2019 NC2 Landfill Annual Groundwater Report

Nebraska City Generating Station NC2 Ash Disposal Area

Nebraska City, Nebraska
January 31, 2020

This page intentionally left blank.

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 B. Seymour

Date: 1-31-2020

License #: E-15931

My license renewal date is December 31, 2020.

This page intentionally left blank.

Table of Contents

List of Tables

List of Figures

List of Appendices

This page intentionally left blank.

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 is formally promulgated in the U.S. Code of Federal Regulations (CFR), Title 40, Part 257. The rule – effective on October 19, 2015 – applies to electric utilities and independent power producers that fall within NAICS code 221112, and facilities that produce or store CCR materials in surface impoundments or landfills (EPA, 2015). 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). This regulation applies to the Omaha Public Power District (OPPD), Nebraska City Generating Station. OPPD currently has two (2) active CCR landfills at the Nebraska City Generating Station.

1.1 Purpose

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 upcoming activities related to the ground water monitoring system. The information included in this report complies with the requirements established in §257.90(e) of the CCR Rule. This report provides a summary of CCR groundwater monitoring system activities for calendar year 2019.

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 Nebraska Department of Environment and Energy's (NDEE) 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 NC2 Ash Disposal Area (NDEE Permit No. NE0204421, Facility ID 58343).

The NC2 Ash Disposal Area is an existing CCR landfill permitted under the NDEE Title 132 regulations for 40.7 acres; Cell 1 was constructed in 2008/2009 with a composite liner and leachate collection system. Construction for NC2 Ash Disposal Area Cells 2 and 3 base liner and West Leachate Pond base liner was completed January 23, 2018. Cells 2 and 3 base liners were constructed with 24 inches of re-compacted clay overlain by a 60 mil high-density polyethylene (HDPE) geomembrane and geotextile fabric layer. **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 includes eight monitoring wells consisting of three (3) upgradient/background monitoring wells, four (4) downgradient monitoring wells, and one (1) cross-gradient monitoring well. Monitoring well details for the monitoring network, including the

date of installation, is provided in **Table 1** (attached). The location of the monitoring wells in the groundwater monitoring program in respect to the CCR unit, NC2 Ash Disposal Area, are shown in the attached **Figure 1**.

2.1 Summary of Monitoring Program Transitions

On January 31, 2018, OPPD published Statistically Significant Increases (SSIs) detected in November 2017 in downgradient monitoring wells at the NC2 Ash Disposal Area for calcium and pH at NC2-MW-2. An alternate source demonstration (ASD) dated May 2018 conducted with groundwater resampling and updated statistical methodology indicated the SSIs were not confirmed SSIs due to natural variation and statistical error; therefore, the monitoring networked remained in detection monitoring.

During the April 2019 sampling event, a potential SSI was detected for calcium in monitoring well NC2-MW-2. On June 26, 2019, a verification sampling event was completed by OPPD personnel and analyzed for calcium. A duplicate sample was collected at NC2-MW-2 and analyzed for calcium as a quality assurance check and due to the natural variability of calcium detected in the monitoring well during previous sampling events. The results of the two samples collected during verification confirmed calcium at NC2-MW-2 can be highly variable. The two samples had detections that differed by 25 mg/L, but had a relative percent difference (RPD) of less than 15%, so the field duplicate precision indicates good error control. The average of the two calcium detections were below background; therefore, an SSI was not detected, and the monitoring network remained in detection monitoring.

2.2 Groundwater Monitoring Network Condition Assessment

OPPD personnel evaluated the condition of each monitoring well in the groundwater monitoring system during the sampling events from April 2019 through October 2019. Some of the network wells were not able to be sampled due to the flooding conditions of the nearby Missouri River; resulting in flooding at the Nebraska City Station. Several wells were submerged under water during the sampling events: NC2-MW-3, NC2-MW-8, and MW-13 in April 2019 and MW-13 in October 2019. No repairs were required at the other monitoring wells, and the wells were noted in good working condition, concrete pads were intact, and no damage was observed to the protective well casings. Monitoring well NC2-MW-8 was installed downgradient of the NC2 Ash Disposal Area at the request of NDEE due to the construction of Cell 2/3 liner and west leachate pond. It was installed on July 9, 2018, and was added to the Groundwater Monitoring System Certification in 2019.

3 Data Evaluation and Summary

3.1 Summary of Sampling Activities

Groundwater sampling events were conducted by OPPD personnel in April 2019 and October 2019 as continuation of the detection monitoring program. Samples were collected in general compliance with §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. The number of samples collected for each background and downgradient well during each groundwater sample event, whether the sample was collected during detection or assessment monitoring programs, and the date of each event is summarized in **Table 2**.

Groundwater sampling completed by OPPD personnel was conducted in general accordance with the facility's Groundwater Sampling and Analysis Plan (SAP) submitted to the NDEE in June 2019. Samples were collected from background and downgradient wells, except for those wells discussed in **Section 2.2** which were inaccessible due to flooding. Field sampling forms from the 2019 semi-annual sampling events are provided in **Appendix A**. The collected groundwater samples were analyzed by TestAmerica Laboratories, Inc. The laboratory analytical reports are provided in **Appendix B**.

3.2 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 of both monitoring network wells and groundwater elevation only wells, as defined in the *CCR Groundwater Monitoring System*, HDR, 2019, were used to determine groundwater contours. Monitoring well static groundwater elevations are provided in **Table 3**. Groundwater flow observed during the October 2019 sampling event indicated a flow direction to the south/southwest and an average flow velocity of 0.0135 ft/day to 0.1333 ft/day (based on a range of hydraulic conductivity at the Site of 3.94 ft/day to 39 ft/day, respectively [*CCR Groundwater Monitoring System*, HDR, 2019]). The groundwater direction October 2019 sampling event shifted slightly from the previous event, where the April 2019 groundwater contours were directed more towards the south/southeast direction towards the Missouri River. The shift in groundwater contour direction is likely due to flooding conditions of the nearby Missouri River. Groundwater elevations will continue to be monitored to determine if the overall groundwater flow direction shifts back towards the south/southeast towards the Missouri River. Based on the groundwater flow directions observed in 2019, the groundwater monitoring network is still applicable to the NC2 Ash Disposal Area and no changes to the monitoring network are recommended at this time.

3.3 Detection Monitoring Groundwater Sampling

The NC2 Ash Disposal Area was monitored and analyzed semi-annually in 2019 as part of the detection monitoring program. As specified in §257.94(b), monitoring network wells should be resampled at least semi-annually for the Appendix III constituent list. The NC2 Ash Disposal Landfill is monitored under the detection monitoring program; therefore, Appendix IV constituents are not required to be analyzed. However, some of the monitoring wells in the NC2 Ash Disposal Landfill monitoring network are also utilized as part of the NC1 Ash Disposal Landfill and have been analyzed for Appendix IV during the 2019 monitoring events. The results of the detection monitoring events in April 2019 and October 2019 are presented in **Table 4** (Appendix III constituents) and **Table 5** (Appendix IV constituents).

3.4 Statistical Analysis Results

In the detection monitoring program, Appendix III constituents are statistically analyzed to evaluate for SSIs above the calculated BTVs. Statistical analysis was performed utilizing Sanitas™ Statistical Software in accordance with the methods described in the *Groundwater Monitoring Statistical Methods Certification* (amended July 2018). Results of the statistical analysis of designated in-network downgradient monitoring wells from the April 2019 and October 2019 sampling events are provided in **Appendix C**. Statistically-derived BTVs for Appendix III constituents for detection monitoring are provided in **Table 6**.

As presented in **Appendix C**, statistical analysis of the April 2019 sampling event resulted in a potential SSI detected for calcium in monitoring location NC2-MW-2. This exceedance is considered an initial "1-of-2" exceedance above background. The 1-of-2 retesting plan as defined in Chapter 21 of the Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance (dated March 2009) concludes that an SSI has occurred when 2 out of 2 sample results exceed the BTV. Results of verification sampling concluded the detection was not an SSI.

Results of the October 2019 statistical analysis indicated an SSI for calcium at NC2-MW-2 above the calculated BTV, as presented in **Appendix C**. This exceedance was considered an initial "1-of-2" exceedance above background. On January 8, 2020, a verification sampling event was completed by OPPD personnel within the 90-day requirement of 40 CFR § 257.93(h)(2). Results of the verification sampling are provided in **Appendix C**; and indicate the SSI was confirmed to be above the calculated BTV. Pursuant to 40 CFR § 257.94(e), the results of the verification triggered an assessment monitoring program due to calcium exceedance above the BTV in NC2-MW-2.

Historical results of calcium at NC2-MW-2 has ranged from 127 mg/L to 277 mg/L during the October 2019 and March 2016 sampling events, respectively. The highest detection of calcium at NC2-MW-2 was the detection in March 2016. During the September 2019 Site Assessment investigation (required by NDEE due to October 2018 detections) calcium was analyzed at NC2-MW-2 and resulted in a significantly lower calcium concentration than the June or October 2019 samples, and was well under the BTV. This additional sample demonstrates the variability of calcium concentrations in monitoring well NC2-MW-2 over time. Additional site investigation into the calcium detection at NC2-MW-2 will be evaluated as part of an ASD pursuant to 40 CFR § 257.94(e)(2).

3.5 Other Information Required under §257.90 through §257.98

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

4 Key Activities for Upcoming Year

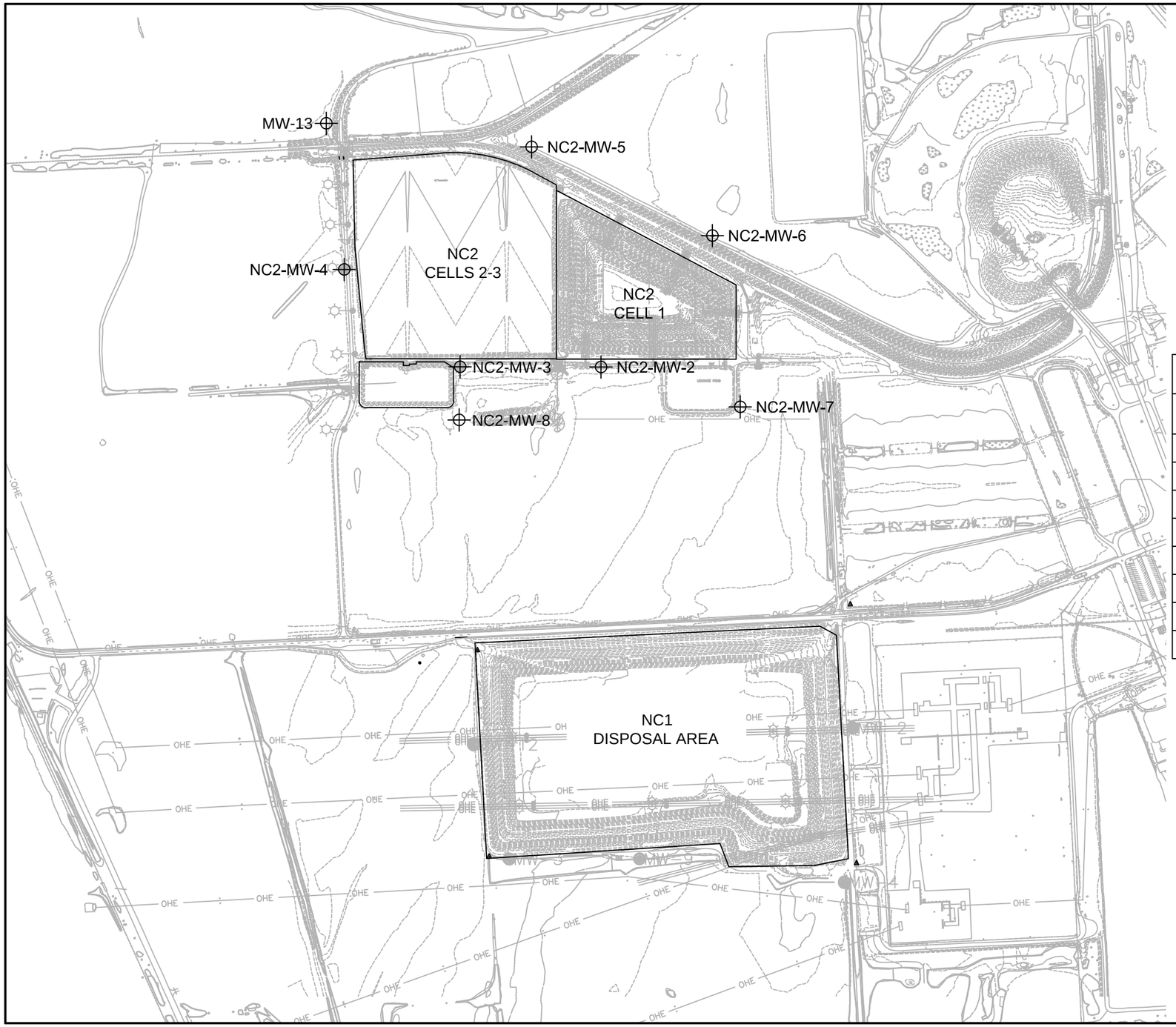
Pursuant to 40 CFR § 257.94(e), the results of the verification sampling event triggered an assessment monitoring program due to calcium detections above the BTV in NC2-MW-2. Historical data has demonstrated variability of calcium concentrations in monitoring well

NC2-MW-2 over time. Additional site investigation into the calcium detection at NC2-MW-2 will be evaluated pursuant to 40 CFR § 257.94(e)(2). If the additional site does not show an alternate source for elevated calcium levels, assessment monitoring will be initiated.

This page intentionally left blank.

Figures

This page intentionally left blank.



MONITORING WELL NETWORK

WELL ID	NORTHING	EASTING	ELEVATION	WELL DEPTH	LOCATION WITH RESPECT TO TEMPORARY ASH DISPOSAL AREA
MW-13	318186.64	2808434.68	918.05	13.0	BACKGROUND / UPGRADIENT
NC2-MW-2	316884.69	2809902.40	922.55	1.0	DOWNGRADIENT
NC2-MW-3	316885.96	2809149.54	916.22	12.0	DOWNGRADIENT
NC2-MW-4	317405.90	2808530.80	919.62	14.0	BACKGROUND / UPGRADIENT
NC2-MW-5	318060.54	2809531.90	922.76	15.2	BACKGROUND / UPGRADIENT
NC2-MW-6	317587.46	2810497.97	919.72	11.0	CROSSGRADIENT
NC2-MW-7	316671.78	2810647.12	918.37	21.0	DOWNGRADIENT
NC2-MW-8	316601.90	2809145.16	918.18	15.0	DOWNGRADIENT

NOTES:

1. TOP OF CASING ELEVATION DETERMINED BY SURVEY DATA OBTAINED JUNE 2019.
2. BGS = BELOW GROUND SURFACE
3. THE FOLLOWING MONITORING WELL LOCATIONS ARE FOR WATER LEVEL DATA ONLY : NC1-MW-7, NC1-MW-8, AND MW-14.

OPPD
Omaha Public Power District

HDR

OPPD NEBRASKA CITY ASH LANDFILL
NEBRASKA CITY UNIT 2 - NC2
MONITORING WELL LOCATION MAP

2019 GROUNDWATER MONITORING

DATE
JANUARY 2020

FIGURE
01

Tables

This page intentionally left blank.

Table 1 - Groundwater Monitoring System
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

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-2	9/8/2004	17	Downgradient	922.548
NC2-MW-3	9/8/2004	16	Downgradient	916.225
NC2-MW-4	9/8/2004	14	Background/Upgradient	919.616
NC2-MW-5	9/16/2004	16	Background/Upgradient	922.758
NC2-MW-6	9/7/2004	14	Crossgradient	919.720
NC2-MW-7	11/6/2013	24	Downgradient	918.372
MW-13	1/26/2016	13	Background/Upgradient	918.054
NC2-MW-8 [1]	7/9/2018	15	Downgradient	918.180

[1] NC2-MW-8 was installed July 9, 2018 was added to the Groundwater Monitoring System Certification in June 2019.

bgs - below ground surface
AMSL - above mean sea level

Table 2 - Groundwater Sampling Event Summary
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

Monitoring Well ID	# of Initial Background Samples	Initial Background Sample Dates	# of Detection Monitoring Samples [1]	Detection Monitoring Sample Dates
Current background Monitoring Wells				
NC2-MW-4	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	6	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018, 4/8/2019, 10/15/2019
NC2-MW-5	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	6	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018, 4/8/2019, 10/15/2019
MW-13 [2], [3]	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	4	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018
Downgradient Monitoring Wells				
NC2-MW-2	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	6	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018, 4/8/2019, 10/15/2019
NC2-MW-3 [2]	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	5	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018, 10/15/2019
NC2-MW-6	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	6	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018, 4/8/2019, 10/15/2019
NC2-MW-7	8	3/14/2016, 6/3/2016, 8/31/2016, 11/17/2016, 2/15/2017, 4/24/2017, 6/15/2017, 7/12/2017	6	11/9/2017, 3/12/2018, 6/6/2018, 10/3/2018, 4/8/2019, 10/15/2019
NC2-MW-8 [2],[4]	3	10/3/2018, 1/15/2019, 3/5/2019	1	10/16/2019

[1] The number of detection monitoring samples includes the 3/12/2018 event which occurred as part of an Alternative Source Demonstration. Only Appendix III constituents were sampled in this event; results are presented in Table 4.

[2] MW-13, NC2-MW-3, and NC2-MW-8 submerged under water during April 2019 sampling event and were not sampled.

[3] MW-13 submerged under water during April 2019 sampling event and was not sampled.

[4] NC2-MW-8 was installed July 9, 2018 and was added to the Groundwater Monitoring System Certification in June 2019. NC2-MW-8 was statistically analyzed during the fall 2019 detection monitoring event. Quarterly sampling will continue to be completed until eight background samples have been obtained for full Appendix III and Appendix IV lists.

Table 3 - Groundwater Elevations
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

	NC2-MW-4		NC2-MW-5		MW-13		NC2-MW-2		NC2-MW-3		NC2-MW-6		NC2-MW-7		NC2-MW-8	
	TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation		TOC Elevation	
	919.62		922.76		918.05		922.55		916.22		919.72		918.37		918.18	
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)	Measured Depth to Water (ft)	GW Elevation (AMSL)
3/14/2016	6.91	912.71	6.98	915.78	4.75	913.30	10.80	911.75	4.05	912.17	7.95	911.77	7.04	911.33		
6/3/2016	5.62	914.00	7.67	915.09	3.51	914.54	8.96	913.59	2.55	913.67	6.02	913.70	4.80	913.57		
8/31/2016	5.05	914.57	5.30	917.46	2.85	915.20	8.91	913.64	2.31	913.91	5.95	913.77	5.40	912.97		
11/17/2016	6.80	912.82	9.25	913.51	4.40	913.65	10.90	911.65	4.10	912.12	8.10	911.62	7.20	911.17		
2/15/2017	7.50	912.12	10.20	912.56	5.21	912.84	11.70	910.85	4.95	911.27	9.00	910.72	8.15	910.22		
4/24/2017	6.11	913.51	8.48	914.28	4.00	914.05	9.85	912.70	3.21	913.01	7.00	912.72	5.96	912.41	*Well Installed 7/9/2018*	
6/15/2017	6.75	912.87	9.82	912.94	4.70	913.35	10.30	912.25	3.42	912.80	7.35	912.37	6.35	912.02		
7/12/2017	7.11	912.51	10.15	912.61	5.02	913.03	10.76	911.79	4.25	911.97	7.90	911.82	6.80	911.57		
11/9/2017	12.20	907.42	14.20	908.56	8.25	909.80	15.10	907.45	12.10	904.12	11.20	908.52	10.50	907.87		
3/12/2018	10.18	909.44	12.95	909.81	8.10	909.95	13.90	908.65	7.15	909.07	10.88	908.84	10.00	908.37		
6/6/2018	6.80	912.82	9.70	913.06	4.65	913.40	10.35	912.20	3.70	912.52	7.25	912.47	6.35	912.02		
10/3/2018	4.14	915.48	4.95	917.81	1.63	916.42	7.39	915.16	0.80	915.42	4.30	915.42	3.20	915.17	3.15	915.03
3/5/2019	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	6.67	911.51
4/8/2019 [2]	3.53	916.09	4.56	918.20	N.M.	N.M.	6.70	915.85	N.M.	N.M.	4.18	915.54	2.74	915.63	N.M.	N.M.
10/14/2019[3]	3.47	916.15	4.48	918.28	N.M.	N.M.	6.34	916.21	0.21	916.01	3.75	915.97	2.27	916.10	2.38	915.80

TOC: Top of PVC well casing

N.M. = not measured

AMSL = above mean sea level

[2] MW-13, NC2-MW-3, and NC2-MW-8 submerged under water during April 2019 sampling event and were not measured.

[3] MW-13 submerged under water during October 2019 sampling event and was not measured.

Table 4 - Appendix III Constituents in Groundwater
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

	Constituent	Appendix III Constituents						
		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	3/14/2016	<0.200	126	6.27	0.213	6.84	48.3	536
	6/3/2016	<0.200	130	<5.00	<0.500	6.90	46.8	668
	8/31/2016	<0.200	91.1	7.13	0.646	7.20	29.7	574
	11/17/2016	<0.200	130	<5.00	1.28	7.19	34.0	548
	2/15/2017	<0.200	142	10.8	2.43	7.63	39.7	526
	4/24/2017	<0.200	126	<5.00	1.08	7.08	38.6	574
	6/15/2017	<0.200	122	<5.00	<0.500	7.09	32.2	552
	7/12/2017	<0.200	104	<5.00	<0.500	7.88	32.7	580
	11/9/2017	<0.200	134	<5.00	<0.500	7.18	42.8	568
	3/12/2018	<0.200	141	<5.00	<0.500	6.32 / 7.28 [1]	42.6	562
	6/6/2018	<0.200	140	<5.00	<0.500	7.15	44.1	542
	10/3/2018	<0.200	117	<5.00	<0.500	6.81	42.4	520
	4/8/2019	<0.200	137	<5.00	<0.500	6.71	40.9	560
	10/15/2019	<0.200	142	5.38	<0.500	6.57	35.0	528
NC2-MW-5	3/14/2016	3.73	210	51	<0.500	7.12	611.0	1310
	6/3/2016	3.98	217	36.6	<0.500	7.01	590.0	1390
	8/31/2016	4.08	159	21.5	<0.500	7.11	455.0	1280
	11/17/2016	4.27	228	21.6	1.89	7.54	414.0	1170
	2/15/2017	2.94	217	13.3	0.59	7.30	531.0	1210
	4/24/2017	2.85	183	12.5	1.25	7.55	331.0	1060
	6/15/2017	3.82	190	10.6	<0.500	7.17	243.0	1090
	7/12/2017	4.63	191	7.93	<0.500	7.45	369.0	1190
	11/9/2017	2.91	168	13.2	<0.500	7.20	404.0	1260
	3/12/2018	2	160	34.2	<0.500	6.90 / 7.56 [1]	318.0	826
	6/6/2018	3.81	198	14	<0.500	7.02	353.0	1060
	10/3/2018	4.01	227	8.65	<0.500	7.00	503	1230
	4/8/2019	3.72	189	5.42	0.634	7.15	382	1030
	10/15/2019	3.66	195	9.2	<0.500	7.00	322	924
MW-13	3/14/2016	<0.200	90.6	11.4	<0.500	6.97	47.7	438
	6/3/2016	<0.200	87.9	12	<0.500	7.11	37.6	360
	8/31/2016	<0.200	66.6	11.1	<0.500	7.71	31.3	414
	11/17/2016	<0.200	84.2	9.33	0.803	7.79	34.7	430
	2/15/2017	<0.200	94.9	11.2	<0.500	7.21	40.9	448
	4/24/2017	<0.200	94.1	12	0.79	7.27	39.5	520
	6/15/2017	<0.200	91.1	12.4	<0.500	7.28	34.2	454
	7/12/2017	<0.200	95.8	16.8	<0.500	8.10	42.0	676
	11/9/2017	<0.200	95.2	12.4	0.55	7.12	36.4	488
	3/12/2018	<0.200	99.8	12.9	<0.500	6.45 / 7.51 [1]	37.0	412
	6/6/2018	0.203	102	12.5	<0.500	6.84	71.0	504
	10/3/2018	<0.200	87.3	14.1	0.738	6.88	33.6	410
	4/8/2019	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]
	10/15/2019	N.S. [5]	N.S. [5]	N.S. [5]	N.S. [5]	N.S. [5]	N.S. [5]	N.S. [5]
NC2-MW-2	3/14/2016	<0.200	277	<5.00	0.371	6.80	388.0	1120
	6/3/2016	0.301	196	<5.00	<0.500	6.79	336.0	972
	8/31/2016	0.511	130	<5.00	<0.500	7.04	151.0	696
	11/17/2016	0.302	236	<5.00	<0.500	7.23	298.0	1030
	2/15/2017	0.219	269	13.2	2.51	7.28	290.0	1070
	4/24/2017	0.264	158	5.4	1.38	7.21	135.0	652
	6/15/2017	0.304	165	<5.00	<0.500	7.04	139.0	780
	7/12/2017	0.325	127	<5.00	<0.500	7.03	73.0	592
	11/9/2017	0.25	131	<5.00	<0.500	7.19	130.0	662
	3/12/2018	<0.200	176	5.08	<0.500	6.26 / 6.96 [1]	258.0	656
	6/6/2018	0.353	220	15.7	<0.500	6.45 / 6.71 [2]	281.0	1180

