 09:30
310-141086-2	MW3	Ground Water	10/04/18 13:47	10/06/18 09:30
310-141086-3	MW4	Ground Water	10/04/18 12:14	10/06/18 09:30
310-141086-4	MW9	Ground Water	10/04/18 15:25	10/06/18 09:30
310-141086-5	MW11	Ground Water	10/04/18 10:59	10/06/18 09:30
310-141086-6	DUP 1	Ground Water	10/04/18 00:00	10/06/18 09:30
310-141086-7	DUP 2	Ground Water	10/04/18 00:00	10/06/18 09:30

Client Sample ID: MW4/MW4NC2

Date Collected: 10/03/18 09:48
Date Received: 10/06/18 13:48

Lab Sample ID: 310-141085-1

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	0.389		0.127	0.132	1.00	0.112	pCi/L	10/11/18 11:13	11/04/18 09:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*10/11/18 11:13*	*11/04/18 09:35*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.741		0.264	0.273	1.00	0.358	pCi/L	10/11/18 11:43	10/31/18 10:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*105*		*40 - 110*	*10/11/18 11:43*	*10/31/18 10:04*	*1*
Y Carrier	*80.7*		*40 - 110*	*10/11/18 11:43*	*10/31/18 10:04*	*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	1.13		0.293	0.303	5.00	0.358	pCi/L		11/08/18 16:41	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Client Sample ID: MW13
Date Collected: 10/03/18 08:43
Date Received: 10/06/18 13:48

Lab Sample ID: 310-141085-2
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	0.539		0.179	0.185	1.00	0.152	pCi/L	10/11/18 11:13	11/04/18 09:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.1*		*40 - 110*	*10/11/18 11:13*	*11/04/18 09:36*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.08		0.395	0.407	1.00	0.542	pCi/L	10/11/18 11:43	10/31/18 10:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.1*		*40 - 110*	*10/11/18 11:43*	*10/31/18 10:04*	*1*
Y Carrier	*80.0*		*40 - 110*	*10/11/18 11:43*	*10/31/18 10:04*	*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	1.62		0.434	0.447	5.00	0.542	pCi/L		11/08/18 16:41	1

Client Sample ID: MW2

Date Collected: 10/04/18 11:32
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-1

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	0.330		0.111	0.115	1.00	0.0967	pCi/L	10/10/18 11:51	11/01/18 05:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.684		0.272	0.279	1.00	0.375	pCi/L	10/10/18 13:30	10/25/18 09:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*1*
Y Carrier	*80.0*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*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	1.01		0.294	0.302	5.00	0.375	pCi/L		11/08/18 16:41	1

Client Sample ID: MW3

Date Collected: 10/04/18 13:47
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-2

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	0.418		0.119	0.125	1.00	0.0882	pCi/L	10/10/18 11:51	11/01/18 05:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.3*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.698		0.261	0.269	1.00	0.356	pCi/L	10/10/18 13:30	10/25/18 09:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.3*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*1*
Y Carrier	*83.7*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*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	1.12		0.287	0.297	5.00	0.356	pCi/L		11/08/18 16:41	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Client Sample ID: MW4
Date Collected: 10/04/18 12:14
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-3
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	0.248		0.0945	0.0971	1.00	0.0860	pCi/L	10/10/18 11:51	11/01/18 05:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:57*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.554		0.257	0.262	1.00	0.370	pCi/L	10/10/18 13:30	10/25/18 09:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*1*
Y Carrier	*78.5*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*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	0.802		0.274	0.279	5.00	0.370	pCi/L		11/08/18 16:41	1

Client Sample ID: MW9
Date Collected: 10/04/18 15:25
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-4
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	0.278		0.101	0.104	1.00	0.0892	pCi/L	10/10/18 11:51	11/01/18 05:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.7*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.11		0.297	0.314	1.00	0.351	pCi/L	10/10/18 13:30	10/25/18 09:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.7*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*1*
Y Carrier	*78.5*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:46*	*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	1.39		0.314	0.331	5.00	0.351	pCi/L		11/08/18 16:41	1

Client Sample ID: MW11

Date Collected: 10/04/18 10:59
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-5

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	0.294		0.102	0.105	1.00	0.0898	pCi/L	10/10/18 11:51	11/01/18 05:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.664		0.260	0.267	1.00	0.358	pCi/L	10/10/18 13:30	10/25/18 09:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:47*	*1*
Y Carrier	*78.5*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:47*	*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	0.958		0.279	0.287	5.00	0.358	pCi/L		11/08/18 16:41	1

Client Sample ID: DUP 1

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-6

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	0.303		0.103	0.107	1.00	0.0875	pCi/L	10/10/18 11:51	11/01/18 05:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.5*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.573		0.249	0.255	1.00	0.349	pCi/L	10/10/18 13:30	10/25/18 09:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.5*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:47*	*1*
Y Carrier	*79.3*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:47*	*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	0.876		0.269	0.277	5.00	0.349	pCi/L		11/08/18 16:41	1

Client Sample ID: DUP 2

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-7

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	0.319		0.103	0.107	1.00	0.0788	pCi/L	10/10/18 11:51	11/01/18 05:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*10/10/18 11:51*	*11/01/18 05:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.907		0.265	0.278	1.00	0.324	pCi/L	10/10/18 13:30	10/25/18 09:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:47*	*1*
Y Carrier	*77.8*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:47*	*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	1.23		0.284	0.298	5.00	0.324	pCi/L		11/08/18 16:41	1

