

2023 Annual Groundwater Monitoring and Corrective Action Report

Columbia Energy Center
Dry Ash Disposal Facility, Modules 10 and 11
Pardeeville, Wisconsin

Prepared for:

Alliant Energy



SCS ENGINEERS

25223067.00 | January 31, 2024

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OVERVIEW OF CURRENT STATUS

Columbia Energy Center, Dry Ash Disposal Facility, Modules 10 and 11 2023 Annual Report

In accordance with §257.90(e)(6), this section at the beginning of the annual report provides an overview of the current status of groundwater monitoring and corrective action programs for the coal combustion residual (CCR) unit. The groundwater monitoring system for the Columbia Energy Center (COL) Dry Ash Disposal Facility Modules 10 and 11 monitors a single CCR unit. Supporting information is provided in the text of the annual report.

Category	Rule Requirement	Site Status
Monitoring Status – Start of Year	(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Background sampling for detection monitoring
Monitoring Status – End of Year	(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;	Detection
Statistically Significant Increases (SSIs)	(iii) If it was determined that there was an SSI over background for one or more constituents listed in appendix III to this part pursuant to §257.94(e):	
	(A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and	Not applicable – Data from the first round of detection monitoring will be included in 2024 annual report
	(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	Not applicable – Site is in detection monitoring

Category	Rule Requirement	Site Status
Statistically Significant Levels (SSL) Above Groundwater Protection Standard (GPS)	(iv) If it was determined that there was an SSL above the GPS for one or more constituents listed in appendix IV to this part pursuant to §257.95(g) include all of the following:	Not applicable – Appendix IV sampling not required
	(A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;	
	(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	
	(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	
	(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.	
Selection of Remedy	(v) Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection; and	Not applicable – Site is in detection monitoring
Corrective Action	(vi) Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.	Not applicable – Site is in detection monitoring

Table of Contents

Section	Page
Overview of Current Status.....	i
1.0 Introduction.....	1
2.0 Background.....	1
2.1 Geologic and Hydrogeologic Setting.....	1
2.1.1 Regional Information.....	1
2.1.2 Site Information.....	2
2.2 CCR Rule Monitoring System.....	2
3.0 §257.90(e) Annual Report Requirements.....	2
3.1 §257.90(e)(1) Site Map.....	3
3.2 §257.90(e)(2) Monitoring System Changes.....	3
3.3 §257.90(e)(3) Summary of Sampling Events.....	3
3.4 §257.90(e)(4) Monitoring Transition Narrative.....	4
3.5 §257.90(e)(5) Other Requirements.....	4
3.5.1 § 257.90(e) General Requirements.....	4
3.5.2 §257.94(d) Alternative Detection Monitoring Frequency.....	5
3.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring.....	5
3.5.4 §257.95(c) Alternative Assessment Monitoring Frequency.....	5
3.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards.....	5
3.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring..	5
3.5.7 §257.96(a) Extension of Time for Corrective Measures Assessment.....	6
3.6 §257.90(e)(6) Overview.....	6
4.0 References.....	6

Tables

Table 1.	Groundwater Monitoring Well Network
Table 2.	CCR Rule Groundwater Samples Summary
Table 3.	Groundwater Elevation – State Monitoring Program and CCR Well Network
Table 4.	Horizontal Gradients and Flow Velocity
Table 5.	Groundwater Analytical Results Summary
Table 6.	Groundwater Field Data Summary

Figures

Figure 1.	Site Location Map
Figure 2.	Site Plan and Monitoring Well Locations
Figure 3.	Water Table Map – April 2023
Figure 4.	Water Table Map – October 2023

Appendices

- Appendix A Regional Hydrogeologic Information
- Appendix B Boring Logs and Well Construction Documentation
- Appendix C Laboratory Reports
- Appendix D Historical Monitoring Results

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1.0 INTRODUCTION

This 2023 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the Coal Combustion Residuals (CCR) Rule [40 Code of Federal Regulations (CFR) 257.50-107]. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e). The applicable sections of the Rule are provided below in italics, followed by applicable information relative to the 2023 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units. The site location is shown on **Figure 1**.

This report covers the period of groundwater monitoring from January 1, 2023, through December 31, 2023.

The groundwater monitoring system for the Columbia Energy Center (COL) Dry Ash Disposal Facility Modules 10 and 11 monitors a single CCR unit:

- COL Dry Ash Disposal Facility – Modules 10-11 (new CCR Landfill)

The system is designed to detect monitored constituents at the waste boundary of Modules 10 and 11 of the COL Dry Ash Disposal Facility as required by 40 CFR 257.91(d). The groundwater monitoring system consists of two upgradient and three downgradient monitoring wells (**Table 1** and **Figure 2**). Separate groundwater monitoring systems evaluate groundwater conditions for Modules 1 through 3 and Modules 4 through 6 of the COL Dry Ash Disposal Facility.

2.0 BACKGROUND

To provide context for the required annual report information, the following background information is provided in this section of the report, prior to the required information:

- Geologic and hydrogeologic setting
- CCR Rule monitoring system

2.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

2.1.1 Regional Information

For the purposes of groundwater monitoring, the surficial sand and gravel aquifer is considered to be the uppermost aquifer unit, as defined under 40 CFR 257.53, at the COL Ash Disposal Facility Modules 10 and 11. Immediately underlying the surficial sand and gravel aquifer is the Cambrian-Ordovician sandstone aquifer. A summary of the regional hydrogeologic stratigraphy is presented in **Appendix A**.

The sand and gravel aquifer is capable of producing sufficient water for industrial or municipal use in some parts of Columbia County and is capable of producing sufficient water for domestic use in many areas, including along the Wisconsin River near the Columbia Energy Center (Harr et al., 1978). A map showing expected well yields within the sand and gravel aquifer in Columbia County is included in **Appendix A**.

Regional groundwater flow in the site vicinity is generally west toward the Wisconsin River. A map showing the regional water table elevations is included with the regional hydrogeologic information in **Appendix A**.

2.1.2 Site Information

Soils at the site are primarily sand to a depth of approximately 50 to 100 feet and overlie sandstone bedrock. Soils encountered during the site feasibility study for the COL Ash Disposal Facility were described as generally sandy with interbedded silty clay lenses up to 20 feet thick (Warzyn Engineering, Inc., 1978). During drilling of CCR wells MW-301, MW-313, MW-314, and MW-315, the unconsolidated materials were identified as consisting primarily of silty sand and sand. Boring logs for previously installed monitoring well MW-84A show silty sand and sand as the primary unconsolidated materials at this location. The boring logs for Ash Disposal Facility Modules 10 and 11 CCR monitoring wells are provided in **Appendix B**. All CCR monitoring wells are screened within the unconsolidated sand unit.

Shallow groundwater at the site generally flows to the north and west across the existing landfill area. The April 2023 water levels and apparent flow directions reflect the influence of a temporary dewatering system installed to lower groundwater levels in the area of the Primary Pond as part of the closure project for that CCR Unit. The water table elevations and groundwater flow directions for the April 2023 monitoring event are shown on **Figure 3**, and the water table elevations and groundwater flow directions for the October 2023 monitoring event are shown on **Figure 4**. The groundwater elevation data for the CCR monitoring wells are provided in **Table 3**. Calculated horizontal gradients and flow velocities for representative flow paths are provided in **Table 4**. Groundwater flow direction and velocity were not determined for the other background monitoring events because water levels were monitored only at the three new downgradient monitoring wells, which do not provide enough data for flow rate determination. The flow directions and rates in the Dry Ash disposal Facility have been relatively consistent over the last several years based on monitoring performed for the other CCR units.

2.2 CCR RULE MONITORING SYSTEM

The groundwater monitoring system established in accordance with the CCR Rule consists of two upgradient (background) monitoring wells and three downgradient monitoring wells (**Table 1** and **Figure 2**). The background wells include MW-301 and MW-84A. The downgradient wells include MW-313, MW-314, and MW-315. The CCR Rule wells are installed within the sand and gravel aquifer. Well depths range from approximately 26 to 43.5 feet, measured from the top of the well casing.

3.0 §257.90(e) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

3.1 §257.90(e)(1) SITE MAP

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

A map of the site location is provided on **Figure 1**. A map showing the Dry Ash Disposal Facility Modules 10 and 11 and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 2**. Other CCR units are also shown on **Figure 2**.

3.2 §257.90(e)(2) MONITORING SYSTEM CHANGES

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

The monitoring system transitioned from background sampling to detection monitoring in 2023.

3.3 §257.90(e)(3) SUMMARY OF SAMPLING EVENTS

In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

Nine groundwater sampling events were conducted at COL Dry Ash Disposal Modules 10 and 11 in 2023. Eight background groundwater sampling events were completed in 2023 prior to the initiation of CCR disposal in Modules 10 and 11. The first detection monitoring event following groundwater monitoring system certification was completed in October 2023.

The monthly background monitoring events included the three new compliance wells installed at the waste boundary: MW-313, MW-314, and MW-315. Background has already been established for upgradient background wells MW-84A and MW-301, so additional background monitoring was not required for these two wells. These wells are also used as background wells for other CCR units and were sampled in April and October 2023 as part of the semiannual monitoring events for those units.

Background samples were analyzed for Appendix III and Appendix IV constituents. Groundwater samples collected during the first detection monitoring event in October 2023 were analyzed for Appendix III constituents. A summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection or assessment monitoring program is included in **Table 2**.

The validation and evaluation of the October 2023 monitoring event data was in progress at the end of 2023 and will be transmitted to WPL in 2024; therefore, the October 2023 monitoring results and analytical report will be included in the 2024 annual report. The October 2023 groundwater elevation data is included in this report.

The sampling results for Appendix III and IV parameters from January to August 2023 are summarized in **Table 5**. Field parameter results for the January through August 2023 monthly

background sampling events are provided in **Table 6**. The analytical laboratory reports for January through August 2023 background events are provided in **Appendix C**. Historical results for each monitoring well through August 2023 are summarized in **Appendix D**.

3.4 §257.90(e)(4) MONITORING TRANSITION NARRATIVE

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels);

The COL Dry Ash Disposal Facility Modules 10 and 11 CCR Unit transitioned from background monitoring to detection monitoring. The groundwater monitoring system for Modules 10 and 11 was certified on June 15, 2023.

3.5 §257.90(e)(5) OTHER REQUIREMENTS

Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

Additional potentially applicable requirements for the annual report, and the location of the requirement within the Rule, are provided in the following sections. For each cited section of the Rule, the portion referencing the annual report requirement is provided below in italics, followed by applicable information relative to the 2023 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units.

3.5.1 § 257.90(e) General Requirements

For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.

Status of Groundwater Monitoring and Corrective Action Program. Monthly background sampling occurred from January through August 2023. The groundwater monitoring and corrective action program transitioned to detection monitoring in October 2023.

Summary of Key Actions Completed.

- Eight rounds of monthly background sampling (January to August 2023).
- Certification of groundwater monitoring well network.
- One semiannual groundwater sampling and analysis event (October 2023).

Description of Any Problems Encountered. No problems were encountered at Mod 10-11 in 2023.

Discussion of Actions to Resolve the Problems. Not applicable.

Projection of Key Activities for the Upcoming Year (2024).

- Statistical evaluation and determination of any SSIs for the October 2023 and April 2024 monitoring events.

- If an SSI is determined, then within 90 days either:
 - Complete ASD (if applicable), or
 - Establish an assessment monitoring program.
- Two semiannual groundwater sampling and analysis events (April and October 2024).

3.5.2 §257.94(d) Alternative Detection Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. No alternative detection monitoring frequency has been proposed.

3.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. No alternative source demonstrations were completed in 2023.

3.5.4 §257.95(c) Alternative Assessment Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. Assessment monitoring has not been initiated.

3.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. Assessment monitoring has not been initiated.

3.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. Assessment monitoring has not been initiated.

3.5.7 §257.96(a) Extension of Time for Corrective Measures Assessment

The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measure due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. Corrective measures assessment has not been initiated.

3.6 §257.90(E)(6) OVERVIEW

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit.

The specific requirements for the overview under §257.90(e)(6) are listed and the information is provided at the beginning of this report, before the Table of Contents.

4.0 REFERENCES

Harr, C.A., L.C. Trotta, and R.G. Borman, 1978, "Ground-Water Resources and Geology of Columbia County, Wisconsin," University of Wisconsin-Extension Geological and Natural History Survey Information Circular Number 37, 1978.

U.S. Environmental Protection Agency (U.S. EPA), 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, EPA 530-R-09-007, March 2009.

Warzyn Engineering, Inc., 1978, Feasibility Study, Proposed Fly Ash and/or Scrubber Sludge Disposal Facility – Columbia Site, Wisconsin Power and Light Company, Town of Pacific, Columbia County, WI, January 1978.

Tables

- 1 Groundwater Monitoring Well Network
- 2 CCR Rule Groundwater Samples Summary
- 3 Groundwater Elevation – State Monitoring Program
and CCR Well Network
- 4 Horizontal Gradients and Flow Velocity
- 5 Groundwater Analytical Results Summary
- 6 Groundwater Field Data Summary

**Table 1. Groundwater Monitoring Well Network
Columbia Energy Center - Dry Ash Disposal Facility - Modules 10-11
SCS Engineers Project #25223067.00**

Monitoring Well	Location in Monitoring Network	Role in Monitoring Network
MW-84A	Upgradient	Background
MW-301	Upgradient	Background
MW-313	Downgradient	Compliance
MW-314	Downgradient	Compliance
MW-315	Downgradient	Compliance

Created by: NLB
 Last revision by: NLB
 Checked by: BLR

Date: 12/1/2023
 Date: 12/1/2023
 Date: 12/7/2023

**Table 2. Groundwater Samples Summary
Columbia Energy Center - Dry Ash Disposal Facility - Modules 10-11
SCS Engineers Project #25223067.00**

Sample Dates	Downgradient Wells			Background Wells	
	MW-313	MW-314	MW-315	MW-84A	MW-301
January 24, 2023	B	B	B	--	--
February 23, 2023	B	B	B	--	--
March 27, 2023	B	B	B	--	--
April 24-27, 2023	B	B	B	B	B
May 30, 2023	B	B	B	--	--
June 29, 2023	B	B	B	--	--
July 31, 2023	B	B	B	--	--
August 31, 2023	B	B	B	--	--
October 9-11, 2023	D	D	D	D	D
Total Samples	9	9	9	2	2

Abbreviations:

B = Background Monitoring Event

D = Detection Monitoring Event

-- = Not Sampled

Created by: NLB

Date: 12/1/2023

Last revision by: BR

Date: 12/8/2023

Checked by: RM

Date: 12/13/2023

**Table 3. Groundwater Elevation - State Monitoring Program and CCR Well Network
Columbia Dry Ash and Ash Pond Disposal Facilities / SCS Engineers Project #25223067.00**