Table 4 - Appendix III Constituents in Groundwater
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

	Constituent	Appendix III Constituents						
		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-2	10/3/2018	0.438	167	<5.00	<0.500	6.86	164	668
	4/8/2019	0.270	227	11.8	<0.500	6.68	290	978
	10/15/2019	0.513	241	10.7	<0.500	6.54	314	972
NC2-MW-3	3/14/2016	<0.200	85.3	<5.00	0.168	7.05	21.0	334
	6/3/2016	<0.200	121	<5.00	<0.500	7.14	19.6	500
	8/31/2016	<0.200	51.3	<5.00	<0.500	7.18	7.4	296
	11/17/2016	<0.200	91	<5.00	1.28	7.32	5.6	354
	2/15/2017	<0.200	74.2	15.6	5.11	7.09	49.6	378
	4/24/2017	<0.200	63.3	9	2.87	7.68	10.5	324
	6/15/2017	<0.200	89.4	<5.00	<0.500	7.32	<5.00	386
	7/12/2017	<0.200	92.8	<5.00	<0.500	7.99	8.9	528
	11/9/2017	<0.200	148	<5.00	<0.500	7.33	185.0	604
	3/12/2018	<0.200	167	11.7	0.723	6.61 / 7.41 [1]	371.0	792
	6/6/2018	0.654	198	22.9	<0.500	4.40 / 6.91 [2]	491.0	978
	10/3/2018	<0.200	127	8.74	0.523	6.94	31.2	478
	4/8/2019	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]
	10/15/2019	<0.200	138	7.92	<0.500	6.81	20.3	472
NC2-MW-6	3/14/2016	3.83	134	16.5	<0.500	7.21	314.0	728
	6/3/2016	4.14	93	6.16	<0.500	7.27	171.0	608
	8/31/2016	4.79	90.4	<5.00	<0.500	7.43	149.0	592
	11/17/2016	5.11	125	15	6.53	7.63	165.0	588
	2/15/2017	4.11	132	<5.00	<0.500	7.77	136.0	602
	4/24/2017	3.08	96.5	10.2	1.71	7.68	99.1	530
	6/15/2017	3.58	119	6.26	<0.500	7.35	196.0	636
	7/12/2017	3.92	102	<5.00	<0.500	7.25	155.0	596
	11/9/2017	4.39	128	6.75	<0.500	7.24	195.0	872
	3/12/2018	3.06	145	7.14	<0.500	6.64 / 7.38 [1]	194.0	644
	6/6/2018	3.58	133	5.53	<0.500	7.19	174.0	694
	10/3/2018	4.18	129	<5.00	<0.500	6.97	200	660
	4/8/2019	2.46	94.3	<5.00	<0.500	7.18	141	520
	10/15/2019	2.79	154	9.08	<0.500	6.82	151	656
NC2-MW-7	3/14/2016	<0.200	134	6.55	0.312	6.92	6.9	496
	6/3/2016	<0.200	128	7.63	<0.500	7.28	<5.00	690
	8/31/2016	<0.200	100	6.68	<0.500	7.55	<5.00	534
	11/17/2016	<0.200	138	5.73	0.544	7.77	<5.00	510
	2/15/2017	<0.200	143	9.96	<0.500	7.55	<5.00	552
	4/24/2017	<0.200	139	11.3	1.35	7.83	<5.00	576
	6/15/2017	<0.200	128	9.81	<0.500	7.40	<5.00	688
	7/12/2017	<0.200	125	8.07	<0.500	7.25	<5.00	636
	11/9/2017	0.201	131	7.79	<0.500	7.40	17.8	580
	3/12/2018	<0.200	144.0	9.04	<0.500	6.72 / 7.42 [1]	25.7	496
	6/6/2018	<0.200	119	9.41	<0.500	7.21	12.0	528
	10/3/2018	<0.200	122	9.19	0.519	7.31	11.6	494
	4/8/2019	0.214	132	8.64	<0.500	7.33	44.0	820
	10/15/2019	<0.200	139	8.41	<0.500	7.02	32.1	520
NC2-MW-8	3/14/2016	*NC2-MW-8 was installed on 7/9/2018 [3]*						
	6/3/2016							
	8/31/2016							
	11/17/2016							
	2/15/2017							
	4/24/2017							

Table 4 - Appendix III Constituents in Groundwater
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

		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-8	6/15/2017	*NC2-MW-8 was installed on 7/9/2018 [3]*						
	7/12/2017							
	11/9/2017							
	3/12/2018							
	6/6/2018							
	10/3/2018	<0.200	142	7.05	0.566	7.14	10.7	526
	1/15/2019	<0.200	102	8.10	<0.500	6.73	11.6	504
	3/5/2019	<0.200	153	7.84	<0.500	7.02	11.6	512
	4/8/2019	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]	N.S. [4]
	10/16/2019	<0.200	140	9.42	<0.500	6.89	<5.00	476

N.S. indicates analyte not sampled due to flooding of area around monitoring well.

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

[1] The first pH value obtained in the field on March 13, 2018 was found to be inaccurate due to equipment errors. The second pH value was a verification sample obtained in the field on March 19, 2018.

[2] Verification sampling for pH was completed on August 7, 2018 and determined the June 5, 2018 reading was inaccurate.

[3] NC2-MW-8 is a new well installed after the initial eight rounds of background sampling in 2016 and 2017. Eight background samples will be obtained for the full Appendix III and Appendix IV lists.

[4] MW-13, NC2-MW-3, and NC2-MW-8 submerged under water during April 2019 sampling event and were not measured.

[5] MW-13 was submerged during October 2019 sample and was not measured.

< symbol indicates analyte not detected above the reporting limit, which is the value shown following the "<" symbol.

Table 5 - Appendix IV Constituents in Groundwater
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

	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	3/14/2016	<0.001	<0.002	0.276	<0.001	<0.0005	<0.005	<0.0005	0.213	0.00065	<0.05	<0.0002	0.00507	0.563	<0.005	<0.001
	6/3/2016	<0.001	<0.002	0.288	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000737	<0.05	<0.0002	0.00239	0.739	<0.005	<0.001
	8/31/2016	<0.001	<0.002	0.296	<0.001	<0.0005	<0.005	<0.0005	0.646	0.00162	<0.05	<0.0002	0.00252	1.04	<0.005	<0.001
	11/17/2016	<0.001	<0.002	0.284	<0.001	<0.0005	<0.005	<0.0005	1.28	0.000536	<0.05	<0.0002	0.00597	1.03	<0.005	<0.001
	2/15/2017	<0.001	<0.002	0.272	<0.001	<0.0005	<0.005	0.000584	2.43	0.00196	<0.05	<0.0002	0.00393	0.647	<0.005	<0.001
	4/24/2017	<0.001	<0.002	0.287	<0.001	<0.0005	<0.005	<0.0005	1.08	0.000802	<0.05	<0.0002	0.00224	1.08	<0.005	<0.001
	6/15/2017	<0.001	<0.002	0.249	<0.001	<0.0005	<0.005	0.000521	<0.5	0.00165	<0.05	<0.0002	0.00422	1.29	<0.005	<0.001
	7/12/2017	<0.001	<0.002	0.232	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000549	<0.05	<0.0002	0.00233	1.42	<0.005	<0.001
	3/12/2018	<0.001	<0.002	0.297	<0.001	<0.0005	<0.005	<0.0005	<0.5	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	0.00754	<0.001
	10/3/2018	N.S.	<0.002	0.321	N.S.	N.S.	N.S.	<0.0005	<0.5	0.000565	0.0332	N.S.	0.00707	1.13	<0.005	N.S.
	4/8/2019	<0.001	<0.002	0.351	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	0.0351	<0.0002	0.00283	0.743	<0.005	<0.001
	10/15/2019	<0.001	<0.002	0.390	<0.001	0.000138	<0.005	<0.0005	<0.5	<0.0005	0.0343	<0.0002	0.00412	1.22	<0.005	<0.001
NC2-MW-5	3/14/2016	<0.001	<0.002	0.0295	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.00587	0.318	<0.005	<0.001
	6/3/2016	<0.001	0.00291	0.0384	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0237	0.354	<0.005	<0.001
	8/31/2016	<0.001	<0.002	0.0414	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0243	0.365	<0.005	<0.001
	11/17/2016	<0.001	0.00218	0.0558	<0.001	<0.0005	<0.005	<0.0005	1.89	<0.0005	<0.05	<0.0002	0.0204	0.476	<0.005	<0.001
	2/15/2017	<0.001	<0.002	0.0335	<0.001	<0.0005	<0.005	<0.0005	0.59	0.00088	<0.05	<0.0002	0.0168	0.106	<0.005	<0.001
	4/24/2017	<0.001	0.00236	0.0366	<0.001	<0.0005	<0.005	<0.0005	1.25	0.000734	<0.05	<0.0002	0.00818	0.136	<0.005	<0.001
	6/15/2017	<0.001	0.00207	0.0416	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000601	<0.05	0.0002	0.0125	0.265	<0.005	<0.001
	7/12/2017	<0.001	0.0022	0.0484	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000584	<0.05	<0.0002	0.012	0.507	<0.005	<0.001
	3/12/2018	<0.001	0.0026	0.0395	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000562	<0.01	<0.0002	0.0145	0.236 U	0.0238	<0.001
	6/6/2018	<0.001	0.00325	0.0713	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.00159	0.0129	<0.0002	0.0205	0.187	0.0144	<0.001
	10/3/2018	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.5	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
	4/8/2019	N.S.	<0.002	0.0341	N.S.	<0.0005	<0.005	N.S.	0.634	<0.0005	N.S.	<0.0002	N.S.	N.S.	<0.005	N.S.
	10/15/2019	<0.001	0.00247	0.0340	<0.001	<0.0001	<0.005	<0.0005	<0.5	<0.0005	0.0152	<0.0002	0.0339	-0.0619 U	<0.005	<0.001
MW-13	3/14/2016	<0.001	0.00545	0.288	<0.001	<0.0005	<0.005	0.00105	<0.5	<0.0005	<0.05	<0.0002	0.0167	0.741	<0.005	<0.001
	6/3/2016	<0.001	0.00607	0.324	<0.001	<0.0005	<0.005	0.00122	<0.5	0.000704	<0.05	<0.0002	<0.002	1.01	<0.005	<0.001
	8/31/2016	<0.001	0.00623	0.342	<0.001	<0.0005	<0.005	0.00107	<0.5	<0.0005	<0.05	<0.0002	0.00216	1.09	<0.005	<0.001
	11/17/2016	<0.001	0.00515	0.322	<0.001	<0.0005	<0.005	0.000873	0.803	0.00089	<0.05	<0.0002	0.00258	1.37	<0.005	<0.001
	2/15/2017	<0.001	0.00289	0.321	<0.001	<0.0005	<0.005	0.000883	<0.5	<0.0005	<0.05	<0.0002	0.00221	0.407	<0.005	<0.001
	4/24/2017	<0.001	0.0024	0.336	<0.001	<0.0005	<0.005	0.00135	0.79	0.000516	<0.05	<0.0002	0.00207	0.579	<0.005	<0.001
	6/15/2017	<0.001	0.00371	0.318	<0.001	<0.0005	<0.005	0.00127	<0.5	<0.0005	<0.05	<0.0002	<0.002	0.8	<0.005	<0.001
	7/12/2017	<0.001	0.00263	0.328	<0.001	<0.0005	<0.005	0.00112	<0.5	<0.0005	<0.05	<0.0002	0.0021	1.56	<0.005	<0.001
	3/12/2018	<0.001	0.00295	0.306	<0.001	<0.0005	<0.005	0.00189	<0.5	0.00086	0.0297	<0.0002	<0.002	0.492	<0.005	<0.001
	6/6/2018	<0.001	0.00262	0.282	<0.001	<0.0005	<0.005	0.00236	<0.5	0.00577	0.0423	<0.0002	<0.002	1.89	0.00553	<0.001
	10/3/2018	N.S.	0.00965	0.388	N.S.	N.S.	N.S.	0.00191	0.738	0.00216	0.0316	N.S.	0.00243	1.62	<0.005	<0.001
	4/8/2019	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]
	10/15/2019	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]	N/A [3]
NC2-MW-2	3/14/2016	0.00188	<0.002	0.0679	<0.001	<0.0005	<0.005	<0.0005	0.371	<0.0005	0.0512	<0.0002	0.00207	0.967	<0.005	<0.001
	6/3/2016	0.00944	<0.002	0.136	<0.001	<0.0005	0.0153	<0.0005	<0.5	0.000538	<0.05	<0.0002	0.00368	0.535	<0.005	<0.001
	8/31/2016	0.00812	<0.002	0.0814	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000872	<0.05	<0.0002	0.00757	0.996	<0.005	<0.001
	11/17/2016	0.00452	<0.002	0.122	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.00519	1.39	<0.005	<0.001
	2/15/2017	0.00331	<0.002	0.144	<0.001	<0.0005	<0.005	<0.0005	2.51	0.000671	<0.05	<0.0002	0.0093	0.304	<0.005	<0.001
	4/24/2017	0.00303	<0.002	0.076	<0.001	<0.0005	<0.005	<0.0005	1.38	<0.0005	<0.05	<0.0002	0.0158	0.518	<0.005	<0.001
	6/15/2017	0.00282	<0.002	0.0828	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000721	<0.05	<0.0002	0.0106	0.48	<0.005	<0.001
	7/12/2017	0.00266	<0.002	0.0837	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000949	<0.05	<0.0002	0.0174	0.721	<0.005	<0.001
	3/12/2018	0.00261	<0.002	0.12	<0.001	<0.0005	<0.005	0.000626	<0.5	0.000604	0.0165	<0.0002	0.0402	0.882	<0.005	<0.001
	6/6/20018	0.00345	<0.002	0.179	<0.001	<0.0005	<0.005	0.00132	<0.5	<0.0005	0.0201	<0.0002	0.137	1.15	<0.005	<0.001
	10/3/2018	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.5	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
	4/8/2019	N.S.	<0.002	0.127	N.S.	<0.0005	<0.005	N.S.	<0.5	0.00206	N.S.	<0.0002	N.S.	N.S.	<0.005	N.S.
	10/15/2019	0.00900	<0.002	0.142	<0.001	0.000220	<0.005	<0.0005	<0.5	0.000787	0.0313	<0.0002	0.0361	0.650	<0.005	<0.001
NC2-MW-3	3/14/2016	<0.001	0.00762	0.253	<0.001	<0.0005	<0.005	<0.0005	0.168	<0.0005	<0.05	<0.0002	0.00293	0.948	<0.005	<0.001
	6/3/2016	<0.001	0.0191	0.362	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.00377	0.924	<0.005	<0.001
	8/31/2016	<0.001	0.0103	0.211	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000692	<0.05	<0.0002	0.00301	0.446	<0.005	<0.001
	11/17/2016	<0.001	0.0113	0.234	<0.001	<0.0005	<0.005	<0.0005	1.28	<0.0005	<0.05	<0.0002	<0.002	0.616	<0.005	<0.001
	2/15/2017	0.00111	0.0066	0.281	<0.001	<0.0005	<0.005	0.00051	5.11	<0.0005	<0.05	<0.0002	0.0176	0.381	<0.005	<0.001
	4/24/2017	<0.001	0.00892	0.174	<0.001	<0.0005	<0.005	0.00216	2.87	0.000691	<0.05	<0.0002	0.00677	0.521	<0.005	<0.001
	6/15/2017	<0.001	0.0101	0.225	<0.001	<0.0005	<0.005	0.00103	<0.5	0.00103	<0.05	<0.0002	0.00298	0.928	<0.005	<0.001
	7/12/2017	<0.001	0.00286	0.267	<0.001	<0.0005	<0.005	0.000806	<0.5	0.000913	<0.05	<0.0002	0.00206	0.479	<0.005	<0.001
	3/12/2018	<0.001	0.0027	0.125	<0.001	<0.0005	<0.005	0.000997	0.723	0.00178	0.0128	<0.0002	0.00454	0.6	<0.005	<0.001
	6/6/2019	<0.001	0.00835	0.163	<0.001	<0.0005	<0.005	0.00768	<0.5	<0.0005	0.0182	<0.0002	0.0628	1.22	<0.005	<0.001
	10/3/2018	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.532	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
	4/8/2019	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]
	10/15/2019	<0.001	0.00344	0.312	<0.001	<0.0001	<0.005	0.00232	<0.5	<0.0005	0.0428	<0.0002	0.00526	0.878	<0.005	<0.001

Table 5 - Appendix IV Constituents in Groundwater
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

	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-6	3/14/2016	<0.001	<0.002	0.0818	<0.001	<0.0005	0.00629	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0210	0.392	0.00645	<0.001
	6/3/2016	<0.001	<0.002	0.0823	<0.001	<0.0005	0.00535	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0593	0.603	<0.005	<0.001
	8/31/2016	<0.001	<0.002	0.122	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0677	1.03	<0.005	<0.001
	11/17/2016	<0.001	<0.002	0.109	<0.001	<0.0005	<0.005	<0.0005	6.53	<0.0005	<0.05	<0.0002	0.0455	1.48	<0.005	<0.001
	2/15/2017	<0.001	<0.002	0.0948	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.000901	<0.05	<0.0002	0.0265	0.429	<0.005	<0.001
	4/24/2017	<0.001	<0.002	0.0791	<0.001	<0.0005	<0.005	<0.0005	1.71	<0.0005	<0.05	<0.0002	0.041	0.425	<0.005	<0.001
	6/15/2017	<0.001	<0.002	0.105	<0.001	<0.0005	0.00501	<0.0005	<0.5	0.00329	<0.05	<0.0002	0.0354	0.641	<0.005	<0.001
	7/12/2017	<0.001	<0.002	0.0916	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	<0.05	<0.0002	0.0419	0.949	<0.005	<0.001
	3/12/2018	<0.001	<0.002	0.107	<0.001	<0.0005	<0.005	0.000505	<0.5	0.00258	0.0371	<0.0002	0.00672	0.530	<0.005	<0.001
	6/6/2018	<0.001	<0.002	0.12	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.00193	0.0321	<0.0002	0.0108	1.020	0.00679	<0.001
	10/3/2018	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.5	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
	4/8/2019	N.S.	<0.002	0.121	<0.001	<0.0005	<0.005	N.S.	<0.5	0.000527	N.S.	<0.0002	N.S.	N.S.	<0.005	N.S.
	10/15/2019	<0.001	<0.002	0.145	<0.001	<0.0001	<0.005	<0.0005	<0.5	<0.0005	0.0408	<0.0002	0.0121	0.494	<0.005	<0.001
NC2-MW-7	3/14/2016	<0.001	0.0994	0.687	<0.001	<0.0005	<0.005	0.000794	0.312	<0.0005	0.0602	<0.0002	<0.002	1.43	<0.005	<0.001
	6/3/2016	<0.001	0.0529	0.591	<0.001	<0.0005	<0.005	<0.0005	<0.5	0.00166	0.0542	<0.0002	<0.002	1.14	<0.005	<0.001
	8/31/2016	<0.001	0.0418	0.526	<0.001	<0.0005	<0.005	0.000681	<0.5	<0.0005	0.0581	<0.0002	<0.002	0.847	<0.005	<0.001
	11/17/2016	<0.001	0.0473	0.544	<0.001	<0.0005	<0.005	<0.0005	0.544	<0.0005	0.0613	<0.0002	<0.002	0.851	<0.005	<0.001
	2/15/2017	<0.001	0.0608	0.558	<0.001	<0.0005	<0.005	0.000639	<0.5	<0.0005	0.0638	<0.0002	<0.002	0.745	<0.005	<0.001
	4/24/2017	<0.001	0.0592	0.614	<0.001	<0.0005	<0.005	0.000629	1.35	<0.0005	0.0624	<0.0002	<0.002	1.04	<0.005	<0.001
	6/15/2017	<0.001	0.0469	0.538	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	0.0579	<0.0002	<0.002	0.815	<0.005	<0.001
	7/12/2017	<0.001	0.041	0.501	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	0.0602	<0.0002	<0.002	1.15	<0.005	<0.001
	3/12/2018	<0.001	0.0387	0.473	<0.001	<0.0005	<0.005	<0.0005	<0.5	<0.0005	0.0546	<0.0002	<0.002	1.06	<0.005	<0.001
	6/6/2019	<0.001	0.0418	0.624	<0.001	<0.0005	<0.005	0.000876	<0.5	0.00069	0.0535	<0.0002	<0.002	0.986	<0.005	<0.001
	10/3/2018	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.519	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
	4/8/2019	N.S.	0.0391	0.565	N.S.	<0.0005	<0.005	N.S.	<0.5	<0.0005	N.S.	<0.0002	N.S.	N.S.	<0.005	N.S.
	10/15/2019	<0.001	0.0384	0.597	<0.001	<0.0001	<0.005	<0.0005	<0.5	<0.0005	0.0633	<0.0002	<0.002	0.532	<0.005	<0.001
NC2-MW-8	*NC2-MW-8 was installed on 7/9/2018*[1]															
	10/3/2018	<0.001	0.0223	0.617	<0.001	<0.0005	<0.005	0.0025	0.566	0.00125	0.0347	<0.0002	0.00307	1.7	<0.005	<0.001
	1/15/2019	<0.00100	0.0177	0.503	<0.00100	<0.0005	<0.005	0.00224	<0.5	<0.0005	0.0292	<0.0002	0.00288	0.716	<0.005	<0.001
	3/5/2019	<0.00100	0.00716	0.566	<0.00100	<0.0005	<0.005	0.00304	<0.5	<0.0005	0.036	<0.0002	0.00304	N.S.	<0.005	<0.001
	4/8/2019	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]	N/A [2]
	10/16/2019	<0.00100	0.0206	0.596	<0.00100	<0.0001	<0.005	0.00175	<0.5	<0.0005	0.0333	<0.0002	0.00347	0.735	<0.005	<0.001

[1] NC2-MW-8 is a new well installed after the initial eight rounds of background sampling in 2016 and 2017. Eight background samples will be obtained for the full Appendix III and Appendix IV lists.

[2] MW-13, NC2-MW-3, and NC2-MW-8 submerged under water during April 2019 sampling event and were not measured. MW-13 was submerged during October 2019 sample and was not measured.

[3] MW-13 was submerged during October 2019 sample and was not measured.

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

N.S. indicates analyte not sampled because NC2 is in detection monitoring.

< symbol indicates analyte not detected above the reporting limit, which is the value shown following the "<" symbol.

"U" data qualifier (radium) indicates parameter was analyzed for but not detected above limiting criteria (such as, but not limited to: minimum detectable concentration; total uncertainty; reporting limit) as defined in the analytical laboratory data package.

Table 6 - Background Threshold Values for Detection Monitoring
Omaha Public Power District - NC2 Ash Disposal Area
January 2020

Constituents	Units	Background Threshold Values (UPLs)
Appendix III		
Boron	mg/l	4.63
Calcium	mg/l	223
Chloride	mg/l	34.2
Fluoride*	mg/l	2.43
pH (LPL)**	SU	6.51
pH (UPL)***	SU	7.93
Sulfate	mg/l	611
TDS	mg/l	1,390

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

** Indicates the lower bound of the range is the lower prediction limit (LPL).

*** Indicates the upper bound is the upper prediction limit (UPL).

Appendix A

Field Sampling Forms

This page intentionally left blank.