Qualifiers

Rad

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

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-394199/21-A
Matrix: Water
Analysis Batch: 398696

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394199

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1722		0.0772	0.0787	1.00	0.0729	pCi/L	10/10/18 11:51	11/01/18 06:00	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*10/10/18 11:51*	*11/01/18 06:00*	*1*

Lab Sample ID: LCS 160-394199/1-A
Matrix: Water
Analysis Batch: 398697

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394199

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	11.75		1.23	1.00	0.105	pCi/L	103	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*

Lab Sample ID: MB 160-394396/23-A
Matrix: Water
Analysis Batch: 399193

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394396

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1648		0.115	0.115	1.00	0.148	pCi/L	10/11/18 11:13	11/04/18 09:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*10/11/18 11:13*	*11/04/18 09:46*	*1*

Lab Sample ID: LCS 160-394396/1-A
Matrix: Water
Analysis Batch: 399190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394396

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	13.95		1.48	1.00	0.148	pCi/L	92	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-394218/21-A
Matrix: Water
Analysis Batch: 397303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394218

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3833	U	0.279	0.282	1.00	0.439	pCi/L	10/10/18 13:30	10/25/18 09:48	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:48*	*1*
Y Carrier	*72.5*		*40 - 110*	*10/10/18 13:30*	*10/25/18 09:48*	*1*

Lab Sample ID: LCS 160-394218/1-A
Matrix: Water
Analysis Batch: 397302

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394218

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			10.9	13.06		1.43	1.00	0.378	pCi/L	120	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*
Y Carrier	*87.9*		*40 - 110*

Lab Sample ID: MB 160-394403/23-A
Matrix: Water
Analysis Batch: 398411

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394403

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2625	U	0.295	0.296	1.00	0.484	pCi/L	10/11/18 11:43	10/31/18 10:06	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*10/11/18 11:43*	*10/31/18 10:06*	*1*
Y Carrier	*81.5*		*40 - 110*	*10/11/18 11:43*	*10/31/18 10:06*	*1*

Lab Sample ID: LCS 160-394403/1-A
Matrix: Water
Analysis Batch: 398411

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394403

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			14.4	15.33		1.70	1.00	0.469	pCi/L	106	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*
Y Carrier	*81.9*		*40 - 110*

Rad

Prep Batch: 394199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141086-1	MW2	Total/NA	Ground Water	PrecSep-21	
310-141086-2	MW3	Total/NA	Ground Water	PrecSep-21	
310-141086-3	MW4	Total/NA	Ground Water	PrecSep-21	
310-141086-4	MW9	Total/NA	Ground Water	PrecSep-21	
310-141086-5	MW11	Total/NA	Ground Water	PrecSep-21	
310-141086-6	DUP 1	Total/NA	Ground Water	PrecSep-21	
310-141086-7	DUP 2	Total/NA	Ground Water	PrecSep-21	
MB 160-394199/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-394199/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 394218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141086-1	MW2	Total/NA	Ground Water	PrecSep_0	
310-141086-2	MW3	Total/NA	Ground Water	PrecSep_0	
310-141086-3	MW4	Total/NA	Ground Water	PrecSep_0	
310-141086-4	MW9	Total/NA	Ground Water	PrecSep_0	
310-141086-5	MW11	Total/NA	Ground Water	PrecSep_0	
310-141086-6	DUP 1	Total/NA	Ground Water	PrecSep_0	
310-141086-7	DUP 2	Total/NA	Ground Water	PrecSep_0	
MB 160-394218/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-394218/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 394396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	PrecSep-21	
310-141085-2	MW13	Total/NA	Ground Water	PrecSep-21	
MB 160-394396/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-394396/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 394403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-141085-1	MW4/MW4NC2	Total/NA	Ground Water	PrecSep_0	
310-141085-2	MW13	Total/NA	Ground Water	PrecSep_0	
MB 160-394403/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-394403/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Client Sample ID: MW4/MW4NC2

Lab Sample ID: 310-141085-1

Date Collected: 10/03/18 09:48

Matrix: Ground Water

Date Received: 10/06/18 13:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394396	10/11/18 11:13	JLC	TAL SL
Total/NA	Analysis	9315		1	399190	11/04/18 09:35	MAR	TAL SL
Total/NA	Prep	PrecSep_0			394403	10/11/18 11:43	JLC	TAL SL
Total/NA	Analysis	9320		1	398411	10/31/18 10:04	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Client Sample ID: MW13

Lab Sample ID: 310-141085-2

Date Collected: 10/03/18 08:43

Matrix: Ground Water

Date Received: 10/06/18 13:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394396	10/11/18 11:13	JLC	TAL SL
Total/NA	Analysis	9315		1	399190	11/04/18 09:36	MAR	TAL SL
Total/NA	Prep	PrecSep_0			394403	10/11/18 11:43	JLC	TAL SL
Total/NA	Analysis	9320		1	398411	10/31/18 10:04	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Client Sample ID: MW2

Lab Sample ID: 310-141086-1

Date Collected: 10/04/18 11:32

Matrix: Ground Water

Date Received: 10/06/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Client Sample ID: MW3