	Well Number	MW-1AR	MW-4	MW-5R	MW-33AR	MW-33BR	MW-34A	MW-34B	MW-37A	MW-83	MW-84A	MW-84B	MW-86	MW-91AR	MW-91B	MW-92A	MW-92B	MW-93A	MW-93B	MW-312
	Top of Casing Elevation (feet amsl)	822.55	819.74	805.44	808.29	808.39	805.95	806.05	813.04	807.96	814.28	814.26	824.79	809.03	808.45	808.47	808.41	827.89	827.71	826.79
Screen Length (ft)																		10	5	10
Total Depth (ft from top of casing)	44.40	39.58	25.97	31.08	57.50	35.43	56.95	31.80	25.42	40.21	52.02	45.43	32.90	52.38	28.94	51.75	50.7	82.5	52.5	
Top of Well Screen Elevation (ft)	778.15	780.16	779.47	777.21	750.89	770.52	749.10	781.24	782.54	774.07	762.24	779.36	776.13	756.07	779.53	756.66	787.19	750.21	784.29	
Measurement Date																				
October 2, 2012	783.41	783.70	784.96	782.38	782.23	783.03	782.99	782.66	dry	783.84	783.94	783.81	784.09	783.90	784.49	784.06	NI	NI	NI	
April 15, 2013	785.44	784.02	786.09	784.16	784.14	784.74	784.79	783.87	784.49	785.83	785.76	785.22	785.14	785.01	785.75	785.34	NI	NI	NI	
October 8, 2013													785.66	785.42	785.97	785.52	NI	NI	NI	
October 15, 2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	785.66	785.42	785.97	785.52	NI	NI	NI	
April 14, 2014	784.95	784.09	785.63	783.74	783.91	784.63	784.70	783.45	783.73	785.58	785.52	784.96	785.04	784.96	785.99	785.54	NI	NI	NI	
October 2-3, 2014	785.03	785.39	786.08	784.37	784.28	784.57	784.54	784.56	dry	785.24	785.18	785.19	785.47	785.28	785.75	785.33	NI	NI	NI	
April 13-14, 2015	783.96	783.63	785.25	783.01	782.74	783.65	783.95	782.87	dry	784.43	784.51	784.17	784.48	784.37	785.07	784.66	NI	NI	NI	
October 6-7, 2015	784.28	784.44	785.72	783.68	783.33	784.05	784.02	783.66	dry	784.80	784.76	784.66	784.89	784.70	785.20	784.76	NI	NI	NI	
April 4-6, 2016	785.82	aband	787.02	785.29	785.07	785.63	785.67	784.76	785.43	786.37	786.26	785.89	786.05	785.95	786.61	786.21	NI	NI	NI	
October 11-13, 2016	786.64	aband	788.00	787.36	786.46	786.45	786.32	786.40	786.81	787.22	787.11	786.96	787.17	786.81	787.68	787.25	NI	NI	NI	
April 10-13, 2017	786.96	aband	788.13	786.39	785.99	786.30	786.28	786.34	786.23	787.16	787.06	786.96	787.24	787.03	787.90	787.60	NI	NI	NI	
October 3-5, 2017	785.48	aband	786.66	784.51	784.22	784.67	784.63	784.86	784.29	NM	786.49	785.58	786.08	785.83	786.47	786.02	NI	NI	NI	
October 9-10, 2017	NM	aband	NM	NM	NM	NM	NM	NM	NM	785.56 ⁽⁶⁾	NM	NM	NM	NM	NM	NM	NI	NI	NI	
February 21, 2018	783.97	aband	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	784.68	784.46	NM	NM	NI	NI	NI	
April 23-25, 2018	783.99	aband	785.36	783.09	786.36	781.77	780.79	783.28	783.32	785.88	784.91	782.54	784.71	784.53	785.23	784.81	NI	NI	NI	
October 23-25, 2018	788.25	aband	789.71	788.77	787.96	787.88	787.73	787.62	788.26	788.32	788.19	788.21	788.59	788.31	789.32	788.87	NI	NI	NI	
April 1-4, 2019	787.05	aband	788.64	786.63	786.54	786.82	786.92	786.47	786.78	787.35	787.34	787.16	787.45	787.18	788.04	787.63	NI	NI	NI	
October 7-9, 2019	787.26	aband	789.23	788.26	787.64	787.92	787.74	786.77	788.90	787.79	787.73	787.44	787.78	787.62	788.63	788.17	NI	NI	NI	
May 27-28, 2020	786.92	aband	788.34	786.01	785.75	785.98	785.99	786.22	786.03	787.02	786.99	786.94	787.26	787.05	787.86	787.47	NI	NI	NI	
October 7-8, 2020	785.95	aband	787.76	785.91	785.45	785.70	785.68	785.52	785.72	786.10	786.06	786.10	786.55	786.33	786.85	786.38	NI	NI	NI	
February 25, 2021	NM	aband	NM	NM	NM	784.75	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	
April 14, 2021	778.12	aband	787.29	784.27	784.05	784.77	784.77	784.46	c	785.84	785.81	785.60	785.86	785.69	786.47	786.06	NI	NI	NI	
June 11, 2021	NM	aband	NM	784.19	NM	784.66	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	
October 11-12, 14, 2021	784.47	aband	786.78	783.73	783.60	784.42	784.41	783.88	783.87	784.96	784.88	784.79	785.14	784.94	785.55	785.11	NI	NI	NI	
October 17, 2021	NM	aband	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	
April 1, 2022	aband	aband	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	
April 11-13, 2022	aband	aband	785.52	783.27	783.45	784.30	784.42	783.26	783.78	785.02	785.00	784.70	784.83	784.72	785.45	785.02	783.99	783.97	783.73	
October 24-28, 2022	aband	aband	785.43	781.94	781.61	783.61	783.61	782.28	dry	784.57	784.54	784.38	784.64	784.47	785.05	784.62	783.74	782.76	783.50	
February 20-23, 2023	aband	aband	NM	783.57	NM	784.48	NM	NM	NM	785.25	NM	NM	NM	NM	NM	NM	NI	NI	NI	
March 27-28, 2023	aband	aband	NM	784.52	NM	785.23	NM	NM	NM	786.21	NM	NM	NM	NM	NM	NM	NI	NI	NI	
April 24-27, 2023	aband	aband	787.76	785.79	785.35	786.22	786.12	784.99	786.05	786.97	786.86	786.67	786.76	786.59	787.53	787.11	785.87	785.85	785.55	
May 16, 2023	aband	aband	787.79	785.64	785.25	786.06	786.05	785.39	785.77	786.88	786.79	786.74	786.95	786.75	787.47	787.05	786.23	786.21	785.97	
May 30-31, 2023	aband	aband	NM	785.23	NM	785.70	NM	NM	NM	786.57	NM	NM	NM	NM	NM	NM	NI	NI	NI	
October 9-11, 2023	aband	aband	785.33	782.57	782.39	783.55	783.40	782.94	dry	784.39	784.31	784.24	784.63	784.36	784.89	784.36	783.86	783.59	783.69	
Bottom of Well Elevation (ft)	778.15	780.16	779.47	777.21	750.89	770.52	749.10	781.24	782.54	774.07	762.24	779.36	776.13	756.07	779.53	756.66	777.19	745.21	774.29	

	Well Number	M-3	M-4R	MW-39A	MW-39B	MW-48A	MW-48B	MW-57	MW-59	MW-216R	MW-217	MW-220RR
	Top of Casing Elevation (feet amsl)	788.23	806.10	809.62	809.50	828.86	828.84	786.29	815.48	814.21	791.55	792.90
Screen Length (ft)												
Total Depth (ft from top of casing)	16.90	25.55	34.80	76.07	51.88	75.80	14.40	38.50	37.85	37.37	18.96	
Top of Well Screen Elevation (ft)	771.33	780.55	774.82	733.43	776.98	753.04	771.89	776.98	776.36	754.18	773.94	
Measurement Date												
October 2, 2012	780.13	786.76	781.49	781.34	782.03	781.93	780.58	779.88	781.91	780.95	780.55	
April 15, 2013	785.16	788.39	783.97	784.00	783.77	783.78	784.69	783.66	784.09	784.75	785.02	
October 8, 2013	781.22	786.67	NM	NM	783.69	783.58	NM	783.39	782.27	782.27	782.36	
October 15, 2013	NM	NM	782.94	782.81	NM	NM	782.47	783.49	NM	NM	NM	
April 14, 2014	786.04	788.96	783.57	783.68	783.56	783.57	785.51	783.41	783.73	785.25	785.87	
October 1-3, 2014	781.16	787.55	783.42	783.32	784.05	783.94	782.32	783.55	783.79	782.63	783.03	
April 13-14, 2015	783.08	786.83	782.77	782.68	782.80	782.82	782.81	782.83	782.93	783.34	783.42	
October 6-7, 2015	780.66	786.12	782.97	782.81	783.10	783.01	781.82	783.25	783.18	781.95	782.26	
April 4-6, 2016	784.21	789.09	785.27	785.27	784.79	784.76	783.21	784.97	785.68	785.02	784.36	
October 11-13, 2016	781.88	787.88	785.75	785.52	785.73	785.61	783.12	786.51	786.16	783.75	784.09	
April 10-13, 2017	782.94	787.95	785.44	785.20	785.82	785.69	782.77	786.09	785.95	784.29	784.09	
October 3-5, 2017	780.93	787.04	783.35	783.18	784.30	784.19	782.37	784.23	783.89	782.48	782.61	
April 23-25, 2018	782.89	790.43	782.86	782.87	783.14	783.09	783.04	783.02	783.23	783.26	783.45	
October 23-25, 2018	782.95	788.47	787.12	786.88	787.12	786.99	783.48	787.73	787.49	784.90	784.52	
April 1-4, 2019	785.68	789.44	786.28	786.31	786.56	786.45	785.27	787.39	786.53	786.33	785.46	
October 7-9, 2019	785.33	790.65	787.10	787.02	786.68	786.65	785.29	786.68	787.07	786.01	785.42	
May 27-29, 2020	781.80	787.73	785.12	784.92	785.74	785.59	783.11	785.89	785.60	783.41	783.89	
Bottom of Well Elevation (ft)	771.33	780.55	774.82	733.43	776.98	753.04	771.89	776.98				

**Table 3. Groundwater Elevation - State Monitoring Program and CCR Well Network
Columbia Dry Ash and Ash Pond Disposal Facilities / SCS Engineers Project #25223067.00**

Well Number	MW-301	MW-302	MW-303	MW-304	MW-305	M-4R	MW-33AR	MW-34A	MW-84A	MW-306	MW-307	MW-308	MW-309	MW-310	MW-311	MW-312	MW-313	MW-314	MW-315	MW-316
Top of Casing Elevation (feet amsl)	806.89	813.00	815.72	805.42	806.32	806.10	808.29	805.95	814.28	807.63	806.89	806.9	813.27	813.62	809.74	826.786	820.3	821.57	819.78	808.49
Screen Length (ft)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Total Depth (ft from top of casing)	29.40	33.6	35.80	25.7	25.6	39.58	31.08	35.43	40.21	27	26.5	28	37.67	38.41	36.19	52.5				43.7
Top of Well Screen Elevation (ft)	787.49	789.40	785.72	789.72	790.72	776.52	787.21	780.52	784.07	790.63	790.39	788.90	785.60	785.21	783.55	784.29				774.79
Measurement Date																				
December 21-22, 2015	785.56	784.78	784.11	786.13	788.96	787.58	783.77	783.50	785.31	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
April 4-5, 2016	786.78	785.81	785.48	788.08	789.61	789.09	785.29	785.63	786.37	--	--	--	--	--	NI	NI	NI	NI	NI	NI
July 7-8, 2016	786.31	786.28	784.60	787.36	789.26	787.43	785.19	785.05	785.89	--	--	--	--	--	NI	NI	NI	NI	NI	NI
July 28, 2016	NM	NM	784.35	NM	NM	NM	NM	784.86	785.61	--	--	--	--	--	NI	NI	NI	NI	NI	NI
October 11-13, 2016	787.64	787.76	786.18	788.18	789.78	787.88	787.36	786.45	787.22	--	--	--	--	--	NI	NI	NI	NI	NI	NI
December 29, 2016	787.37	787.05	NM	NM	NM	NM	785.66	785.72	786.63	--	--	--	--	--	NI	NI	NI	NI	NI	NI
January 25-26, 2017	787.27	786.89	785.28	789.34	789.36	789.64	785.88	785.98	786.70	785.50	785.36	785.73	--	--	NI	NI	NI	NI	NI	NI
April 10 & 11, 2017	787.89	787.55	786.00	788.22	789.57	787.95	786.39	786.30	787.16	786.22	785.64	786.51	--	--	NI	NI	NI	NI	NI	NI
June 6, 2017	788.25	788.37	786.49	788.58	789.79	787.83	787.27	786.66	787.63	786.85	786.07	786.46	--	--	NI	NI	NI	NI	NI	NI
August 7-9, 2017	787.34	787.55	785.42	789.52	789.30	788.54	786.11	785.81	786.68	785.69	785.19	785.37	--	--	NI	NI	NI	NI	NI	NI
October 23-24, 2017	785.89	785.94	783.92	788.97	788.14	788.00	784.13	784.50	785.32	783.97	784.79	784.17	--	--	NI	NI	NI	NI	NI	NI
February 21, 2018	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	783.19	783.05	783.02	NI	NI	NI	NI	NI
March 23, 2018	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	783.10	783.10	783.00	NI	NI	NI	NI	NI
April 23-25, 2018	785.29	784.37	783.27	789.69	787.67	790.43	783.09	781.77	785.88	783.24	783.65	782.65	783.07	782.97	781.83	NI	NI	NI	NI	NI
May 24, 2018	NM	NM	NM	NM	NM	NM	NM	NM	NM	785.79	785.09	NM	785.45	785.97	786.11	NI	NI	NI	NI	NI
June 23, 2018	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	786.03	786.64	786.47	NI	NI	NI	NI	NI
July 23, 2018	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	786.27	786.35	786.55	NI	NI	NI	NI	NI
August 7, 2018	787.06	NM	785.20	788.25	788.56	787.63	NM	NM	786.55	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI	NI
August 22, 2018	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	785.54	785.40	785.46	NI	NI	NI	NI	NI
September 21, 2018	NM	788.37	786.50	NM	NM	NM	787.90	787.01	NM	NM	NM	NM	787.08	787.24	787.66	NI	NI	NI	NI	NI
October 22-24, 2018	788.98	789.16	787.51	789.05	790.04	788.47	788.77	787.88	788.32	787.66	786.57	787.81	787.99	788.18	788.64	NI	NI	NI	NI	NI
April 1-4, 2019	787.04	787.56	786.52	789.72	790.07	789.44	786.63	786.82	787.35	786.72	786.71	787.53	786.30	786.38	786.38	NI	NI	NI	NI	NI
June 12, 2019	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	787.25	NM	NI	NI	NI	NI	NI
June 19, 2019	NM	NM	786.81	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI	NI
October 7-9, 2019	788.47	788.31	787.02	790.41	790.36	790.65	NM	NM	787.47	786.99	787.18	787.26	787.94	787.64	NI	NI	NI	NI	NI	NI
December 13, 2019	--	--	--	--	--	--	--	--	--	787.03	785.68	786.43	--	--	NI	NI	NI	NI	NI	NI
December 23, 2019	--	--	--	--	--	--	--	--	--	--	--	--	--	775.22	--	NI	NI	NI	NI	NI
January 17, 2020	--	--	785.58	--	--	--	--	--	--	--	--	--	--	--	NI	NI	NI	NI	NI	NI
February 3, 2020	787.24	NM	NM	NM	NM	NM	NM	NM	786.50	785.77	785.57	786.48	NM	NM	NI	NI	NI	NI	NI	NI
May 27-29, 2020	787.77	787.29	785.56	789.30	787.78	787.73	786.01	785.98	787.02	785.77	785.35	786.28	785.98	785.81	785.85	NI	NI	NI	NI	NI
June 30, 2020	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	786.18	NM	NM	NI	NI	NI	NI	NI
August 6, 2020	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	785.93	NM	NM	NI	NI	NI	NI	NI
October 7-8, 2020	786.53	786.74	785.16	788.52	787.96	787.74	785.91	785.70	786.10	785.39	784.71	785.68	785.47	785.56	785.83	NI	NI	NI	NI	NI
December 11, 2020	NM	NM	NM	NM	788.19	NM	NM	NM	NM	NM	NM	NM	785.26	785.26	NM	NI	NI	NI	NI	NI
February 25, 2021	NM	NM	784.27	NM	788.36	NM	NM	784.75	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI
April 12, 2021	786.50	785.77	784.07	787.99	788.11	786.34	784.27	784.77	785.84	784.32	784.21	785.55	784.29	784.24	784.15	NI	NI	NI	NI	NI
June 11, 2021	NM	NM	NM	NM	NM	NM	784.19	784.66	NM	NM	NM	NM	784.20	784.05	NM	NI	NI	NI	NI	NI
July 20, 2021	NM	NM	783.64	NM	788.39	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI
October 11-12, 14, 2021	785.28	785.09	783.09	787.78	787.75	786.33	783.73	784.42	784.96	782.93	782.44	783.76	783.65	783.48	783.48	NI	NI	NI	NI	NI
December 21, 2021	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	782.93	NM	NM	NI	NI	NI	NI	NI
February 24, 2022	NM	NM	782.34	NM	786.49	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI
April 11-13, 2022	785.44	784.42	783.40	788.20	787.87	788.26	783.27	784.30	785.02	783.11	783.32	784.19	783.14	783.19	783.04	NI	NI	NI	NI	NI
July 27, 2022	NM	NM	783.07	NM	787.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NI	NI	NI	NI	NI
October 25-27, 2022	784.91	784.62	778.94	781.79	784.97	783.85	781.94	783.61	784.57	778.32	777.89	784.16	781.50	780.96	781.23	NI	NI	NI	NI	NI
November 30, 2022	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	781.62	781.14	781.15	NI	NI	NI	NI	NI
December 2, 2022	785.12	784.48	NM	783.97	NM	NM	781.91	783.71	784.76	778.52	779.54	NM	NM	NM	NM	NI	NI	NI	NI	NI
January 12-13, 2023	785.20	784.55	NM	NM	NM	NM	782.75	784.10	784.88	NM	NM	NM	782.57	782.45	782.32	NI	NI	NI	NI	NI
January 20, 2023	NM	NM	NM	788.08	NM	NM	NM	NM	NM	782.15	782.11	784.98	NM	NM	NM	NM	NM	NM	NM	NI
January 24, 2023	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	783.73	783.36	783.63	783.77	NI
February 20-23, 2023	785.56	784.98	NM	NM	NM	NM	NM	NM	NM	783.04	782.91	785.32	783.31	783.34	783.40	783.50	783.59	783.82	783.96	NI
March 27-28, 2023	786.83	785.87	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	783.84	783.98	784.43	NM	784.12	784.41	784.57	NI
April 24-27, 2023	787.57	786.87	784.38	784.03	NM	782.59	785.79	786.22	786.97	784.82	784.25	787.75	785.05	785.18	785.69	NM	785.21	785.43	785.59	NI
May 5, 2023	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	785.55	NM	NM	NM	NM	780.49
May 16, 2023	787.43	787.07	783.88	784.12	dry	781.64	785.64	786.06	786.88	784.65	783.89	786.88	785.15	785.11	785.39	785.97	785.46	785.68	785.88	780.48
May 30-31, 2023	787.04	786.89	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	784.90	784.69	784.97	NM	785.24	785.55	785.77	NM

**Table 4. Horizontal Gradients and Flow Velocity
Columbia Energy Center - MOD 10-11
SCS Engineers Project #25223067.00
January - December 2023**

Flow Path A - Northwest					
Sampling Dates	h1 (ft)	h2 (ft)	Δl (ft)	Δh/Δl (ft/ft)	V (ft/d)
4/24-27/2023	787.57	785.43	1430	0.0015	0.018
10/9-11/2023	784.67	783.33	1428	0.0009	0.0115

Wells	K Values (cm/sec)	K Values (ft/d)	Assumed Porosity, n
MW-313	1.80E-03	5.10	
MW-314	2.20E-03	6.24	0.40
MW-315	1.30E-03	3.69	
Geometric	1.73E-03	4.89	

Groundwater flow velocity equation: $V = [K * (\Delta h / \Delta l)] / n$

ft = feet

ft/d = feet per day

K = hydraulic conductivity

n = effective porosity

V = groundwater flow velocity

h1, h2 = point interpreted groundwater elevation at locations 1 and 2

Δl = distance between location 1 and 2

Δh/Δl = hydraulic gradient

Note:

1. See Figures 3 and 4 for velocity calculation flow path locations.

Created by: NLB
Last revision by: RM
Checked by: NLB

Date: 12/1/2023
Date: 1/2/2024
Date: 1/2/2024

Table 5. Groundwater Analytical Results Summary - 2023
Columbia Energy Center Dry Ash Disposal Facility - Modules 10-11 / SCS Engineers Project #25223067.00

Parameter Name	UPL Method	UPL	Background Wells		Compliance Wells									
			MW-84A	MW-301	MW-313									
			4/27/2023	4/27/2023	1/24/2023	2/23/2023	3/27/2023	4/26/2023	5/30/2023	6/29/2023	7/31/2023	8/31/2023		
Groundwater Elevation (ft amsl)			786.97	787.57	783.36	783.59	784.12	785.21	785.24	784.67	783.96	783.55		
Appendix III														
Boron, µg/L	NA	NA	10.3	20.1	25.1	46.6	67.1	108	191	189	97.1	62.3		
Calcium, µg/L	NA	NA	68,600	120,000	66800	62900	63300 P6	63,900	69100	71900	70000	68600		
Chloride, mg/L	NA	NA	3.0	1.5 J	1.4 J	<0.43	1.3 J	2.3	10.0	22.8	27.0	34.3		
Fluoride, mg/L	NA	NA	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	0.61	0.19 J	<0.095	<0.095		
Field pH, Std. Units	NA	NA	7.01	6.65	7.43	7.35	7.40	7.06	7.55	7.41	7.40	7.25		
Sulfate, mg/L	NA	NA	1.3 J	12.3	5.7	7.1	8.7	11.0	16.5	19.9	15.4	12.7		
Total Dissolved Solids, mg/L	NA	NA	326	526	298	278	320	318	334	408	354	354		
Appendix IV														
		UPL	GPS											
Antimony, ug/L	NA	NA	NA	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Arsenic, ug/L	NA	NA	NA	<0.28	<0.28	<0.28	0.35 J	<0.28	<0.28	<0.28	<0.28	0.34 J	<0.28	
Barium, ug/L	NA	NA	NA	12.6	9.8	70.5	55.9	47.3	44.3	--	47.0	38.9	36.7	
Beryllium, ug/L	NA	NA	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
Cadmium, ug/L	NA	NA	NA	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Chromium, ug/L	NA	NA	NA	1.7 J	<1.0	5.2	<1.0	<1.0	1.2 J	1.2 J	1.4 J	1.3 J	1.3 J	
Cobalt, ug/L	NA	NA	NA	<0.12	<0.12	0.40 J	0.16 J	<0.12	<0.12	<0.12	<0.12	0.18 J	<0.12	
Fluoride, mg/L	NA	NA	NA	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	0.61	0.19 J	<0.095	<0.095	
Lead, ug/L	NA	NA	NA	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	
Lithium, ug/L	NA	NA	NA	0.71 J	0.62 J	0.75 J	0.46 J	0.46 J	0.67 J	0.68 J	1.0 B	0.82 J	0.75 J, B	
Mercury, ug/L	NA	NA	NA	<0.066	<0.066 M0	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066 1q	<0.066	<0.066	
Molybdenum, ug/L	NA	NA	NA	<0.44	<0.44	4.3	2.0	1.4 J	1.3 J	1.5	1.3 J	1.1 J	0.63 J	
Selenium, ug/L	NA	NA	NA	<0.32	<0.32	0.41 J	0.55 J	0.49 J	0.58 J	0.59 J	0.65 J	0.64 J	0.74 J	
Thallium, ug/L	NA	NA	NA	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.21 J	<0.14	<0.14	<0.14	
Radium 226/228 Combined, pCi/L	NA	NA	NA	0.326	0.417	0.345	0.346	0.000	0.677	0.0341	0.350	0.894	0.217	

Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
SSI = Statistically Significant Increase
-- = Not Measured
NA = Not applicable

GPS = Groundwater Protection Standard
UPL = Upper Prediction Limit
NP = Nonparametric UPL with 1-of-2 retesting
P = Parametric UPL with 1-of-2 retesting

LOD = Limit of Detection
LOQ = Limit of Quantitation
DQ = Double Quantification

J = Estimated concentration at or above the LOD and below the LOQ.
B = Analyte was detected in the associated method blank.
M0 = Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6 = Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1 = RPD value was outside control limits.
1q = Analyte was measured in the associated method blank at a concentration of -0.10µg/L.

Notes:

1. UPLs and GPSs are not applied to analytical results for background data presented in this table.

Table 5. Groundwater Analytical Results Summary - 2023
Columbia Energy Center Dry Ash Disposal Facility - Modules 10-11 / SCS Engineers Project #25223067.00

Parameter Name	UPL Method	UPL	Compliance Wells															
			MW-314								MW-315							
			1/24/2023	2/23/2023	3/27/2023	4/26/2023	5/30/2023	6/29/2023	7/31/2023	8/31/2023	1/24/2023	2/23/2023	3/27/2023	4/26/2023	5/30/2023	6/29/2023	7/31/2023	8/31/2023
Groundwater Elevation (ft amsl)			783.63	783.82	784.41	785.43	785.55	784.95	784.26	783.83	783.77	783.96	784.57	785.59	785.77	785.17	784.49	783.97
Appendix III																		
Boron, µg/L	NA	NA	14.2	13.0	15.2	15.5	16.9	15.4	12.4	13.0	11.7	9.3 J	11.9	12.0	13.6	13.3	12.3	12.6
Calcium, µg/L	NA	NA	95000	96200	99300	92,400	102,000	103,000	109,000	109,000	107,000	100,000	106,000	101,000	108,000	110,000	121,000	125,000
Chloride, mg/L	NA	NA	1.8 J	2.2	2.6 M0, R1	3.2	2.3	2.4	3.0	3.1	4.9	5.6	6.0	5.3	3.9	3.3	3.2	3.1
Fluoride, mg/L	NA	NA	<0.095	<0.095	<0.095 M0, R1	<0.095	<0.095	<0.095	0.62	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
Field pH, Std. Units	NA	NA	7.23	7.23	7.25	7.21	7.34	7.20	7.45	7.12	7.13	7.16	7.21	7.18	7.34	7.13	6.97	6.91
Sulfate, mg/L	NA	NA	4.2	4.2	5.0 M0, R1	4.6	3.4	3.2	3.9	4.0	9.2	8.7	10.7	10.1	8.8	7.0	5.2	4.3
Total Dissolved Solids, mg/L	NA	NA	380	396	412	418	444	470	464	464	436	448	480	452	456	482	486	526
Appendix IV																		
Antimony, ug/L	NA	NA	NA	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Arsenic, ug/L	NA	NA	NA	<0.28	0.41 J	<0.28	<0.28	<0.28	<0.28	0.32 J	<0.28	<0.28	0.49 J	0.45 J	0.39 J	0.37 J	0.38 J	<0.28
Barium, ug/L	NA	NA	NA	48.7	43.4	43.3	42.7	46.0	41.3	34.9	33.2	46.4	36.6	31.7	47.7	52.7	50.4	48.5
Beryllium, ug/L	NA	NA	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Cadmium, ug/L	NA	NA	NA	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Chromium, ug/L	NA	NA	NA	<1.0	1.0 J	<1.0	1.1 J	<1.0	<1.0	1.1 J	1.1 J	1.2 J	1.7 J	1.8 J	1.9 J	1.7 J	1.6 J	1.4 J
Cobalt, ug/L	NA	NA	NA	0.31 J	0.22 J	<0.12	<0.12	0.14 J	<0.12	<0.12	0.24 J	0.12 J	0.13 J	<0.12	0.22 J	0.21 J	<0.12	<0.24
Fluoride, mg/L	NA	NA	NA	<0.095	<0.095	<0.095 M0, R1	<0.95	<0.095	<0.095	0.62	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
Lead, ug/L	NA	NA	NA	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	0.32 J	<0.24
Lithium, ug/L	NA	NA	NA	0.33 J	0.58 J	0.69 J	0.40 J	0.34 J	0.94 J, B	0.71 J	0.66 J	0.62 J	0.73 J	0.85 J	0.80 J	0.45 J	1.2 B	0.75 J
Mercury, ug/L	NA	NA	NA	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	1q	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	1q	<0.066
Molybdenum, ug/L	NA	NA	NA	1.7	1.4 J	1.5 J	1.5	1.7	1.3 J	0.87 J	0.8 J	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Selenium, ug/L	NA	NA	NA	<0.32	<0.32	<0.32	<0.32	1.7	<0.32	<0.32	<0.32	0.40 J	0.52 J	0.41 J	<0.32	0.36 J	0.58 J	<0.32
Thallium, ug/L	NA	NA	NA	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Radium 226/228 Combined, pCi/L	NA	NA	NA	0.436	0.247	0.666	0.000	0.162	0.422	0.359	0.371	0.351	0.373	0.385	0.257	0.666	0.464	1.35

Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
SSI = Statistically Significant Increase
-- = Not Measured
NA = Not applicable

GPS = Groundwater Protection Standard
UPL = Upper Prediction Limit
NP = Nonparametric UPL with 1-of-2 retesting
P = Parametric UPL with 1-of-2 retesting

LOD = Limit of Detection
LOQ = Limit of Quantitation
DQ = Double Quantification

J = Estimated concentration at or above the LOD and below the LOQ.
B = Analyte was detected in the associated method blank.
M0 = Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6 = Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1 = RPD value was outside control limits.
1q = Analyte was measured in the associated method blank at a concentration of -0.10ug/L.

Notes:

1. UPLs and GPSs are not applied to analytical results for background data presented in this table.

Created by: NLB Date: 12/6/2023
Last revision by: RM Date: 12/14/2023
Checked by: NLB Date: 12/15/2023
Scientist/Proj Mgr QA/QC: TK Date: 1/4/2024

Table 6. Groundwater Field Data Summary
Columbia Energy Center - Dry Ash Disposal Facility - Modules 10-11
SCS Engineers Project #25223067.00

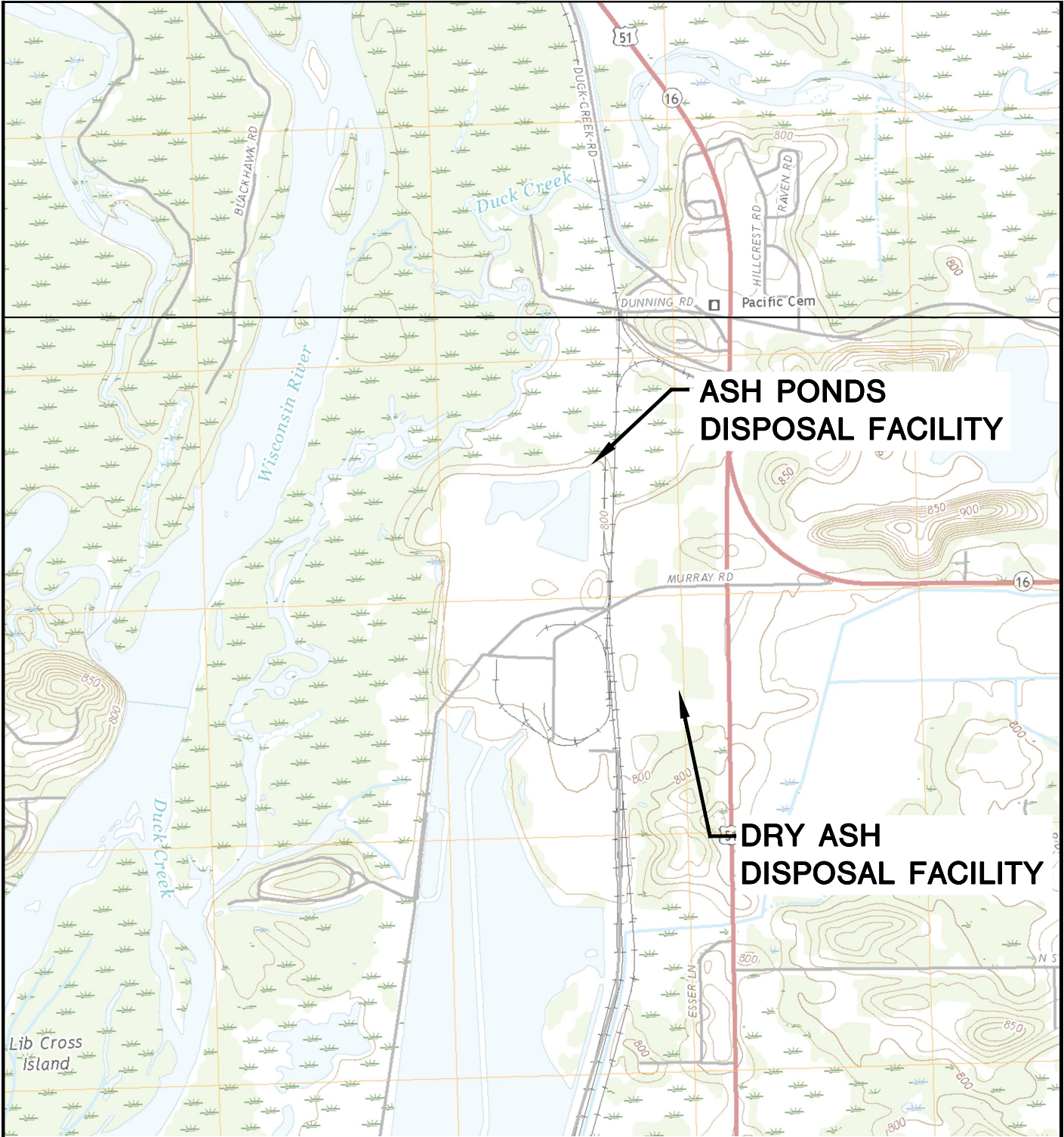
Well	Sample Date	Groundwater Elevation (feet)	Field Temperature (deg C)	Field pH (Std. Units)	Oxygen, Dissolved (mg/L)	Field Specific Conductance (umhos/cm)	Field Oxidation Potential (mV)	Turbidity (NTU)
MW-84A	4/27/2023	786.97	10.7	7.01	9.37	557	103	0.72
MW-301	4/27/2023	787.57	8.0	6.65	6.50	857	95	0.00
MW-313	1/24/2023	783.36	9.4	7.43	4.08	510	87	0.00
	2/23/2023	783.59	10.0	7.35	5.51	558	57	1.25
	3/27/2023	784.12	10.0	7.40	7.03	491	52	0.00
	4/26/2023	785.21	10.1	7.06	7.96	553	103	1.02
	5/30/2023	785.24	10.4	7.55	7.38	521	177	2.52
	6/29/2023	784.67	11.2	7.41	7.17	632	249	0.00
	7/31/2023	783.96	10.9	7.40	8.16	623	240	0.00
	8/31/2023	783.55	11.2	7.25	9.50	658	152	0.00
MW-314	1/24/2023	783.63	10.3	7.23	6.21	655	78	7.30
	2/23/2023	783.82	9.9	7.23	5.80	804	125	2.62
	3/27/2023	784.41	10.0	7.25	5.51	667	46	0.00
	4/26/2023	785.43	10.0	7.21	6.15	735	122	1.80
	5/30/2023	785.55	10.4	7.34	6.46	675	168	1.21
	6/29/2023	784.95	11.0	7.20	6.53	807	259	0.00
	7/31/2023	784.26	11.0	7.45	7.65	862	158	0.83
	8/31/2023	783.83	11.3	7.12	9.39	839	295	1.55
MW-315	1/24/2023	783.77	10.5	7.13	7.65	748	38	6.43
	2/23/2023	783.96	10.0	7.16	7.28	892	118	2.70
	3/27/2023	784.57	10.1	7.21	7.83	711	46	0.00
	4/26/2023	785.59	10.3	7.18	8.46	776	123	2.66
	5/30/2023	785.77	10.8	7.34	7.02	716	116	2.83
	6/29/2023	785.17	11.0	7.13	5.40	834	231	0.00
	7/31/2023	784.49	11.1	6.97	4.17	876	233	0.00
	8/31/2023	783.97	11.4	6.91	4.62	926	279	2.38

Created by: RM
 Last revision by: BLR
 Checked by: RM

Date: 9/2/2022
 Date: 12/8/2023
 Date: 12/13/2023

Figures

- 1 Site Location Map
- 2 Site Plan and Monitoring Well Locations
- 3 Water Table Map – April 2023
- 4 Water Table Map – October 2023