NEBRASKA CITY STATION

Water Levels Prior to Purging

NC1MW2	Date of Sampling	4/8/2019	Time of Sampling	8:53	Static Water Level	4.17
NC1MW3	Date of Sampling	4/8/2019	Time of Sampling	9:22	Static Water Level	4.69
NC1MW3D	Date of Sampling	4/8/2019	Time of Sampling	9:24	Static Water Level	6.36
NC1MW4	Date of Sampling	4/8/2019	Time of Sampling	9:09	Static Water Level	4.58
NC1MW4D	Date of Sampling	4/8/2019	Time of Sampling	9:11	Static Water Level	3.32
NC1MW5	Date of Sampling		Time of Sampling		Static Water Level	
NC1MW6	Date of Sampling		Time of Sampling		Static Water Level	
NC1MW6D	Date of Sampling		Time of Sampling		Static Water Level	
NC1MW7	Date of Sampling	4/8/2019	Time of Sampling	8:38	Static Water Level	3.68
NC1MW8	Date of Sampling	4/8/2019	Time of Sampling	8:39	Static Water Level	3.98
NC1MW9	Date of Sampling	4/8/2019	Time of Sampling	9:18	Static Water Level	4.85
NC1MW9D	Date of Sampling	4/8/2019	Time of Sampling	9:16	Static Water Level	6.24
NC1MW11	Date of Sampling	4/8/2019	Time of Sampling	9:00	Static Water Level	3.04
NC1MW12	Date of Sampling	4/8/2019	Time of Sampling	9:04	Static Water Level	4.89
NC1MW14	Date of Sampling	4/8/2019	Time of Sampling	7:52	Static Water Level	5.73
NC1MW16	Date of Sampling		Time of Sampling		Static Water Level	
NC1MW17	Date of Sampling		Time of Sampling		Static Water Level	
NC2MW4	Date of Sampling	4/8/2019	Time of Sampling	7:47	Static Water Level	3.53
NC2MW13	Date of Sampling		Time of Sampling		Static Water Level	
NC2MW2	Date of Sampling	4/8/2019	Time of Sampling	8:27	Static Water Level	6.70
NC2MW3	Date of Sampling		Time of Sampling		Static Water Level	
NC2MW4	Date of Sampling	4/8/2019	Time of Sampling	7:47	Static Water Level	3.53
NC2MW5	Date of Sampling	4/8/2019	Time of Sampling	8:09	Static Water Level	4.56
NC2MW6	Date of Sampling	4/8/2019	Time of Sampling	8:12	Static Water Level	4.18
NC2MW7	Date of Sampling	4/8/2019	Time of Sampling	8:34	Static Water Level	2.74
NC2MW8	Date of Sampling		Time of Sampling		Static Water Level	
NC2MW13	Date of Sampling		Time of Sampling		Static Water Level	

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW2 - 5**	Date: 4/8/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, 80°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:27	Pump Start Time	14:13
Static Water Level (+/- 0.01 feet)*	6.70	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	17.61	Time to Purge Well (hours:minutes)	0:47
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.74		
Actual Volume of Water Purged (mL)	9,400		

*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)
14:18	1,000	15.53	3.52	144	6.75	1.31	7.02
14:21	1,600	15.65	1.82	142	6.75	1.32	7.32
14:24	2,200	15.11	5.87	136	6.71	1.33	7.58
14:27	2,800	14.43	5.25	143	6.68	1.34	7.62
14:30	3,400	14.56	1.34	122	6.67	1.34	7.70
14:33	4,000	14.27	1.60	105	6.66	1.34	7.72
14:36	4,600	14.63	3.17	87.2	6.65	1.34	7.75
14:39	5,200	14.65	3.14	69.8	6.65	1.34	7.82
14:42	5,800	14.58	3.09	59.5	6.65	1.35	7.84
14:45	6,400	14.45	3.07	51.5	6.64	1.35	7.85
14:48	7,000	14.35	2.84	45.1	6.64	1.35	7.84
14:51	7,600	14.28	2.79	40.2	6.65	1.35	7.84
14:54	8,200	14.22	2.75	34.3	6.66	1.35	7.84
14:57	8,800	14.17	2.70	28.5	6.67	1.36	7.84
15:00	9,400	14.13	2.72	24.2	6.68	1.36	7.85

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)
15:00	9,400	14.13	2.72	24.2	6.68	1.36	7.85
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		200

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	4/8/2019, 5:46
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776)
Monitoring Well Identification - Sample Number: **MW3**	Date:
Wellhead Inspection (Condition):	Weather Conditions:

Groundwater Measurements and Purge Data

Time of Water Level Measurement		Pump Start Time	
Static Water Level (+/- 0.01 feet)*		Purge Rate (mL/minute)	
Bottom of Well Casing (+/- 0.01 feet)*	16.00	Time to Purge Well (hours:minutes)	
Pump Intake Elevation (+/- 0.01 feet)*		Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)			
Actual Volume of Water Purged (mL)			

*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)
	Not Sampled - Well Submerged Under Water						

Well Evacuated to Dryness? _____ Recharge time? _____

Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
Duplicate?		Preservation?			Pump Rate (mL/minute)		

Sample Physical Characteristics		**Equipment Information**	
Sample Clarity		QED Pump Control Information	
Sample Color		Decontamination Procedure	
Sample Odor		Instrument Calibration By	
Immiscible Layer Observed? If so, thickness?		Date and Time of Calibration	
Notes / Unusual Occurrences:			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW4 - 1**	Date: 4/8/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, 66°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	7:47	Pump Start Time	10:03
Static Water Level (+/- 0.01 feet)*	3.53	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	14.50	Time to Purge Well (hours:minutes)	0:42
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.77		
Actual Volume of Water Purged (mL)	8,400		

*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)
10:08	1,000	11.51	12.01	152	6.55	0.932	4.92
10:11	1,600	11.33	11.08	88.4	6.52	0.932	5.47
10:15	2,400	11.26	10.20	57.8	6.52	0.933	6.02
10:18	3,000	11.12	10.05	58.5	6.52	0.933	6.14
10:21	3,600	11.03	1.95	62.1	6.53	0.931	6.19
10:24	4,200	11.15	1.89	56.8	6.57	0.932	6.26
10:27	4,800	11.09	6.89	53.6	6.58	0.931	6.32
10:30	5,400	11.16	7.00	45.6	6.59	0.930	6.38
10:33	6,000	11.19	6.84	39.1	6.63	0.932	6.44
10:36	6,600	11.13	8.52	34.3	6.65	0.929	6.57
10:39	7,200	11.09	8.51	30.4	6.66	0.929	6.64
10:42	7,800	11.07	8.24	27.0	6.68	0.930	6.69
10:45	8,400	11.03	8.04	24.1	6.71	0.930	6.72

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)
10:45	8,400	11.03	8.04	24.1	6.71	0.930	6.72
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		200

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	4/8/2019, 5:46
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW5 - 3**	Date: 4/8/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, 73°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:09	Pump Start Time	12:49
Static Water Level (+/- 0.01 feet)*	4.56	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	15.80	Time to Purge Well (hours:minutes)	0:17
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.94		
Actual Volume of Water Purged (mL)	3,400		

*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)
12:54	1,000	12.01	8.05	4.2	7.18	1.39	4.92
12:57	1,600	11.55	7.23	1.9	7.16	1.40	5.03
13:00	2,200	11.10	6.73	1.8	7.15	1.39	5.08
13:03	2,800	11.22	6.47	1.8	7.13	1.38	5.14
13:06	3,400	11.08	6.31	1.4	7.15	1.39	5.17

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)
13:06	3,400	11.08	6.31	1.4	7.15	1.39	5.17
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		200

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	4/8/2019, 5:46
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW6 - 4**	Date: 4/8/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, 78°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:12	Pump Start Time	13:26
Static Water Level (+/- 0.01 feet)*	4.18	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	14.50	Time to Purge Well (hours:minutes)	0:11
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.37		
Actual Volume of Water Purged (mL)	2,200		

*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)
13:31	1,000	13.32	2.82	14.9	7.17	0.785	4.27
13:34	1,600	13.42	2.69	8.8	7.16	0.777	4.34
13:37	2,200	13.28	2.64	6.4	7.18	0.774	4.36

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)
13:37	2,200	13.28	2.64	6.4	7.18	0.774	4.36
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		200

Sample Physical Characteristics **Equipment Information**

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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	4/8/2019, 5:46
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776), Bryan Lorence
Monitoring Well Identification - Sample Number: **MW7 - 6**	Date: 4/8/2019
Wellhead Inspection (Condition): Compliant (See Notes)	Weather Conditions: Clear, Sunny, 78°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	8:34	Pump Start Time	16:07
Static Water Level (+/- 0.01 feet)*	2.74	Purge Rate (mL/minute)	200
Bottom of Well Casing (+/- 0.01 feet)*	24.10	Time to Purge Well (hours:minutes)	0:53
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	13.19		
Actual Volume of Water Purged (mL)	10,600		

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

Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
16:12	1,000	17.86	3.70	656	7.32	1.03	4.80
16:15	1,600	16.65	3.74	308	7.34	1.04	5.33
16:18	2,200	16.03	3.81	201	7.34	1.04	5.70
16:21	2,800	16.14	3.90	131	7.33	1.05	6.05
16:24	3,400	16.17	3.94	118	7.33	1.05	6.47
16:27	4,000	16.11	4.00	108	7.32	1.05	6.58
16:30	4,600	16.26	3.97	85.2	7.32	1.06	6.82
16:33	5,200	16.18	4.01	85.0	7.32	1.06	6.87
16:36	5,800	16.19	4.04	74.4	7.30	1.06	6.92
16:39	6,400	16.20	4.00	63.9	7.30	1.06	7.02
16:42	7,000	16.10	4.02	50.2	7.29	1.06	7.05
16:45	7,600	16.04	4.04	43.3	7.30	1.07	7.06
16:48	8,200	16.07	4.02	44.4	7.29	1.06	7.04
16:51	8,800	16.11	4.02	37.4	7.30	1.06	7.11
16:54	9,400	16.08	4.04	30.5	7.31	1.06	7.12
16:57	10,000	16.04	4.04	27.0	7.32	1.07	7.12
17:00	10,600	16.04	4.03	24.1	7.33	1.07	7.12

Well Evacuated to Dryness? No Recharge time? Not Measured

Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
17:00	10,600	16.04	4.03	24.1	7.33	1.07	7.12
Duplicate?	Yes, DUP 1	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		200

Sample Physical Characteristics / **Equipment Information**

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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	4/8/2019, 5:46

Notes / Unusual Occurrences: Well concrete pad is submerged under water.

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776)
Monitoring Well Identification - Sample Number: **MW8**	Date:
Wellhead Inspection (Condition):	Weather Conditions:

Groundwater Measurements and Purge Data

Time of Water Level Measurement		Pump Start Time	
Static Water Level (+/- 0.01 feet)*		Purge Rate (mL/minute)	
Bottom of Well Casing (+/- 0.01 feet)*	15.60	Time to Purge Well (hours:minutes)	
Pump Intake Elevation (+/- 0.01 feet)*		Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)			
Actual Volume of Water Purged (mL)			

*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)
	Not Sampled - Well Submerged Under Water						

Well Evacuated to Dryness? _____ Recharge time? _____

Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
Duplicate?		Preservation?			Pump Rate (mL/minute)		

Sample Physical Characteristics		**Equipment Information**	
Sample Clarity		QED Pump Control Information	
Sample Color		Decontamination Procedure	
Sample Odor		Instrument Calibration By	
Immiscible Layer Observed? If so, thickness?		Date and Time of Calibration	

Notes / Unusual Occurrences:

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle Uhing (79776)
Monitoring Well Identification - Sample Number: **MW13**	Date:
Wellhead Inspection (Condition):	Weather Conditions:

Groundwater Measurements and Purge Data

Time of Water Level Measurement		Pump Start Time	
Static Water Level (+/- 0.01 feet)*		Purge Rate (mL/minute)	
Bottom of Well Casing (+/- 0.01 feet)*	15.19	Time to Purge Well (hours:minutes)	
Pump Intake Elevation (+/- 0.01 feet)*		Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)			
Actual Volume of Water Purged (mL)			

*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)
	Not Sampled - Well Submerged Under Water						

Well Evacuated to Dryness? _____ Recharge time? _____

Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
Duplicate?		Preservation?			Pump Rate (mL/minute)		

Sample Physical Characteristics **Equipment Information**

Sample Clarity		QED Pump Control Information	
Sample Color		Decontamination Procedure	
Sample Odor		Instrument Calibration By	
Immiscible Layer Observed? If so, thickness?		Date and Time of Calibration	

Notes / Unusual Occurrences:

Equipment Calibration Sheet

Date: 4/8/2019
Time: 5:46

Person Calibrating Instrument: Kyle K. Uhing

Instrument Type	Instrument Brand	Instrument Model	Instrument Serial Number
Multiparameter Water Meter	Horiba	U-5000/U-52	KE3AGWPR/NTKDC76Y

Parameter:	Reading	Units
pH 4	4.00	SU
Conductivity	4.49	µS/cm
Turbidity	0.0	NTU
DO	10.44	mg/L

Comments:

The Horiba was calibrated using pH 4.0 AutoCal buffer solution.

SU = Standard Units

.

NEBRASKA CITY STATION

Water Levels Prior to Purging (Feet Below TOC)

NC1MW2	Date of Sampling	10/14/2019	Time of Sampling	14:52	Static Water Level	3.64
NC1MW3	Date of Sampling	10/14/2019	Time of Sampling	16:19	Static Water Level	4.56
NC1MW4	Date of Sampling	10/14/2019	Time of Sampling	16:10	Static Water Level	4.33
NC1MW5	Date of Sampling	10/14/2019	Time of Sampling	NM	Static Water Level	NM
NC1MW6	Date of Sampling	10/14/2019	Time of Sampling	NM	Static Water Level	NM
NC1MW7	Date of Sampling	10/14/2019	Time of Sampling	14:58	Static Water Level	3.01
NC1MW8	Date of Sampling	10/14/2019	Time of Sampling	14:59	Static Water Level	3.33
NC1MW9	Date of Sampling	10/14/2019	Time of Sampling	16:24	Static Water Level	4.65
NC2MW2	Date of Sampling	10/14/2019	Time of Sampling	15:21	Static Water Level	6.34
NC2MW3	Date of Sampling	10/14/2019	Time of Sampling	15:18	Static Water Level	0.21*
NC2MW4	Date of Sampling	10/14/2019	Time of Sampling	14:28	Static Water Level	3.47
NC2MW5	Date of Sampling	10/14/2019	Time of Sampling	15:04	Static Water Level	4.48
NC2MW6	Date of Sampling	10/14/2019	Time of Sampling	15:10	Static Water Level	3.75
NC2MW7	Date of Sampling	10/14/2019	Time of Sampling	15:27	Static Water Level	2.27
NC2MW8	Date of Sampling	10/14/2019	Time of Sampling	15:48	Static Water Level	2.38
MW11	Date of Sampling	10/14/2019	Time of Sampling	14:41	Static Water Level	2.90
MW12	Date of Sampling	10/14/2019	Time of Sampling	14:45	Static Water Level	4.77
MW13	Date of Sampling	10/14/2019	Time of Sampling	NM	Static Water Level	NM
MW14	Date of Sampling	10/14/2019	Time of Sampling	14:33	Static Water Level	5.75

NOTES:

TOC = Top of Casing

NM = Not Measured, Inaccessible

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW2 - 5**	Date: 10/15/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, Windy, 61°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	14:09	Pump Start Time	14:14
Static Water Level (+/- 0.01 feet)*	6.48	Purge Rate (mL/minute)	350
Bottom of Well Casing (+/- 0.01 feet)*	17.61	Time to Purge Well (hours:minutes)	0:20
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.87		
Actual Volume of Water Purged (mL)	7,000		

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

Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
14:19	1,750	17.78	1.50	0.2	6.57	1.34	6.84
14:22	2,800	17.74	0.94	0.0	6.54	1.35	7.13
14:25	3,850	17.77	0.72	0.0	6.54	1.35	7.20
14:28	4,900	17.79	0.64	0.1	6.54	1.36	7.22
14:31	5,950	17.76	0.58	0.0	6.53	1.36	7.22
14:34	7,000	17.74	0.55	0.0	6.54	1.36	7.22

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)
14:34	7,000	17.74	0.55	0.0	6.54	1.36	7.22
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		350

Sample Physical Characteristics / **Equipment Information**

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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/15/2019, 9:29
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW3 - 4**	Date: 10/15/2019
Wellhead Inspection (Condition): Compliant (See Notes)	Weather Conditions: Partly Cloudy, Windy, 85°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	13:30	Pump Start Time	13:32
Static Water Level (+/- 0.01 feet)*	>TOC	Purge Rate (mL/minute)	400
Bottom of Well Casing (+/- 0.01 feet)*	16.00	Time to Purge Well (hours:minutes)	0:14
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	9.88		
Actual Volume of Water Purged (mL)	5,600		

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

Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
13:37	2,000	18.23	0.88	18.1	6.86	0.809	>TOC
13:40	3,200	18.32	0.87	17.2	6.83	0.801	>TOC
13:43	4,400	18.44	0.87	16.5	6.82	0.798	>TOC
13:46	5,600	18.54	0.87	12.5	6.81	0.804	>TOC

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)
13:46	5,600	18.54	0.87	12.5	6.81	0.804	>TOC
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		250

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/15/2019, 9:29

Notes / Unusual Occurrences: Concrete Pad Was Submerged Under Standing Water, Groundwater Elevation Was Above Top Of Well Casing (>TOC)

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW4 - 1**	Date: 10/15/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Windy, 54°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	10:42	Pump Start Time	10:44
Static Water Level (+/- 0.01 feet)*	3.53	Purge Rate (mL/minute)	300-350
Bottom of Well Casing (+/- 0.01 feet)*	14.50	Time to Purge Well (hours:minutes)	0:32
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.77		
Actual Volume of Water Purged (mL)	10,450		

*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)
10:49	1,750	15.52	1.58	12.3	6.07	0.882	4.17
10:52	2,800	15.61	1.32	5.8	6.17	0.879	5.56
10:55	3,850	15.78	1.60	5.6	6.22	0.876	6.32
10:58	4,900	15.91	1.95	6.9	6.26	0.874	6.82
11:01	5,950	15.92	1.97	8.9	6.34	0.873	7.05
11:04	6,850	15.89	1.94	10.5	6.41	0.873	7.05
11:07	7,750	15.87	1.87	10.5	6.48	0.873	7.04
11:10	8,650	15.85	1.62	10.1	6.51	0.873	7.04
11:13	9,550	15.85	1.63	10.4	6.55	0.873	7.02
11:16	10,450	15.84	1.60	10.2	6.57	0.873	7.00

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)
11:16	10,450	15.84	1.60	10.2	6.57	0.873	7.00
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		300

Sample Physical Characteristics / **Equipment Information**

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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/15/2019, 9:29

Notes / Unusual Occurrences: None

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW5 - 2**	Date: 10/15/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, Windy, 58°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	12:00	Pump Start Time	12:01
Static Water Level (+/- 0.01 feet)*	4.57	Purge Rate (mL/minute)	300
Bottom of Well Casing (+/- 0.01 feet)*	15.80	Time to Purge Well (hours:minutes)	0:23
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.93		
Actual Volume of Water Purged (mL)	6,900		

*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)
12:06	1,500	16.36	1.36	2.0	6.93	1.30	5.86
12:09	2,400	16.40	0.99	0.9	6.95	1.30	6.26
12:12	3,300	16.46	0.87	0.4	6.96	1.30	6.48
12:15	4,200	16.51	0.79	0.6	6.97	1.30	6.55
12:18	5,100	16.54	0.73	0.6	6.98	1.30	6.55
12:21	6,000	16.56	0.70	0.7	6.99	1.30	6.55
12:24	6,900	16.55	0.69	0.4	7.00	1.30	6.55

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)
12:24	6,900	16.55	0.69	0.4	7.00	1.30	6.55
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		300

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/15/2019, 9:29

Notes / Unusual Occurrences: None

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW6 - 3**	Date: 10/15/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Clear, Sunny, Windy, 59°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	12:42	Pump Start Time	12:43
Static Water Level (+/- 0.01 feet)*	3.75	Purge Rate (mL/minute)	300
Bottom of Well Casing (+/- 0.01 feet)*	14.50	Time to Purge Well (hours:minutes)	0:14
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	6.64		
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)
12:48	1,500	16.35	1.75	5.4	6.87	1.01	4.11
12:51	2,400	16.42	1.43	2.7	6.84	1.02	4.26
12:54	3,300	16.53	1.39	1.9	6.82	1.01	4.26
12:57	4,200	16.47	1.40	2.5	6.82	1.02	4.24

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)
12:57	4,200	16.47	1.40	2.5	6.82	1.02	4.24
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		300

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/15/2019, 9:29
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW7 - 6**	Date: 10/15/2019
Wellhead Inspection (Condition): Compliant (See Notes)	Weather Conditions: Clear, Sunny, Windy, 60°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	14:59	Pump Start Time	15:05
Static Water Level (+/- 0.01 feet)*	2.36	Purge Rate (mL/minute)	425
Bottom of Well Casing (+/- 0.01 feet)*	24.10	Time to Purge Well (hours:minutes)	0:20
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	13.42		
Actual Volume of Water Purged (mL)	8,500		

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

Groundwater Parameter Data

Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
15:10	2,125	17.68	1.49	13.1	7.01	0.945	2.38
15:13	3,400	17.69	1.49	11.4	7.02	0.944	2.38
15:16	4,675	17.68	1.51	8.4	7.02	0.947	2.38
15:19	5,950	17.66	1.52	10.0	7.02	0.949	2.38
15:22	7,225	17.64	1.53	8.6	7.02	0.951	2.38
15:25	8,500	17.61	1.54	6.3	7.02	0.951	2.38

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	8,500	17.61	1.54	6.3	7.02	0.951	2.38
Duplicate?	Yes, DUP2	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		425

Sample Physical Characteristics		**Equipment Information**	
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 K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/15/2019, 9:29

Notes / Unusual Occurrences: Large Hole In Tubing - Purged And Sampled Using Monsoon Pump, Well Pad Submerged Under Water

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW8 - 7**	Date: 10/16/2019
Wellhead Inspection (Condition): Compliant	Weather Conditions: Partly Cloudy, Sunny, 50°F

Groundwater Measurements and Purge Data

Time of Water Level Measurement	12:28	Pump Start Time	12:30
Static Water Level (+/- 0.01 feet)*	2.53	Purge Rate (mL/minute)	250
Bottom of Well Casing (+/- 0.01 feet)*	15.60	Time to Purge Well (hours:minutes)	0:26
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)	8.07		
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)
12:35	1,250	14.02	1.41	70.2	6.86	0.899	2.58
12:38	2,000	14.06	1.31	45.2	6.89	0.901	2.61
12:41	2,750	14.10	1.19	45.4	6.89	0.902	2.61
12:44	3,500	14.12	1.09	56.8	6.89	0.901	2.61
12:47	4,250	14.12	1.12	46.1	6.88	0.901	2.62
12:50	5,000	14.15	1.15	43.3	6.90	0.900	2.62
12:53	5,750	14.13	1.13	34.2	6.89	0.900	2.62
12:56	6,500	14.12	1.16	23.4	6.89	0.899	2.62

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)
12:56	6,500	14.12	1.16	23.4	6.89	0.899	2.62
Duplicate?	No	Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		250

Sample Physical Characteristics **Equipment Information**

Sample Clarity	Clear	QED Pump Control Information	CPM-2, 27/3, ~20 psi
Sample Color	Light Brown	Decontamination Procedure	Alconox and DI Water Rinse
Sample Odor	Odorless	Instrument Calibration By	Kyle K. Uhing
Immiscible Layer Observed? If so, thickness?	No	Date and Time of Calibration	10/16/2019, 9:08
Notes / Unusual Occurrences: None			

Field Notes For Monitoring Well Sampling

Facility Name: OPPD Nebraska City Station 2	Sampler Name(s): Kyle K. Uhing (79776)
Monitoring Well Identification - Sample Number: **MW13**	Date:
Wellhead Inspection (Condition): Compliant (See Notes)	Weather Conditions:

Groundwater Measurements and Purge Data

Time of Water Level Measurement	NM	Pump Start Time	
Static Water Level (+/- 0.01 feet)*	NM	Purge Rate (mL/minute)	
Bottom of Well Casing (+/- 0.01 feet)*	15.19	Time to Purge Well (hours:minutes)	
Pump Intake Elevation (+/- 0.01 feet)*	Not Measured	Purge and Sample Equipment: Dedicated Bladder Pump with QED Flow Controller and Nitrogen Gas, Graduated Measuring Bucket and Cup, Multi-Parameter Water Meter, and Electronic Water Level Indicator	
2" Well Casing Volume (L)			
Actual Volume of Water Purged (mL)			

*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)

Well Evacuated to Dryness? _____ Recharge time? _____

Groundwater Sample Information

Sample Time	Volume Purged (mL)	Temperature (°C)	DO (mg/L)	Turbidity (NTU)	pH	Conductivity (mS/cm)	Water Level (feet)
Duplicate?		Preservation?	Cool on Ice, HNO_3 for Metals		Pump Rate (mL/minute)		

Sample Physical Characteristics **Equipment Information**

Sample Clarity		QED Pump Control Information	
Sample Color		Decontamination Procedure	
Sample Odor		Instrument Calibration By	
Immiscible Layer Observed? If so, thickness?		Date and Time of Calibration	

Notes / Unusual Occurrences: Monitoring Well Not Accessible Due To Flood Conditions

Equipment Calibration Sheet

Date: 10/15/2019
Time: 9:29

Person Calibrating Instrument: Kyle K. Uhing

Instrument Type	Instrument Brand	Instrument Model	Instrument Serial Number
Multi-Parameter Water Meter	Horiba	U-5000/U-52	KE3AGWPR/NTKDC76Y

Parameter:	Reading	Units
pH 4	4.00	NA
Conductivity	4.31	µS/cm
Turbidity	0.0	NTU
DO	10.10	mg/L

Comments:

The Horiba was calibrated using pH 4.0 AutoCal buffer solution.