Lab Sample ID: 310-141086-2

Date Collected: 10/04/18 13:47

Matrix: Ground Water

Date Received: 10/06/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Client Sample ID: MW4

Date Collected: 10/04/18 12:14
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Client Sample ID: MW9

Date Collected: 10/04/18 15:25
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398696	11/01/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Client Sample ID: MW11

Date Collected: 10/04/18 10:59
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398696	11/01/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Client Sample ID: DUP 1

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398696	11/01/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	RTM	TAL SL

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Client Sample ID: DUP 2

Date Collected: 10/04/18 00:00
Date Received: 10/06/18 09:30

Lab Sample ID: 310-141086-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398696	11/01/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397304	10/25/18 09:47	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	400041	11/08/18 16:41	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: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

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: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-141086 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Station Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 01

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 5

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.2 | Corrected Temp (°C): 0.2

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Station Unit

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID: 02
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 5
Cooler Custody Seals Present?	☒ Yes	☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.0 | Corrected Temp (°C): 2.0

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 03

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 3 of 5

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.1 | Corrected Temp (°C): 1.1

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:	04
Multiple Coolers?	☒ Yes ☐ No	*If yes:* Cooler #	4 of 5
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact?	☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact?	☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler?	↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.4 | Corrected Temp (°C): 1.4

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: Omaha NE | Project: NE City Unit 1

Receipt Information

Date/Time Received: 10/6/18 0930 | Received By: MRH

Delivery Type: ☐ UPS ☒ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID: 05

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 5 of 5

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☒ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: M | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.8 | Corrected Temp (°C): 0.8

• **Sample Container Temperature**

Container type(s) used:

Uncorrected Temp (°C): | Corrected Temp (°C):

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica Omaha SC
268

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	Phone: (402) 636-2515	E-Mail: shawn.hayes@testamericainc.com		Page:
Company: Omaha Public Power District				Job #:

Address: 444 South 16th Street Mall 9E/EP1	Due Date Requested:
City: Omaha	TAT Requested (days):
State, Zip: NE, 68102-2247	
Phone: 402-636-2515	PO #:
Email: kkuhing@oppd.com	WO #:
Project Name: Nebraska City Station Unit 1 CCR / Landfill	TestAmerica Project #: 31007558
Site: Nebraska City Station Unit 1	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Combined Ra226 and Ra228	Total 6020A CCR List, see attached list	2540C TDS, 9056A Chloride, Fluoride, Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N		
MW2	10/4/18	11:32	G	W	N		X	X	X	4	See attached list for specific analysis.
MW3	10/4/18	13:47	G	W	N		X	X	X	4	See attached list for specific analysis.
MW4	10/4/18	12:14	G	W	N		X	X	X	4	See attached list for specific analysis.
MW4NC2	10/3/18	9:48	G	W	N		X	X	X	4	See attached list for specific analysis.
MW9	10/4/18	15:25	G	W	N		X	X	X	4	See attached list for specific analysis.
MW11	10/4/18	10:59	G	W	N		X	X	X	4	See attached list for specific analysis.
MW13	10/3/18	8:43	G	W	N		X	X	X	4	See attached list for specific analysis.
DUP1 (NCI)	10/4/18	---	G	W	N		X	X	X	4	See attached list for specific analysis.
DUP2 (NCI)	10/4/18	---	G	W	N		X	X	X	4	See attached list for specific analysis.

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Kyle K. Uhing	Date/Time: 10/5/18 1504	Company: OPPD	Received by:	Date/Time: 10/5/18 1504	Company: TestA
Relinquished by:	Date/Time: 10/6/18 1700	Company: TestA	Received by: Matt Zeb	Date/Time: 10/6/18 0930	Company: TA-CF
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

11/8/2018

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW2	310-141086-A-1	Plastic 250ml - with Nitric Acid	<2		
MW2	310-141086-C-1	Plastic 1 liter - Nitric Acid	<2		
MW2	310-141086-D-1	Plastic 1 liter - Nitric Acid	<2		
MW3	310-141086-A-2	Plastic 250ml - with Nitric Acid	<2		
MW3	310-141086-C-2	Plastic 1 liter - Nitric Acid	<2		
MW3	310-141086-D-2	Plastic 1 liter - Nitric Acid	<2		
MW4	310-141086-A-3	Plastic 250ml - with Nitric Acid	<2		
MW4	310-141086-C-3	Plastic 1 liter - Nitric Acid	<2		
MW4	310-141086-D-3	Plastic 1 liter - Nitric Acid	<2		
MW9	310-141086-A-4	Plastic 250ml - with Nitric Acid	<2		
MW9	310-141086-C-4	Plastic 1 liter - Nitric Acid	<2		
MW9	310-141086-D-4	Plastic 1 liter - Nitric Acid	<2		
MW11	310-141086-A-5	Plastic 250ml - with Nitric Acid	<2		
MW11	310-141086-C-5	Plastic 1 liter - Nitric Acid	<2		
MW11	310-141086-D-5	Plastic 1 liter - Nitric Acid	<2		
DUP 1	310-141086-A-6	Plastic 250ml - with Nitric Acid	<2		
DUP 1	310-141086-C-6	Plastic 1 liter - Nitric Acid	<2		
DUP 1	310-141086-D-6	Plastic 1 liter - Nitric Acid	<2		
DUP 2	310-141086-A-7	Plastic 250ml - with Nitric Acid	<2		
DUP 2	310-141086-C-7	Plastic 1 liter - Nitric Acid	<2		
DUP 2	310-141086-D-7	Plastic 1 liter - Nitric Acid	<2		