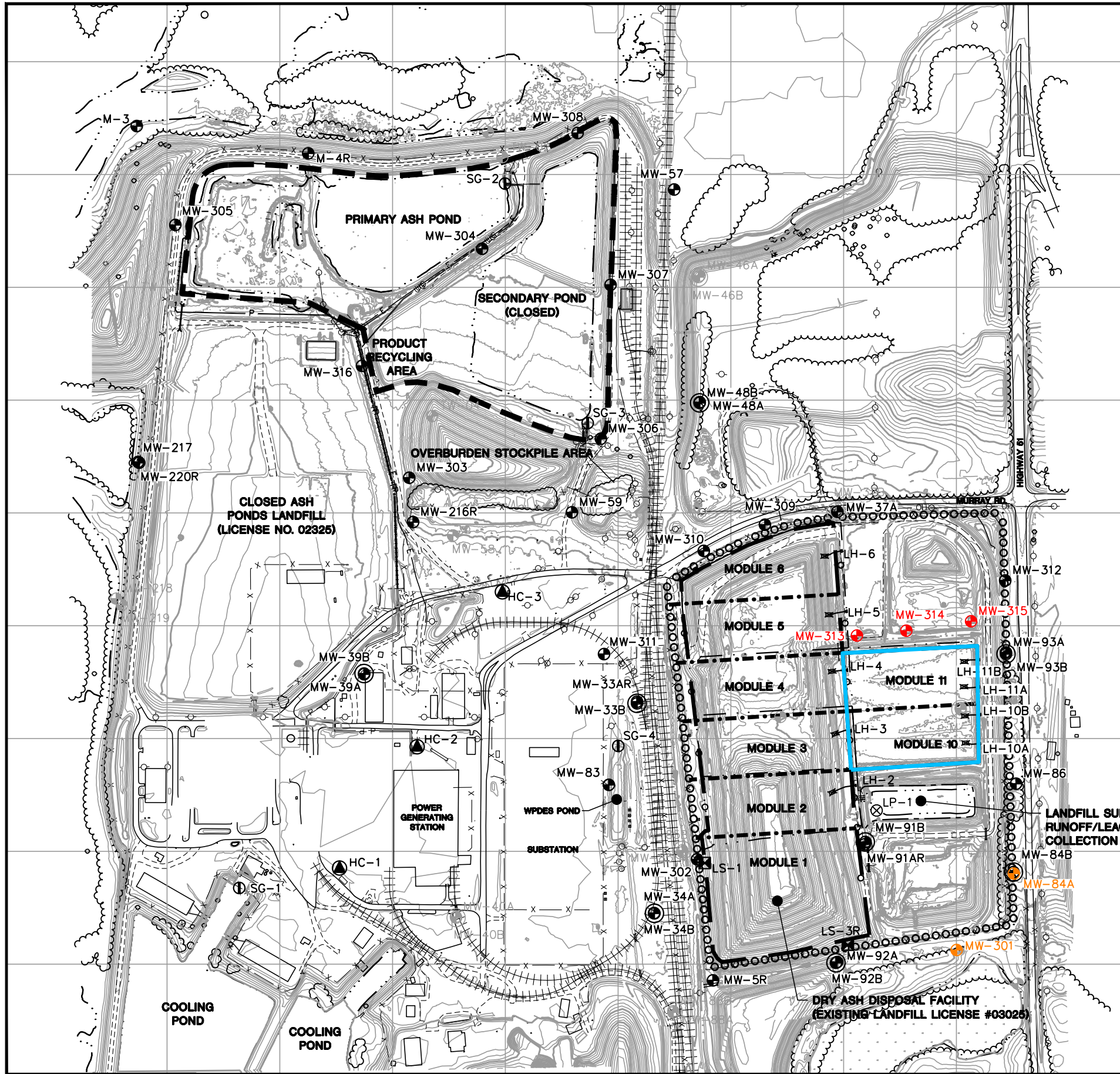


POYNETTE QUADRANGLE
 WISCONSIN-COLUMBIA CO.
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'



CLIENT	ALLIANT ENERGY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954		SITE	ALLIANT ENERGY COLUMBIA ENERGY CENTER PARDEEVILLE, WI		ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830		FIGURE 1
	PROJECT NO.	25219067.00		DRAWN BY:	BSS		APPROVED BY:	TK 01/30/2020	
	DRAWN:	12/02/2019	CHECKED BY:	MDB					
	REVISED:	01/10/2020	APPROVED BY:	TK 01/30/2020					

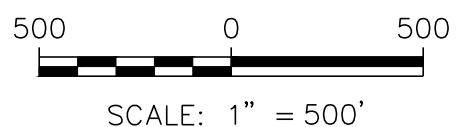
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LEGEND

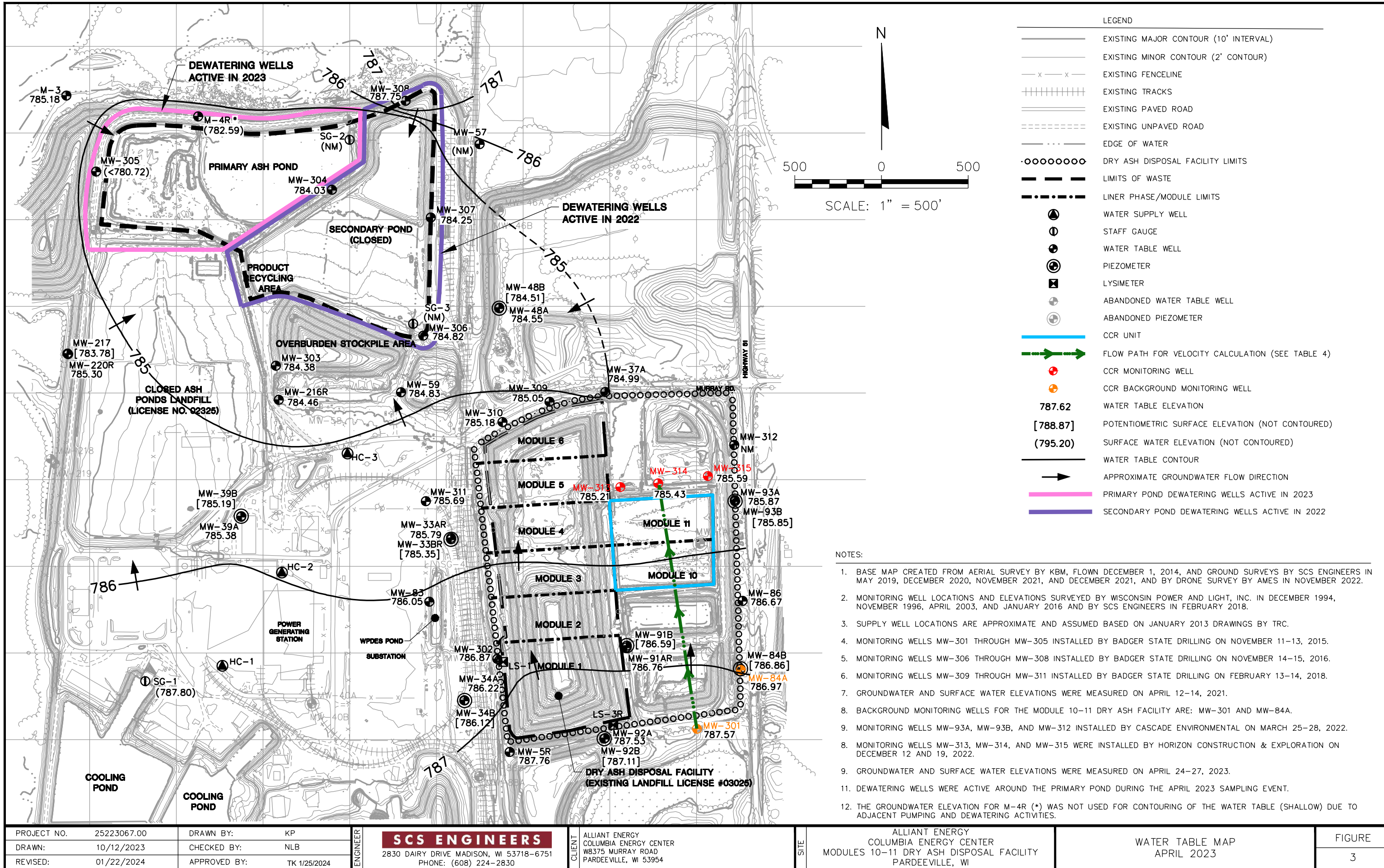
	EXISTING MAJOR CONTOUR (10' INTERVAL)
	EXISTING MINOR CONTOUR (2' CONTOUR)
	EXISTING FENCELINE
	EXISTING TRACKS
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EDGE OF WATER
	DRY ASH DISPOSAL FACILITY LIMITS
	LIMITS OF WASTE
	LINER PHASE/MODULE LIMITS
	WATER SUPPLY WELL
	STAFF GAUGE
	WATER TABLE WELL
	PIEZOMETER
	SURFACE WATER SAMPLE LOCATION
	LYSIMETER
	ABANDONED WATER TABLE WELL
	ABANDONED PIEZOMETER
	LEACHATE HEADWELL
	CCR UNIT
	CCR MONITORING WELL
	CCR BACKGROUND MONITORING WELL

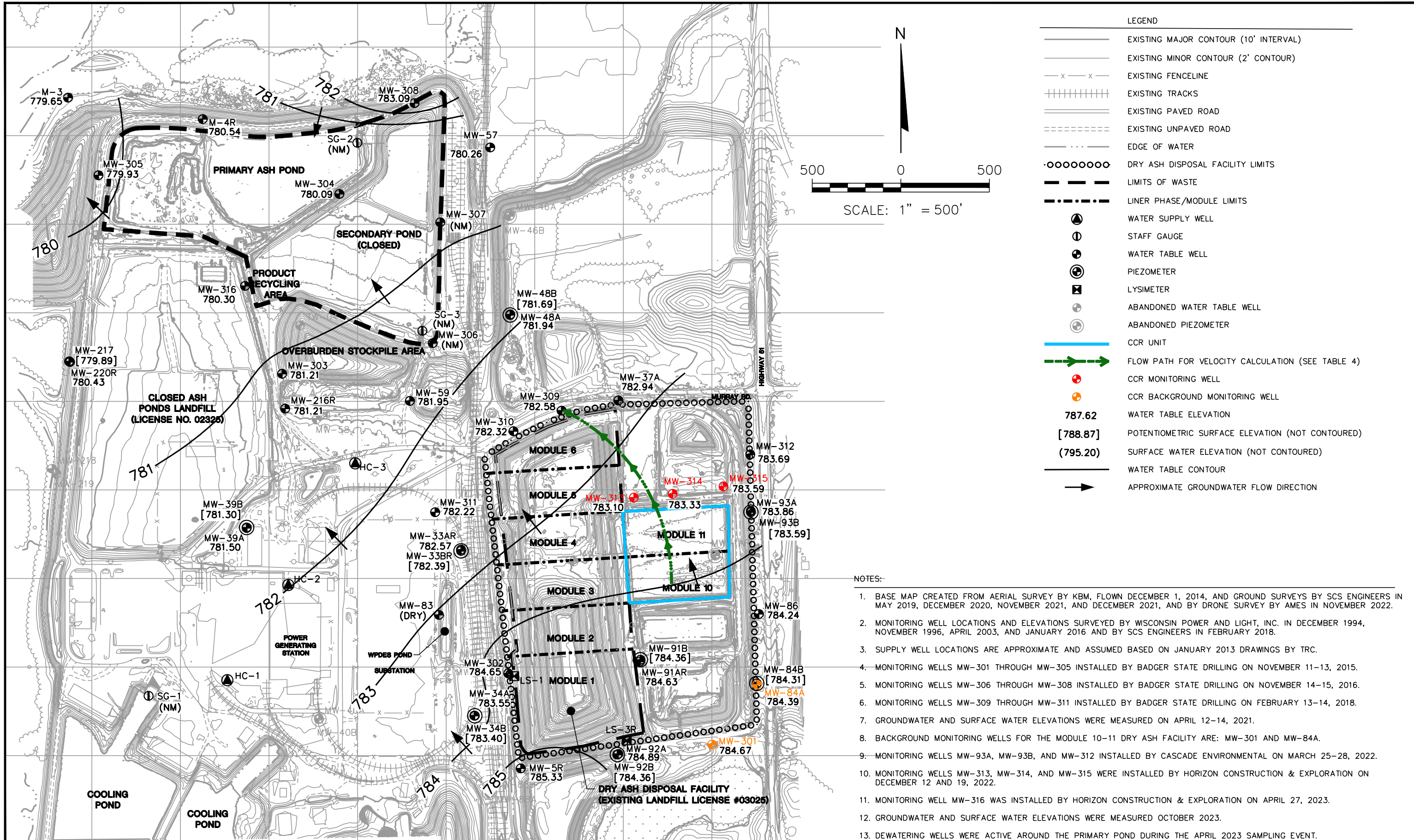
- NOTES:
1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, AND GROUND SURVEYS BY SCS ENGINEERS IN MAY 2019, DECEMBER 2020, NOVEMBER 2021, AND DECEMBER 2021, AND BY DRONE SURVEY BY AMES IN NOVEMBER 2022.
 2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016, AND BY SCS ENGINEERS IN FEBRUARY 2018.
 3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
 4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
 5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
 6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
 7. MONITORING WELLS MW-93A, MW-93B, AND MW-312 WERE INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 23-28, 2022.
 8. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON DECEMBER 12 AND 19, 2022.
 9. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
 10. BACKGROUND MONITORING WELLS FOR THE MODULE 10-11 DRY ASH FACILITY ARE: MW-301 AND MW-84A.



PROJECT NO. 25223067.00	DRAWN BY: KP	 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT ALLIANT ENERGY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954	SITE ALLIANT ENERGY COLUMBIA ENERGY CENTER MODULES 10-11 DRY ASH DISPOSAL FACILITY PARDEEVILLE, WI	FIGURE SITE PLAN AND MONITORING WELL LOCATIONS 2
DRAWN: 12/02/2019	CHECKED BY: RM				
REVISED: 01/09/2024	APPROVED BY: TK1/10/2024				

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LEGEND

	EXISTING MAJOR CONTOUR (10' INTERVAL)
	EXISTING MINOR CONTOUR (2' CONTOUR)
	EXISTING FENCELINE
	EXISTING TRACKS
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EDGE OF WATER
	DRY ASH DISPOSAL FACILITY LIMITS
	LIMITS OF WASTE
	LINER PHASE/MODULE LIMITS
	WATER SUPPLY WELL
	STAFF GAUGE
	WATER TABLE WELL
	PIEZOMETER
	LYSIMETER
	ABANDONED WATER TABLE WELL
	ABANDONED PIEZOMETER
	CCR UNIT
	FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4)
	CCR MONITORING WELL
	CCR BACKGROUND MONITORING WELL
787.62	WATER TABLE ELEVATION
[788.87]	POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
(795.20)	SURFACE WATER ELEVATION (NOT CONTOURED)
	WATER TABLE CONTOUR
	APPROXIMATE GROUNDWATER FLOW DIRECTION

- NOTES:
1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, AND GROUND SURVEYS BY SCS ENGINEERS IN MAY 2019, DECEMBER 2020, NOVEMBER 2021, AND DECEMBER 2021, AND BY DRONE SURVEY BY AMES IN NOVEMBER 2022.
 2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
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 5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
 6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
 7. GROUNDWATER AND SURFACE WATER ELEVATIONS WERE MEASURED ON APRIL 12-14, 2021.
 8. BACKGROUND MONITORING WELLS FOR THE MODULE 10-11 DRY ASH FACILITY ARE: MW-301 AND MW-84A.
 9. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
 10. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON DECEMBER 12 AND 19, 2022.
 11. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
 12. GROUNDWATER AND SURFACE WATER ELEVATIONS WERE MEASURED OCTOBER 2023.
 13. DEWATERING WELLS WERE ACTIVE AROUND THE PRIMARY POND DURING THE APRIL 2023 SAMPLING EVENT.

PROJECT NO. 25223067.00	DRAWN BY: KP	 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT ALLIANT ENERGY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954	SITE ALLIANT ENERGY COLUMBIA ENERGY CENTER MODULES 10-11 DRY ASH DISPOSAL FACILITY PARDEEVILLE, WI	WATER TABLE MAP OCTOBER 2023	FIGURE 4
DRAWN: 11/13/2023	CHECKED BY: NLB					
REVISED: 01/09/2024	APPROVED BY: TK1/10/2024					

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Appendix A
Regional Hydrogeologic Information

**Table COL-3. Regional Hydrogeologic Stratigraphy
Columbia Energy Center / SCS Engineers Project #25215053**

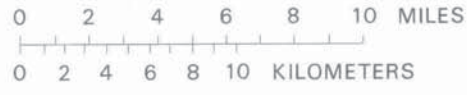
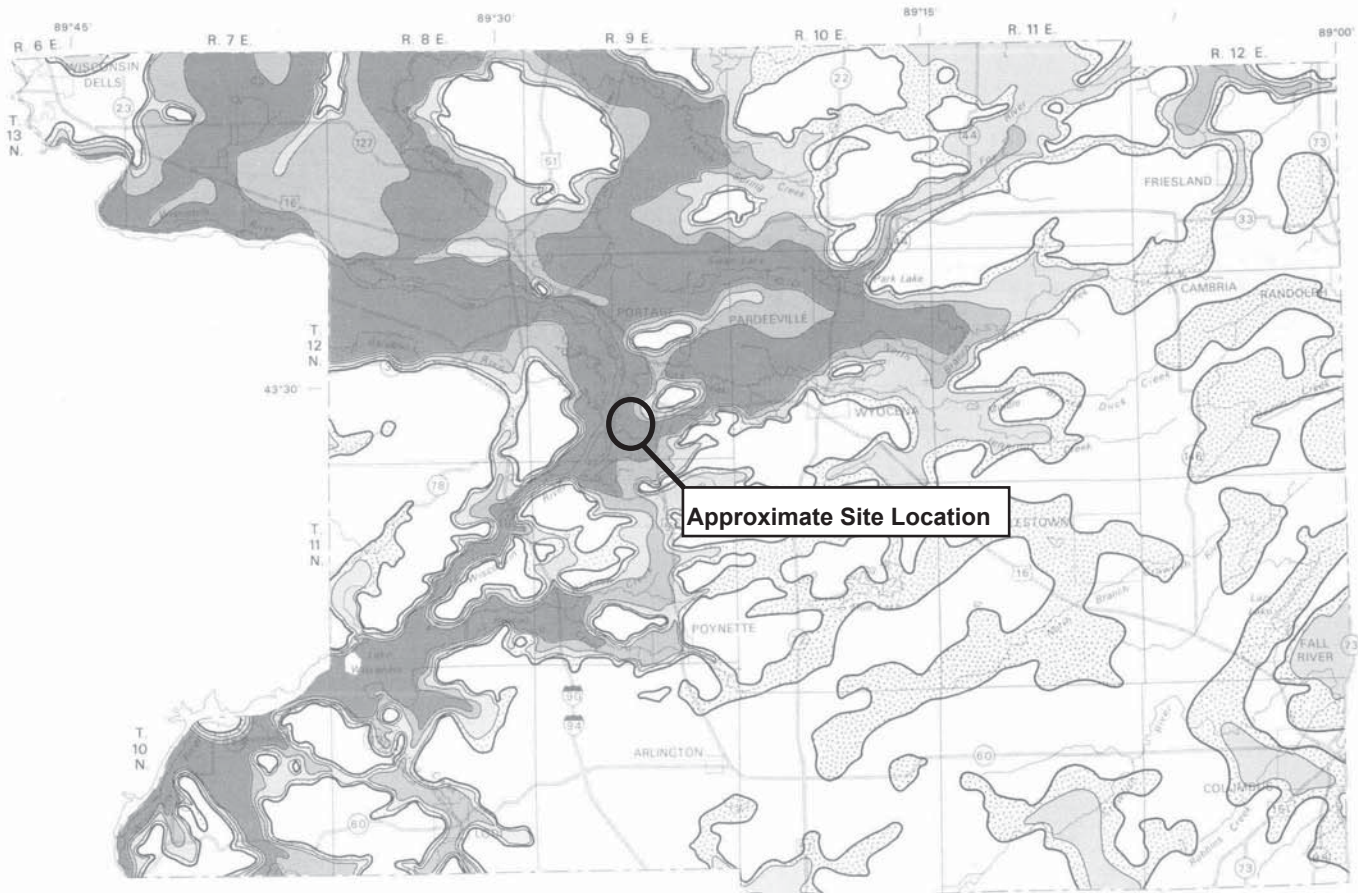
Approximate Age	Hydrogeologic Unit	General Thickness (feet)	Name of Rock Unit*	Predominant Lithology
Quaternary (0-1 million years old)	Surficial Aquifer	0 to 300+	Holocene & Pleistocene Deposits	<ul style="list-style-type: none"> Unconsolidated clay, silt, sand, gravel, cobbles, boulders, and organic matter
Ordovician (460 to 490 million years old)	Sandstone Aquifer	0 to 800+	Galena Decorah Platteville St. Peter Prairie du Chien	<ul style="list-style-type: none"> Dolomite and shaley dolomite Sandstone
Cambrian (490 to 500 million years old)			Trempeleau Franconia Galesville Eau Claire Mt. Simon	<ul style="list-style-type: none"> Sandstone
Precambrian (more than 1 billion years old)	Used for domestic supply in some areas	--	Precambrian	<ul style="list-style-type: none"> Igneous and metamorphic rocks

*This nomenclature and classification of rock units in this report are those of the Wisconsin Geological and Natural History Survey and do not necessarily coincide with those accepted by the U.S. Geological Survey.