.

Equipment Calibration Sheet

Date: 10/16/2019
Time: 9:08

Person Calibrating Instrument: Kyle K. Uhing

Instrument Type	Instrument Brand	Instrument Model	Instrument Serial Number
Multi-Parameter Water Meter	Horiba	U-5000/U-52	KE3AGWPR/NTKDC76Y

Parameter:	Reading	Units
pH 4	4.00	NA
Conductivity	4.49	µS/cm
Turbidity	0.0	NTU
DO	10.10	mg/L

Comments:

The Horiba was calibrated using pH 4.0 AutoCal buffer solution.

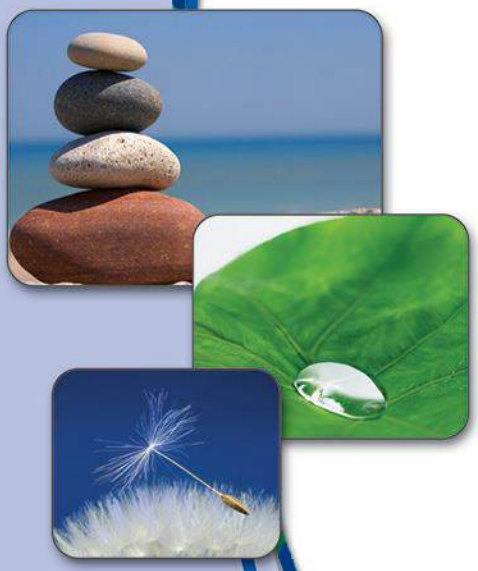
.

Appendix B

Laboratory Analytical Reports

This page intentionally left blank.

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-158904-1
Client Project/Site: Nebraska City Unit 2 Landfill CCR

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

Attn: Kyle Uhing

Angela Muehling

Authorized for release by:
7/8/2019 9:29:51 AM
Angela Muehling, Project Manager II
(319)277-2401
angela.muehling@testamericainc.com

Designee for

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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

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

Table of Contents

Job ID: 310-158904-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-158904-1

Comments
No additional comments.

Receipt
The samples were received on 6/27/2019 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 1.1° C.

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

Sample Summary

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-158904-1	MW2	Ground Water	06/26/19 08:43	06/27/19 09:10	
310-158904-2	DUP 1	Ground Water	06/26/19 00:00	06/27/19 09:10	

Detection Summary

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Client Sample ID: MW2
Lab Sample ID: 310-158904-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	230		0.500		mg/L	1		6020A	Total/NA

Client Sample ID: DUP 1
Lab Sample ID: 310-158904-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	198		0.500		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Client Sample ID: MW2
Lab Sample ID: 310-158904-1
Date Collected: 06/26/19 08:43
Matrix: Ground Water
Date Received: 06/27/19 09:10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	230		0.500		mg/L		07/01/19 08:08	07/02/19 13:32	1

Client Sample Results

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Client Sample ID: DUP 1
Lab Sample ID: 310-158904-2
Date Collected: 06/26/19 00:00
Matrix: Ground Water
Date Received: 06/27/19 09:10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	198		0.500		mg/L		07/01/19 08:08	07/02/19 13:56	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

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.

Glossary

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

QC Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 Landfill CCR

Job ID: 310-158904-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-244371/1-A
Matrix: Water
Analysis Batch: 244707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 244371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.500		0.500		mg/L		07/01/19 08:08	07/02/19 13:22	1

Lab Sample ID: LCS 310-244371/2-A
Matrix: Water
Analysis Batch: 244707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 244371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	2.00	2.336		mg/L		117	80 - 120

Lab Sample ID: 310-158904-1 MS
Matrix: Ground Water
Analysis Batch: 244707

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 244371

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	230		2.00	222.5	4	mg/L		-380	75 - 125

Lab Sample ID: 310-158904-1 MSD
Matrix: Ground Water
Analysis Batch: 244707

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 244371

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	230		2.00	198.3	4	mg/L		-1593	75 - 125	12	20

QC Association Summary

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Metals

Prep Batch: 244371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-158904-1	MW2	Total/NA	Ground Water	3010A	
310-158904-2	DUP 1	Total/NA	Ground Water	3010A	
MB 310-244371/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-244371/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-158904-1 MS	MW2	Total/NA	Ground Water	3010A	
310-158904-1 MSD	MW2	Total/NA	Ground Water	3010A	

Analysis Batch: 244707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-158904-1	MW2	Total/NA	Ground Water	6020A	244371
310-158904-2	DUP 1	Total/NA	Ground Water	6020A	244371
MB 310-244371/1-A	Method Blank	Total/NA	Water	6020A	244371
LCS 310-244371/2-A	Lab Control Sample	Total/NA	Water	6020A	244371
310-158904-1 MS	MW2	Total/NA	Ground Water	6020A	244371
310-158904-1 MSD	MW2	Total/NA	Ground Water	6020A	244371

Lab Chronicle

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Client Sample ID: MW2
Lab Sample ID: 310-158904-1
Date Collected: 06/26/19 08:43
Matrix: Ground Water
Date Received: 06/27/19 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			244371	07/01/19 08:08	HED	TAL CF
Total/NA	Analysis	6020A		1	244707	07/02/19 13:32	SAD	TAL CF

Client Sample ID: DUP 1
Lab Sample ID: 310-158904-2
Date Collected: 06/26/19 00:00
Matrix: Ground Water
Date Received: 06/27/19 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			244371	07/01/19 08:08	HED	TAL CF
Total/NA	Analysis	6020A		1	244707	07/02/19 13:56	SAD	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Laboratory: Eurofins 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
Illinois	NELAP		200024	11-29-19
Iowa	State Program	7	007	12-01-19
Kansas	NELAP	7	E-10341	01-31-20
Minnesota	NELAP	5	019-999-319	12-31-19
Minnesota	NELAP		019-999-319	12-31-19
Minnesota (Petrofund)	State Program	1	3349	08-22-19
North Dakota	State Program	8	R-186	09-29-19
Oregon	NELAP	10	IA100001	09-29-19
Oregon	NELAP		IA100001	09-29-19
USDA	Federal		P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Job ID: 310-158904-1
Project/Site: Nebraska City Unit 2 Landfill CCR

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF

Protocol References:

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

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing TestAmerica

310-158904 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE

Project: Nebraska City Unit 2 Landfill

Receipt Information

Date/Time Received: DATE 062719 TIME 0910

Received By: AR

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab 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 # ____ of ____
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: N

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): \.\

Corrected Temp (°C): \.\

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(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: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	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: kkuhing@oppd.com	WO #:
Project Name: Nebraska City Unit 2 Landfill CCR	TestAmerica Project #: 31007559
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)	6020 Appendix III Calcium	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW2	6/26/19	8:43	G	GW			X		Appendix III Calcium
DUP 1	6/26/19	---	G	GW			X		Appendix III Calcium

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: 6/26/2019 15:30	Company OPPD	Received by:	Date/Time: 6/26/19 1530	Company TestA
Relinquished by:	Date/Time: 6/26/19 1700	Company TestA	Received by:	Date/Time: 6/27/19 0910	Company TA
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:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MW2	310-158904-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP 1	310-158904-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____

Page 1 of 1

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-158904-1

Login Number: 158904

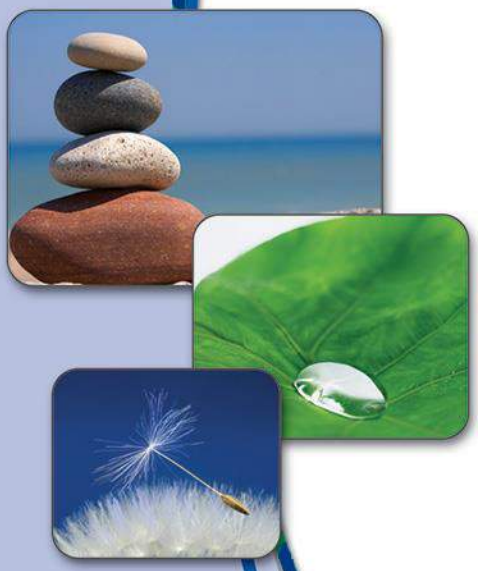
List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bovy, Lorrainna L

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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

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

Laboratory Job ID: 310-152983-1
Client Project/Site: Nebraska City Unit 1/Unit 2
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:
5/6/2019 10:01:01 AM

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/Unit 2

Job ID: 310-152983-1

Job ID: 310-152983-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-152983-1

Comments
No additional comments.

Receipt
The sample was received on 4/10/2019 9:10 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º 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/Unit 2

Job ID: 310-152983-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-152983-1	NC2MW4	Ground Water	04/08/19 10:45	04/10/19 09:10

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1/Unit 2

Job ID: 310-152983-1

Client Sample ID: NC2MW4

Lab Sample ID: 310-152983-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	40.9		5.00		mg/L	5		9056A	Total/NA
Barium	0.351		0.00200		mg/L	1		6020A	Total/NA
Calcium	137		0.500		mg/L	1		6020A	Total/NA
Lithium	0.0351		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00283		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	560		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/Unit 2

Job ID: 310-152983-1

Client Sample ID: NC2MW4

Date Collected: 04/08/19 10:45
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152983-1

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			04/16/19 10:24	5
Fluoride	<0.500		0.500		mg/L			04/16/19 10:24	5
Sulfate	**40.9**		5.00		mg/L			04/16/19 10:24	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		04/11/19 08:03	04/23/19 17:25	1
Arsenic	<0.00200		0.00200		mg/L		04/11/19 08:03	04/23/19 17:25	1
Barium	**0.351**		0.00200		mg/L		04/11/19 08:03	04/23/19 17:25	1
Beryllium	<0.00100		0.00100		mg/L		04/11/19 08:03	04/23/19 17:25	1
Boron	<0.200		0.200		mg/L		04/11/19 08:03	04/24/19 13:31	1
Cadmium	<0.000500		0.000500		mg/L		04/11/19 08:03	04/23/19 17:25	1
Calcium	**137**		0.500		mg/L		04/11/19 08:03	04/23/19 17:25	1
Chromium	<0.00500		0.00500		mg/L		04/11/19 08:03	04/23/19 17:25	1
Cobalt	<0.000500		0.000500		mg/L		04/11/19 08:03	04/23/19 17:25	1
Lead	<0.000500		0.000500		mg/L		04/11/19 08:03	04/23/19 17:25	1
Lithium	**0.0351**		0.0100		mg/L		04/11/19 08:03	04/23/19 17:25	1
Molybdenum	**0.00283**		0.00200		mg/L		04/11/19 08:03	04/23/19 17:25	1
Selenium	<0.00500		0.00500		mg/L		04/11/19 08:03	04/23/19 17:25	1
Thallium	<0.00100		0.00100		mg/L		04/11/19 08:03	04/23/19 17:25	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/12/19 09:48	04/15/19 15:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**560**		30.0		mg/L			04/10/19 14:38	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-152983-1
Project/Site: Nebraska City Unit 1/Unit 2

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 310-236282/3
Matrix: Water
Analysis Batch: 236282

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/16/19 09:42	1
Fluoride	<0.100		0.100		mg/L			04/16/19 09:42	1
Sulfate	<1.00		1.00		mg/L			04/16/19 09:42	1

Lab Sample ID: LCS 310-236282/4
Matrix: Water
Analysis Batch: 236282

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.987		mg/L		100	90 - 110
Fluoride	2.00	2.000		mg/L		100	90 - 110
Sulfate	10.0	10.19		mg/L		102	90 - 110

Lab Sample ID: 310-152983-1 MS
Matrix: Ground Water
Analysis Batch: 236282

Client Sample ID: NC2MW4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	<5.00		25.0	26.35		mg/L		94	80 - 120
Fluoride	<0.500		5.00	5.121		mg/L		102	80 - 120
Sulfate	40.9		25.0	66.68		mg/L		103	80 - 120

Lab Sample ID: 310-152983-1 MSD
Matrix: Ground Water
Analysis Batch: 236282

Client Sample ID: NC2MW4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	<5.00		25.0	26.26		mg/L		93	80 - 120	0	15
Fluoride	<0.500		5.00	5.129		mg/L		103	80 - 120	0	15
Sulfate	40.9		25.0	66.63		mg/L		103	80 - 120	0	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-235436/1-A
Matrix: Water
Analysis Batch: 236992

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00100		0.00100		mg/L		04/11/19 08:03	04/23/19 17:18	1
Arsenic	<0.00200		0.00200		mg/L		04/11/19 08:03	04/23/19 17:18	1
Barium	<0.00200		0.00200		mg/L		04/11/19 08:03	04/23/19 17:18	1
Beryllium	<0.00100		0.00100		mg/L		04/11/19 08:03	04/23/19 17:18	1
Cadmium	<0.000500		0.000500		mg/L		04/11/19 08:03	04/23/19 17:18	1
Calcium	<0.500		0.500		mg/L		04/11/19 08:03	04/23/19 17:18	1
Chromium	<0.00500		0.00500		mg/L		04/11/19 08:03	04/23/19 17:18	1
Cobalt	<0.000500		0.000500		mg/L		04/11/19 08:03	04/23/19 17:18	1
Lead	<0.000500		0.000500		mg/L		04/11/19 08:03	04/23/19 17:18	1
Lithium	<0.0100		0.0100		mg/L		04/11/19 08:03	04/23/19 17:18	1
Molybdenum	<0.00200		0.00200		mg/L		04/11/19 08:03	04/23/19 17:18	1
Selenium	<0.00500		0.00500		mg/L		04/11/19 08:03	04/23/19 17:18	1

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

Lab Sample ID: MB 310-235436/1-A
Matrix: Water
Analysis Batch: 236992

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.00100		0.00100		mg/L		04/11/19 08:03	04/23/19 17:18	1

Lab Sample ID: MB 310-235436/1-A
Matrix: Water
Analysis Batch: 237088

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.200		0.200		mg/L		04/11/19 08:03	04/24/19 13:25	1

Lab Sample ID: LCS 310-235436/2-A
Matrix: Water
Analysis Batch: 236992

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0200	0.02005		mg/L		100	80 - 120
Arsenic	0.0400	0.04188		mg/L		105	80 - 120
Barium	0.0400	0.04149		mg/L		104	80 - 120
Beryllium	0.0200	0.01964		mg/L		98	80 - 120
Cadmium	0.0200	0.02115		mg/L		106	80 - 120
Calcium	2.00	2.142		mg/L		107	80 - 120
Chromium	0.0400	0.04108		mg/L		103	80 - 120
Cobalt	0.0200	0.02001		mg/L		100	80 - 120
Lead	0.0200	0.02074		mg/L		104	80 - 120
Lithium	0.100	0.1042		mg/L		104	80 - 120
Molybdenum	0.0400	0.03924		mg/L		98	80 - 120
Selenium	0.0400	0.04057		mg/L		101	80 - 120
Thallium	0.0160	0.01615		mg/L		101	80 - 120

Lab Sample ID: LCS 310-235436/2-A
Matrix: Water
Analysis Batch: 237088

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.880	0.8324		mg/L		95	80 - 120

Lab Sample ID: 310-152983-1 DU
Matrix: Ground Water
Analysis Batch: 236992

Client Sample ID: NC2MW4
Prep Type: Total/NA
Prep Batch: 235436

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00100		<0.00100		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.351		0.3533		mg/L		0.5	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	<0.000500		<0.000500		mg/L		NC	20
Calcium	137		136.8		mg/L		0.09	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Lithium	0.0351		0.03513		mg/L		0.05	20

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

Lab Sample ID: 310-152983-1 DU
Matrix: Ground Water
Analysis Batch: 236992

Client Sample ID: NC2MW4
Prep Type: Total/NA
Prep Batch: 235436

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Molybdenum	0.00283		0.002672		mg/L		6	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

Lab Sample ID: 310-152983-1 DU
Matrix: Ground Water
Analysis Batch: 237088

Client Sample ID: NC2MW4
Prep Type: Total/NA
Prep Batch: 235436

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	<0.200		<0.200		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-235611/1-A
Matrix: Water
Analysis Batch: 235884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235611

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/12/19 09:48	04/15/19 14:46	1

Lab Sample ID: LCS 310-235611/2-A
Matrix: Water
Analysis Batch: 235884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235611

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001667		mg/L		100	80 - 120

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

Lab Sample ID: MB 310-235365/1
Matrix: Water
Analysis Batch: 235365

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			04/10/19 14:38	1

Lab Sample ID: LCS 310-235365/2
Matrix: Water
Analysis Batch: 235365

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	998.0		mg/L		100	90 - 110

QC Association Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1/Unit 2

Job ID: 310-152983-1

HPLC/IC

Analysis Batch: 236282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	9056A	
MB 310-236282/3	Method Blank	Total/NA	Water	9056A	
LCS 310-236282/4	Lab Control Sample	Total/NA	Water	9056A	
310-152983-1 MS	NC2MW4	Total/NA	Ground Water	9056A	
310-152983-1 MSD	NC2MW4	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 235436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	3010A	
MB 310-235436/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-235436/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-152983-1 DU	NC2MW4	Total/NA	Ground Water	3010A	

Prep Batch: 235611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	7470A	
MB 310-235611/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-235611/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 235884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	7470A	235611
MB 310-235611/1-A	Method Blank	Total/NA	Water	7470A	235611
LCS 310-235611/2-A	Lab Control Sample	Total/NA	Water	7470A	235611

Analysis Batch: 236992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	6020A	235436
MB 310-235436/1-A	Method Blank	Total/NA	Water	6020A	235436
LCS 310-235436/2-A	Lab Control Sample	Total/NA	Water	6020A	235436
310-152983-1 DU	NC2MW4	Total/NA	Ground Water	6020A	235436

Analysis Batch: 237088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	6020A	235436
MB 310-235436/1-A	Method Blank	Total/NA	Water	6020A	235436
LCS 310-235436/2-A	Lab Control Sample	Total/NA	Water	6020A	235436
310-152983-1 DU	NC2MW4	Total/NA	Ground Water	6020A	235436

General Chemistry

Analysis Batch: 235365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152983-1	NC2MW4	Total/NA	Ground Water	SM 2540C	
MB 310-235365/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-235365/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1/Unit 2

Job ID: 310-152983-1

Client Sample ID: NC2MW4

Date Collected: 04/08/19 10:45
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152983-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	236282	04/16/19 10:24	MLU	TAL CF
Total/NA	Prep	3010A			235436	04/11/19 08:03	HED	TAL CF
Total/NA	Analysis	6020A		1	236992	04/23/19 17:25	SAD	TAL CF
Total/NA	Prep	3010A			235436	04/11/19 08:03	HED	TAL CF
Total/NA	Analysis	6020A		1	237088	04/24/19 13:31	SAD	TAL CF
Total/NA	Prep	7470A			235611	04/12/19 09:48	JNR	TAL CF
Total/NA	Analysis	7470A		1	235884	04/15/19 15:06	JNR	TAL CF
Total/NA	Analysis	SM 2540C		1	235365	04/10/19 14:38	MDK	TAL CF

Laboratory References:

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

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-152983-1
Project/Site: Nebraska City Unit 1/Unit 2

Laboratory: Eurofins 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	01-31-20
Minnesota	NELAP	5	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	1	3349	08-22-19
North Dakota	State Program	8	R-186	09-29-19
Oregon	NELAP	10	IA100001	09-29-19
USDA	Federal		P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 1/Unit 2

Job ID: 310-152983-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

Protocol References:

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

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

Laboratory References:

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-152983 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: CITY Omaha STATE NE | Project: Nebraska City unit 2, unit 2 CCR, unit 1

Receipt Information

Date/Time Received: DATE 4-10-19 TIME 910 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab 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 # ____ of ____
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: 5 | 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): 2.4 | Corrected Temp (°C): 2.5

• **Sample Container Temperature**

Container type(s) used: CONTAINER 1 CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

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

TestAmerica Omaha SC 268

Chain of Custody Record

TestAmerica

Client Information	Sampler:	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	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:			
City: Omaha	TAT Requested (days):			
State, Zip: NE, 68102-2247				
Phone: 402-636-2515(Tel)	PO #:			
Email: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Unit 2 CCR	TestAmerica Project #: 31007558			
Site:	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)	9315_Ra226, 9320_Ra228, Combined Ra226 and Ra228	2540C TDS, 9056A Chloride, Fluoride, Sulfate	6020 Appendix III Boron and Calcium	6020 CCR Appendix III and IV List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N			
NC2MW4	4/9/2019	10:45	G	GW				X	X			Appendix III

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:

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:

	Date/Time	Company		Date/Time	Company
Relinquished by: Kyle K. Uhing	4/9/2019 0900	OPPD	Received by:	4.9.19 0900	TestA
Relinquished by:	4.9.19 1600	TestA	Received by: Lindsay Bindert	4-10-19 910	
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:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW4	310-152983-A-1	Plastic 250ml - w/nitric - dis	<2	_____	_____
NC2MW4	310-152983-B-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW4	310-152983-D-1	Plastic 1 liter - Nitric Acid (diss)	<2	_____	_____
NC2MW4	310-152983-E-1	Plastic 1 liter - Nitric Acid (diss)	<2	_____	_____
NC2MW4	310-152983-F-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW4	310-152983-G-1	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

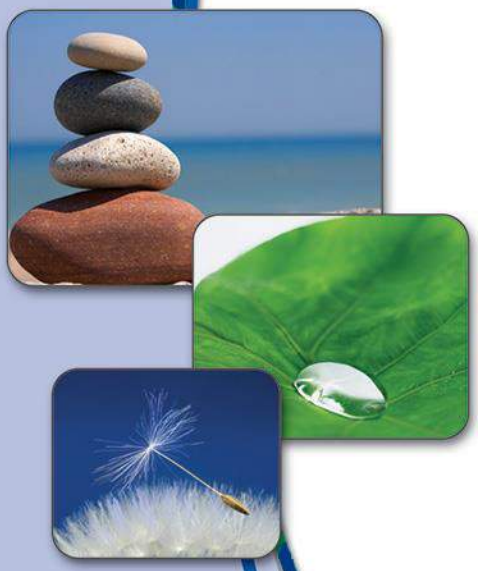
Job Number: 310-152983-1

Login Number: 152983
List Number: 1
Creator: Bindert, Lindsay A

List Source: Eurofins 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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

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

Laboratory Job ID: 310-152980-1
Client Project/Site: Nebraska City Unit 2
Revision: 2

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

Attn: Kyle Uhing

Authorized for release by:
5/2/2019 10:54:32 AM

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 2

Job ID: 310-152980-1

Job ID: 310-152980-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-152980-1

Comments
No additional comments.