Groundwater Sampling October 2018

Nebraska City 1

CCR/Title 132 Landfill

MW13 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lead, lithium, selenium, radium 226+228

MW4NC2 – boron, calcium, chloride, fluoride, sulfate, TDS, barium, cobalt, lead, lithium, molybdenum, selenium, radium 226+228

MW11 – boron, calcium, chloride, fluoride, sulfate, TDS, barium, cobalt, lead, lithium, molybdenum, selenium, radium 226+228

MW2 – boron, calcium, chloride, fluoride, sulfate, TDS, barium, cobalt, lead, molybdenum, radium 226+228

MW4 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lithium, molybdenum, radium 226+228

MW3 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lead, lithium, molybdenum, radium 226+228

MW9 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lithium, molybdenum, radium 226+228

DUP1 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lead, lithium, molybdenum, radium 226+228

DUP2 – boron, calcium, chloride, fluoride, sulfate, TDS, arsenic, barium, cobalt, lithium, molybdenum, radium 226+228

New Monitoring Wells / CCR

MW14 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW16 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW17 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW5 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW6 – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

MW6D – boron, calcium, chloride, fluoride, sulfate, TDS, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226+228

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-141086-2

Login Number: 141086

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.	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: 310-141086-2

Login Number: 141086
List Number: 2
Creator: Dupart, Lacee S

List Source: TestAmerica St. Louis
List Creation: 10/09/18 12:37 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	19.0
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: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

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)
310-141085-1	MW4/MW4NC2	105
310-141085-2	MW13	97.1
310-141086-1	MW2	92.3
310-141086-2	MW3	95.3
310-141086-3	MW4	97.9
310-141086-4	MW9	94.7
310-141086-5	MW11	99.1
310-141086-6	DUP 1	96.5
310-141086-7	DUP 2	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 160-394199/1-A	Lab Control Sample	85.8
LCS 160-394396/1-A	Lab Control Sample	103
MB 160-394199/21-A	Method Blank	100
MB 160-394396/23-A	Method Blank	102

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)
310-141085-1	MW4/MW4NC2	105	80.7
310-141085-2	MW13	97.1	80.0
310-141086-1	MW2	92.3	80.0
310-141086-2	MW3	95.3	83.7
310-141086-3	MW4	97.9	78.5
310-141086-4	MW9	94.7	78.5
310-141086-5	MW11	99.1	78.5
310-141086-6	DUP 1	96.5	79.3
310-141086-7	DUP 2	100	77.8

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Tracer/Carrier Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1

TestAmerica Job ID: 310-141086-2

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
LCS 160-394218/1-A	Lab Control Sample	85.8	87.9
LCS 160-394403/1-A	Lab Control Sample	103	81.9
MB 160-394218/21-A	Method Blank	100	72.5
MB 160-394403/23-A	Method Blank	102	81.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Appendix C

Statistical Results

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Memo

Date:	Wednesday, January 23, 2019
To:	Omaha Public Power District (OPPD)
From:	HDR Engineering, Inc.
Subject:	Summary of Statistical Analysis and Evaluation for SSLs Nebraska City Station NC1 Ash Disposal Area CCR Groundwater Monitoring Network

Omaha Public Power District (OPPD) operates a two-unit (Unit 1 and Unit 2) fossil fuel-fired generating plant at the Nebraska City Station (Station) southeast of Nebraska City, Nebraska. The Station has two existing Coal Combustion Residuals (CCR) landfills for fossil fuel combustion ash disposal; the NC1 Ash Disposal Area and the NC2 Ash Disposal Area. Both NC1 and NC2 Ash Disposal Areas are subject to the U.S. Environmental Protection Agency's (USEPA's) final CCR Rule. This memorandum provides a discussion and evaluation of the NC1 Ash Disposal Area. The NC1 Ash Disposal Area is an unlined CCR landfill which encompasses a total area of approximately 52 acres.

On January 31, 2018, OPPD published statistically significant increases (SSIs) in downgradient monitoring wells at the NC1 Ash Disposal Area (OPPD, 2018). An alternative source demonstration (ASD) evaluation was conducted for the published SSIs (dated May 1, 2018). The ASD evaluation confirmed the SSIs for the NC1 CCR unit, as discussed in Appendix D. As a result, OPPD initiated an assessment monitoring program, as required in the CCR Rule, for the NC1 Ash Disposal Area within the 90-day period specified in §257.95.

Groundwater sampling was completed as part of an assessment monitoring program for the NC1 CCR unit in June 2018 [as specified in §257.95(b)] and October 2018 [as specified in §257.95(d)]. Analytical sampling results from the June 2018 sampling event of the CCR monitoring system downgradient wells are summarized in Table 1. As specified in §257.95(b), the June 2018 sampling event was analyzed for the full Appendix III and Appendix IV constituent lists. Analytical sampling results from the October 2018 sampling event are summarized in Table 2. As specified in §257.95(d)(1), the October 2018 sampling event was analyzed for all parameters in the Appendix III list and those constituents in Appendix IV that are detected in response to §257.95(b).