Sources:

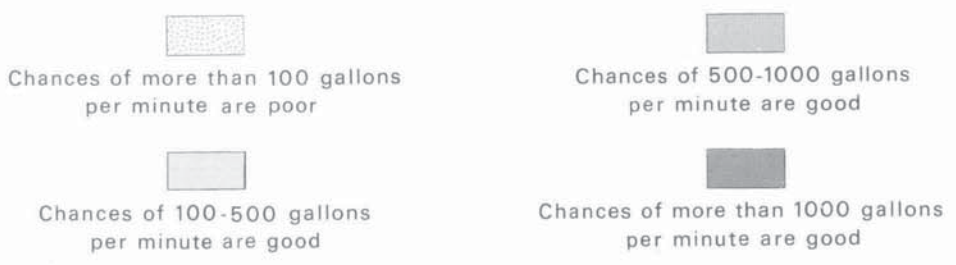
Harr, C.A., L.C. Trotta, and R.G. Borman, "Ground-Water Resources and Geology of Columbia County, Wisconsin," University of Wisconsin-Extension Geological and Natural History Survey Information Circular Number 37, 1978.
 Wisconsin Geological and Natural History Survey, Bedrock Stratigraphic Units in Wisconsin, UW Extension Educational Series 51, ISSN: 1052-2115, 2011.

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EXPLANATION

Probable well yields

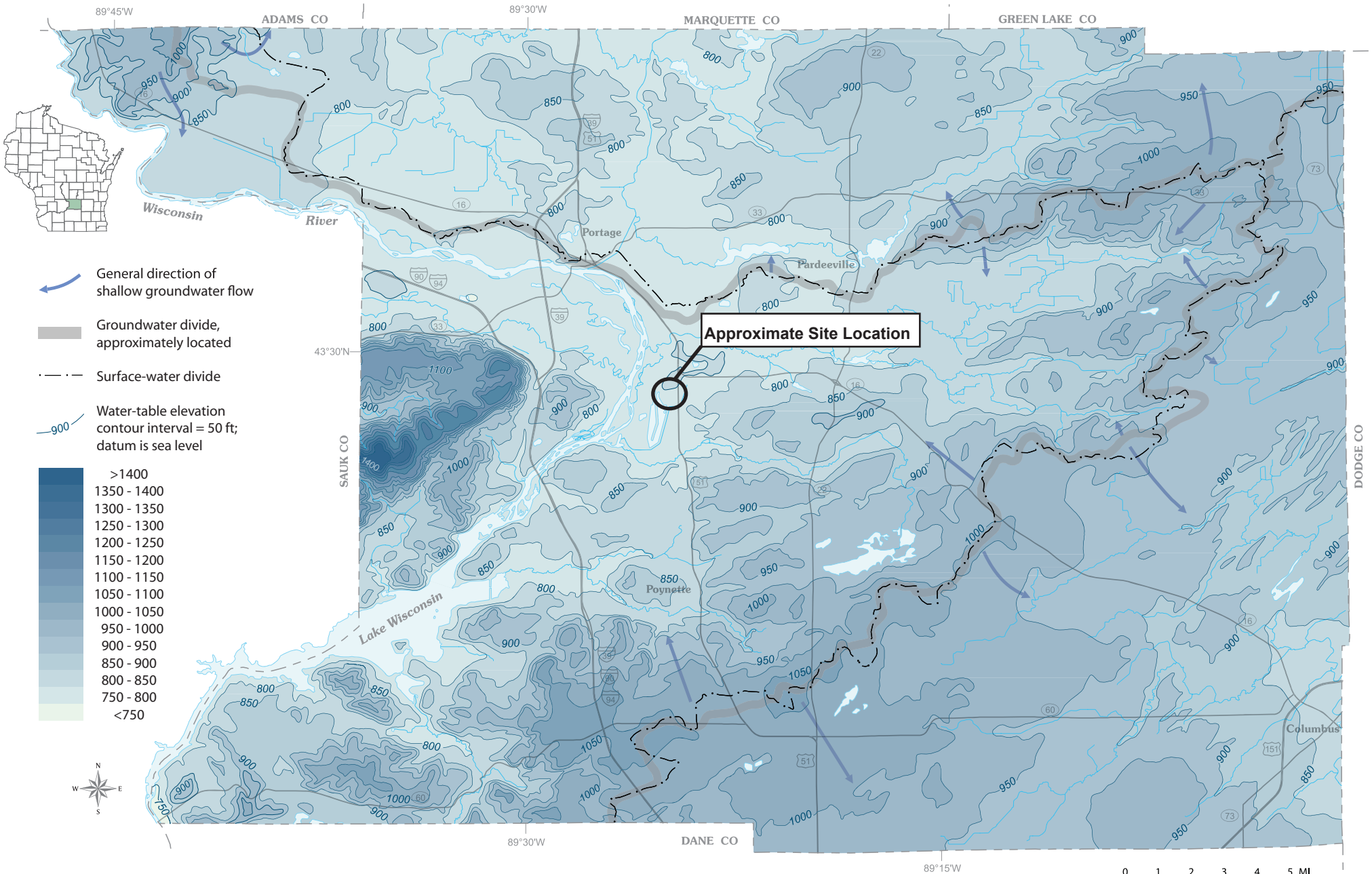


Boundary of saturated sand-and-gravel aquifer

Figure 9. Probably well yields from the sand-and-gravel aquifer.

Source: Harr, C.A., L.C. Trotta, and R.G. Borman, "Ground-Water Resources and Geology of Columbia County, Wisconsin," University of Wisconsin-Extension Geological and Natural History Survey Information Circular Number 37, 1978.
 02/26/2024 - Classification: Internal - ECRM13238746

Generalized water-table elevation in Columbia County, Wisconsin



Appendix B

Boring Logs and Well Construction Documentation

WARZYN



ENGINEERING INC

LOG OF TEST BORING

Project Wisconsin Power & Light

Boring No. MW-84A

Surface Elevation 813.4

Job No. C 7134

Location Columbia Generating Station

Sheet 1 of 1

1409 EMIL STREET • P.O. BOX 9538, MADISON, WIS. 53715 • TEL. (608) 257-4848

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Type	Recovery		Moisture			q _c	W	LL	PL	D
		↓	↓	N	Depth						
						Dark Brown Silty SAND (SM)					
					5	Brown Fine to Medium SAND, Little Silt, Trace to Little Gravel and Boulders (SM)					
					10						
					15						
					20						
					25						
					30						
					35						
					40						
							End Boring at 37'				
							Well Installed at 37'				

WATER LEVEL OBSERVATIONS

While Drilling _____

Upon Completion of Drilling _____

Time After Drilling _____

Depth to Water _____

Depth to Cave In _____

GENERAL NOTES

10/5/83 10/5/83

Start _____ Complete _____

Crew Chief JVS Rig B-40

Drilling Method ED 0-37'

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL - Columbia Dry Ash Disposal Facility SCS#: 25220183.00		License/Permit/Monitoring Number 03025		Boring Number B-313X	
Boring Drilled By: Name of crew chief (first, last) and Firm Adam Sweet Horizon Construction and Exploration		Date Drilling Started 12/1/2022		Date Drilling Completed 12/1/2022	
Drilling Method Geoprobe/HSA		WI Unique Well No.		DNR Well ID No.	
Common Well Name		Final Static Water Level Feet MSL		Surface Elevation Feet MSL	
Borehole Diameter 2.0/8.25 in.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		Local Grid Location	
State Plane <input checked="" type="checkbox"/> Located 1.5' west of MW-313 N, E S/C/N		Lat _____ ' _____ "		Feet <input type="checkbox"/> N <input type="checkbox"/> E	
NW 1/4 of NE 1/4 of Section 27, T 12 N, R 9 E		Long _____ ' _____ "		Feet <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID 111049180		County Columbia		County Code 11	
Civil Town/City/ or Village Town of Pacific					

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S1	44		1	SILTY GRAVEL, fine to medium sand, fine to coarse gravel, tan, angular gravel (base course/fill).	GM									Geoprobed to 35 ft. Overdrilled with HSA to 27ft and hit refusal.
			2	POORLY GRADED SAND, fine to medium, medium brown (7.5Y 5/4), trace angular fine to coarse gravel, trace silt, uniform (alluvium).										
S2	47		3											
			4											
			5											
S3	60		6											
			7											
			8											
			9											
			10											
			11											
			12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718 608-224-3830	Tel: Fax:
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **B-313X** Use only as an attachment to Form 4400-122. Page **2** of **2**


Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S4	53		16 17 18 19 20 21 22							M				
S5	60		23 24 25		SP					M				
S6	30		26 27 28							M				Tough/hard drilling, only pushed 2.5 ft
S7	30		29 30 31							M				HSA refusal at approximately 27 ft; large boulder at depth
S8	60		32 33 34 35	Pulverized gravel at base of core.						M				Geoprobe refusal at 35 ft
				End of Borehole at 35 ft below ground surface. Abandoned borehole with 3/8" bentonite chips. Attempted monitoring well MW-313 installation.										

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL - Columbia Dry Ash Disposal Facility SCS#: 25220183.00		License/Permit/Monitoring Number 03025		Boring Number MW-313	
Boring Drilled By: Name of crew chief (first, last) and Firm Adam Sweet Horizon Construction and Exploration			Date Drilling Started 12/19/2022	Date Drilling Completed 12/19/2022	Drilling Method rotasonic
WI Unique Well No. WC188	DNR Well ID No.	Common Well Name MW-313	Final Static Water Level Feet MSL	Surface Elevation ~817.80 Feet MSL	Borehole Diameter 6.0 in.
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 542,957 N, 2,124,559 E S/C/N NW 1/4 of NE 1/4 of Section 27, T 12 N, R 9 E			Lat _____ ° _____ ' _____ "	Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID 111049180		County Columbia	County Code 11	Civil Town/City/ or Village Town of Pacific	

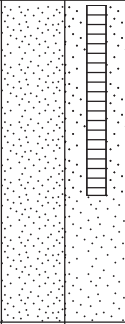
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Blind drilled to 32 feet below ground surface. See boring log B-313X for lithology from 0-32 feet.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718 608-224-3830	Tel: Fax:
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Boring Number **MW-313** Use only as an attachment to Form 4400-122. Page **3** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			41 42 43 44 45		SP									
			45	End of boring at 45 feet below ground surface. Installed monitoring well MW-313 at 43 feet.										

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL - Columbia Dry Ash Disposal Facility SCS#: 25220183.00		License/Permit/Monitoring Number 03025		Boring Number MW-314	
Boring Drilled By: Name of crew chief (first, last) and Firm Adam Sweet Horizon Construction and Exploration			Date Drilling Started 12/1/2022	Date Drilling Completed 12/1/2022	Drilling Method Geoprobe/HSA
WI Unique Well No. WC199	DNR Well ID No.	Common Well Name MW-314	Final Static Water Level Feet MSL	Surface Elevation ~819.07 Feet MSL	Borehole Diameter 2.0/8.25 in.
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 542,978 N, 2,124,778 E S/C/N NW 1/4 of NE 1/4 of Section 27, T 12 N, R 9 E			Lat _____ ' _____ '' Long _____ ' _____ ''	Local Grid Location Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID 111049180		County Columbia	County Code 11	Civil Town/City/ or Village Town of Pacific	

Sample	Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments		
										Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200			
	S1	36		1-5	POORLY GRADED SAND, fine to coarse, light brown (fill).	SP											
	S2	36		6-10	POORLY GRADED SAND, fine to medium, light olive brown (2.5Y, 5/6), trace sub-rounded to sub-angular fine to coarse gravel (alluvium).	SP											
	S3	32		11-14													

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718 608-224-3830	Tel: Fax:
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Boring Number **MW-314** Use only as an attachment to Form 4400-122. Page **2** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S4	36		16 17 18 19 20 21						M					
S5	55		22 23 24 25						M					
S6	60		27 28 29 30	SP					M					
S7	60		31 32 33 34 35						M+				Measured water at approximately 34 ft in augers	
S8	60		36 37 38 39 40						W				Depth to water ~36 ft	

Boring Number **MW-314** Use only as an attachment to Form 4400-122. Page **3** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S9	60		41 42 43 44 45		SP										
				End of borehole at 45 ft. Installed MW-314 to 43.5 ft.											

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL - Columbia Dry Ash Disposal Facility SCS#: 25220183.00		License/Permit/Monitoring Number 03025		Boring Number MW-315	
Boring Drilled By: Name of crew chief (first, last) and Firm Adam Sweet Horizon Construction and Exploration		Date Drilling Started 12/1/2022		Date Drilling Completed 12/1/2022	
Drilling Method Geoprobe/HSA					
WI Unique Well No. PM289	DNR Well ID No.	Common Well Name MW-315	Final Static Water Level Feet MSL	Surface Elevation ~817.28 Feet MSL	Borehole Diameter 2.0/8.25 in.
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 543,020 N, 2,125,065 E S/C/N NW 1/4 of NE 1/4 of Section 27, T 12 N, R 9 E			Local Grid Location Lat _____ ' _____ " _____ " Long _____ ' _____ " _____ " Feet <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID 111049180		County Columbia	County Code 11	Civil Town/City/ or Village Town of Pacific	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200		
S1	42		1-4	POORLY GRADED SAND, fine to medium sand, fine to coarse gravel, medium brown (fill).	SP										Geoprobod to 30 ft and hit refusal. Overdrilled to 45 ft with HSA.
S2	37		5-8	POORLY GRADED SAND, fine to medium sand, light brown (7.5YR, 6/4), with fine to coarse sub-rounded to sub-angular gravel, (alluvium).	SP										
S3	40		9-13												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

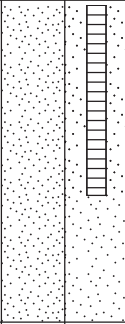
Signature 	Firm SCS Engineers 2830 Dairy Drive, Madison, WI 53718 608-224-3830	Tel: Fax:
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **MW-315** Use only as an attachment to Form 4400-122. Page **2** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S4	60		16 17 18 19 20 21 22						M					
S5	60		22 23 24 25 26						M					
S6	27		27 28 29 30	SP					M					Sand got more compacted and continued to get more compacted.
S7	4		34 35 36 37 38 39 40						W					Attempt of split spoon sample at 34 ft and hit refusal. Depth to waterat ~ 34 ft.

Boring Number **MW-315** Use only as an attachment to Form 4400-122. Page **3** of **3**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Standard Penetration	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			41 42 43 44 45		SP									
				End of boring at 45 feet. Installed MW-315 to 43 feet.										