Receipt
The samples were received on 4/10/2019 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -0.2º 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 2

Job ID: 310-152980-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-152980-1	NC2MW2	Ground Water	04/08/19 15:00	04/10/19 09:10
310-152980-2	NC2MW5	Ground Water	04/08/19 13:06	04/10/19 09:10
310-152980-3	NC2MW6	Ground Water	04/08/19 13:37	04/10/19 09:10
310-152980-4	NC2MW7	Ground Water	04/08/19 17:00	04/10/19 09:10
310-152980-5	DUP1	Ground Water	04/08/19 00:00	04/10/19 09:10

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: NC2MW2 — Lab Sample ID: 310-152980-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	290		20.0		mg/L	20		9056A	Total/NA
Boron	0.270		0.200		mg/L	1		6020A	Total/NA
Calcium	227		0.500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	978		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW5 — Lab Sample ID: 310-152980-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.42		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.634		0.500		mg/L	5		9056A	Total/NA
Sulfate	382		20.0		mg/L	20		9056A	Total/NA
Boron	3.72		0.200		mg/L	1		6020A	Total/NA
Calcium	189		0.500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	1030		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW6 — Lab Sample ID: 310-152980-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	141		5.00		mg/L	5		9056A	Total/NA
Boron	2.46		0.200		mg/L	1		6020A	Total/NA
Calcium	94.3		0.500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	520		30.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW7 — Lab Sample ID: 310-152980-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.64		5.00		mg/L	5		9056A	Total/NA
Sulfate	44.0		5.00		mg/L	5		9056A	Total/NA
Boron	0.214		0.200		mg/L	1		6020A	Total/NA
Calcium	132		0.500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	820		150		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP1 — Lab Sample ID: 310-152980-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.69		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.758		0.500		mg/L	5		9056A	Total/NA
Sulfate	41.7		5.00		mg/L	5		9056A	Total/NA
Boron	0.201		0.200		mg/L	1		6020A	Total/NA
Calcium	135		0.500		mg/L	1		6020A	Total/NA
Total Dissolved Solids	730		150		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 2

Job ID: 310-152980-1

Client Sample ID: NC2MW2

Date Collected: 04/08/19 15:00
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-1

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.8**		5.00		mg/L			04/10/19 23:07	5
Fluoride	<0.500		0.500		mg/L			04/10/19 23:07	5
Sulfate	**290**		20.0		mg/L			04/11/19 11:50	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.270**		0.200		mg/L		04/11/19 08:00	04/22/19 12:30	1
Calcium	**227**		0.500		mg/L		04/11/19 08:00	04/18/19 21:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**978**		30.0		mg/L			04/10/19 14:38	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: NC2MW5

Date Collected: 04/08/19 13:06
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-2

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.42		5.00		mg/L			04/10/19 23:22	5
Fluoride	0.634		0.500		mg/L			04/10/19 23:22	5
Sulfate	382		20.0		mg/L			04/10/19 23:38	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.72		0.200		mg/L		04/11/19 08:00	04/22/19 12:33	1
Calcium	189		0.500		mg/L		04/11/19 08:00	04/18/19 21:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1030		30.0		mg/L			04/10/19 14:38	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: NC2MW6

Date Collected: 04/08/19 13:37
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-3

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			04/10/19 23:53	5
Fluoride	<0.500		0.500		mg/L			04/10/19 23:53	5
Sulfate	**141**		5.00		mg/L			04/10/19 23:53	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**2.46**		0.200		mg/L		04/11/19 08:00	04/22/19 12:37	1
Calcium	**94.3**		0.500		mg/L		04/11/19 08:00	04/18/19 21:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**520**		30.0		mg/L			04/10/19 14:38	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: NC2MW7

Date Collected: 04/08/19 17:00
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-4

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.64**		5.00		mg/L			04/11/19 00:09	5
Fluoride	<0.500		0.500		mg/L			04/11/19 00:09	5
Sulfate	**44.0**		5.00		mg/L			04/11/19 00:09	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.214**		0.200		mg/L		04/11/19 08:00	04/22/19 12:43	1
Calcium	**132**		0.500		mg/L		04/11/19 08:00	04/18/19 21:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**820**		150		mg/L			04/10/19 14:38	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: DUP1

Date Collected: 04/08/19 00:00
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-5

Matrix: Ground Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.69		5.00		mg/L			04/11/19 00:24	5
Fluoride	0.758		0.500		mg/L			04/11/19 00:24	5
Sulfate	41.7		5.00		mg/L			04/11/19 00:24	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.201		0.200		mg/L		04/11/19 08:00	04/22/19 12:47	1
Calcium	135		0.500		mg/L		04/11/19 08:00	04/18/19 21:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	730		150		mg/L			04/10/19 14:38	1

Client: Omaha Public Power District
Job ID: 310-152980-1
Project/Site: Nebraska City Unit 2

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 310-235649/3
Matrix: Water
Analysis Batch: 235649

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/10/19 15:44	1
Fluoride	<0.100		0.100		mg/L			04/10/19 15:44	1
Sulfate	<1.00		1.00		mg/L			04/10/19 15:44	1

Lab Sample ID: LCS 310-235649/4
Matrix: Water
Analysis Batch: 235649

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	7.261		mg/L		97	90 - 110
Fluoride	1.50	1.472		mg/L		98	90 - 110
Sulfate	7.50	7.490		mg/L		100	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-235364/1-A
Matrix: Water
Analysis Batch: 236162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235364

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.500		0.500		mg/L		04/11/19 08:00	04/17/19 13:18	1

Lab Sample ID: MB 310-235364/1-A
Matrix: Water
Analysis Batch: 236351

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235364

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.200		0.200		mg/L		04/11/19 08:00	04/18/19 12:03	1

Lab Sample ID: LCS 310-235364/2-A
Matrix: Water
Analysis Batch: 236162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235364

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	2.00	1.956		mg/L		98	80 - 120

Lab Sample ID: LCS 310-235364/2-A
Matrix: Water
Analysis Batch: 237088

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235364

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.880	0.8462		mg/L		96	80 - 120

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

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

Lab Sample ID: MB 310-235365/1
Matrix: Water
Analysis Batch: 235365

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			04/10/19 14:38	1

Lab Sample ID: LCS 310-235365/2
Matrix: Water
Analysis Batch: 235365

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	998.0		mg/L		100	90 - 110		

HPLC/IC

Analysis Batch: 235649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152980-1	NC2MW2	Total/NA	Ground Water	9056A	
310-152980-1	NC2MW2	Total/NA	Ground Water	9056A	
310-152980-2	NC2MW5	Total/NA	Ground Water	9056A	
310-152980-2	NC2MW5	Total/NA	Ground Water	9056A	
310-152980-3	NC2MW6	Total/NA	Ground Water	9056A	
310-152980-4	NC2MW7	Total/NA	Ground Water	9056A	
310-152980-5	DUP1	Total/NA	Ground Water	9056A	
MB 310-235649/3	Method Blank	Total/NA	Water	9056A	
LCS 310-235649/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 235364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152980-1	NC2MW2	Total/NA	Ground Water	3010A	
310-152980-2	NC2MW5	Total/NA	Ground Water	3010A	
310-152980-3	NC2MW6	Total/NA	Ground Water	3010A	
310-152980-4	NC2MW7	Total/NA	Ground Water	3010A	
310-152980-5	DUP1	Total/NA	Ground Water	3010A	
MB 310-235364/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-235364/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 236162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-235364/1-A	Method Blank	Total/NA	Water	6020A	235364
LCS 310-235364/2-A	Lab Control Sample	Total/NA	Water	6020A	235364

Analysis Batch: 236351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-235364/1-A	Method Blank	Total/NA	Water	6020A	235364

Analysis Batch: 236393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152980-1	NC2MW2	Total/NA	Ground Water	6020A	235364
310-152980-2	NC2MW5	Total/NA	Ground Water	6020A	235364
310-152980-3	NC2MW6	Total/NA	Ground Water	6020A	235364
310-152980-4	NC2MW7	Total/NA	Ground Water	6020A	235364
310-152980-5	DUP1	Total/NA	Ground Water	6020A	235364

Analysis Batch: 236725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152980-1	NC2MW2	Total/NA	Ground Water	6020A	235364
310-152980-2	NC2MW5	Total/NA	Ground Water	6020A	235364
310-152980-3	NC2MW6	Total/NA	Ground Water	6020A	235364
310-152980-4	NC2MW7	Total/NA	Ground Water	6020A	235364
310-152980-5	DUP1	Total/NA	Ground Water	6020A	235364

Analysis Batch: 237088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-235364/2-A	Lab Control Sample	Total/NA	Water	6020A	235364

QC Association Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

General Chemistry

Analysis Batch: 235365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-152980-1	NC2MW2	Total/NA	Ground Water	SM 2540C	
310-152980-2	NC2MW5	Total/NA	Ground Water	SM 2540C	
310-152980-3	NC2MW6	Total/NA	Ground Water	SM 2540C	
310-152980-4	NC2MW7	Total/NA	Ground Water	SM 2540C	
310-152980-5	DUP1	Total/NA	Ground Water	SM 2540C	
MB 310-235365/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-235365/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: NC2MW2

Date Collected: 04/08/19 15:00
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/10/19 23:07	MLU	TAL CF
Total/NA	Analysis	9056A		20	235649	04/11/19 11:50	MLU	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236393	04/18/19 21:26	SAD	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236725	04/22/19 12:30	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235365	04/10/19 14:38	MDK	TAL CF

Client Sample ID: NC2MW5

Date Collected: 04/08/19 13:06
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/10/19 23:22	MLU	TAL CF
Total/NA	Analysis	9056A		20	235649	04/10/19 23:38	MLU	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236393	04/18/19 21:29	SAD	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236725	04/22/19 12:33	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235365	04/10/19 14:38	MDK	TAL CF

Client Sample ID: NC2MW6

Date Collected: 04/08/19 13:37
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/10/19 23:53	MLU	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236393	04/18/19 21:33	SAD	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236725	04/22/19 12:37	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235365	04/10/19 14:38	MDK	TAL CF

Client Sample ID: NC2MW7

Date Collected: 04/08/19 17:00
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/11/19 00:09	MLU	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236393	04/18/19 21:36	SAD	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236725	04/22/19 12:43	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235365	04/10/19 14:38	MDK	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

Client Sample ID: DUP1

Date Collected: 04/08/19 00:00
Date Received: 04/10/19 09:10

Lab Sample ID: 310-152980-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	235649	04/11/19 00:24	MLU	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236393	04/18/19 21:39	SAD	TAL CF
Total/NA	Prep	3010A			235364	04/11/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	236725	04/22/19 12:47	SAD	TAL CF
Total/NA	Analysis	SM 2540C		1	235365	04/10/19 14:38	MDK	TAL CF

Laboratory References:

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

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-152980-1
Project/Site: Nebraska City Unit 2

Laboratory: Eurofins 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	01-31-20
Minnesota	NELAP	5	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	1	3349	08-22-19
North Dakota	State Program	8	R-186	09-29-19
Oregon	NELAP	10	IA100001	09-29-19
USDA	Federal		P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2

Job ID: 310-152980-1

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-152980 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power District

City/State: CITY Omaha STATE NE | Project: Nebraska City unit 2 Landfill

Receipt Information

Date/Time Received: DATE 4-10-19 TIME 910 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab 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 # ____ of ____
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: 5 | 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): -0.3 | Corrected Temp (°C): -0.2

• Sample Container Temperature

Container type(s) used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 | TEMP 2 | Corrected Temp (°C): TEMP 1 | TEMP 2

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

268

Chain of Custody Record

TestAmerica

Client Information	Sampler:	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	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: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Unit 2 Landfill CCR	TestAmerica Project #: 31007559			
Site:	SSOW#:			

Analysis Requested

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_Ra228, 9320_Ra228, Combined Ra226 and Ra228	2540C TDS, 9056A Chloride, Fluoride, Sulfate	6020 Appendix III Boron and Calcium	6020 and 7470 Mercury CCR Appendix III and IV List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N			
NC2MW2	4/9/2019	15:00	G	GW				X	X			Appendix III
NC2MW5	4/8/2019	13:06	G	GW				X	X			Appendix III
NC2MW6	4/8/2019	13:37	G	GW				X	X			Appendix III
NC2MW7	4/8/2019	17:00	G	GW				X	X			Appendix III
DUP1	4/8/2019	—	G	GW				X	X			Appendix III

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:

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:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Kyle R. Uhing	4/9/2019 0900	OPPD		4-9-2019 1600	Test A
Relinquished by:	4-9-19 1600	Test A	Lindsay Bindert	4-10-19 910	
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:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
MC2MW2	310-152980-A-1	Plastic 250ml - with Nitric Acid	<2		
MC2MW5	310-152980-A-2	Plastic 250ml - with Nitric Acid	<2		
MC2MW6	310-152980-A-3	Plastic 250ml - with Nitric Acid	<2		
MC2MW7	310-152980-A-4	Plastic 250ml - with Nitric Acid	<2		
DUP1	310-152980-A-5	Plastic 250ml - with Nitric Acid	<2		

Page 1 of 1

Login Sample Receipt Checklist

Client: Omaha Public Power District

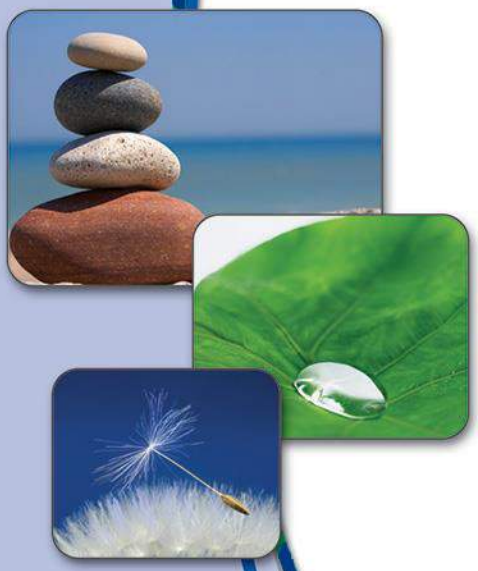
Job Number: 310-152980-1

Login Number: 152980
List Number: 1
Creator: Bindert, Lindsay A

List Source: Eurofins 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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-167720-1
Client Project/Site: Nebraska City Unit1/2 CCR and Landfill

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:
10/30/2019 3:22:39 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
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Job ID: 310-167720-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-167720-1

Comments
No additional comments.

Receipt
The sample was received on 10/17/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º 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
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-167720-1	NC2MW4	Water	10/15/19 11:16	10/17/19 09:45	

Detection Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.38		5.00		mg/L	5		9056A	Total/NA
Sulfate	35.0		5.00		mg/L	5		9056A	Total/NA
Aluminum	0.0735		0.0500		mg/L	1		6020A	Total/NA
Barium	0.390		0.00200		mg/L	1		6020A	Total/NA
Cadmium	0.000138		0.000100		mg/L	1		6020A	Total/NA
Calcium	142		0.500		mg/L	1		6020A	Total/NA
Lithium	0.0343		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00412		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	528		60.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1
Date Collected: 10/15/19 11:16
Matrix: Water
Date Received: 10/17/19 09:45

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.38**		5.00		mg/L			10/22/19 10:17	5
Fluoride	<0.500		0.500		mg/L			10/22/19 10:17	5
Sulfate	**35.0**		5.00		mg/L			10/22/19 10:17	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0735**		0.0500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 18:58	1
Barium	**0.390**		0.00200		mg/L		10/18/19 08:00	10/21/19 18:58	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 18:58	1
Cadmium	**0.000138**		0.000100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Calcium	**142**		0.500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Lithium	**0.0343**		0.0100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Molybdenum	**0.00412**		0.00200		mg/L		10/18/19 08:00	10/21/19 18:58	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 18:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 12:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**528**		60.0		mg/L			10/18/19 14:14	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

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 310-258135/3
Matrix: Water
Analysis Batch: 258135

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			10/22/19 04:39	1
Fluoride	<0.100		0.100		mg/L			10/22/19 04:39	1
Sulfate	<1.00		1.00		mg/L			10/22/19 04:39	1

Lab Sample ID: LCS 310-258135/4
Matrix: Water
Analysis Batch: 258135

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.05		mg/L		100	90 - 110
Fluoride	2.00	2.051		mg/L		103	90 - 110
Sulfate	10.0	10.12		mg/L		101	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-257291/1-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257291

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 17:46	1
Barium	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 17:46	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 17:46	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Calcium	<0.500		0.500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Lithium	<0.0100		0.0100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Molybdenum	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 17:46	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 17:46	1

Lab Sample ID: LCS 310-257291/2-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257291

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	4.00	4.299		mg/L		107	80 - 120
Antimony	0.0400	0.03317		mg/L		83	80 - 120
Arsenic	0.0800	0.07489		mg/L		94	80 - 120
Barium	0.0800	0.08444		mg/L		106	80 - 120
Beryllium	0.0400	0.04176		mg/L		104	80 - 120
Boron	1.76	1.733		mg/L		98	80 - 120
Cadmium	0.0400	0.04273		mg/L		107	80 - 120
Calcium	4.00	4.432		mg/L		111	80 - 120

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

Lab Sample ID: LCS 310-257291/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 257738
Prep Batch: 257291

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.0800	0.08526		mg/L		107	80 - 120
Cobalt	0.0400	0.04207		mg/L		105	80 - 120
Lead	0.0400	0.04257		mg/L		106	80 - 120
Lithium	0.200	0.1966		mg/L		98	80 - 120
Molybdenum	0.0800	0.07061		mg/L		88	80 - 120
Selenium	0.0800	0.07899		mg/L		99	80 - 120
Thallium	0.0320	0.03374		mg/L		105	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-257977/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 258195
Prep Batch: 257977

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 12:38	1

Lab Sample ID: LCS 310-257977/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 258195
Prep Batch: 257977

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001528		mg/L		92	80 - 120

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

Lab Sample ID: MB 310-257430/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 257430

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<30.0		30.0		mg/L			10/18/19 14:14	1

Lab Sample ID: LCS 310-257430/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 257430

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1004		mg/L		100	90 - 110

QC Association Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

HPLC/IC

Analysis Batch: 258135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	9056A	
MB 310-258135/3	Method Blank	Total/NA	Water	9056A	
LCS 310-258135/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 257291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	3010A	
MB 310-257291/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-257291/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 257738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	6020A	257291
MB 310-257291/1-A	Method Blank	Total/NA	Water	6020A	257291
LCS 310-257291/2-A	Lab Control Sample	Total/NA	Water	6020A	257291

Prep Batch: 257977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	7470A	
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 258195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	7470A	257977
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	257977
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	257977

General Chemistry

Analysis Batch: 257430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	SM 2540C	
MB 310-257430/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-257430/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Date Collected: 10/15/19 11:16
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167720-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 10:17	CJT	TAL CF
Total/NA	Prep	3010A			257291	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 18:58	SAD	TAL CF
Total/NA	Prep	7470A			257977	10/23/19 13:26	HIS	TAL CF
Total/NA	Analysis	7470A		1	258195	10/24/19 12:57	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257430	10/18/19 14:14	MDK	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
AIHA-LAP, LLC	Industrial Hygiene Laboratory Accreditation Program (IHLAP)	101044	11-01-20
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-20
Georgia	State	IA100001 (OR)	09-29-20
Illinois	NELAP	200024	11-29-19
Iowa	State	007	12-01-19
Kansas	NELAP	E-10341	01-31-20
Minnesota	NELAP	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	3349	08-22-21
Oregon	NELAP	IA100001	09-29-20
USDA	US Federal Programs	P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

Protocol References:

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

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

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing TestAmerica

310-167720 Chain of Custody

Cooler/Sample Receipt and Temperature L...

Client Information

Client: Omaha Public Power

City/State: Omaha (CITY / STATE) | Project:

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945 | Received By:

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 # ____ of ____
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: 0 | 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): | Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	cyn 0.0	
Uncorrected Temp (°C):	1L HNO3 P1	
Corrected Temp (°C):	0.0	

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
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: (531) 226-2515	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: (531) 226-2515	PO #:			
Email: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Station Unit 2 CCR	TestAmerica Project #: 31007559			
Site: Nebraska City Station Unit 2	SSOW#:			

Analysis Requested

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 Total Metals CCR List, 7470A Mercury, See Attached CCR List	2540C TDS, 9056A Chloride, Fluoride, Sulfate	9315 and 9320 Radium 226+228 Combined	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
NC2MW4	10/15/19	11:16	G	W	N		X	X	X	4	See attached list for specific analysis.

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:

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: 10/16/2019 15:05	Company OPPD	Received by: Date/Time: 10.16.19 1505 Company ELLO
Relinquished by:	Date/Time: 10.16.19 1800	Company ELLO	Received by: Date/Time: 10-17-19 0915 Company ELA
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:

NC2 CCR Sample Analysis (Some Parameters Need Reported Separate From Others [See COCs])

- Total metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, lithium, lead, molybdenum, selenium, and thallium via USEPA Method 6020A
- Radium 226+228 Combined via USEPA Method 9315 and 9320
- Mercury via USEPA Method 7470A
- TDS via SM 2540C
- Chloride, fluoride, and sulfate via USEPA Method 9056A

Login Container Summary Report

310-167720

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW4	310-167720-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW4	310-167720-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW4	310-167720-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

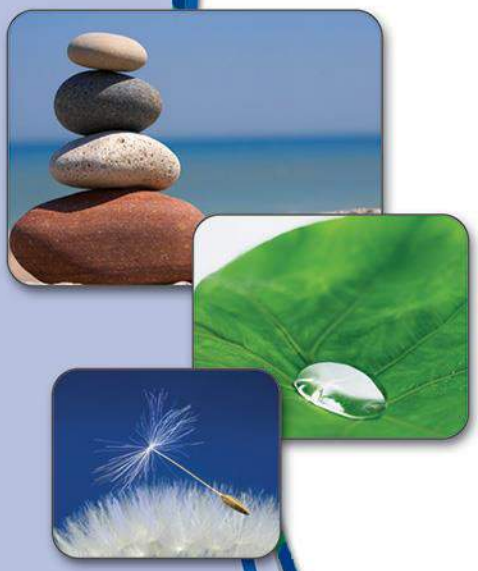
Job Number: 310-167720-1

Login Number: 167720
List Number: 1
Creator: Bovy, Lorrainna L

List Source: Eurofins 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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-167720-1
Client Project/Site: Nebraska City Unit1/2 CCR and Landfill

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:
10/30/2019 3:35:05 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
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Job ID: 310-167720-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-167720-1

Comments
No additional comments.

Receipt
The sample was received on 10/17/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º 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
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-167720-1	NC2MW4	Water	10/15/19 11:16	10/17/19 09:45	

Detection Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	35.0		5.00		mg/L	5		9056A	Total/NA
Barium	0.390		0.00200		mg/L	1		6020A	Total/NA
Cadmium	0.000138		0.000100		mg/L	1		6020A	Total/NA
Iron	0.202		0.100		mg/L	1		6020A	Total/NA
Zinc	0.0224		0.0200		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1
Date Collected: 10/15/19 11:16
Matrix: Water
Date Received: 10/17/19 09:45

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**35.0**		5.00		mg/L			10/22/19 10:17	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 18:58	1
Barium	**0.390**		0.00200		mg/L		10/18/19 08:00	10/21/19 18:58	1
Cadmium	**0.000138**		0.000100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Iron	**0.202**		0.100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 18:58	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 18:58	1
Zinc	**0.0224**		0.0200		mg/L		10/18/19 08:00	10/21/19 18:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 12:57	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

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 310-258135/3
Matrix: Water
Analysis Batch: 258135

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.00		1.00		mg/L			10/22/19 04:39	1

Lab Sample ID: LCS 310-258135/4
Matrix: Water
Analysis Batch: 258135

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.12		mg/L		101	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-257291/1-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257291

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 17:46	1
Barium	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 17:46	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Iron	<0.100		0.100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 17:46	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 17:46	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 17:46	1

Lab Sample ID: LCS 310-257291/2-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257291

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0800	0.07489		mg/L		94	80 - 120
Barium	0.0800	0.08444		mg/L		106	80 - 120
Cadmium	0.0400	0.04273		mg/L		107	80 - 120
Chromium	0.0800	0.08526		mg/L		107	80 - 120
Iron	4.00	4.365		mg/L		109	80 - 120
Lead	0.0400	0.04257		mg/L		106	80 - 120
Selenium	0.0800	0.07899		mg/L		99	80 - 120
Silver	0.0400	0.04322		mg/L		108	80 - 120
Zinc	0.0800	0.08842		mg/L		111	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-257977/1-A
Matrix: Water
Analysis Batch: 258195

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257977

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 12:38	1

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

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

Lab Sample ID: LCS 310-257977/2-A
Matrix: Water
Analysis Batch: 258195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257977

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001528		mg/L		92	80 - 120

QC Association Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Job ID: 310-167720-1

HPLC/IC

Analysis Batch: 258135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	9056A	
MB 310-258135/3	Method Blank	Total/NA	Water	9056A	
LCS 310-258135/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 257291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	3010A	
MB 310-257291/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-257291/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 257738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	6020A	257291
MB 310-257291/1-A	Method Blank	Total/NA	Water	6020A	257291
LCS 310-257291/2-A	Lab Control Sample	Total/NA	Water	6020A	257291

Prep Batch: 257977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	7470A	
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 258195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	7470A	257977
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	257977
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	257977

Lab Chronicle

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1
Date Collected: 10/15/19 11:16
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 10:17	CJT	TAL CF
Total/NA	Prep	3010A			257291	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 18:58	SAD	TAL CF
Total/NA	Prep	7470A			257977	10/23/19 13:26	HIS	TAL CF
Total/NA	Analysis	7470A		1	258195	10/24/19 12:57	HIS	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
AIHA-LAP, LLC	Industrial Hygiene Laboratory Accreditation Program (IHLAP)	101044	11-01-20
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-20
Georgia	State	IA100001 (OR)	09-29-20
Illinois	NELAP	200024	11-29-19
Iowa	State	007	12-01-19
Kansas	NELAP	E-10341	01-31-20
Minnesota	NELAP	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	3349	08-22-21
Oregon	NELAP	IA100001	09-29-20
USDA	US Federal Programs	P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Job ID: 310-167720-1
Project/Site: Nebraska City Unit1/2 CCR and Landfill

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
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

Protocol References:

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

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing TestAmerica

310-167720 Chain of Custody

Cooler/Sample Receipt and Temperature L[illegible]

Client Information

Client: Omaha Public Power

City/State: Omaha (CITY / STATE) | Project:

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945 | Received By: C[illegible]

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab 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 # ____ of ____
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: 0 | 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): | Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	cyn 0.0	
Uncorrected Temp (°C):	1L HNO3 P1	
Corrected Temp (°C):	0.0	

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
268

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):
Client Contact: Kyle Uhing	Phone: (531) 226-2515	E-Mail: shawn.hayes@testamericainc.com	
Company: Omaha Public Power District			
Address: 444 South 16th Street Mall 9E/EP1	Due Date Requested:		
City: Omaha	TAT Requested (days):		
State, Zip: NE, 68102-2247			
Phone: (531) 226-2515	PO #:		
Email: kkuhing@oppd.com	WO #:		
Project Name: Nebraska City Station Unit 2 Landfill	TestAmerica Project #: 31007559		
Site: Nebraska City Station Unit 2	SSOW#:		

COC No:
Page:
Job #:

Analysis Requested

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 Total Metals Title 132 Landfill List, 7470A Mercury, See Attached Title 132 List	9056A Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N		
NC2MW4	10/15/19	11:16	G	W	N		X	X	2	See attached list for specific analysis.