The statistical analysis was performed in accordance with the methods described in the *Groundwater Monitoring Statistical Certification* for the Nebraska City Station – NC1 Combustion Ash Landfill, dated July 31, 2018. Sampling results used to update background threshold values (BTVs) were obtained during monitoring events performed between March 2016 and October 2018. Downgradient sampling results from the October 2018 assessment monitoring round were used to evaluate for SSIs over background and statistically significant levels (SSLs) over the groundwater protection standard (GWPS). The calculated BTVs and the evaluation for SSIs over background for the Appendix III constituents and those constituents in Appendix IV that are

detected in response to §257.95(b) are provided in Table 2. The calculated lower confidence levels (LCLs) and the evaluation for SSLs over the GWPS for the Appendix IV constituents are provided in Table 3.

Table 1. Summary of Appendix III & IV Constituents for Assessment Monitoring

Well ID:		NC1-MW2	NC1-MW3	NC1-MW4	NC1-MW9
Constituent	*Unit*	*Assessment Monitoring Results in accordance with §257.95(b) – June 2018*			
Appendix III Constituents					
Boron	*mg/L*	0.27	2.6	1.45	2.45
Calcium	*mg/L*	88.8	155	145	149
Chloride	*mg/L*	<5.00	12.5	<5.00	<5.00
Fluoride	*mg/L*	<0.50	<0.50	<0.50	0.732
pH	*SU*	7.06	6.40	7.60	5.80
Sulfate	*mg/L*	48.3	324	294	221
TDS	*mg/L*	344	948	822	708
Appendix IV Constituents					
Antimony	*mg/L*	<0.001	<0.001	<0.001	<0.001
Arsenic	*mg/L*	<0.002	0.0412	0.00821	0.0114
Barium	*mg/L*	0.122	0.128	0.129	0.111
Beryllium	*mg/L*	<0.001	<0.001	<0.001	<0.001
Cadmium	*mg/L*	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	*mg/L*	<0.005	<0.005	<0.005	<0.005
Cobalt	*mg/L*	0.00143	0.00219	0.000636	0.00109
Fluoride	*mg/L*	<0.50	<0.50	<0.50	0.732
Lead	*mg/L*	0.000713	0.00296	<0.0005	<0.0005
Lithium	*mg/L*	<0.01	0.0325	0.01	0.0189
Mercury	*mg/L*	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	0.0711	0.00206	0.0422	0.0474
Radium 226+228	*pCi/L*	0.615	0.922	0.577	0.827
Selenium	*mg/L*	<0.005	<0.005	<0.005	<0.005
Thallium	*mg/L*	<0.001	<0.001	<0.001	<0.001

Table 2. Summary of Evaluation for SSIs over Background (October 2018)

Well ID:			NC1-MW2	NC1-MW3	NC1-MW4	NC1-MW9
Constituent	*BTV (UPL):*	*Unit*	*Assessment Monitoring Results in accordance with §257.95(d)(1) – October 2018*			
Appendix III Constituents						
Boron	*1.38*	*mg/L*	<0.200	**2.32**	1.15	1.28
Calcium	*141*	*mg/L*	115	**163**	115	**148**
Chloride	*20.7*	*mg/L*	<5.00	8.88	5.39	8.56
Fluoride	*3.64*	*mg/L*	<0.500	0.541	0.569	0.777
pH	*6.67 – 7.80**	*SU*	6.78	7.15	7.41	7.27
Sulfate	*148*	*mg/L*	70.0	**432**	**263**	**158**
TDS	*640*	*mg/L*	400	**944**	580	**678**
Appendix IV Constituents						
Arsenic	*0.00235*	*mg/L*	N.S.	**0.0352**	**0.00641**	**0.0101**
Barium	*0.400*	*mg/L*	0.153	0.141	0.0975	0.109
Cobalt	*0.00236*	*mg/L*	<0.0005	0.00120	<0.0005	**0.00492**
Fluoride	*3.64*	*mg/L*	<0.500	0.541	0.569	0.777
Lead	*0.00577*	*mg/L*	0.000795	0.000833	N.S.	N.S.
Lithium	*0.0423*	*mg/L*	N.S.	0.0326	0.0135	0.0201
Molybdenum	*0.00996*	*mg/L*	**0.0680**	**0.0680**	**0.0233**	**0.0399**
Radium 226+228	*1.84*	*pCi/L*	1.01	1.12	0.802	1.39

Bold and underlined concentration indicates an SSI over background.
* indicates the lower bound of the range is the lower prediction limit (LPL). The upper bound is the upper prediction limit (UPL).
N.S. indicates not sampled; the constituent was not analyzed for since the initial assessment monitoring sample was non-detect.

Table 3. Summary of Evaluation for SSLs over GWPS (October 2018)