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name WPL-Columbia		SCS#: 25215135.00		License/Permit/Monitoring Number	Boring Number MW-301
Boring Drilled By: Name of crew chief (first, last) and Firm Kevin Durst Badger State Drilling			Date Drilling Started 11/11/2015	Date Drilling Completed 11/11/2015	Drilling Method hollow stem auger
WI Unique Well No. VY701	DNR Well ID No.	Common Well Name	Final Static Water Level Feet	Surface Elevation 803.69 Feet	Borehole Diameter 8.5 in.
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/>			Local Grid Location		
State Plane 541562.2 N, 2025001.0 E		S/C/N		<input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of		1/4 of Section 27		T 12 N, R 9 E	
Facility ID	County Columbia	County Code 11	Civil Town/City/ or Village Portage		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments		
									Pocket Penetration (tsf)	Moisture Content	Liquid Limit	Plasticity Index	P 200			
S1	21	7 6 9 10	1 2	SILTY SAND, yellowish brown (10YR 5/6), fine to medium grained.												
S2	20	6 7 9 10	3 4	Same as above except, 10YR 5/4 (top section), 10YR 3/6 (bottom section), trace gravel.												
S3	22	7 6 9 6	5 6	Same as above except, 10YR 3/4 (bottom), 10YR 5/4 (top), trace little roots and sticks, trace gravel.	SM											
S4	21	4 5 6 5	7 8	Same as above except, 10YR (top), 10YR 4/6 (bottom), trace clay at bottom.												
S5	18	2 2 4 5	9 10	Same as above except, fine to coarse grained sand, little gravel, trace clay in top half, 10YR 3/6.												
S6	20	2 3 3 3	11 12	Same as above except, 10YR 6/8.												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm SCS Engineers 2830 Dairy Drive Madison, WI 53711	Tel: (608) 224-2830 Fax:
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **MW-301**

Use only as an attachment to Form 4400-122.

Page **2** of **2**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Pocket Penetration (tsf)	Moisture Content	Liquid Limit	Plasticity Index	P 200	
S7	20	5 4 4 3	16 17	SILTY SAND, yellowish brown (10YR 5/6), fine to medium grained.	SM				M					
S8	20	2 4 4 5	18 19 20							W				
S9	23	4 4 3 6	21 22							W				
S10	21	3 2 4 10	23 24 25			Same as above except, 10YR 6/4.				W				
			26 27 28	End of boring at 28 ft bgs.										

WELL DETAIL INFORMATION SHEET

JOB NO. C 7134

BORING NO. MW-84A

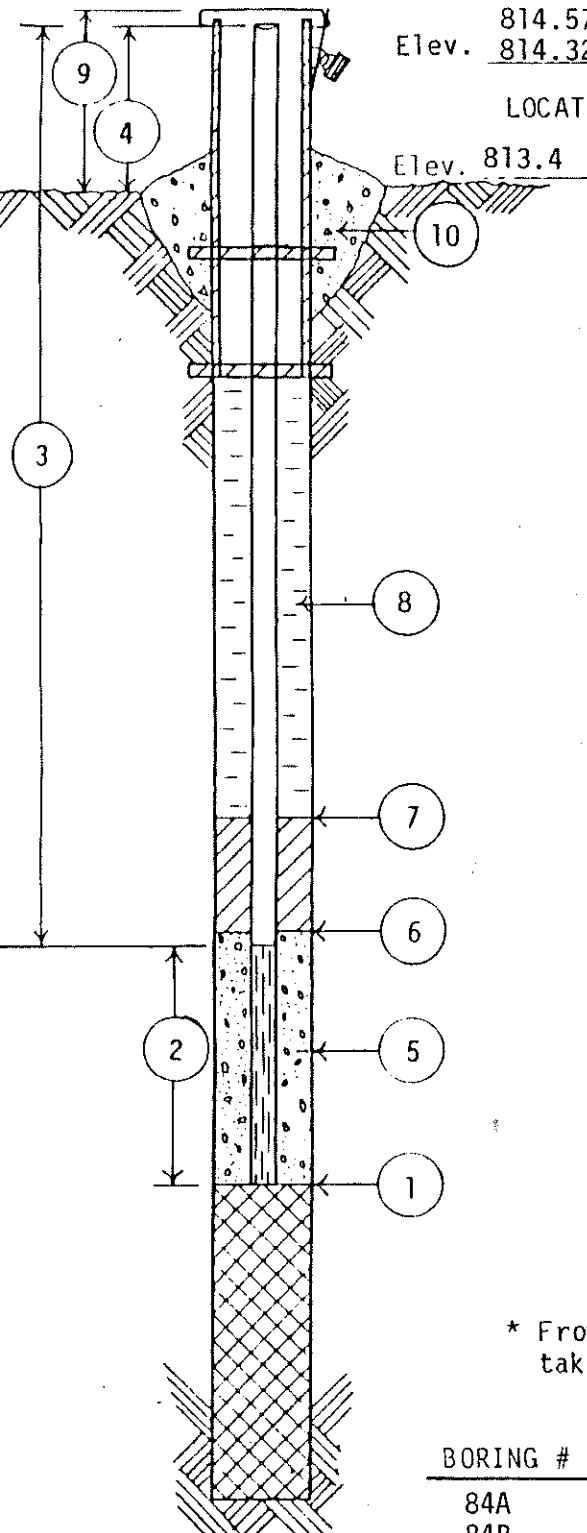
DATE 10/5/83

Elev. 814.57 Steel
Elev. 814.32 PVC CHIEF JS

LOCATION WP&L-Columbia Generating Station

Elev. 813.4

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.



- ① DEPTH TO BOTTOM OF BOREHOLE
37 FEET
- ② LENGTH OF WELL POINT, WELL SCREEN,
OR SLOTTED PIPE 10 FEET
- ③ TOTAL LENGTH OF SOLID PIPE 29
FEET @ 2 IN. DIAMETER
- ④ HEIGHT OF WELL CASING ABOVE GROUND
2 FEET
- ⑤ TYPE OF FILTER MATERIAL AROUND WELL
POINT OR SLOTTED PIPE Flint Sand
- ⑥ DEPTH OF LOWER OR BOTTOM SEAL
3 FEET
- ⑦ DEPTH OF UPPER OR TOP SEAL
0 FEET
- ⑧ TYPE OF BACKFILL Spoils (Sand)
- ⑨ PROTECTIVE CASING YES NO
HEIGHT ABOVE GROUND 2'
- LOCKING CAP YES NO
- ⑩ CONCRETE CAP YES NO

WATER LEVEL CHECKS

* From top of casing, if protective casing higher take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS
84A	10/7/83	3 days	21'	
84B	10/7/83	3 days	19'6"	



State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name WPL-Columbia	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name MW-301
Facility License, Permit or Monitoring No.	Local Grid Origin _____ (estimated: <input type="checkbox"/>) or Well Location _____ Lat. _____ " Long. _____ or _____	Wis. Unique Well No. <u>VY701</u> DNR Well ID No. _____
Facility ID	St. Plane <u>541562.2</u> ft. N, <u>2125001</u> ft. E. S/C/N	Date Well Installed <u>11</u> / <u>11</u> / <u>2015</u> m m d d y y y y
Type of Well Well Code <u>11</u> / MW	Section Location of Waste/Source SW <u>1/4</u> of SE <u>1/4</u> of Sec. <u>27</u> , T. <u>12</u> N, R. <u>9</u> <input checked="" type="checkbox"/> E <input type="checkbox"/> W	Well Installed By: Name (first, last) and Firm <u>Kevin Duerst</u> <u>Badger State Drilling</u>
Distance from Waste/Source _____ ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

A. Protective pipe, top elevation <u>807</u> <u>16</u> ft. MSL	1. Cap and lock? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
B. Well casing, top elevation <u>806</u> <u>89</u> ft. MSL	2. Protective cover pipe: a. Inside diameter: <u>6</u> in. b. Length: <u>5</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
C. Land surface elevation <u>803</u> <u>69</u> ft. MSL	d. Additional protection? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: <u>bumper posts</u>
D. Surface seal, bottom <u>791</u> <u>69</u> ft. MSL or <u>12</u> ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input checked="" type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 30 <u>Bentonite to grade, sand above</u> Other <input type="checkbox"/>
13. Sieve analysis performed? <input type="checkbox"/> Yes <input type="checkbox"/> No	5. Annular space seal: a. Granular/Chipped Bentonite <input type="checkbox"/> 33 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> 50 e. _____ Ft ³ volume added for any of the above
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/>	f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input type="checkbox"/> 08
15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 32 c. <u>4</u> ft ³ Other <input type="checkbox"/>
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Fine sand material: Manufacturer, product name & mesh size a. <u>RW Sidley Inc. #7</u> <input type="checkbox"/> b. Volume added <u>0.5</u> ft ³
Describe _____	8. Filter pack material: Manufacturer, product name & mesh size a. <u>RW Sidley #5</u> <input type="checkbox"/> b. Volume added <u>2</u> ft ³
17. Source of water (attach analysis, if required): _____	9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
E. Bentonite seal, top <u>803.69</u> ft. MSL or <u>0</u> ft.	10. Screen material: <u>PVC</u> a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
F. Fine sand, top <u>791.69</u> ft. MSL or <u>12</u> ft.	b. Manufacturer <u>Johnson</u> c. Slot size: <u>0.01</u> in. d. Slotted length: <u>10</u> ft.
G. Filter pack, top <u>789.69</u> ft. MSL or <u>14</u> ft.	11. Backfill material (below filter pack): None <input type="checkbox"/> 14 <u>Native</u> Other <input checked="" type="checkbox"/>
H. Screen joint, top <u>787.69</u> ft. MSL or <u>16</u> ft.	
I. Well bottom <u>777.69</u> ft. MSL or <u>26</u> ft.	
J. Filter pack, bottom <u>776.69</u> ft. MSL or <u>27</u> ft.	
K. Borehole, bottom <u>775.69</u> ft. MSL or <u>28</u> ft.	
L. Borehole, diameter <u>8.5</u> in.	
M. O.D. well casing <u>2.4</u> in.	
N. I.D. well casing <u>2.0</u> in.	

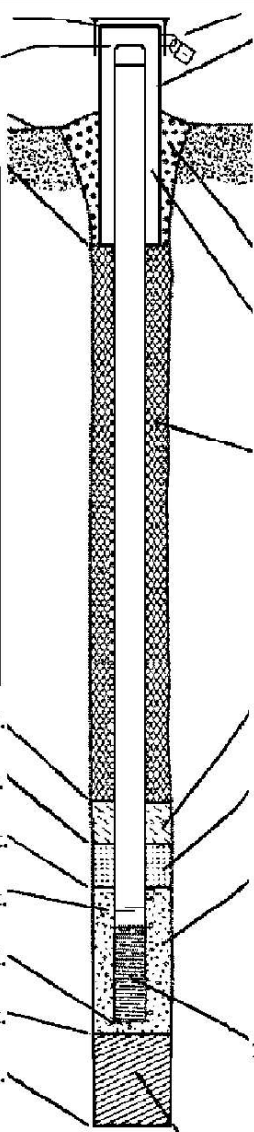
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [Signature] Firm SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718-6751

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name WPL-Columbia Dry Ash Disposal Facility		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. ft. <input type="checkbox"/> S. <input type="checkbox"/> W.		Well Name MW-313	
Facility License, Permit or Monitoring No. 03025		Local Grid Origin (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. <input type="checkbox"/> DNR Well ID No. <input type="checkbox"/>	
Facility ID 111049180		St. Plane 542956.598 ft. N, 2124559.041 ft. E. S/C/N		Date Well Installed, 12 / 019 / 2022 m m d d y y y y	
Type of Well Well Code 11 / MW		Section Location of Waste/Source NW 1/4 of NE 1/4 of Sec. 27, T. 12 N, R. 09 E W		Well Installed By: Name (first, last) and Firm Adam Sweet	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	
Enf. Stds. Apply <input checked="" type="checkbox"/>				Horizon Construction and Exploration	

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation 820.30 ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ in.
C. Land surface elevation ~817.80 ft. MSL	b. Length: _____ ft.
D. Surface seal, bottom _____ ft. MSL or _____ ft.	c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input checked="" type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	d. Additional protection? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: Three bollards
13. Sieve analysis performed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/>
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input type="checkbox"/> 41 Rotosonic <input checked="" type="checkbox"/> Other <input type="checkbox"/>	4. Material between well casing and protective pipe: Filter sand Bentonite <input checked="" type="checkbox"/> 30 Other <input checked="" type="checkbox"/>
15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 33 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 31 d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> 50 e. 5.22 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe NA	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
17. Source of water (attach analysis, if required): Horizon's drilling shop	7. Fine sand material: Manufacturer, product name & mesh size a. Red Flint #5 <input checked="" type="checkbox"/> b. Volume added 0.36 ft ³
E. Bentonite seal, top ~817.80 ft. MSL or 0 ft.	8. Filter pack material: Manufacturer, product name & mesh size a. Red Flint #7 <input checked="" type="checkbox"/> b. Volume added 2.52 ft ³
F. Fine sand, top ~788.80 ft. MSL or 29 ft.	9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
G. Filter pack, top ~786.80 ft. MSL or 31 ft.	10. Screen material: PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
H. Screen joint, top ~784.80 ft. MSL or 33 ft.	b. Manufacturer Monoflex c. Slot size: 0.010 in. d. Slotted length: 10 ft.
I. Well bottom ~774.80 ft. MSL or 43 ft.	11. Backfill material (below filter pack): None <input type="checkbox"/> 14 SP- native, cave in <input checked="" type="checkbox"/>
J. Filter pack, bottom ~772.80 ft. MSL or 45 ft.	
K. Borehole, bottom ~772.80 ft. MSL or 45 ft.	
L. Borehole, diameter 6.00 in.	
M. O.D. well casing 2.31 in.	
N. I.D. well casing 2.21 in.	



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Jackie Rennebohm Firm SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name WPL-Columbia Dry Ash Disposal Facility		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. ft. <input type="checkbox"/> S. <input type="checkbox"/> W.		Well Name MW-314	
Facility License, Permit or Monitoring No. 03025		Local Grid Origin (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/> Lat. " Long. " or " or "		Wis. Unique Well No. <input type="checkbox"/> DNR Well ID No. <input type="checkbox"/> WC199	
Facility ID 111049180		St. Plane 542978.081 ft. N, 2124778.237 ft. E. S/C/N		Date Well Installed, 12 / 01 / 2022 m m d d y y y y	
Type of Well Well Code 11 / MW		Section Location of Waste/Source NW 1/4 of NE 1/4 of Sec. 27, T. 12 N, R. 09 E W		Well Installed By: Name (first, last) and Firm Adam Sweet	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	
Enf. Stds. Apply <input checked="" type="checkbox"/>				Horizon Construction and Exploration	

- A. Protective pipe, top elevation ----- ft. MSL
- B. Well casing, top elevation ----- 821.57 ft. MSL
- C. Land surface elevation ----- ~819.07 ft. MSL
- D. Surface seal, bottom ----- ft. MSL or ----- ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

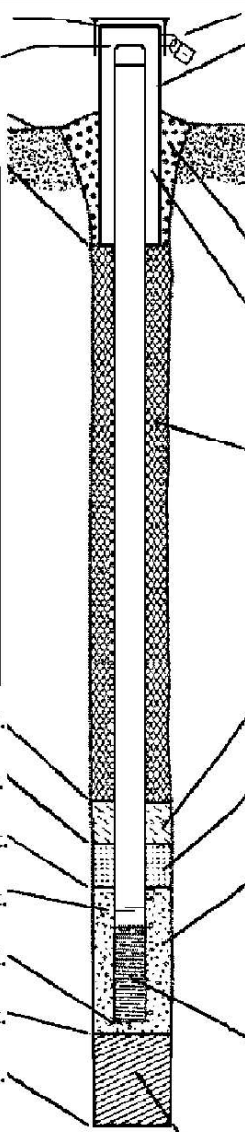
13. Sieve analysis performed? Yes No

14. Drilling method used: Rotary 5 0
 Hollow Stem Auger 4 1
 Other

15. Drilling fluid used: Water 0 2 Air 0 1
 Drilling Mud 0 3 None 9 9

16. Drilling additives used? Yes No
 Describe NA

17. Source of water (attach analysis, if required):
 NA



- 1. Cap and lock? Yes No
- 2. Protective cover pipe:
 - a. Inside diameter: ----- 4 in.
 - b. Length: ----- 5 ft.
 - c. Material: Steel 0 4
Other
 - d. Additional protection? Yes No
If yes, describe: Three bollards
- 3. Surface seal: Bentonite 3 0
Concrete 0 1
Other
- 4. Material between well casing and protective pipe: Bentonite 3 0
Filter sand Other
- 5. Annular space seal: a. Granular/Chipped Bentonite 3 3
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry 3 5
c. _____ Lbs/gal mud weight Bentonite slurry 3 1
d. _____ % Bentonite Bentonite-cement grout 5 0
e. 10.47 Ft³ volume added for any of the above
f. How installed: Tremie 0 1
Tremie pumped 0 2
Gravity 0 8
- 6. Bentonite seal: a. Bentonite granules 3 3
b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 3 2
c. _____ Other
- 7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #5
b. Volume added 0.71 ft³
- 8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #7
b. Volume added 4.26 ft³
- 9. Well casing: Flush threaded PVC schedule 40 2 3
Flush threaded PVC schedule 80 2 4
Other
- 10. Screen material: PVC
a. Screen type: Factory cut 1 1
Continuous slot 0 1
Other
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.
- 11. Backfill material (below filter pack): None 1 4
SP- native, cave in Other

- E. Bentonite seal, top ----- ~819.07 ft. MSL or ----- 0 ft.
- F. Fine sand, top ----- ~789.57 ft. MSL or ----- 29.5 ft.
- G. Filter pack, top ----- ~787.57 ft. MSL or ----- 31.5 ft.
- H. Screen joint, top ----- ~785.57 ft. MSL or ----- 33.5 ft.
- I. Well bottom ----- ~775.57 ft. MSL or ----- 43.5 ft.
- J. Filter pack, bottom ----- ~775.57 ft. MSL or ----- 43.5 ft.
- K. Borehole, bottom ----- ~774.07 ft. MSL or ----- 45 ft.
- L. Borehole, diameter ----- 8.25 in.
- M. O.D. well casing ----- 2.31 in.
- N. I.D. well casing ----- 2.21 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Jackie Rennsbohm* Firm SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name WPL-Columbia Dry Ash Disposal Facility		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. ft. <input type="checkbox"/> S. <input type="checkbox"/> W.		Well Name MW-315	
Facility License, Permit or Monitoring No. 03025		Local Grid Origin (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/> Lat. " Long. " or " or "		Wis. Unique Well No. <u>PM289</u> DNR Well ID No. _____	
Facility ID 111049180		St. Plane <u>543019.956</u> ft. N, <u>2125065.014</u> ft. E. S/C/N		Date Well Installed, <u>12</u> / <u>2</u> / <u>2022</u> m m d d y y y y	
Type of Well Well Code <u>11</u> / MW		Section Location of Waste/Source NW 1/4 of NE 1/4 of Sec. <u>27</u> , T. <u>12</u> N, R. <u>09</u> E/W		Well Installed By: Name (first, last) and Firm <u>Adam Sweet</u>	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	
Enf. Stds. Apply <input checked="" type="checkbox"/>				Horizon Construction and Exploration	