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:

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: [signature]	Date/Time: 10/16/2019 15:05	Company: OPPD	Received by: [signature]		Date/Time: 10.16.19 1505	Company: Eurofins
Relinquished by: [signature]	Date/Time: 10.16.19 1800	Company: Eurofins	Received by: [signature]		Date/Time: 10-17-19 0915	Company: ETA
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:			

NC2 Title 132 Sample Analysis (Some Parameters Need Reported Separate From Others [See COCs])

- Total metals: arsenic, barium, cadmium, chromium, iron, lead, selenium, silver, selenium, and zinc via USEPA Method 6020A
- Mercury via USEPA Method 7470A
- Sulfate via USEPA Method 9056A

10/17/2019

Login Container Summary Report

310-167720

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW4	310-167720-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW4	310-167720-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW4	310-167720-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____

Page 1 of 1

Login Sample Receipt Checklist

Client: Omaha Public Power District

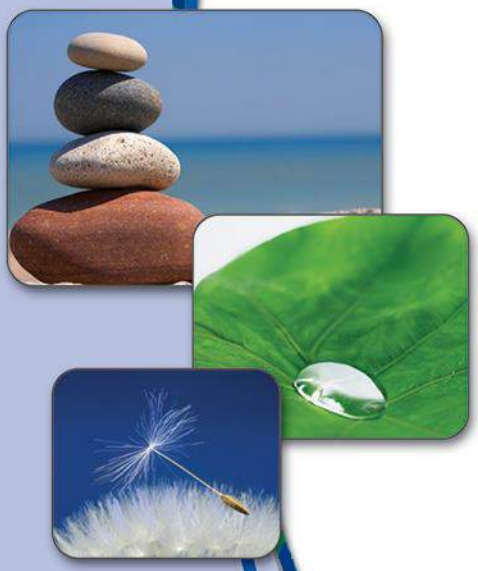
Job Number: 310-167720-1

Login Number: 167720
List Number: 1
Creator: Bovy, Lorrainna L

List Source: Eurofins 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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-167720-2
Client Project/Site: Nebraska City Unit1/2 CCR and Landfill

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:
11/22/2019 9:09:06 AM

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
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Job ID: 310-167720-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-167720-2

Comments
No additional comments.

Receipt
The sample was received on 10/17/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º 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
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-167720-1	NC2MW4	Water	10/15/19 11:16	10/17/19 09:45	

Client: Omaha Public Power District
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1
Date Collected: 10/15/19 11:16
Matrix: Water
Date Received: 10/17/19 09:45

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		0.113	0.115	1.00	0.138	pCi/L	10/24/19 17:52	11/15/19 14:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*40 - 110*	*10/24/19 17:52*	*11/15/19 14:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.969		0.313	0.325	1.00	0.416	pCi/L	10/24/19 18:25	11/06/19 08:57	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:57*	*1*
Y Carrier	*84.9*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:57*	*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	1.22		0.333	0.345	5.00	0.416	pCi/L		11/22/19 08:16	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

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 160-447621/20-A
Matrix: Water
Analysis Batch: 450674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447621

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03233	U	0.0605	0.0606	1.00	0.136	pCi/L	10/24/19 17:52	11/15/19 16:36	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:36*	*1*

Lab Sample ID: LCS 160-447621/1-A
Matrix: Water
Analysis Batch: 450674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447621

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.32		1.09	1.00	0.142	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.5*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-447622/20-A
Matrix: Water
Analysis Batch: 449305

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447622

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1328	U	0.248	0.249	1.00	0.422	pCi/L	10/24/19 18:25	11/06/19 09:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:02*	*1*
Y Carrier	*87.5*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:02*	*1*

Lab Sample ID: LCS 160-447622/1-A
Matrix: Water
Analysis Batch: 449235

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447622

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.42	10.53		1.19	1.00	0.384	pCi/L	112	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.5*		*40 - 110*
Y Carrier	*89.3*		*40 - 110*

QC Association Summary

Client: Omaha Public Power District
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Rad

Prep Batch: 447621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	PrecSep-21	
MB 160-447621/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-447621/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 447622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167720-1	NC2MW4	Total/NA	Water	PrecSep_0	
MB 160-447622/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-447622/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Omaha Public Power District
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Client Sample ID: NC2MW4
Lab Sample ID: 310-167720-1
Date Collected: 10/15/19 11:16
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 14:32	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449235	11/06/19 08:57	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
AIHA-LAP, LLC	Industrial Hygiene Laboratory Accreditation Program (IHLAP)	101044	11-01-20
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-20
Georgia	State	IA100001 (OR)	09-29-20
Illinois	NELAP	200024	11-29-19
Iowa	State	007	12-01-19
Kansas	NELAP	E-10341	01-31-20
Minnesota	NELAP	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	3349	08-22-21
Oregon	NELAP	IA100001	09-29-20
USDA	US Federal Programs	P330-19-00003	01-02-22

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	12-01-19

Method Summary

Client: Omaha Public Power District
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

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

eurofins | Environment Testing TestAmerica

310-167720 Chain of Custody

Cooler/Sample Receipt and Temperature L...

Client Information

Client: Omaha Public Power

City/State: Omaha (CITY / STATE) | Project:

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945 | Received By:

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab 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 # ____ of ____
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: 0 | 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): | Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	CYN → 1L HNO3 P1	
Uncorrected Temp (°C):	0.0	
Corrected Temp (°C):	0.0	

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
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: (531) 226-2515	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: (531) 226-2515	PO #:			
Email: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Station Unit 2 CCR	TestAmerica Project #: 31007559			
Site: Nebraska City Station Unit 2	SSOW#:			

Analysis Requested

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 Total Metals CCR List, 7470A Mercury, See Attached CCR List	2540C TDS, 9056A Chloride, Fluoride, Sulfate	9315 and 9320 Radium 226+228 Combined	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
NC2MW4	10/15/19	11:16	G	W	N		X	X	X	4	See attached list for specific analysis.

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:

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		10/16/2019 15:05	OPPD		10.16.19 1505	ELLO
2		10.16.19 1800	ELLO		10-17-19 0915	ELA
3		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:

NC2 CCR Sample Analysis (Some Parameters Need Reported Separate From Others [See COCs])

- Total metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, lithium, lead, molybdenum, selenium, and thallium via USEPA Method 6020A
- Radium 226+228 Combined via USEPA Method 9315 and 9320
- Mercury via USEPA Method 7470A
- TDS via SM 2540C
- Chloride, fluoride, and sulfate via USEPA Method 9056A

Login Container Summary Report

310-167720

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW4	310-167720-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW4	310-167720-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW4	310-167720-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-167720-2

Login Number: 167720

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bovy, Lorrainna L

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: 310-167720-2

Login Number: 167720
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/18/19 01:29 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	22.0
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").	N/A	
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
Job ID: 310-167720-2
Project/Site: Nebraska City Unit1/2 CCR and Landfill

Method: 9315 - Radium-226 (GFPC)

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

		Percent Yield (Acceptance Limits)							
		Ba Carrier							
Lab Sample ID	Client Sample ID	(40-110)							
310-167720-1	NC2MW4	88.3							
LCS 160-447621/1-A	Lab Control Sample	92.5							
MB 160-447621/20-A	Method Blank	89.8							

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

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

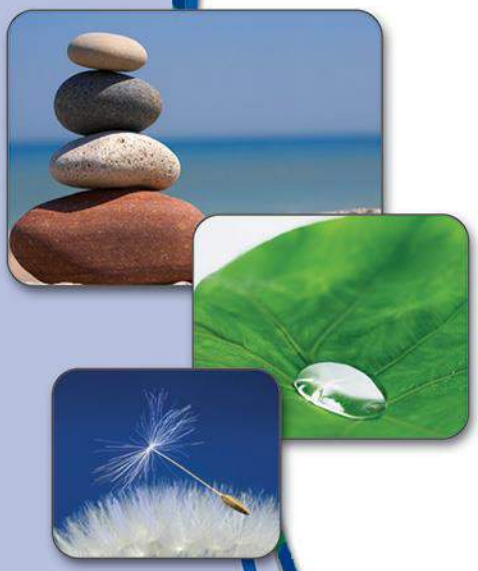
		Percent Yield (Acceptance Limits)							
		Ba Carrier	Y Carrier						
Lab Sample ID	Client Sample ID	(40-110)	(40-110)						
310-167720-1	NC2MW4	88.3	84.9						
LCS 160-447622/1-A	Lab Control Sample	92.5	89.3						
MB 160-447622/20-A	Method Blank	89.8	87.5						

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-167721-1
Client Project/Site: Nebraska City Unit 2 CCR

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:
10/30/2019 2:20:23 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 2 CCR

Job ID: 310-167721-1

Job ID: 310-167721-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-167721-1

Comments
No additional comments.

Receipt
The samples were received on 10/17/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.0º C, 0.3º C and 0.7º 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 2 CCR

Job ID: 310-167721-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-167721-1	NC2MW2	Water	10/15/19 14:34	10/17/19 09:45	
310-167721-2	NC2MW3	Water	10/15/19 13:56	10/17/19 09:45	
310-167721-3	NC2MW5	Water	10/15/19 12:24	10/17/19 09:45	
310-167721-4	NC2MW6	Water	10/15/19 12:57	10/17/19 09:45	
310-167721-5	NC2MW7	Water	10/15/19 15:25	10/17/19 09:45	
310-167721-6	NC2MW8	Water	10/16/19 12:56	10/17/19 09:45	
310-167721-7	DUP2	Water	10/15/19 00:00	10/17/19 09:45	

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW2 — Lab Sample ID: 310-167721-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	314		20.0		mg/L	20		9056A	Total/NA
Antimony	0.00900		0.00100		mg/L	1		6020A	Total/NA
Barium	0.142		0.00200		mg/L	1		6020A	Total/NA
Boron	0.513		0.200		mg/L	1		6020A	Total/NA
Cadmium	0.000220		0.000100		mg/L	1		6020A	Total/NA
Calcium	241		0.500		mg/L	1		6020A	Total/NA
Lead	0.000787		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0313		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0361		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	972		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW3 — Lab Sample ID: 310-167721-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.92		5.00		mg/L	5		9056A	Total/NA
Sulfate	20.3		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00344		0.00200		mg/L	1		6020A	Total/NA
Barium	0.312		0.00200		mg/L	1		6020A	Total/NA
Calcium	138		0.500		mg/L	1		6020A	Total/NA
Cobalt	0.00232		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0428		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00526		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	472		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW5 — Lab Sample ID: 310-167721-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.20		5.00		mg/L	5		9056A	Total/NA
Sulfate	322		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00247		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0340		0.00200		mg/L	1		6020A	Total/NA
Boron	3.66		0.200		mg/L	1		6020A	Total/NA
Calcium	195		0.500		mg/L	1		6020A	Total/NA
Lithium	0.0152		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0339		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	924		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW6 — Lab Sample ID: 310-167721-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.08		5.00		mg/L	5		9056A	Total/NA
Sulfate	151		5.00		mg/L	5		9056A	Total/NA
Barium	0.145		0.00200		mg/L	1		6020A	Total/NA
Boron	2.79		0.200		mg/L	1		6020A	Total/NA
Calcium	154		0.500		mg/L	1		6020A	Total/NA
Lithium	0.0408		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.0121		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	656		60.0		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW7 — Lab Sample ID: 310-167721-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.41		5.00		mg/L	5		9056A	Total/NA
Sulfate	32.1		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0384		0.00200		mg/L	1		6020A	Total/NA
Barium	0.597		0.00200		mg/L	1		6020A	Total/NA
Calcium	139		0.500		mg/L	1		6020A	Total/NA
Lithium	0.0633		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	520		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: NC2MW8 — Lab Sample ID: 310-167721-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.42		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0206		0.00200		mg/L	1		6020A	Total/NA
Barium	0.596		0.00200		mg/L	1		6020A	Total/NA
Calcium	140		0.500		mg/L	1		6020A	Total/NA
Cobalt	0.00175		0.000500		mg/L	1		6020A	Total/NA
Lithium	0.0333		0.0100		mg/L	1		6020A	Total/NA
Molybdenum	0.00347		0.00200		mg/L	1		6020A	Total/NA
Total Dissolved Solids	476		60.0		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP2 — Lab Sample ID: 310-167721-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.38		5.00		mg/L	5		9056A	Total/NA
Sulfate	30.3		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0387		0.00200		mg/L	1		6020A	Total/NA
Barium	0.604		0.00200		mg/L	1		6020A	Total/NA
Calcium	137		0.500		mg/L	1		6020A	Total/NA
Lithium	0.0616		0.0100		mg/L	1		6020A	Total/NA
Total Dissolved Solids	508		60.0		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 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW2

Date Collected: 10/15/19 14:34
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10.7**		5.00		mg/L			10/22/19 10:34	5
Fluoride	<0.500		0.500		mg/L			10/22/19 10:34	5
Sulfate	**314**		20.0		mg/L			10/22/19 14:41	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Antimony	**0.00900**		0.00100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 20:14	1
Barium	**0.142**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:14	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Boron	**0.513**		0.200		mg/L		10/18/19 08:00	10/21/19 20:14	1
Cadmium	**0.000220**		0.000100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Calcium	**241**		0.500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Lead	**0.000787**		0.000500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Lithium	**0.0313**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Molybdenum	**0.0361**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:14	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:14	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 13:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**972**		60.0		mg/L			10/22/19 11:23	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW3

Date Collected: 10/15/19 13:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-2

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.92**		5.00		mg/L			10/22/19 10:56	5
Fluoride	<0.500		0.500		mg/L			10/22/19 10:56	5
Sulfate	**20.3**		5.00		mg/L			10/22/19 10:56	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Arsenic	**0.00344**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:16	1
Barium	**0.312**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:16	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 20:16	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Calcium	**138**		0.500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Cobalt	**0.00232**		0.000500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Lithium	**0.0428**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Molybdenum	**0.00526**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:16	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:16	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 13:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**472**		60.0		mg/L			10/22/19 11:23	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW5

Date Collected: 10/15/19 12:24
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.20**		5.00		mg/L			10/22/19 11:12	5
Fluoride	<0.500		0.500		mg/L			10/22/19 11:12	5
Sulfate	**322**		20.0		mg/L			10/22/19 14:57	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Arsenic	**0.00247**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:19	1
Barium	**0.0340**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:19	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Boron	**3.66**		0.200		mg/L		10/18/19 08:00	10/21/19 20:19	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Calcium	**195**		0.500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Lithium	**0.0152**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Molybdenum	**0.0339**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:19	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:13	10/25/19 14:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**924**		60.0		mg/L			10/22/19 11:23	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW6

Date Collected: 10/15/19 12:57
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.08**		5.00		mg/L			10/22/19 11:28	5
Fluoride	<0.500		0.500		mg/L			10/22/19 11:28	5
Sulfate	**151**		5.00		mg/L			10/22/19 11:28	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 20:22	1
Barium	**0.145**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:22	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Boron	**2.79**		0.200		mg/L		10/18/19 08:00	10/21/19 20:22	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Calcium	**154**		0.500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Lithium	**0.0408**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Molybdenum	**0.0121**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:22	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:13	10/25/19 14:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**656**		60.0		mg/L			10/22/19 11:23	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW7

Date Collected: 10/15/19 15:25
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.41**		5.00		mg/L			10/22/19 11:44	5
Fluoride	<0.500		0.500		mg/L			10/22/19 11:44	5
Sulfate	**32.1**		5.00		mg/L			10/22/19 11:44	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Arsenic	**0.0384**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:24	1
Barium	**0.597**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:24	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 20:24	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Calcium	**139**		0.500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Lithium	**0.0633**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Molybdenum	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 20:24	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**520**		60.0		mg/L			10/22/19 11:23	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW8

Date Collected: 10/16/19 12:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.42**		5.00		mg/L			10/22/19 12:00	5
Fluoride	<0.500		0.500		mg/L			10/22/19 12:00	5
Sulfate	<5.00		5.00		mg/L			10/22/19 12:00	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Arsenic	**0.0206**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:27	1
Barium	**0.596**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:27	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 20:27	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Calcium	**140**		0.500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Cobalt	**0.00175**		0.000500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Lithium	**0.0333**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Molybdenum	**0.00347**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:27	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:27	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 16:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**476**		60.0		mg/L			10/22/19 11:49	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: DUP2

Date Collected: 10/15/19 00:00
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-7

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.38**		5.00		mg/L			10/22/19 12:16	5
Fluoride	<0.500		0.500		mg/L			10/22/19 12:16	5
Sulfate	**30.3**		5.00		mg/L			10/22/19 12:16	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Arsenic	**0.0387**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:29	1
Barium	**0.604**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:29	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 20:29	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Calcium	**137**		0.500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Lithium	**0.0616**		0.0100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Molybdenum	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 20:29	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:29	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 16:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**508**		60.0		mg/L			10/22/19 11:23	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-167721-1
Project/Site: Nebraska City Unit 2 CCR

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 310-258135/3
Matrix: Water
Analysis Batch: 258135

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			10/22/19 04:39	1
Fluoride	<0.100		0.100		mg/L			10/22/19 04:39	1
Sulfate	<1.00		1.00		mg/L			10/22/19 04:39	1

Lab Sample ID: LCS 310-258135/4
Matrix: Water
Analysis Batch: 258135

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.05		mg/L		100	90 - 110
Fluoride	2.00	2.051		mg/L		103	90 - 110
Sulfate	10.0	10.12		mg/L		101	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-257296/1-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257296

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Antimony	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 19:08	1
Barium	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 19:08	1
Beryllium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Boron	<0.200		0.200		mg/L		10/18/19 08:00	10/21/19 19:08	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Calcium	<0.500		0.500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Cobalt	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Lithium	<0.0100		0.0100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Molybdenum	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 19:08	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Thallium	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 19:08	1

Lab Sample ID: LCS 310-257296/2-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257296

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	4.00	4.333		mg/L		108	80 - 120
Antimony	0.0400	0.03297		mg/L		82	80 - 120
Arsenic	0.0800	0.07551		mg/L		94	80 - 120
Barium	0.0800	0.08431		mg/L		105	80 - 120
Beryllium	0.0400	0.04271		mg/L		107	80 - 120
Boron	1.76	1.758		mg/L		100	80 - 120
Cadmium	0.0400	0.04368		mg/L		109	80 - 120
Calcium	4.00	4.522		mg/L		113	80 - 120

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

Lab Sample ID: LCS 310-257296/2-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257296

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.0800	0.08580		mg/L		107	80 - 120
Cobalt	0.0400	0.04271		mg/L		107	80 - 120
Lead	0.0400	0.04276		mg/L		107	80 - 120
Lithium	0.200	0.1996		mg/L		100	80 - 120
Molybdenum	0.0800	0.07243		mg/L		91	80 - 120
Selenium	0.0800	0.08048		mg/L		101	80 - 120
Thallium	0.0320	0.03341		mg/L		104	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-257977/1-A
Matrix: Water
Analysis Batch: 258195

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257977

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 12:38	1

Lab Sample ID: LCS 310-257977/2-A
Matrix: Water
Analysis Batch: 258195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257977

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001528		mg/L		92	80 - 120

Lab Sample ID: MB 310-258159/1-A
Matrix: Water
Analysis Batch: 258383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 258159

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:13	10/25/19 14:22	1

Lab Sample ID: LCS 310-258159/2-A
Matrix: Water
Analysis Batch: 258383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 258159

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001685		mg/L		101	80 - 120

Lab Sample ID: 310-167721-3 MS
Matrix: Water
Analysis Batch: 258383

Client Sample ID: NC2MW5
Prep Type: Total/NA
Prep Batch: 258159

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000200		0.00167	0.001683		mg/L		101	80 - 120

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

Lab Sample ID: 310-167721-3 MSD
Matrix: Water
Analysis Batch: 258383

Client Sample ID: NC2MW5
Prep Type: Total/NA
Prep Batch: 258159

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001738		mg/L		104	80 - 120	3	20

Lab Sample ID: MB 310-258161/1-A
Matrix: Water
Analysis Batch: 258383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 258161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 15:21	1

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

Lab Sample ID: MB 310-257784/1
Matrix: Water
Analysis Batch: 257784

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			10/22/19 11:23	1

Lab Sample ID: LCS 310-257784/2
Matrix: Water
Analysis Batch: 257784

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

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

Lab Sample ID: 310-167721-3 DU
Matrix: Water
Analysis Batch: 257784

Client Sample ID: NC2MW5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	924		892.0		mg/L		4	24

Lab Sample ID: MB 310-257790/1
Matrix: Water
Analysis Batch: 257790

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			10/22/19 11:49	1

Lab Sample ID: LCS 310-257790/2
Matrix: Water
Analysis Batch: 257790

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	988.0		mg/L		99	90 - 110

HPLC/IC

Analysis Batch: 258135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	9056A	
310-167721-1	NC2MW2	Total/NA	Water	9056A	
310-167721-2	NC2MW3	Total/NA	Water	9056A	
310-167721-3	NC2MW5	Total/NA	Water	9056A	
310-167721-3	NC2MW5	Total/NA	Water	9056A	
310-167721-4	NC2MW6	Total/NA	Water	9056A	
310-167721-5	NC2MW7	Total/NA	Water	9056A	
310-167721-6	NC2MW8	Total/NA	Water	9056A	
310-167721-7	DUP2	Total/NA	Water	9056A	
MB 310-258135/3	Method Blank	Total/NA	Water	9056A	
LCS 310-258135/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 257296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	3010A	
310-167721-2	NC2MW3	Total/NA	Water	3010A	
310-167721-3	NC2MW5	Total/NA	Water	3010A	
310-167721-4	NC2MW6	Total/NA	Water	3010A	
310-167721-5	NC2MW7	Total/NA	Water	3010A	
310-167721-6	NC2MW8	Total/NA	Water	3010A	
310-167721-7	DUP2	Total/NA	Water	3010A	
MB 310-257296/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-257296/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 257738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	6020A	257296
310-167721-2	NC2MW3	Total/NA	Water	6020A	257296
310-167721-3	NC2MW5	Total/NA	Water	6020A	257296
310-167721-4	NC2MW6	Total/NA	Water	6020A	257296
310-167721-5	NC2MW7	Total/NA	Water	6020A	257296
310-167721-6	NC2MW8	Total/NA	Water	6020A	257296
310-167721-7	DUP2	Total/NA	Water	6020A	257296
MB 310-257296/1-A	Method Blank	Total/NA	Water	6020A	257296
LCS 310-257296/2-A	Lab Control Sample	Total/NA	Water	6020A	257296

Prep Batch: 257977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	7470A	
310-167721-2	NC2MW3	Total/NA	Water	7470A	
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 258159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-3	NC2MW5	Total/NA	Water	7470A	
310-167721-4	NC2MW6	Total/NA	Water	7470A	
MB 310-258159/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-258159/2-A	Lab Control Sample	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 258159 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-3 MS	NC2MW5	Total/NA	Water	7470A	
310-167721-3 MSD	NC2MW5	Total/NA	Water	7470A	

Prep Batch: 258161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-5	NC2MW7	Total/NA	Water	7470A	
310-167721-6	NC2MW8	Total/NA	Water	7470A	
310-167721-7	DUP2	Total/NA	Water	7470A	
MB 310-258161/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 258195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	7470A	257977
310-167721-2	NC2MW3	Total/NA	Water	7470A	257977
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	257977
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	257977

Analysis Batch: 258383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-3	NC2MW5	Total/NA	Water	7470A	258159
310-167721-4	NC2MW6	Total/NA	Water	7470A	258159
310-167721-5	NC2MW7	Total/NA	Water	7470A	258161
310-167721-6	NC2MW8	Total/NA	Water	7470A	258161
310-167721-7	DUP2	Total/NA	Water	7470A	258161
MB 310-258159/1-A	Method Blank	Total/NA	Water	7470A	258159
MB 310-258161/1-A	Method Blank	Total/NA	Water	7470A	258161
LCS 310-258159/2-A	Lab Control Sample	Total/NA	Water	7470A	258159
LCS 310-258383/42	Lab Control Sample	Total/NA	Water	7470A	
310-167721-3 MS	NC2MW5	Total/NA	Water	7470A	258159
310-167721-3 MSD	NC2MW5	Total/NA	Water	7470A	258159