Well ID:			NC1-MW2	NC1-MW3	NC1-MW4	NC1-MW9
Constituent	*GWPS*	*Unit*	*Confidence Intervals in accordance with §257.95(d)(1)*			
Antimony	*0.006*[1]	*mg/L*	<0.001	<0.001	<0.001	<0.001
Arsenic	*0.01*[1]	*mg/L*	0.002	**0.0151**	0.00308	0.00845
Barium	*2.00*[1]	*mg/L*	0.109	0.0984	0.0857	0.0816
Beryllium	*0.004*[1]	*mg/L*	0.001	0.001	0.001	0.001
Cadmium	*0.005*[1]	*mg/L*	0.0005	0.0005	0.0005	0.0005
Chromium	*0.1*[1]	*mg/L*	0.005	0.005	0.005	0.005
Cobalt	*0.006*[1]	*mg/L*	0.005	0.00196	0.0005	0.000781
Fluoride	*4.00*[1]	*mg/L*	0.5	0.5	0.5	0.547
Lead	*0.015*[1]	*mg/L*	0.0005	0.0005	0.0005	0.0005
Lithium	*0.0423*[2]	*mg/L*	0.01	0.01	0.01	0.01
Mercury	*0.002*[1]	*mg/L*	0.0002	0.0002	0.0002	0.0002
Molybdenum	*0.1*[1]	*mg/L*	0.05002	0.002	0.01832	0.02558
Radium 226+228	*5.0*[1]	*pCi/L*	0.3252	0.3489	0.2267	0.4448
Selenium	*0.05*[1]	*mg/L*	0.005	0.005	0.005	0.0069
Thallium	*0.002*[1]	*mg/L*	0.001	0.001	0.001	0.001

Bold and underlined concentration indicates an SSL over the GWPS.
[1] GWPS is established as the U.S. EPA Maximum Contaminant Level (MCL) or the GWPS specified in §257.95(h)(2).
[2] GWPS is established as the upper tolerance limit when the background level is higher than the U.S. EPA MCL.

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Appendix D

Alternative Source Demonstration

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Memo

Date:	Tuesday, May 01, 2018
To:	Omaha Public Power District (OPPD)
From:	HDR Engineering, Inc.
Subject:	Alternative Source Demonstration Evaluation for SSIs Nebraska City Station NC1 Ash Disposal Area CCR Groundwater Monitoring

Omaha Public Power District (OPPD) operates a two-unit (Unit 1 and Unit 2) fossil fuel-fired generating plant at the Nebraska City Station (Station) southeast of Nebraska City, Nebraska. The Station has two existing Coal Combustion Residuals (CCR) landfills for fossil fuel combustion ash disposal; the NC1 Ash Disposal Area and the NC2 Ash Disposal Area. Both NC1 and NC2 Ash Disposal Areas are subject to the U.S. Environmental Protection Agency's (USEPA's) final CCR Rule. This memorandum provides a discussion and evaluation of the NC1 Ash Disposal Area. The NC1 Ash Disposal Area is an unlined CCR landfill which encompasses a total area of approximately 52 acres.

On January 31, 2018, OPPD published statistically significant increases (SSIs) in downgradient monitoring wells at the NC1 Ash Disposal Area (OPPD, 2018). The statistical evaluation for SSIs over background for the November 2017 detection monitoring data indicated the following SSIs:

- Boron: MW-3, MW-4, MW-9
- Calcium: MW-3, MW-9
- Chloride: MW-3
- Sulfate: MW-3, MW-4, MW-9
- Total Dissolved Solids (TDS): MW-3, MW-9

As required by the CCR Rule, the owner must establish an assessment monitoring program or pursue a demonstration that a source other than the CCR unit caused SSIs, or that the SSIs resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Due to the complexities of hydrogeological conditions and the nature of statistical testing, there are numerous reasons why a statistically significant result may not be an indication of an actual release from the regulated unit. It is reasonable to allow for a separate demonstration, including statistical factors, once an SSI occurs to determine whether the increase is actually due to a contaminant release.

The objective of this memorandum is to document an alternative source demonstration (ASD) for the SSIs identified during the November 2017 detection monitoring event at the NC1 Ash Disposal Area. The Appendix III constituents identified above as SSIs are referenced as the constituents of interest (COIs) for this ASD. The NC1 monitoring network wells were resampled and evaluated in this memorandum to evaluate if the SSIs observed during the November 2017 detection monitoring

event resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Groundwater Sample Collection

To evaluate a potential error in sampling, analysis, statistical evaluation, or natural variation, groundwater samples from the NC1 Ash Disposal Area monitoring network were resampled and analyzed for the Appendix III constituents that were detected as SSIs (i.e. COIs, as specified above). Groundwater samples were collected by OPPD personnel on March 13, 2018 for each of the NC1 Ash Disposal Area monitoring well network wells, as defined in Table 1. Groundwater samples were analyzed by Test America Laboratories, Inc. in Cedar Falls, Iowa.

Table 1. NC1 Ash Disposal Area monitoring network

Monitoring Well ID	Date Installed	Well Depth (feet bgs)	Location w/ respect to NC1 Ash Disposal Area	Top of Well Casing Elevation (feet AMSL)
MW-4-NC2	09/08/2004	14.0	Background/Upgradient	919.40
MW-11	01/16/2004	20.0	Background/Upgradient	918.35
MW-13	01/26/2016	13.0	Background/Upgradient	917.69
MW-2	03/14/1995	17.8	Downgradient	919.39
MW-3	03/13/1995	19.5	Downgradient/Crossgradient	919.80
MW-4	03/13/1995	20.3	Downgradient	919.81
MW-9	01/21/1999	20.0	Downgradient	920.14

Following groundwater sampling completed on March 13, 2018, OPPD believed groundwater readings (including pH) obtained in the field using the Station's YSI multi-meter were not representative of site conditions. In order to verify pH readings from the YSI multi-meter, a third-party was contracted to collect pH readings utilizing their calibrated Horiba multi-meter on March 19, 2018. Readings were collected at each monitoring well location from both the YSI and Horiba on March 19th. Data obtained on March 19th showed pH readings were inconsistent when compared between the Horiba and YSI; pH readings from the YSI were recorded lower than Horiba readings. Both pH readings form March 13th and March 19th were included in the NC1 Ash Disposal Area groundwater database and evaluated for statistical outliers.