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation 819.78 ft. MSL

C. Land surface elevation ~817.28 ft. MSL

D. Surface seal, bottom _____ ft. MSL or _____ ft.

12. USCS classification of soil near screen:
GP GM GC GW SW SP
SM SC ML MH CL CH
Bedrock

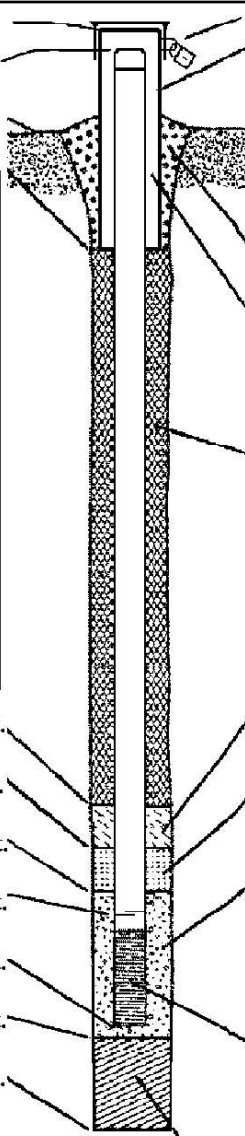
13. Sieve analysis performed? Yes No

14. Drilling method used: Rotary 5 0
Hollow Stem Auger 4 1
Other

15. Drilling fluid used: Water 0 2 Air 0 1
Drilling Mud 0 3 None 9 9

16. Drilling additives used? Yes No
Describe NA

17. Source of water (attach analysis, if required):
NA



1. Cap and lock? Yes No

2. Protective cover pipe:
a. Inside diameter: _____ in.
b. Length: 5 ft.
c. Material: Steel 0 4
Other

d. Additional protection? Yes No
If yes, describe: three bollards

3. Surface seal: Bentonite 3 0
Concrete 0 1
Other

4. Material between well casing and protective pipe:
Filter Sand Bentonite 3 0
Other

5. Annular space seal: a. Granular/Chipped Bentonite 3 3
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry 3 5
c. _____ Lbs/gal mud weight Bentonite slurry 3 1
d. _____ % Bentonite Bentonite-cement grout 5 0
e. 10.23 Ft³ volume added for any of the above
f. How installed: Tremie 0 1
Tremie pumped 0 2
Gravity 0 8

6. Bentonite seal: a. Bentonite granules 3 3
b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 3 2
c. _____ Other

7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #5
b. Volume added 0.71 ft³

8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint #7
b. Volume added 4.97 ft³

9. Well casing: Flush threaded PVC schedule 40 2 3
Flush threaded PVC schedule 80 2 4
Other

10. Screen material: PVC
a. Screen type: Factory cut 1 1
Continuous slot 0 1
Other

b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None 1 4
Other

E. Bentonite seal, top ~817.28 ft. MSL or 0 ft.

F. Fine sand, top ~788.28 ft. MSL or 29 ft.

G. Filter pack, top ~786.28 ft. MSL or 31 ft.

H. Screen joint, top ~784.28 ft. MSL or 33 ft.

I. Well bottom ~774.28 ft. MSL or 43 ft.

J. Filter pack, bottom ~772.28 ft. MSL or 45 ft.

K. Borehole, bottom ~772.28 ft. MSL or 45 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.31 in.

N. I.D. well casing 2.21 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Jackie Rennebohm Firm SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL-Columbia Dry Ash Disposal Facility	County Name Columbia	Well Name MW-313	
Facility License, Permit or Monitoring Number 03025	County Code 11	Wis. Unique Well Number WC188	DNR Well ID Number _____

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - Other _____ _____
3. Time spent developing well _____ 45 min.
4. Depth of well (from top of well casing) _____ 46 18 ft.
5. Inside diameter of well _____ 2 21 in.
6. Volume of water in filter pack and well casing _____ 10 6 gal.
7. Volume of water removed from well _____ 110 0 gal.
8. Volume of water added (if any) _____ gal.
9. Source of water added _____ NA
10. Analysis performed on water added? Yes No
(If yes, attach results)

- | | | |
|--|---------------------------|--------------------------|
| | <u>Before Development</u> | <u>After Development</u> |
|--|---------------------------|--------------------------|
11. Depth to Water (from top of well casing)
- a. _____ 37 _____ 34 ft. _____ 37 _____ 43 ft.
- Date
- b. _____ 12 / _____ 30 / _____ 2022 _____ 12 / _____ 30 / _____ 2022
m m d d y y y y m m d d y y y y
- Time
- c. _____ 3 : 05 a.m. _____ 3 : 50 p.m. _____ 3 : 50 p.m.
12. Sediment in well bottom _____ inches _____ inches
13. Water clarity
- | | |
|---|---|
| Clear <input checked="" type="checkbox"/> 1 0 | Clear <input checked="" type="checkbox"/> 2 0 |
| Turbid <input type="checkbox"/> 1 5 | Turbid <input type="checkbox"/> 2 5 |
- (Describe) _____ (Describe) _____
- _____
- _____
- _____
- _____
- Fill in if drilling fluids were used and well is at solid waste facility:
14. Total suspended solids _____ mg/l _____ mg/l
15. COD _____ mg/l _____ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: Adam Last Name: Watson

Firm: SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

17. Additional comments on development:

31 degrees F and cloudy
Purge rate= 5 gallons/ 2 minutes

Name and Address of Facility Contact /Owner/Responsible Party

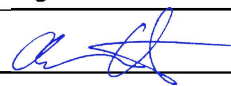
First Name: _____ Last Name: _____

Facility/Firm: Wisconsin Power and Light Co. - Alliant Energy

Street: 1919 Alliant Energy Center Way

City/State/Zip: Madison, WI 53713

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Name: Adam Watson

Firm: SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

NOTE: See instructions for more information including a list of county codes and well type codes.

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL-Columbia Dry Ash Disposal Facility	County Name Columbia	Well Name MW-314	
Facility License, Permit or Monitoring Number 03025	County Code 11	Wis. Unique Well Number WC199	DNR Well ID Number _____

1. Can this well be purged dry? Yes No

2. Well development method
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - Other _____ _____

3. Time spent developing well _____ 132 min.

4. Depth of well (from top of well casing) _____ 44.96 ft.

5. Inside diameter of well _____ 2.31 in.

6. Volume of water in filter pack and well casing _____ 10.4 gal.

7. Volume of water removed from well _____ 120.0 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added _____ NA

10. Analysis performed on water added? Yes No
(If yes, attach results)


17. Additional comments on development:

31 degrees F and cloudy
Purge rate= 5.0 gallons/ 5 minutes

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. _____ 37 _____ 34 ft.	_____ 38 _____ 37 ft.
Date	b. _____ 12 / _____ 30 / _____ 2022	_____ 12 / _____ 30 / _____ 2022
Time	c. _____ 11 : 10 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	_____ 1 : 22 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	_____ inches	_____ inches
13. Water clarity	Clear <input checked="" type="checkbox"/> 1 0 Turbid <input type="checkbox"/> 1 5 (Describe) _____	Clear <input checked="" type="checkbox"/> 2 0 Turbid <input type="checkbox"/> 2 5 (Describe) _____
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Adam Last Name: Watson
Firm: SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: Wisconsin Power and Light Co. - Alliant Energy
Street: 1919 Alliant Energy Center Way
City/State/Zip: Madison, WI 53713

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: 
Print Name: Adam Watson
Firm: SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

NOTE: See instructions for more information including a list of county codes and well type codes.

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name WPL-Columbia Dry Ash Disposal Facility	County Name Columbia	Well Name MW-315	
Facility License, Permit or Monitoring Number 03025	County Code 11	Wis. Unique Well Number PM289	DNR Well ID Number _____

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - Other _____ _____
3. Time spent developing well _____ 120 min.
4. Depth of well (from top of well casing) _____ 45 61 ft.
5. Inside diameter of well _____ 2 31 in.
6. Volume of water in filter pack and well casing _____ 10 64 gal.
7. Volume of water removed from well _____ 120 0 gal.
8. Volume of water added (if any) _____ gal.
9. Source of water added _____ NA
10. Analysis performed on water added? Yes No
(If yes, attach results)

- | | | |
|--|---------------------------|--------------------------|
| | <u>Before Development</u> | <u>After Development</u> |
|--|---------------------------|--------------------------|
11. Depth to Water (from top of well casing)
- a. _____ 36 _____ 34 ft. _____ 36 _____ 34 ft.
- Date
- b. 12 / 30 / 2022 12 / 30 / 2022
m m d d y y y y m m d d y y y y
- Time
- c. _____ 10:40 a.m. _____ 12:40 p.m.
 p.m. a.m.
12. Sediment in well bottom _____ inches _____ inches
13. Water clarity
- | | |
|---|---|
| Clear <input checked="" type="checkbox"/> 1 0 | Clear <input checked="" type="checkbox"/> 2 0 |
| Turbid <input type="checkbox"/> 1 5 | Turbid <input type="checkbox"/> 2 5 |
- (Describe) (Describe)
- _____ brown at start _____ clear
- _____
- _____
- _____
- Fill in if drilling fluids were used and well is at solid waste facility:
14. Total suspended solids _____ mg/l _____ mg/l
15. COD _____ mg/l _____ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: Adam Last Name: Watson

Firm: SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

17. Additional comments on development:

31 degrees F and cloudy
Purge rate= 1gallon/minute

Name and Address of Facility Contact /Owner/Responsible Party


First Name: _____ Last Name: _____

Facility/Firm: Wisconsin Power and Light Co. - Alliant Energy

Street: 1919 Alliant Energy Center Way

City/State/Zip: Madison, WI 53713


I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Name: Adam Watson

Firm: SCS ENGINEERS, 2830 Dairy Drive, Madison, WI 53718

NOTE: See instructions for more information including a list of county codes and well type codes.



Appendix C

Laboratory Reports

April 10, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on January 25, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

Revised Report: A combined radium result is now included.

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40257467001	MW-313	Water	01/24/23 11:45	01/25/23 08:00
40257467002	MW-314	Water	01/24/23 10:25	01/25/23 08:00
40257467003	MW-315	Water	01/24/23 12:00	01/25/23 08:00
40257467004	FIELD BLANK MOD 10-11	Water	01/24/23 12:30	01/25/23 08:00

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SAMPLE ANALYTE COUNT

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40257467001	MW-313	EPA 6010D	SIS	5	PASI-G
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			CKV	7	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	TMK	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
		40257467002	MW-314	EPA 6010D	SIS
EPA 6020B	KXS			14	PASI-G
EPA 7470	AJT			1	PASI-G
	CKV			7	PASI-G
EPA 903.1	GDH			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	SRK			1	PASI-G
EPA 9040	YER			1	PASI-G
EPA 300.0	TMK			3	PASI-G
EPA 310.2	DAW			1	PASI-G
EPA 353.2	DAW			1	PASI-G
40257467003	MW-315			EPA 6010D	SIS
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			CKV	7	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	TMK	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
		40257467004	FIELD BLANK MOD 10-11	EPA 6010D	SIS

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SAMPLE ANALYTE COUNT

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		SM 2540C	SRK	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	TMK	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Sample: MW-313 **Lab ID: 40257467001** Collected: 01/24/23 11:45 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	01/26/23 06:22	01/26/23 16:45	7440-50-8	
Manganese	328	ug/L	5.0	1.5	1	01/26/23 06:22	01/26/23 16:45	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	01/26/23 06:22	01/26/23 16:45	7440-22-4	
Total Hardness by 2340B	321	mg/L	27.0	5.0	5	01/26/23 06:22	01/27/23 13:30		
Zinc	<11.6	ug/L	40.0	11.6	1	01/26/23 06:22	01/26/23 16:45	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 05:43	7440-36-0	1q
Arsenic	<0.28	ug/L	1.0	0.28	1	01/26/23 05:36	01/31/23 05:43	7440-38-2	
Barium	70.5	ug/L	2.3	0.70	1	01/26/23 05:36	01/31/23 05:43	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	01/26/23 05:36	01/31/23 05:43	7440-41-7	
Boron	25.1	ug/L	10.0	3.0	1	01/26/23 05:36	01/31/23 05:43	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 05:43	7440-43-9	
Calcium	66800	ug/L	254	76.2	1	01/26/23 05:36	01/31/23 05:43	7440-70-2	
Chromium	5.2	ug/L	3.4	1.0	1	01/26/23 05:36	01/31/23 15:03	7440-47-3	
Cobalt	0.40J	ug/L	1.0	0.12	1	01/26/23 05:36	01/31/23 05:43	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	01/26/23 05:36	01/31/23 05:43	7439-92-1	
Lithium	0.75J	ug/L	1.0	0.22	1	01/26/23 05:36	01/31/23 05:43	7439-93-2	
Molybdenum	4.3	ug/L	1.5	0.44	1	01/26/23 05:36	01/31/23 05:43	7439-98-7	
Selenium	0.41J	ug/L	1.1	0.32	1	01/26/23 05:36	01/31/23 05:43	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/26/23 05:36	01/31/23 05:43	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	01/27/23 10:30	01/30/23 08:15	7439-97-6	
Field Data									
Analytical Method: Pace Analytical Services - Green Bay									
Field pH	7.43	Std. Units			1		01/24/23 11:45		
Field Specific Conductance	509.5	umhos/cm			1		01/24/23 11:45		
Oxygen, Dissolved	4.08	mg/L			1		01/24/23 11:45	7782-44-7	
REDOX	82.6	mV			1		01/24/23 11:45		
Turbidity	0.00	NTU			1		01/24/23 11:45		
Static Water Level	783.36	feet			1		01/24/23 11:45		
Temperature, Water (C)	9.4	deg C			1		01/24/23 11:45		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C Pace Analytical Services - Green Bay									
Total Dissolved Solids	298	mg/L	20.0	8.7	1		01/26/23 14:00		
9040 pH									
Analytical Method: EPA 9040 Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.5	Std. Units	0.10	0.010	1		01/31/23 08:16		H6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Sample: MW-313 **Lab ID: 40257467001** Collected: 01/24/23 11:45 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	1.4J	mg/L	2.0	0.43	1		02/03/23 04:06	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		02/03/23 04:06	16984-48-8	M0
Sulfate	5.7	mg/L	2.0	0.44	1		02/03/23 04:06	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	309	mg/L	25.0	7.4	1		01/26/23 13:35		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	3.9	mg/L	0.25	0.059	1		01/30/23 12:26		

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Sample: MW-314 **Lab ID: 40257467002** Collected: 01/24/23 10:25 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	01/26/23 06:22	01/26/23 16:53	7440-50-8	
Manganese	77.8	ug/L	5.0	1.5	1	01/26/23 06:22	01/26/23 16:53	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	01/26/23 06:22	01/26/23 16:53	7440-22-4	
Total Hardness by 2340B	403	mg/L	5.4	1.0	1	01/26/23 06:22	01/26/23 16:53		
Zinc	<11.6	ug/L	40.0	11.6	1	01/26/23 06:22	01/26/23 16:53	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 05:51	7440-36-0	1q
Arsenic	<0.28	ug/L	1.0	0.28	1	01/26/23 05:36	01/31/23 05:51	7440-38-2	
Barium	48.7	ug/L	2.3	0.70	1	01/26/23 05:36	01/31/23 05:51	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	01/26/23 05:36	01/31/23 05:51	7440-41-7	
Boron	14.2	ug/L	10.0	3.0	1	01/26/23 05:36	01/31/23 05:51	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 05:51	7440-43-9	
Calcium	95000	ug/L	254	76.2	1	01/26/23 05:36	01/31/23 05:51	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	01/26/23 05:36	01/31/23 15:11	7440-47-3	
Cobalt	0.31J	ug/L	1.0	0.12	1	01/26/23 05:36	01/31/23 05:51	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	01/26/23 05:36	01/31/23 05:51	7439-92-1	
Lithium	0.33J	ug/L	1.0	0.22	1	01/26/23 05:36	01/31/23 05:51	7439-93-2	
Molybdenum	1.7	ug/L	1.5	0.44	1	01/26/23 05:36	01/31/23 05:51	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	01/26/23 05:36	01/31/23 05:51	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/26/23 05:36	01/31/23 05:51	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	01/27/23 10:30	01/30/23 08:17	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.23	Std. Units			1		01/24/23 10:25		
Field Specific Conductance	654.9	umhos/cm			1		01/24/23 10:25		
Oxygen, Dissolved	6.21	mg/L			1		01/24/23 10:25	7782-44-7	
REDOX	78.0	mV			1		01/24/23 10:25		
Turbidity	7.30	NTU			1		01/24/23 10:25		
Static Water Level	783.63	feet			1		01/24/23 10:25		
Temperature, Water (C)	10.3	deg C			1		01/24/23 10:25		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	380	mg/L	20.0	8.7	1		01/26/23 14:00		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.5	Std. Units	0.10	0.010	1		01/31/23 08:21		H6

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: MW-314 **Lab ID: 40257467002** Collected: 01/24/23 10:25 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	1.8J	mg/L	2.0	0.43	1		02/03/23 05:35	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		02/03/23 05:35	16984-48-8	
Sulfate	4.2	mg/L	2.0	0.44	1		02/03/23 05:35	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	427	mg/L	25.0	7.4	1		01/26/23 13:36		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.28	mg/L	0.25	0.059	1		01/30/23 12:27		