General Chemistry

Analysis Batch: 257784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	SM 2540C	
310-167721-2	NC2MW3	Total/NA	Water	SM 2540C	
310-167721-3	NC2MW5	Total/NA	Water	SM 2540C	
310-167721-4	NC2MW6	Total/NA	Water	SM 2540C	
310-167721-5	NC2MW7	Total/NA	Water	SM 2540C	
310-167721-7	DUP2	Total/NA	Water	SM 2540C	
MB 310-257784/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-257784/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-167721-3 DU	NC2MW5	Total/NA	Water	SM 2540C	

Analysis Batch: 257790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-6	NC2MW8	Total/NA	Water	SM 2540C	
MB 310-257790/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-257790/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Omaha Public Power District
Job ID: 310-167721-1
Project/Site: Nebraska City Unit 2 CCR

Client Sample ID: NC2MW2
Lab Sample ID: 310-167721-1
Date Collected: 10/15/19 14:34
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 10:34	CJT	TAL CF
Total/NA	Analysis	9056A		20	258135	10/22/19 14:41	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:14	SAD	TAL CF
Total/NA	Prep	7470A			257977	10/23/19 13:26	HIS	TAL CF
Total/NA	Analysis	7470A		1	258195	10/24/19 13:04	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257784	10/22/19 11:23	MDK	TAL CF

Client Sample ID: NC2MW3
Lab Sample ID: 310-167721-2
Date Collected: 10/15/19 13:56
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 10:56	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:16	SAD	TAL CF
Total/NA	Prep	7470A			257977	10/23/19 13:26	HIS	TAL CF
Total/NA	Analysis	7470A		1	258195	10/24/19 13:06	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257784	10/22/19 11:23	MDK	TAL CF

Client Sample ID: NC2MW5
Lab Sample ID: 310-167721-3
Date Collected: 10/15/19 12:24
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 11:12	CJT	TAL CF
Total/NA	Analysis	9056A		20	258135	10/22/19 14:57	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:19	SAD	TAL CF
Total/NA	Prep	7470A			258159	10/24/19 13:13	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 14:26	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257784	10/22/19 11:23	MDK	TAL CF

Client Sample ID: NC2MW6
Lab Sample ID: 310-167721-4
Date Collected: 10/15/19 12:57
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 11:28	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:22	SAD	TAL CF
Total/NA	Prep	7470A			258159	10/24/19 13:13	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 14:32	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257784	10/22/19 11:23	MDK	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Job ID: 310-167721-1
Project/Site: Nebraska City Unit 2 CCR

Client Sample ID: NC2MW7
Lab Sample ID: 310-167721-5
Date Collected: 10/15/19 15:25
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 11:44	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:24	SAD	TAL CF
Total/NA	Prep	7470A			258161	10/24/19 13:19	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 15:53	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257784	10/22/19 11:23	MDK	TAL CF

Client Sample ID: NC2MW8
Lab Sample ID: 310-167721-6
Date Collected: 10/16/19 12:56
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 12:00	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:27	SAD	TAL CF
Total/NA	Prep	7470A			258161	10/24/19 13:19	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 16:00	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257790	10/22/19 11:49	MDK	TAL CF

Client Sample ID: DUP2
Lab Sample ID: 310-167721-7
Date Collected: 10/15/19 00:00
Matrix: Water
Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 12:16	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:29	SAD	TAL CF
Total/NA	Prep	7470A			258161	10/24/19 13:19	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 16:02	HIS	TAL CF
Total/NA	Analysis	SM 2540C		1	257784	10/22/19 11:23	MDK	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-167721-1
Project/Site: Nebraska City Unit 2 CCR

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
AIHA-LAP, LLC	Industrial Hygiene Laboratory Accreditation Program (IHLAP)	101044	11-01-20
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-20
Georgia	State	IA100001 (OR)	09-29-20
Illinois	NELAP	200024	11-29-19
Iowa	State	007	12-01-19
Kansas	NELAP	E-10341	01-31-20
Minnesota	NELAP	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	3349	08-22-21
Oregon	NELAP	IA100001	09-29-20
USDA	US Federal Programs	P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CF
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

Protocol References:

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

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

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing TestAmerica

310-167721 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE

Project: Nebraska City Sta Landfill Unit 2

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945

Received By: CL

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 3
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: 0 | 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): 0.7 | Corrected Temp (°C): 0.7

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(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

NC2MW8

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE | Project: Nebraska City Sta. LF

Receipt Information

Date/Time Received: DATE 10/7/19 TIME 0945 | Received By: CC

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 3
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: C | 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): | Corrected Temp (°C):

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	1L HNO3 PL	
Uncorrected Temp (°C):	0.0	
Corrected Temp (°C):	0.0	

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

NC2 MW2 Dup2

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE Project: NE City Sta Unit 2 LF

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945 Received By: CL

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 # 3 of 3
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: 0 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): Corrected Temp (°C):

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	1 L HNO_3 P1	
Uncorrected Temp (°C):	0.3	
Corrected Temp (°C):	0.3	

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

NC2 MW3 NC2MW5 NC2MW6

NC2MW7

Document: CF-LG-WI-002
Revision: 25
Date: 06/17/2019

Eurofins TestAmerica, Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

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: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	Phone: (531) 226-2515	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: (531) 226-2515	PO #:			
Email: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Station Unit 2 CCR	TestAmerica Project #: 31007559			
Site: Nebraska City Station Unit 2	SSOW#:			

Analysis Requested

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 Total Metals CCR List, 7470A Mercury, See Attached CCR List	2540C TDS, 9056A Chloride, Fluoride, Sulfate	9315 and 9320 Radium 226+228 Combined	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
NC2MW2	10/15/19	14:34	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW3	10/15/19	13:56	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW5	10/15/19	12:24	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW6	10/15/19	12:57	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW7	10/15/19	15:25	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW8	10/16/19	12:56	G	W	N		X	X	X	4	See attached list for specific analysis.
DUP2	10/15/19	--	G	W	N		X	X	X	4	See attached list for specific analysis.

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:

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Kyle K. Uhing	Date/Time: 10/16/2019 15:05	Company: OPPD	Received by:	Date/Time: 10.16.19 1505	Company: ellro		
Relinquished by:	Date/Time: 10.16.19 1800	Company: ellro	Received by:	Date/Time: 10-17-19 0915	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:				

NC2 CCR Sample Analysis (Some Parameters Need Reported Separate From Others [See COCs])

- Total metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, lithium, lead, molybdenum, selenium, and thallium via USEPA Method 6020A
- Radium 226+228 Combined via USEPA Method 9315 and 9320
- Mercury via USEPA Method 7470A
- TDS via SM 2540C
- Chloride, fluoride, and sulfate via USEPA Method 9056A

Login Container Summary Report

310-167721

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW2	310-167721-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW2	310-167721-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW2	310-167721-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW3	310-167721-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW3	310-167721-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW3	310-167721-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW5	310-167721-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW5	310-167721-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW5	310-167721-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW6	310-167721-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW6	310-167721-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW6	310-167721-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW7	310-167721-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW7	310-167721-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW7	310-167721-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW8	310-167721-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW8	310-167721-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW8	310-167721-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP2	310-167721-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP2	310-167721-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP2	310-167721-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

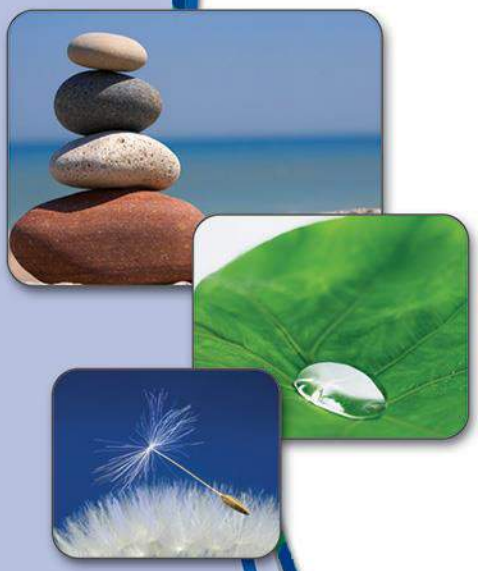
Job Number: 310-167721-1

Login Number: 167721
List Number: 1
Creator: Bovy, Lorrainna L

List Source: Eurofins 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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-167721-1
Client Project/Site: Nebraska City Unit 2 CCR

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:
10/30/2019 2:29:05 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 2 CCR

Job ID: 310-167721-1

Job ID: 310-167721-1

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-167721-1

Comments
No additional comments.

Receipt
The samples were received on 10/17/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.0º C, 0.3º C and 0.7º 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 2 CCR

Job ID: 310-167721-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-167721-1	NC2MW2	Water	10/15/19 14:34	10/17/19 09:45	
310-167721-2	NC2MW3	Water	10/15/19 13:56	10/17/19 09:45	
310-167721-3	NC2MW5	Water	10/15/19 12:24	10/17/19 09:45	
310-167721-4	NC2MW6	Water	10/15/19 12:57	10/17/19 09:45	
310-167721-5	NC2MW7	Water	10/15/19 15:25	10/17/19 09:45	
310-167721-6	NC2MW8	Water	10/16/19 12:56	10/17/19 09:45	
310-167721-7	DUP2	Water	10/15/19 00:00	10/17/19 09:45	

Detection Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW2 — Lab Sample ID: 310-167721-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	314		20.0		mg/L	20		9056A	Total/NA
Barium	0.142		0.00200		mg/L	1		6020A	Total/NA
Cadmium	0.000220		0.000100		mg/L	1		6020A	Total/NA
Lead	0.000787		0.000500		mg/L	1		6020A	Total/NA
Zinc	0.0292		0.0200		mg/L	1		6020A	Total/NA

Client Sample ID: NC2MW3 — Lab Sample ID: 310-167721-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	20.3		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.00344		0.00200		mg/L	1		6020A	Total/NA
Barium	0.312		0.00200		mg/L	1		6020A	Total/NA
Iron	1.47		0.100		mg/L	1		6020A	Total/NA

Client Sample ID: NC2MW5 — Lab Sample ID: 310-167721-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	322		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00247		0.00200		mg/L	1		6020A	Total/NA
Barium	0.0340		0.00200		mg/L	1		6020A	Total/NA

Client Sample ID: NC2MW6 — Lab Sample ID: 310-167721-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	151		5.00		mg/L	5		9056A	Total/NA
Barium	0.145		0.00200		mg/L	1		6020A	Total/NA
Iron	0.148		0.100		mg/L	1		6020A	Total/NA

Client Sample ID: NC2MW7 — Lab Sample ID: 310-167721-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	32.1		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0384		0.00200		mg/L	1		6020A	Total/NA
Barium	0.597		0.00200		mg/L	1		6020A	Total/NA
Iron	25.7		0.100		mg/L	1		6020A	Total/NA

Client Sample ID: NC2MW8 — Lab Sample ID: 310-167721-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0206		0.00200		mg/L	1		6020A	Total/NA
Barium	0.596		0.00200		mg/L	1		6020A	Total/NA
Iron	6.41		0.100		mg/L	1		6020A	Total/NA

Client Sample ID: DUP2 — Lab Sample ID: 310-167721-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	30.3		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0387		0.00200		mg/L	1		6020A	Total/NA
Barium	0.604		0.00200		mg/L	1		6020A	Total/NA
Iron	26.0		0.100		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW2

Date Collected: 10/15/19 14:34
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-1

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**314**		20.0		mg/L			10/22/19 14:41	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 20:14	1
Barium	**0.142**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:14	1
Cadmium	**0.000220**		0.000100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Iron	<0.100		0.100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Lead	**0.000787**		0.000500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:14	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:14	1
Zinc	**0.0292**		0.0200		mg/L		10/18/19 08:00	10/21/19 20:14	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 13:04	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW3
Date Collected: 10/15/19 13:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-2
Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**20.3**		5.00		mg/L			10/22/19 10:56	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00344**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:16	1
Barium	**0.312**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:16	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Iron	**1.47**		0.100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:16	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:16	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 20:16	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 13:06	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW5

Date Collected: 10/15/19 12:24
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-3

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**322**		20.0		mg/L			10/22/19 14:57	20

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00247**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:19	1
Barium	**0.0340**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:19	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Iron	<0.100		0.100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:19	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:19	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 20:19	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:13	10/25/19 14:26	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW6

Date Collected: 10/15/19 12:57
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-4

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**151**		5.00		mg/L			10/22/19 11:28	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 20:22	1
Barium	**0.145**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:22	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Iron	**0.148**		0.100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:22	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:22	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 20:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:13	10/25/19 14:32	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW7

Date Collected: 10/15/19 15:25
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-5

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**32.1**		5.00		mg/L			10/22/19 11:44	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0384**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:24	1
Barium	**0.597**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:24	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Iron	**25.7**		0.100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:24	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:24	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 20:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 15:53	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW8

Date Collected: 10/16/19 12:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-6

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.00		5.00		mg/L			10/22/19 12:00	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0206**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:27	1
Barium	**0.596**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:27	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Iron	**6.41**		0.100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:27	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:27	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 20:27	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 16:00	1

Client Sample Results

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: DUP2

Date Collected: 10/15/19 00:00
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-7

Matrix: Water

Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**30.3**		5.00		mg/L			10/22/19 12:16	5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0387**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:29	1
Barium	**0.604**		0.00200		mg/L		10/18/19 08:00	10/21/19 20:29	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Iron	**26.0**		0.100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 20:29	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 20:29	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 20:29	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 16:02	1

Client: Omaha Public Power District
Job ID: 310-167721-1
Project/Site: Nebraska City Unit 2 CCR

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 310-258135/3
Matrix: Water
Analysis Batch: 258135

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.00		1.00		mg/L			10/22/19 04:39	1

Lab Sample ID: LCS 310-258135/4
Matrix: Water
Analysis Batch: 258135

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.12		mg/L		101	90 - 110

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-257296/1-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257296

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 19:08	1
Barium	<0.00200		0.00200		mg/L		10/18/19 08:00	10/21/19 19:08	1
Cadmium	<0.000100		0.000100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Chromium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Iron	<0.100		0.100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Lead	<0.000500		0.000500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Selenium	<0.00500		0.00500		mg/L		10/18/19 08:00	10/21/19 19:08	1
Silver	<0.00100		0.00100		mg/L		10/18/19 08:00	10/21/19 19:08	1
Zinc	<0.0200		0.0200		mg/L		10/18/19 08:00	10/21/19 19:08	1

Lab Sample ID: LCS 310-257296/2-A
Matrix: Water
Analysis Batch: 257738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257296

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0800	0.07551		mg/L		94	80 - 120
Barium	0.0800	0.08431		mg/L		105	80 - 120
Cadmium	0.0400	0.04368		mg/L		109	80 - 120
Chromium	0.0800	0.08580		mg/L		107	80 - 120
Iron	4.00	4.355		mg/L		109	80 - 120
Lead	0.0400	0.04276		mg/L		107	80 - 120
Selenium	0.0800	0.08048		mg/L		101	80 - 120
Silver	0.0400	0.04415		mg/L		110	80 - 120
Zinc	0.0800	0.08978		mg/L		112	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-257977/1-A
Matrix: Water
Analysis Batch: 258195

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 257977

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/23/19 13:26	10/24/19 12:38	1

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

Lab Sample ID: LCS 310-257977/2-A
Matrix: Water
Analysis Batch: 258195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 257977

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001528		mg/L		92	80 - 120

Lab Sample ID: MB 310-258159/1-A
Matrix: Water
Analysis Batch: 258383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 258159

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:13	10/25/19 14:22	1

Lab Sample ID: LCS 310-258159/2-A
Matrix: Water
Analysis Batch: 258383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 258159

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001685		mg/L		101	80 - 120

Lab Sample ID: 310-167721-3 MS
Matrix: Water
Analysis Batch: 258383

Client Sample ID: NC2MW5
Prep Type: Total/NA
Prep Batch: 258159

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000200		0.00167	0.001683		mg/L		101	80 - 120

Lab Sample ID: 310-167721-3 MSD
Matrix: Water
Analysis Batch: 258383

Client Sample ID: NC2MW5
Prep Type: Total/NA
Prep Batch: 258159

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001738		mg/L		104	80 - 120	3	20

Lab Sample ID: MB 310-258161/1-A
Matrix: Water
Analysis Batch: 258383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 258161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/24/19 13:19	10/25/19 15:21	1

HPLC/IC

Analysis Batch: 258135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	9056A	
310-167721-2	NC2MW3	Total/NA	Water	9056A	
310-167721-3	NC2MW5	Total/NA	Water	9056A	
310-167721-4	NC2MW6	Total/NA	Water	9056A	
310-167721-5	NC2MW7	Total/NA	Water	9056A	
310-167721-6	NC2MW8	Total/NA	Water	9056A	
310-167721-7	DUP2	Total/NA	Water	9056A	
MB 310-258135/3	Method Blank	Total/NA	Water	9056A	
LCS 310-258135/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 257296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	3010A	
310-167721-2	NC2MW3	Total/NA	Water	3010A	
310-167721-3	NC2MW5	Total/NA	Water	3010A	
310-167721-4	NC2MW6	Total/NA	Water	3010A	
310-167721-5	NC2MW7	Total/NA	Water	3010A	
310-167721-6	NC2MW8	Total/NA	Water	3010A	
310-167721-7	DUP2	Total/NA	Water	3010A	
MB 310-257296/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-257296/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 257738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	6020A	257296
310-167721-2	NC2MW3	Total/NA	Water	6020A	257296
310-167721-3	NC2MW5	Total/NA	Water	6020A	257296
310-167721-4	NC2MW6	Total/NA	Water	6020A	257296
310-167721-5	NC2MW7	Total/NA	Water	6020A	257296
310-167721-6	NC2MW8	Total/NA	Water	6020A	257296
310-167721-7	DUP2	Total/NA	Water	6020A	257296
MB 310-257296/1-A	Method Blank	Total/NA	Water	6020A	257296
LCS 310-257296/2-A	Lab Control Sample	Total/NA	Water	6020A	257296

Prep Batch: 257977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	7470A	
310-167721-2	NC2MW3	Total/NA	Water	7470A	
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 258159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-3	NC2MW5	Total/NA	Water	7470A	
310-167721-4	NC2MW6	Total/NA	Water	7470A	
MB 310-258159/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-258159/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-167721-3 MS	NC2MW5	Total/NA	Water	7470A	
310-167721-3 MSD	NC2MW5	Total/NA	Water	7470A	

Metals

Prep Batch: 258161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-5	NC2MW7	Total/NA	Water	7470A	
310-167721-6	NC2MW8	Total/NA	Water	7470A	
310-167721-7	DUP2	Total/NA	Water	7470A	
MB 310-258161/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 258195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	7470A	257977
310-167721-2	NC2MW3	Total/NA	Water	7470A	257977
MB 310-257977/1-A	Method Blank	Total/NA	Water	7470A	257977
LCS 310-257977/2-A	Lab Control Sample	Total/NA	Water	7470A	257977

Analysis Batch: 258383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-3	NC2MW5	Total/NA	Water	7470A	258159
310-167721-4	NC2MW6	Total/NA	Water	7470A	258159
310-167721-5	NC2MW7	Total/NA	Water	7470A	258161
310-167721-6	NC2MW8	Total/NA	Water	7470A	258161
310-167721-7	DUP2	Total/NA	Water	7470A	258161
MB 310-258159/1-A	Method Blank	Total/NA	Water	7470A	258159
MB 310-258161/1-A	Method Blank	Total/NA	Water	7470A	258161
LCS 310-258159/2-A	Lab Control Sample	Total/NA	Water	7470A	258159
LCS 310-258383/42	Lab Control Sample	Total/NA	Water	7470A	
310-167721-3 MS	NC2MW5	Total/NA	Water	7470A	258159
310-167721-3 MSD	NC2MW5	Total/NA	Water	7470A	258159

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW2
Date Collected: 10/15/19 14:34
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	258135	10/22/19 14:41	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:14	SAD	TAL CF
Total/NA	Prep	7470A			257977	10/23/19 13:26	HIS	TAL CF
Total/NA	Analysis	7470A		1	258195	10/24/19 13:04	HIS	TAL CF

Client Sample ID: NC2MW3
Date Collected: 10/15/19 13:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 10:56	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:16	SAD	TAL CF
Total/NA	Prep	7470A			257977	10/23/19 13:26	HIS	TAL CF
Total/NA	Analysis	7470A		1	258195	10/24/19 13:06	HIS	TAL CF

Client Sample ID: NC2MW5
Date Collected: 10/15/19 12:24
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		20	258135	10/22/19 14:57	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:19	SAD	TAL CF
Total/NA	Prep	7470A			258159	10/24/19 13:13	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 14:26	HIS	TAL CF

Client Sample ID: NC2MW6
Date Collected: 10/15/19 12:57
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 11:28	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:22	SAD	TAL CF
Total/NA	Prep	7470A			258159	10/24/19 13:13	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 14:32	HIS	TAL CF

Client Sample ID: NC2MW7
Date Collected: 10/15/19 15:25
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 11:44	CJT	TAL CF

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

Client Sample ID: NC2MW7

Date Collected: 10/15/19 15:25
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:24	SAD	TAL CF
Total/NA	Prep	7470A			258161	10/24/19 13:19	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 15:53	HIS	TAL CF

Client Sample ID: NC2MW8

Date Collected: 10/16/19 12:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 12:00	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:27	SAD	TAL CF
Total/NA	Prep	7470A			258161	10/24/19 13:19	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 16:00	HIS	TAL CF

Client Sample ID: DUP2

Date Collected: 10/15/19 00:00
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	258135	10/22/19 12:16	CJT	TAL CF
Total/NA	Prep	3010A			257296	10/18/19 08:00	HED	TAL CF
Total/NA	Analysis	6020A		1	257738	10/21/19 20:29	SAD	TAL CF
Total/NA	Prep	7470A			258161	10/24/19 13:19	HIS	TAL CF
Total/NA	Analysis	7470A		1	258383	10/25/19 16:02	HIS	TAL CF

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Omaha Public Power District
Job ID: 310-167721-1
Project/Site: Nebraska City Unit 2 CCR

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
AIHA-LAP, LLC	Industrial Hygiene Laboratory Accreditation Program (IHLAP)	101044	11-01-20
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-20
Georgia	State	IA100001 (OR)	09-29-20
Illinois	NELAP	200024	11-29-19
Iowa	State	007	12-01-19
Kansas	NELAP	E-10341	01-31-20
Minnesota	NELAP	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	3349	08-22-21
Oregon	NELAP	IA100001	09-29-20
USDA	US Federal Programs	P330-19-00003	01-02-22

Method Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-1

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
3010A	Preparation, Total Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF

Protocol References:

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

Laboratory References:

TAL CF = Eurofins TestAmerica, Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing TestAmerica

310-167721 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE

Project: Nebraska City Sta Landfill Unit 2

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945

Received By: CL

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 3

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: 0 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): 0.7 Corrected Temp (°C): 0.7

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(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

NC2MW8

Document: CF-LG-WI-002
Revision: 25
Date: 06/17/2019

Eurofins TestAmerica, Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE | Project: Nebraska City Sta. LF

Receipt Information

Date/Time Received: DATE 10/7/19 TIME 9:45 | Received By: CC

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 3
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: C | 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): | Corrected Temp (°C):

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	1L HNO3 PL	
Uncorrected Temp (°C):	0.0	
Corrected Temp (°C):	0.0	

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

NC2 MW2 Pup2

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE | Project: NE City Sta Unit 2 LF

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0715 | Received By: CL

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 # 3 of 3
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: 0 | 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): | Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	1 L HNO_3 P1	
Uncorrected Temp (°C):	0.3	
Corrected Temp (°C):	0.3	

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

NC2 MW3 NC2MW5 NC2MW6

NC2MW7

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: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	Phone: (531) 226-2515	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: (531) 226-2515	PO #:			
Email: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Station Unit 2 Landfill	TestAmerica Project #: 31007559			
Site: Nebraska City Station Unit 2	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, 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)	6020A Total Metals Title 132 Landfill List, 7470A Mercury, See Attached Title 132 List	9056A Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N		
NC2MW2	10/15/19	14:34	G	W	N		X	X	2	See attached list for specific analysis.
NC2MW3	10/15/19	13:56	G	W	N		X	X	2	See attached list for specific analysis.
NC2MW5	10/15/19	12:24	G	W	N		X	X	2	See attached list for specific analysis.
NC2MW6	10/15/19	12:57	G	W	N		X	X	2	See attached list for specific analysis.
NC2MW7	10/15/19	15:25	G	W	N		X	X	2	See attached list for specific analysis.
NC2MW8	10/16/19	12:56	G	W	N		X	X	2	See attached list for specific analysis.
DUP2	10/15/19	---	G	W	N		X	X	2	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		10/16/2019 15:05	OPPD		10.16.19 1505	EUN
2		10.16.19 1800	EUN		10-17-19 0915	EA
3		Date/Time:	Company		Date/Time:	Company

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

NC2 Title 132 Sample Analysis (Some Parameters Need Reported Separate From Others [See COCs])

- Total metals: arsenic, barium, cadmium, chromium, iron, lead, selenium, silver, selenium, and zinc via USEPA Method 6020A
- Mercury via USEPA Method 7470A
- Sulfate via USEPA Method 9056A

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW2	310-167721-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW2	310-167721-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW2	310-167721-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW3	310-167721-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW3	310-167721-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW3	310-167721-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW5	310-167721-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW5	310-167721-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW5	310-167721-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW6	310-167721-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW6	310-167721-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW6	310-167721-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW7	310-167721-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW7	310-167721-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW7	310-167721-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW8	310-167721-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW8	310-167721-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW8	310-167721-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP2	310-167721-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP2	310-167721-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP2	310-167721-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

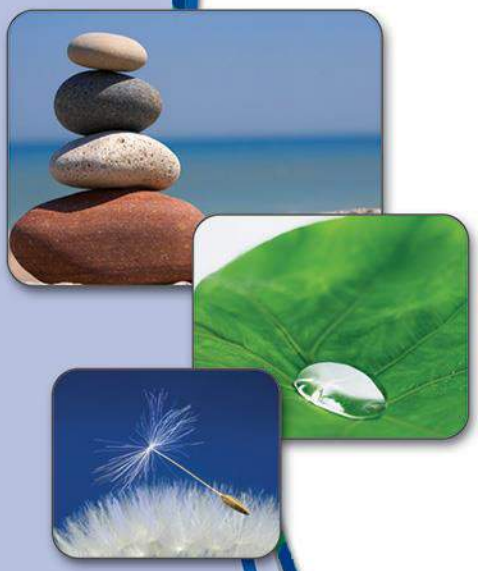
Job Number: 310-167721-1

Login Number: 167721
List Number: 1
Creator: Bovy, Lorrainna L

List Source: Eurofins 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	

eurofins | Environment Testing TestAmerica



ANALYTICAL REPORT

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Tel: (319)277-2401

Laboratory Job ID: 310-167721-2
Client Project/Site: Nebraska City Unit 2 CCR

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:
11/22/2019 9:12:38 AM

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 2 CCR

Job ID: 310-167721-2

Job ID: 310-167721-2

Laboratory: Eurofins TestAmerica, Cedar Falls

Narrative

Job Narrative
310-167721-2

Comments
No additional comments.