Analytical results for the Appendix III COIs analyzed for the NC1 Ash Disposal Area monitoring wells are provided in Table 2. The results of the ASD sampling event are discussed in the Statistical Re-evaluation section of this memorandum.

Table 2. Appendix III COIs – Verification Sampling Events

Monitoring Well ID	Gradient (in respect to NC1 Ash Disposal Area)	3/13/2018						3/19/2018
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (S.U.)	pH (S.U.)
NC2-MW-4	Upgradient	<0.200	138	<5.00	42.6	478	6.71	7.28
MW-11	Upgradient	0.63	77.1	<5.00	109	302	7.00	7.69
MW-13	Upgradient	<0.200	93.8	12.7	38.2	388	6.89	7.51

Table 2. Appendix III COIs – Verification Sampling Events

Monitoring Well ID	Gradient (in respect to NC1 Ash Disposal Area)	3/13/2018						3/19/2018
		Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (S.U.)	pH (S.U.)
MW-2	Downgradient	<0.200	94.0	<5.00	61.0	362	6.85	7.53
MW-3	Downgradient	1.97	154	10.8	362	846	6.85	7.42
MW-4	Downgradient	1.21	111	6.04	250	560	7.16	7.31
MW-9	Downgradient	2.60	132	5.74	276	754	6.93	7.48

Statistical Re-evaluation

Statistical analyses completed for the NC1 Ash Disposal Area in the 2017 Annual Groundwater Monitoring Report utilized the analysis of variance (ANOVA) methodology. ANOVA is an interwell analysis that compares the mean (parametric) or median (non-parametric) values of upgradient versus downgradient groundwater observations. ANOVA is expected to have limited applicability to detection monitoring since many monitoring constituents exhibit spatial well variability which can result in false positives. Due to the high site-wide false positive rate associated with the ANOVA when performing the test on numerous constituents, it is generally not recommended as a primary method for assessing whether contamination is present in downgradient wells as described in the Unified Guidance (U.S. EPA, 2009).

Prediction limits using retesting is usually a more appropriate methodology for detection monitoring while meeting the false positive and statistical power targets recommended by the Unified Guidance. This statistical re-evaluation utilizes interwell upper prediction limits (UPLs) for detection monitoring and to calculate the BTVs for the NC1 Ash Disposal Area. Natural variation must account for differences over time such that the effects of seasonality, changes in weather, and natural changes in water quality are fully captured over multiple years. By increasing the background sample size over seasonal cycles, a more accurate depiction of actual background occurs. A larger background sample size can impact what is identified as an SSI at a downgradient well. In anticipation of the possible impact of natural variation on the background samples taken up to the November 2017 sampling event, UPLs were derived as part of this ASD such that if verification samples were available, a 1-of-m pass method could be applied to validate if the initial SSI is an actual SSI or a result of natural variation.

The 1-of-*m* pass method (i.e., resampling method) as described in the Unified Guidance (Chapter 19 of U.S. EPA, 2009) allows for an efficient plan to confirm if an SSI over background identified during detection monitoring resulted from the CCR unit. If the initial groundwater observation (*m value*) is in-bounds (i.e. below the BTV), the test is complete and no resamples need to be collected. Only when the first value exceeds the BTV, an additional sample becomes necessary; therefore, all *m* values must be larger than the BTV to be declared an SSI. The purpose of the resampling scheme is to avoid unnecessary false positives when multiple statistical tests are involved. A higher number of resamples provides greater confidence and hence a lower false positive error rate. Either a 1-of-2 or 1-of-3 pass method is recommended depending on the characteristics of the background samples and given the available time period in which to do the resampling.

To evaluate a potential error in the statistical analysis completed as part of the November 2017 detection monitoring event, groundwater samples from the NC1 Ash Disposal Area monitoring network were statistically re-evaluated for BTVs by utilizing interwell UPLs. The UPLs for each constituent were calculated for the November 2017 detection monitoring event using the pooled data from the upgradient monitoring wells from the previous nine sampling events (March 2016 to November 2017). The UPLs for the ASD evaluation were calculated using the pooled data from the upgradient monitoring wells from the ten previous sampling events (March 2016 to March 2018). The BTVs for both events are presented in Table 3. A comparison of the resulting UPLs in Table 3 shows comparable but slightly different values for calcium, pH, and TDS; as expected from the relatively small background sample sizes. The UPLs for boron, chloride, fluoride, and sulfate did not change with the additional samples. The UPLs for these constituents follow a nonparametric distribution; therefore, the UPL is set as the maximum observed background value (i.e. 128 mg/L for sulfate observed on 3-9-2016). The BTVs for pH exhibited the largest change where both the upper and lower prediction limits decreased compared to the detection monitoring event. The pH detections were statistically evaluated to determine if outliers were detected, specifically from the March 13, 2018 readings collected with the Station's YSI meter. The outlier analysis did not indicate pH readings from the March 13, 2018 monitoring event as outliers when compared to the remaining pH readings collected for the NC1 Ash Disposal Area; therefore, the data was retained in the NC1 groundwater database. The change in the UPL values with the additional data does indicate that natural variation influences the determination of whether an SSI has occurred.