Receipt
The samples were received on 10/17/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.0º C, 0.3º C and 0.7º C.

RAD
Method PrecSep_0: Radium 228 Prep Batch 160-447622:

The following samples had light yellow discoloration: NC2MW2 (310-167721-1), NC2MW5 (310-167721-3), NC2MW6 (310-167721-4), NC2MW7 (310-167721-5), NC2MW8 (310-167721-6) and DUP2 (310-167721-7).

Method PrecSep-21: Radium 226 Prep Batch 160-447621:

The following samples had light yellow discoloration: NC2MW2 (310-167721-1), NC2MW5 (310-167721-3), NC2MW6 (310-167721-4), NC2MW7 (310-167721-5), NC2MW8 (310-167721-6) and DUP2 (310-167721-7).

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

Sample Summary

Client: Omaha Public Power District
Job ID: 310-167721-2
Project/Site: Nebraska City Unit 2 CCR

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
310-167721-1	NC2MW2	Water	10/15/19 14:34	10/17/19 09:45	
310-167721-2	NC2MW3	Water	10/15/19 13:56	10/17/19 09:45	
310-167721-3	NC2MW5	Water	10/15/19 12:24	10/17/19 09:45	
310-167721-4	NC2MW6	Water	10/15/19 12:57	10/17/19 09:45	
310-167721-5	NC2MW7	Water	10/15/19 15:25	10/17/19 09:45	
310-167721-6	NC2MW8	Water	10/16/19 12:56	10/17/19 09:45	
310-167721-7	DUP2	Water	10/15/19 00:00	10/17/19 09:45	

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW2
Date Collected: 10/15/19 14:34
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-1
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.229		0.114	0.116	1.00	0.147	pCi/L	10/24/19 17:52	11/15/19 14:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.7*		*40 - 110*	*10/24/19 17:52*	*11/15/19 14:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.420	U	0.278	0.281	1.00	0.425	pCi/L	10/24/19 18:25	11/06/19 08:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.7*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:58*	*1*
Y Carrier	*84.5*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:58*	*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	0.650		0.300	0.304	5.00	0.425	pCi/L		11/22/19 08:16	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW3
Date Collected: 10/15/19 13:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-2
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0918	U	0.0849	0.0853	1.00	0.133	pCi/L	10/24/19 17:52	11/15/19 16:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.9*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:34*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.786**		0.286	0.295	1.00	0.388	pCi/L	10/24/19 18:25	11/06/19 08:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.9*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:58*	*1*
Y Carrier	*84.5*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:58*	*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	**0.878**		0.298	0.307	5.00	0.388	pCi/L		11/22/19 08:16	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW5
Date Collected: 10/15/19 12:24
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-3
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0598	U	0.0574	0.0576	1.00	0.138	pCi/L	10/24/19 17:52	11/15/19 16:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.4*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:34*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.00210	U	0.242	0.242	1.00	0.429	pCi/L	10/24/19 18:25	11/06/19 08:58	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.4*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:58*	*1*
Y Carrier	*86.4*		*40 - 110*	*10/24/19 18:25*	*11/06/19 08:58*	*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	-0.0619	U	0.249	0.249	5.00	0.429	pCi/L		11/22/19 08:16	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW6
Date Collected: 10/15/19 12:57
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-4
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0910	U	0.0889	0.0893	1.00	0.141	pCi/L	10/24/19 17:52	11/15/19 16:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:35*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.403	U	0.303	0.306	1.00	0.481	pCi/L	10/24/19 18:25	11/06/19 09:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*1*
Y Carrier	*87.1*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*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	**0.494**		0.316	0.319	5.00	0.481	pCi/L		11/22/19 08:16	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW7
Date Collected: 10/15/19 15:25
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-5
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.245		0.110	0.112	1.00	0.138	pCi/L	10/24/19 17:52	11/15/19 16:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:35*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.287	U	0.284	0.285	1.00	0.462	pCi/L	10/24/19 18:25	11/06/19 09:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*1*
Y Carrier	*86.4*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*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	0.532		0.305	0.306	5.00	0.462	pCi/L		11/22/19 08:16	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW8
Date Collected: 10/16/19 12:56
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-6
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.354**		0.124	0.128	1.00	0.138	pCi/L	10/24/19 17:52	11/15/19 16:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:35*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.381	U	0.303	0.305	1.00	0.482	pCi/L	10/24/19 18:25	11/06/19 09:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*1*
Y Carrier	*82.6*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*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	**0.735**		0.327	0.331	5.00	0.482	pCi/L		11/22/19 08:16	1

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: DUP2
Date Collected: 10/15/19 00:00
Date Received: 10/17/19 09:45

Lab Sample ID: 310-167721-7
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.152		0.0937	0.0947	1.00	0.131	pCi/L	10/24/19 17:52	11/15/19 16:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.0*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:35*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.365	U	0.281	0.283	1.00	0.444	pCi/L	10/24/19 18:25	11/06/19 09:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.0*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*1*
Y Carrier	*83.7*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:01*	*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	0.517		0.296	0.298	5.00	0.444	pCi/L		11/22/19 08:16	1

Definitions/Glossary

Client: Omaha Public Power District
Job ID: 310-167721-2
Project/Site: Nebraska City Unit 2 CCR

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 160-447621/20-A
Matrix: Water
Analysis Batch: 450674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447621

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03233	U	0.0605	0.0606	1.00	0.136	pCi/L	10/24/19 17:52	11/15/19 16:36	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*10/24/19 17:52*	*11/15/19 16:36*	*1*

Lab Sample ID: LCS 160-447621/1-A
Matrix: Water
Analysis Batch: 450674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447621

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.32		1.09	1.00	0.142	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.5*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-447622/20-A
Matrix: Water
Analysis Batch: 449305

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447622

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1328	U	0.248	0.249	1.00	0.422	pCi/L	10/24/19 18:25	11/06/19 09:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.8*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:02*	*1*
Y Carrier	*87.5*		*40 - 110*	*10/24/19 18:25*	*11/06/19 09:02*	*1*

Lab Sample ID: LCS 160-447622/1-A
Matrix: Water
Analysis Batch: 449235

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447622

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.42	10.53		1.19	1.00	0.384	pCi/L	112	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*92.5*		*40 - 110*
Y Carrier	*89.3*		*40 - 110*

QC Association Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Rad

Prep Batch: 447621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	PrecSep-21	
310-167721-2	NC2MW3	Total/NA	Water	PrecSep-21	
310-167721-3	NC2MW5	Total/NA	Water	PrecSep-21	
310-167721-4	NC2MW6	Total/NA	Water	PrecSep-21	
310-167721-5	NC2MW7	Total/NA	Water	PrecSep-21	
310-167721-6	NC2MW8	Total/NA	Water	PrecSep-21	
310-167721-7	DUP2	Total/NA	Water	PrecSep-21	
MB 160-447621/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-447621/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 447622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-167721-1	NC2MW2	Total/NA	Water	PrecSep_0	
310-167721-2	NC2MW3	Total/NA	Water	PrecSep_0	
310-167721-3	NC2MW5	Total/NA	Water	PrecSep_0	
310-167721-4	NC2MW6	Total/NA	Water	PrecSep_0	
310-167721-5	NC2MW7	Total/NA	Water	PrecSep_0	
310-167721-6	NC2MW8	Total/NA	Water	PrecSep_0	
310-167721-7	DUP2	Total/NA	Water	PrecSep_0	
MB 160-447622/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-447622/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW2

Lab Sample ID: 310-167721-1

Date Collected: 10/15/19 14:34

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450673	11/15/19 14:33	CJQ	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449235	11/06/19 08:58	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Client Sample ID: NC2MW3

Lab Sample ID: 310-167721-2

Date Collected: 10/15/19 13:56

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 16:34	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449235	11/06/19 08:58	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Client Sample ID: NC2MW5

Lab Sample ID: 310-167721-3

Date Collected: 10/15/19 12:24

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 16:34	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449235	11/06/19 08:58	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Client Sample ID: NC2MW6

Lab Sample ID: 310-167721-4

Date Collected: 10/15/19 12:57

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 16:35	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449305	11/06/19 09:01	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Lab Chronicle

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

Client Sample ID: NC2MW7

Lab Sample ID: 310-167721-5

Date Collected: 10/15/19 15:25

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 16:35	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449305	11/06/19 09:01	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Client Sample ID: NC2MW8

Lab Sample ID: 310-167721-6

Date Collected: 10/16/19 12:56

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 16:35	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449305	11/06/19 09:01	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Client Sample ID: DUP2

Lab Sample ID: 310-167721-7

Date Collected: 10/15/19 00:00

Matrix: Water

Date Received: 10/17/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			447621	10/24/19 17:52	ORM	TAL SL
Total/NA	Analysis	9315		1	450674	11/15/19 16:35	SCB	TAL SL
Total/NA	Prep	PrecSep_0			447622	10/24/19 18:25	ORM	TAL SL
Total/NA	Analysis	9320		1	449305	11/06/19 09:01	KLS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	451578	11/22/19 08:16	SMP	TAL SL

Laboratory References:

TAL SL = Eurofins 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 2 CCR

Job ID: 310-167721-2

Laboratory: Eurofins TestAmerica, Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
AIHA-LAP, LLC	Industrial Hygiene Laboratory Accreditation Program (IHLAP)	101044	11-01-20
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-20
Georgia	State	IA100001 (OR)	09-29-20
Illinois	NELAP	200024	11-29-19
Iowa	State	007	12-01-19
Kansas	NELAP	E-10341	01-31-20
Minnesota	NELAP	019-999-319	12-31-19
Minnesota (Petrofund)	State Program	3349	08-22-21
Oregon	NELAP	IA100001	09-29-20
USDA	US Federal Programs	P330-19-00003	01-02-22

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	12-01-19

Method Summary

Client: Omaha Public Power District
Project/Site: Nebraska City Unit 2 CCR

Job ID: 310-167721-2

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

eurofins | Environment Testing TestAmerica

310-167721 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE

Project: Nebraska City Sta Landfill Unit 2

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945

Received By: CL

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 3
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: 0 | 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): 0.7 | Corrected Temp (°C): 0.7

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(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

NC2MW8

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE | Project: Nebraska City Stn. LF

Receipt Information

Date/Time Received: DATE 10/7/19 TIME 9AM | Received By: CC

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 3
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: C | 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): | Corrected Temp (°C):

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	1L HNO3 PL	
Uncorrected Temp (°C):	0.0	
Corrected Temp (°C):	0.0	

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

NC2 MW2 Dup2

eurofins | Environment Testing TestAmerica

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Omaha Public Power

City/State: CITY Omaha STATE NE Project: NE City Sta Unit 2 LF

Receipt Information

Date/Time Received: DATE 10/17/19 TIME 0945 Received By: CL

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab 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 # 3 of 3
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: 0 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): Corrected Temp (°C):

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	1 L HNO_3 P1	
Uncorrected Temp (°C):	0.3	
Corrected Temp (°C):	0.3	

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

NC2 MW3 NC2MW5 NC2MW6

NC2MW7

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: Kyle K. Uhing	Lab PM: Hayes, Shawn M	Carrier Tracking No(s):	COC No:
Client Contact: Kyle Uhing	Phone: (531) 226-2515	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: (531) 226-2515	PO #:			
Email: kkuhing@oppd.com	WO #:			
Project Name: Nebraska City Station Unit 2 CCR	TestAmerica Project #: 31007559			
Site: Nebraska City Station Unit 2	SSOW#:			

Analysis Requested

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 Total Metals CCR List, 7470A Mercury, See Attached CCR List	2540C TDS, 9056A Chloride, Fluoride, Sulfate	9315 and 9320 Radium 226+228 Combined	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
NC2MW2	10/15/19	14:34	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW3	10/15/19	13:56	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW5	10/15/19	12:24	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW6	10/15/19	12:57	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW7	10/15/19	15:25	G	W	N		X	X	X	4	See attached list for specific analysis.
NC2MW8	10/16/19	12:56	G	W	N		X	X	X	4	See attached list for specific analysis.
DUP2	10/15/19	--	G	W	N		X	X	X	4	See attached list for specific analysis.

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:

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Kyle K. Uhing	Date/Time: 10/16/2019 15:05	Company: OPPD	Received by:		Date/Time: 10.16.19 1505	Company: ELLO	
Relinquished by:	Date/Time: 10-16-19 1800	Company: ELLO	Received by:		Date/Time: 10-17-19 0915	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:

NC2 CCR Sample Analysis (Some Parameters Need Reported Separate From Others [See COCs])

- Total metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, lithium, lead, molybdenum, selenium, and thallium via USEPA Method 6020A
- Radium 226+228 Combined via USEPA Method 9315 and 9320
- Mercury via USEPA Method 7470A
- TDS via SM 2540C
- Chloride, fluoride, and sulfate via USEPA Method 9056A

Login Container Summary Report

310-167721

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NC2MW2	310-167721-A-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW2	310-167721-C-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW2	310-167721-D-1	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW3	310-167721-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW3	310-167721-C-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW3	310-167721-D-2	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW5	310-167721-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW5	310-167721-C-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW5	310-167721-D-3	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW6	310-167721-A-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW6	310-167721-C-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW6	310-167721-D-4	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW7	310-167721-A-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW7	310-167721-C-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW7	310-167721-D-5	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW8	310-167721-A-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
NC2MW8	310-167721-C-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
NC2MW8	310-167721-D-6	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP2	310-167721-A-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP2	310-167721-C-7	Plastic 1 liter - Nitric Acid	<2	_____	_____
DUP2	310-167721-D-7	Plastic 1 liter - Nitric Acid	<2	_____	_____

Login Sample Receipt Checklist

Client: Omaha Public Power District

Job Number: 310-167721-2

Login Number: 167721

List Source: Eurofins TestAmerica, Cedar Falls

List Number: 1

Creator: Bovy, Lorrainna L

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: 310-167721-2

Login Number: 167721
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/18/19 01:29 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	22.0
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").	N/A	
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 2 CCR

Job ID: 310-167721-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
		Ba Carrier
Lab Sample ID	Client Sample ID	(40-110)
310-167721-1	NC2MW2	78.7
310-167721-2	NC2MW3	88.9
310-167721-3	NC2MW5	93.4
310-167721-4	NC2MW6	90.4
310-167721-5	NC2MW7	90.7
310-167721-6	NC2MW8	90.4
310-167721-7	DUP2	91.0
LCS 160-447621/1-A	Lab Control Sample	92.5
MB 160-447621/20-A	Method Blank	89.8

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
		Ba Carrier	Y Carrier
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
310-167721-1	NC2MW2	78.7	84.5
310-167721-2	NC2MW3	88.9	84.5
310-167721-3	NC2MW5	93.4	86.4
310-167721-4	NC2MW6	90.4	87.1
310-167721-5	NC2MW7	90.7	86.4
310-167721-6	NC2MW8	90.4	82.6
310-167721-7	DUP2	91.0	83.7
LCS 160-447622/1-A	Lab Control Sample	92.5	89.3
MB 160-447622/20-A	Method Blank	89.8	87.5

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Y Carrier = Y Carrier

Appendix C

Spring and Fall 2019
Statistical Memos

This page intentionally left blank.

Technical Memorandum

Date:	Tuesday, July 30, 2019
To:	Omaha Public Power District (OPPD)
From:	HDR Engineering, Inc.
Subject:	Summary of Statistical Analysis and Evaluation for SSIs Nebraska City Station NC2 Ash Disposal Area CCR Groundwater Monitoring Network, Spring 2019

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 NC2 Ash Disposal Area. The NC2 Ash Disposal Area is an existing CCR landfill permitted under the Nebraska Department of Environment and Energy's (NDEE) Title 132 regulations for 40.7 acres; Cell 1 was constructed in 2008/2009 with a composite liner and leachate collection system. Construction for NC2 Ash Disposal Area Cells 2 and 3 started before the effective date of the CCR rule – October 19, 2015. The construction of Cells 2 and 3 base liner and West Leachate Pond base liner was substantially completed January 23, 2018.

Groundwater sampling was completed as part of a detection monitoring program for the NC2 CCR unit in April 2019 as specified in §257.94(b) and Title 132 Chapter 7 Section 004.02). The statistical analysis of groundwater data was performed in accordance with the methods described in the *Groundwater Monitoring Statistical Certification* for the Nebraska City Station – NC2 Combustion Ash Landfill, amended July 31, 2018 and the facility's most recent SAP as permitted under NDEE Title 132. Sampling results used to update background threshold values (BTVs) were obtained during monitoring events performed between March 2016 and March 2018. Downgradient sampling results from the April 2019 detection monitoring were used to evaluate for Statistically Significant Increases (SSIs) over background. The calculated BTVs and the evaluation for SSIs over background for the Appendix III constituents are provided in **Table C-1**.

Table C-1. Summary of Evaluation for SSIs over Background for Appendix III Constituents April 2019

Constituent:	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	TDS
Unit	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*SU*	*mg/L*	*mg/L*
BTV (UPL)[1]:	*4.63*	*223*	*34.2*	*2.43*	*6.51 – 7.93**	*611*	*1,390*
Well ID	*Detection Monitoring Event – April 2019*						
NC2-MW-2	0.270	**227**	11.8	<0.500	6.68	290	978
NC2-MW-3 [2]	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
NC2-MW-6	2.46	94.3	<5.00	<0.500	7.18	141	520
NC2-MW-7	0.214	132	8.64	<0.500	7.33	44.0	820
NC2-MW-8 [2]	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

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).
[1] BTVs have been reported to three significant figures to maintain the same level of precision as the results reported by the lab.
[2] NC2-MW-3 and NC2-MW-8 were submerged under water during April 2019 sampling event and were not measured.

During the April 2019 sampling event, a potential SSI was detected for calcium in monitoring location NC2-MW-2. This exceedance is considered an initial "1-of-2" exceedance above background. The 1-of-2 retesting plan as defined in the Unified Guidance concludes that an SSI has occurred when 2 out of 2 sample results exceed the prediction limit. Monitoring location NC2-MW-2 was resampled as part of a verification sampling event on June 26, 2019 (within 90 days of the April 2019 sampling event).

On June 26, 2019, a verification sampling event was completed by OPPD personnel. Monitoring well NC2-MW-2 was sampled utilizing procedures specified in the most recent SAP and analyzed for calcium. A duplicate sample was collected at NC2-MW-2 and analyzed for calcium as a quality assurance check and due to the natural variability of calcium detected in the monitoring well. The results of the two samples collected from NC2-MW-2 during verification sampling are provided in the table below. The field sampling form is provided in **Appendix A**, and the laboratory analytical report is provided in **Appendix B**. The relative percent difference (RPD) of the two samples were less than 15%, so the field duplicate precision indicates good error control. The average of the two calcium detections were below background; therefore, an SSI was not detected.

Table C-2. Results of Verification Sampling at NC2-MW-2 (June 2019)

	Calcium (mg/)
BTV (UPL)[1]:	*223*
NC2-MW-2 (Duplicate)	*198*
NC2-MW-2	**230**
RPD	**14.9%**
Average Calcium:	**214**

Bold and underlined concentration indicates an SSI over background.

Technical Memorandum

Date:	Friday, January 31, 2020
To:	Omaha Public Power District (OPPD)
From:	HDR Engineering, Inc.
Subject:	Summary of Statistical Analysis and Evaluation for SSIs Nebraska City Station NC2 Ash Disposal Area CCR Groundwater Monitoring Network, Fall 2019

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 NC2 Ash Disposal Area. The NC2 Ash Disposal Area is an existing CCR landfill permitted under the Nebraska Department of Environment and Energy's (NDEE) Title 132 regulations for 40.7 acres; Cell 1 was constructed in 2008/2009 with a composite liner and leachate collection system. Construction for NC2 Ash Disposal Area Cells 2 and 3 started before the effective date of the CCR rule – October 19, 2015. The construction of Cells 2 and 3 base liner and West Leachate Pond base liner was substantially completed January 23, 2018.

Groundwater sampling was completed as part of a detection monitoring program for the NC2 CCR unit in October 2019 as specified in §257.94(b) and Title 132 Chapter 7 Section 004.02). The statistical analysis of groundwater data was performed in accordance with the methods described in the *Groundwater Monitoring Statistical Certification* for the Nebraska City Station – NC2 Combustion Ash Landfill, amended July 31, 2018 and the facility's most recent SAP as permitted under NDEE Title 132. Sampling results used to update background threshold values (BTVs) were obtained during monitoring events performed between March 2016 and March 2018. Downgradient sampling results from the October 2019 detection monitoring were used to evaluate for statistically significant increases (SSIs) over background. The calculated BTVs and the evaluation for SSIs over background for the Appendix III constituents are provided in **Table C-1**.

Table C-1. Summary of Evaluation for SSIs over Background for Appendix III Constituents October 2019

Constituent:	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	TDS
Unit	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*SU*	*mg/L*	*mg/L*
BTV (UPL)[1]:	*4.63*	*223*	*34.2*	*2.43*	*6.51 – 7.93**	*611*	*1,390*
Well ID	*Detection Monitoring Event – October 2019*						
NC2-MW-2	0.513	**241**	10.7	<0.500	6.54	314	972
NC2-MW-3	<0.200	138	7.92	<0.500	6.81	20.3	472
NC2-MW-6	2.79	154	9.08	<0.500	6.82	151	656
NC2-MW-7	<0.200	139	8.41	<0.500	7.02	32.1	520
NC2-MW-8	<0.200	140	9.42	<0.500	6.89	<5.00	476

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).
[1] BTVs have been reported to three significant figures to maintain the same level of precision as the results reported by the lab.

On January 8, 2020, a verification sampling event was completed by OPPD personnel as part of an ASD within the 90-day requirement of 40 CFR § 257.93(h)(2). Monitoring well NC2-MW-2 was sampled utilizing procedures specified in the most recent SAP and analyzed for calcium. Results of the verification sampling are provided in **Table C-2**. A duplicate sample was collected at NC2-MW-2 and analyzed for calcium as a quality assurance check and due to the natural variability of calcium detected in the monitoring well. The results of the two samples collected from NC2-MW-2 during verification sampling are provided in the table below. The relative percent difference (RPD) of the two samples were less than 15%, so the field duplicate precision indicates good error control. The average of the two calcium detections were above background; therefore, the SSI was confirmed.

Table C-2. Results of Verification Sampling at NC2-MW-2 (January 2020)

	Calcium (mg/)
BTV (UPL)[1]:	*223*
NC2-MW-2 (Duplicate)	**251**
NC2-MW-2	**258**
RPD	2.75%
Average Calcium:	**254.5**

Bold and underlined concentration indicates an SSI over background