Table 3. Background Threshold Values (UPL[1,2]) for Appendix III Constituents

Monitoring Event	Event Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	TDS (mg/L)
Detection Monitoring	11/08/2017	1.38	143	20.7	3.64	8.09 - 6.94[1]	128	650
ASD Evaluation	3/13/2018	1.38	144	20.7	3.64	7.80 - 6.69[1]	128	654

Notes:
[1]Indicates the lower bound of the range is the lower prediction limit (LPL). The upper bound is the upper prediction limit (UPL).
[2]BTVs have been reported to three significant figures to maintain the same level of precision as the results reported by the laboratory.

The constituent/well pairs that were noted as SSIs in the first round of detection monitoring in November 2017 are listed in Table 4 along with the resampling plan and the calculated UPLs. The analytical detections from the November 2017 and March 2018 ASD re-analysis are also specified in Table 4. The ASD evaluation shows that chloride in MW-3, boron in MW-4, and calcium in MW-9 were within the bounds of the BTV. The remaining constituent/well pairs indicate the verification (1-of-2 resampling scheme) exceeded the BTV; therefore, an SSI has been confirmed for the following: boron, calcium, sulfate, and TDS in MW-3; sulfate in MW-4; and boron, sulfate, and TDS in MW-9. Based on re-evaluation of data for this ASD, eight of the eleven initial SSIs has been confirmed for the NC1 Ash Disposal Area. The NC1 statistical method certification will be updated to reflect the prediction limit methodology with calculation of UPLs as the BTVs.

Table 4. Background Threshold Values (UPL) Evaluation for Appendix III COIs

Monitoring Well ID	Constituent	UPL	Verification Re-sampling plan[1]	Monitoring Event	
				Detection Monitoring (11/8/2017)	ASD Evaluation (3/13/2018)
MW-3	Boron (mg/L)	1.38	1-of-2	**2.04**	**1.97**
	Calcium (mg/L)	144	1-of-2	144[2]	**154**
	Chloride (mg/L)	20.7	1-of-2	9.53[2]	10.80
	Sulfate (mg/L)	128	1-of-2	**339**	**362**
	TDS (mg/L)	654	1-of-2	**852**	**846**
MW-4	Boron (mg/L)	1.38	1-of-2	1.13[2]	1.21
	Sulfate (mg/L)	128	1-of-2	**234**	**250**
MW-9	Boron (mg/L)	1.38	1-of-2	**2.65**	**2.60**
	Calcium (mg/L)	144	1-of-2	**167**	132
	Sulfate (mg/L)	128	1-of-2	**344**	**276**
	TDS (mg/L)	654	1-of-2	**846**	**754**

Notes:
Bold/Underlined = Indicates an exceedance of the UPL has occurred, resulting in confirmation of SSIs.
[1]Verification samples were analyzed according to the 1-of-m pass method to finalize outcome of the SSI.
[2]Detections were indicated as SSIs during the November 2017 statistical analysis utilizing the ANOVA methodology. The detections are not considered SSIs as evaluated with UPLs.

Summary

The statistical re-evaluation of the monitoring data, including the samples taken in March 2018 from the background and downgradient CCR monitoring wells, did not uncover errors related to the sampling and laboratory analysis used to assess the quality of the data for each constituent/well pair. This ASD demonstration has shown that a larger background sample size and the statistical method selected can impact what was identified as an SSI at a downgradient well. As previously mentioned, the use of prediction limits is a more appropriate methodology for future statistical analysis at the NC1 Ash Disposal Area. The NC1 statistical method certification will be updated to reflect the prediction limit methodology with calculation of UPLs as the BTVs.

The ASD evaluation shows that chloride in MW-3, boron in MW-4, and calcium in MW-9, which were previously detected as SSIs through ANOVA analysis, are within the bounds of the BTV when analyzed with the 1-of-2 pass method with interwell UPLs. The remaining eight SSIs detected during the November 2017 detection monitoring event were confirmed as SSIs during this ASD evaluation. In summary, for this ASD, eight of the eleven initial SSIs has been confirmed for the NC1 CCR unit.

Key Upcoming Activities

As a result of this ASD, OPPD intends to conduct the following activities:

- Update the NC1 statistical method certification to reflect the prediction limit methodology with calculation of UPLs as the BTVs.
- Initiate an Assessment Monitoring program, as required in the CCR Rule, for the NC1 Ash Disposal Area within the 90-day period specified in §257.95.

References

OPPD, 2018. (Omaha Public Power District). *2017 NC1 CCR Landfill Annual Groundwater Monitoring and Corrective Action Report*. Nebraska City, Nebraska, January, 2018.

U.S. EPA, 2009. (United States Environmental Protection Agency). *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Unified Guidance*. Washington, DC, March 2009.

Certification

Professional Engineer Certification

I hereby certify to the best of my knowledge that the information contained in this document is appropriate for evaluating the groundwater monitoring data and verify its use for an alternative source demonstration at the Nebraska City Station's NC1 Ash Disposal Area.

I am duly licensed Professional Engineer under the laws of the State of Nebraska.

Print Name: Megan B. Seymour

Signature: Megan Seymour

Date: 5/01/2018

License #: E-1593

My license renewal date is December 31, 2018.