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Sample: MW-315 **Lab ID: 40257467003** Collected: 01/24/23 12:00 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	01/26/23 06:22	01/26/23 16:57	7440-50-8	
Manganese	165	ug/L	5.0	1.5	1	01/26/23 06:22	01/26/23 16:57	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	01/26/23 06:22	01/26/23 16:57	7440-22-4	
Total Hardness by 2340B	481	mg/L	5.4	1.0	1	01/26/23 06:22	01/26/23 16:57		
Zinc	<11.6	ug/L	40.0	11.6	1	01/26/23 06:22	01/26/23 16:57	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 05:58	7440-36-0	1q
Arsenic	<0.28	ug/L	1.0	0.28	1	01/26/23 05:36	01/31/23 05:58	7440-38-2	
Barium	57.5	ug/L	2.3	0.70	1	01/26/23 05:36	01/31/23 05:58	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	01/26/23 05:36	01/31/23 05:58	7440-41-7	
Boron	11.7	ug/L	10.0	3.0	1	01/26/23 05:36	01/31/23 05:58	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 05:58	7440-43-9	
Calcium	107000	ug/L	254	76.2	1	01/26/23 05:36	01/31/23 05:58	7440-70-2	
Chromium	1.2J	ug/L	3.4	1.0	1	01/26/23 05:36	01/31/23 15:18	7440-47-3	
Cobalt	0.24J	ug/L	1.0	0.12	1	01/26/23 05:36	01/31/23 05:58	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	01/26/23 05:36	01/31/23 05:58	7439-92-1	
Lithium	0.62J	ug/L	1.0	0.22	1	01/26/23 05:36	01/31/23 05:58	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	01/26/23 05:36	01/31/23 05:58	7439-98-7	
Selenium	0.40J	ug/L	1.1	0.32	1	01/26/23 05:36	01/31/23 05:58	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/26/23 05:36	01/31/23 05:58	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	01/27/23 10:30	01/30/23 08:20	7439-97-6	
Field Data									
Analytical Method: Pace Analytical Services - Green Bay									
Field pH	7.13	Std. Units			1		01/24/23 12:00		
Field Specific Conductance	748	umhos/cm			1		01/24/23 12:00		
Oxygen, Dissolved	7.65	mg/L			1		01/24/23 12:00	7782-44-7	
REDOX	38.4	mV			1		01/24/23 12:00		
Turbidity	6.43	NTU			1		01/24/23 12:00		
Static Water Level	783.77	feet			1		01/24/23 12:00		
Temperature, Water (C)	10.5	deg C			1		01/24/23 12:00		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C Pace Analytical Services - Green Bay									
Total Dissolved Solids	436	mg/L	20.0	8.7	1		01/26/23 14:01		
9040 pH									
Analytical Method: EPA 9040 Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.4	Std. Units	0.10	0.010	1		01/31/23 08:40		H6

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: MW-315 **Lab ID: 40257467003** Collected: 01/24/23 12:00 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	4.9	mg/L	2.0	0.43	1		02/03/23 05:50	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		02/03/23 05:50	16984-48-8	
Sulfate	9.2	mg/L	2.0	0.44	1		02/03/23 05:50	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	490	mg/L	50.0	14.9	2		01/26/23 13:40		M0
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.76	mg/L	0.25	0.059	1		01/30/23 12:28		

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: FIELD BLANK MOD 10-11 Lab ID: 40257467004 Collected: 01/24/23 12:30 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	01/26/23 06:22	01/26/23 16:59	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	01/26/23 06:22	01/26/23 16:59	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	01/26/23 06:22	01/26/23 16:59	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	01/26/23 06:22	01/26/23 16:59		
Zinc	<11.6	ug/L	40.0	11.6	1	01/26/23 06:22	01/26/23 16:59	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 06:05	7440-36-0	1q
Arsenic	<0.28	ug/L	1.0	0.28	1	01/26/23 05:36	01/31/23 06:05	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	01/26/23 05:36	01/31/23 06:05	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	01/26/23 05:36	01/31/23 06:05	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	01/26/23 05:36	01/31/23 06:05	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	01/26/23 05:36	01/31/23 06:05	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	01/26/23 05:36	01/31/23 06:05	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	01/26/23 05:36	01/31/23 14:48	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	01/26/23 05:36	01/31/23 06:05	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	01/26/23 05:36	01/31/23 06:05	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	01/26/23 05:36	01/31/23 06:05	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	01/26/23 05:36	01/31/23 06:05	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	01/26/23 05:36	01/31/23 06:05	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/26/23 05:36	01/31/23 06:05	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	01/27/23 10:30	01/30/23 08:22	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		01/26/23 14:01		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	6.4	Std. Units	0.10	0.010	1		01/31/23 08:54		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		02/03/23 06:05	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		02/03/23 06:05	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		02/03/23 06:05	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<7.4	mg/L	25.0	7.4	1		01/26/23 13:43		

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ANALYTICAL RESULTS

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: FIELD BLANK MOD 10-11 **Lab ID: 40257467004** Collected: 01/24/23 12:30 Received: 01/25/23 08:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay								
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		01/30/23 12:28		

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

QC Batch: 436656 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2511018 Matrix: Water
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	01/30/23 07:57	

LABORATORY CONTROL SAMPLE: 2511019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2511020 2511021

Parameter	Units	2511020		2511021		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	ug/L	40257527001		4.8	4.5				5	20	

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

QC Batch: 436528 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2510539 Matrix: Water
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<3.4	10.0	01/26/23 16:41	
Manganese	ug/L	<1.5	5.0	01/26/23 16:41	
Silver	ug/L	<3.2	10.0	01/26/23 16:41	
Total Hardness by 2340B	mg/L	<1.0	5.4	01/26/23 16:41	
Zinc	ug/L	<11.6	40.0	01/26/23 16:41	

LABORATORY CONTROL SAMPLE: 2510540

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	253	101	80-120	
Manganese	ug/L	250	256	102	80-120	
Silver	ug/L	125	125	100	80-120	
Total Hardness by 2340B	mg/L		65.9			
Zinc	ug/L	250	251	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2510541 2510542

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40257467001 Result	Spike Conc.	Spike Conc.	Result						
Copper	ug/L	<3.4	250	250	258	260	102	103	75-125	1	20
Manganese	ug/L	328	250	250	578	588	100	104	75-125	2	20
Silver	ug/L	<3.2	125	125	127	127	101	101	75-125	0	20
Total Hardness by 2340B	mg/L	321			385	395				2	20
Zinc	ug/L	<11.6	250	250	251	253	100	101	75-125	1	20

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

QC Batch: 436525 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2510527 Matrix: Water
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	01/31/23 03:46	
Arsenic	ug/L	<0.28	1.0	01/31/23 03:46	
Barium	ug/L	<0.70	2.3	01/31/23 03:46	
Beryllium	ug/L	<0.25	1.0	01/31/23 03:46	
Boron	ug/L	<3.0	10.0	01/31/23 03:46	
Cadmium	ug/L	<0.15	1.0	01/31/23 03:46	
Calcium	ug/L	<76.2	254	01/31/23 03:46	
Chromium	ug/L	<1.0	3.4	01/31/23 13:13	
Cobalt	ug/L	<0.12	1.0	01/31/23 03:46	
Lead	ug/L	<0.24	1.0	01/31/23 03:46	
Lithium	ug/L	<0.22	1.0	01/31/23 03:46	
Molybdenum	ug/L	<0.44	1.5	01/31/23 03:46	
Selenium	ug/L	<0.32	1.1	01/31/23 03:46	
Thallium	ug/L	<0.14	1.0	01/31/23 03:46	

LABORATORY CONTROL SAMPLE: 2510528

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	261	104	80-120	
Arsenic	ug/L	250	255	102	80-120	
Barium	ug/L	250	255	102	80-120	
Beryllium	ug/L	250	255	102	80-120	
Boron	ug/L	250	239	95	80-120	
Cadmium	ug/L	250	261	104	80-120	
Calcium	ug/L	10000	10300	103	80-120	
Chromium	ug/L	250	247	99	80-120	
Cobalt	ug/L	250	250	100	80-120	
Lead	ug/L	250	258	103	80-120	
Lithium	ug/L	250	255	102	80-120	
Molybdenum	ug/L	250	259	104	80-120	
Selenium	ug/L	250	263	105	80-120	
Thallium	ug/L	250	251	100	80-120	

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Parameter	Units	2510529		2510530		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40257413001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	<0.15	250	250	266	256	106	102	75-125	4	20		
Arsenic	ug/L	1.4	250	250	264	258	105	103	75-125	2	20		
Barium	ug/L	30.7	250	250	286	282	102	100	75-125	1	20		
Beryllium	ug/L	<0.25	250	250	256	250	102	100	75-125	2	20		
Boron	ug/L	346	250	250	612	588	106	97	75-125	4	20		
Cadmium	ug/L	<0.15	250	250	260	251	104	100	75-125	3	20		
Calcium	ug/L	92700	10000	10000	105000	102000	123	96	75-125	3	20		
Chromium	ug/L	<1.0	250	250	243	240	97	96	75-125	1	20		
Cobalt	ug/L	0.37J	250	250	254	248	101	99	75-125	2	20		
Lead	ug/L	0.24J	250	250	262	255	105	102	75-125	3	20		
Lithium	ug/L	0.29J	250	250	256	249	102	100	75-125	3	20		
Molybdenum	ug/L	2.4	250	250	261	262	104	104	75-125	0	20		
Selenium	ug/L	<0.32	250	250	273	265	109	106	75-125	3	20		
Thallium	ug/L	0.23J	250	250	255	251	102	100	75-125	2	20		

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

QC Batch: 436574	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2510751 Matrix: Water

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	01/26/23 13:59	

LABORATORY CONTROL SAMPLE: 2510752

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	596	554	93	80-120	

SAMPLE DUPLICATE: 2510753

Parameter	Units	40257396002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	100	104	4	10	

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

QC Batch: 436819

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

SAMPLE DUPLICATE: 2511795

Parameter	Units	40257413001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.5	0	20	H6

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

QC Batch: 436611 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2510824 Matrix: Water
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	02/03/23 03:36	
Fluoride	mg/L	<0.095	0.32	02/03/23 03:36	
Sulfate	mg/L	<0.44	2.0	02/03/23 03:36	

LABORATORY CONTROL SAMPLE: 2510825

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.6	103	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	20.2	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2510826 2510827

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40257467001 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	1.4J	20	20	22.8	23.0	107	108	90-110	1	15		
Fluoride	mg/L	<0.095	2	2	2.6	2.2	128	111	90-110	14	15	M0	
Sulfate	mg/L	5.7	20	20	26.9	27.5	106	109	90-110	2	15		

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

QC Batch: 436488 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2509904 Matrix: Water
Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.4	25.0	01/26/23 13:14	

LABORATORY CONTROL SAMPLE: 2509905

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	95.4	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2509906 2509907

Parameter	Units	40257341013		2509906		2509907		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result					
Alkalinity, Total as CaCO3	mg/L	548	200	200	200	765	755	108	103	90-110	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2509908 2509909

Parameter	Units	40257467003		2509908		2509909		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result					
Alkalinity, Total as CaCO3	mg/L	490	200	200	200	731	691	121	100	90-110	6	20 M0

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QUALITY CONTROL DATA

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

QC Batch: 436754

Analysis Method: EPA 353.2

QC Batch Method: EPA 353.2

Analysis Description: 353.2 Nitrate + Nitrite, preserved

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

METHOD BLANK: 2511600

Matrix: Water

Associated Lab Samples: 40257467001, 40257467002, 40257467003, 40257467004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	01/30/23 12:36	

LABORATORY CONTROL SAMPLE: 2511601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2511602 2511603

Parameter	Units	40257341026		2511603		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, NO2 plus NO3	mg/L	<0.059	2.5	2.5	2.5	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2511604 2511605

Parameter	Units	40257533003		2511605		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, NO2 plus NO3	mg/L	5.2	2.5	2.5	7.5	93	96	90-110	1	20	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: MW-313 **Lab ID: 40257467001** Collected: 01/24/23 11:45 Received: 01/25/23 08:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.326 ± 0.506 (1.22) C:NA T:93%	pCi/L	02/04/23 13:38	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.345 ± 0.296 (0.592) C:92% T:87%	pCi/L	02/02/23 11:12	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.345 ± 0.802 (1.81)	pCi/L	04/06/23 17:08	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: MW-314 **Lab ID: 40257467002** Collected: 01/24/23 10:25 Received: 01/25/23 08:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.436 ± 0.618 (1.05) C:NA T:91%	pCi/L	02/04/23 13:52	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	-0.00229 ± 0.263 (0.613) C:92% T:86%	pCi/L	02/02/23 11:12	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.436 ± 0.881 (1.66)	pCi/L	04/06/23 17:08	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Sample: MW-315 **Lab ID: 40257467003** Collected: 01/24/23 12:00 Received: 01/25/23 08:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0798 ± 0.469 (1.05) C:NA T:97%	pCi/L	02/04/23 13:52	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.351 ± 0.302 (0.608) C:91% T:88%	pCi/L	02/02/23 11:12	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.351 ± 0.771 (1.66)	pCi/L	04/06/23 17:08	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

QC Batch: 563007

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40257467001, 40257467002, 40257467003

METHOD BLANK: 2734746

Matrix: Water

Associated Lab Samples: 40257467001, 40257467002, 40257467003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.464 ± 0.432 (0.569) C:NA T:101%	pCi/L	02/04/23 13:38	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

QC Batch: 563008

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40257467001, 40257467002, 40257467003

METHOD BLANK: 2734747

Matrix: Water

Associated Lab Samples: 40257467001, 40257467002, 40257467003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0754 ± 0.199 (0.447) C:93% T:94%	pCi/L	02/02/23 11:11	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q Analyte was measured in the associated method blank at a concentration of -0.26ug/L.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157 COL CCR MOD10-11
Pace Project No.: 40257467

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40257467001	MW-313	EPA 3010A	436528	EPA 6010D	436588
40257467002	MW-314	EPA 3010A	436528	EPA 6010D	436588
40257467003	MW-315	EPA 3010A	436528	EPA 6010D	436588
40257467004	FIELD BLANK MOD 10-11	EPA 3010A	436528	EPA 6010D	436588
40257467001	MW-313	EPA 3010A	436525	EPA 6020B	436664
40257467002	MW-314	EPA 3010A	436525	EPA 6020B	436664
40257467003	MW-315	EPA 3010A	436525	EPA 6020B	436664
40257467004	FIELD BLANK MOD 10-11	EPA 3010A	436525	EPA 6020B	436664
40257467001	MW-313	EPA 7470	436656	EPA 7470	436678
40257467002	MW-314	EPA 7470	436656	EPA 7470	436678
40257467003	MW-315	EPA 7470	436656	EPA 7470	436678
40257467004	FIELD BLANK MOD 10-11	EPA 7470	436656	EPA 7470	436678
40257467001	MW-313				
40257467002	MW-314				
40257467003	MW-315				
40257467001	MW-313	EPA 903.1	563007		
40257467002	MW-314	EPA 903.1	563007		
40257467003	MW-315	EPA 903.1	563007		
40257467001	MW-313	EPA 904.0	563008		
40257467002	MW-314	EPA 904.0	563008		
40257467003	MW-315	EPA 904.0	563008		
40257467001	MW-313	Total Radium Calculation	579183		
40257467002	MW-314	Total Radium Calculation	579183		
40257467003	MW-315	Total Radium Calculation	579183		
40257467001	MW-313	SM 2540C	436574		
40257467002	MW-314	SM 2540C	436574		
40257467003	MW-315	SM 2540C	436574		
40257467004	FIELD BLANK MOD 10-11	SM 2540C	436574		
40257467001	MW-313	EPA 9040	436819		
40257467002	MW-314	EPA 9040	436819		
40257467003	MW-315	EPA 9040	436819		
40257467004	FIELD BLANK MOD 10-11	EPA 9040	436819		
40257467001	MW-313	EPA 300.0	436611		
40257467002	MW-314	EPA 300.0	436611		
40257467003	MW-315	EPA 300.0	436611		
40257467004	FIELD BLANK MOD 10-11	EPA 300.0	436611		
40257467001	MW-313	EPA 310.2	436488		
40257467002	MW-314	EPA 310.2	436488		
40257467003	MW-315	EPA 310.2	436488		
40257467004	FIELD BLANK MOD 10-11	EPA 310.2	436488		
40257467001	MW-313	EPA 353.2	436754		
40257467002	MW-314	EPA 353.2	436754		
40257467003	MW-315	EPA 353.2	436754		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157 COL CCR MOD10-11

Pace Project No.: 40257467

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40257467004	FIELD BLANK MOD 10-11	EPA 353.2	436754		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

40257467

ALL SHADED AREAS are for LAB USE ONLY

Company: SES Engineers

Billing Information: 25222157

Address: 2530 Perry Dr, Mead, WI

Report To: Meghan Blodgett 53718

Copy To:

Email To: mblodgett@sesengineers.com

Customer Project Name/Number:

State: / County/City: / Time Zone Collected: [] PT [] MT [] CT [] ET

Phone: 414-547-4253

Site/Facility ID #:

Compliance Monitoring? Yes No

Email: eschackres@sesengineers.com

Collected By (print): Dinan Schaefer

DW PWS ID #: 353.2

Collected By (signature): [Signature]

Purchase Order #: 600

DW Location Code:

Sample Disposal: Return Archive Hold

Turnaround Date Required:

Immediately Packed on Ice: Yes No

Rush: Same Day Next Day 2 Day 3 Day 4 Day 5 Day

Field Filtered (if applicable): Yes No

Analysis: Chloride, Fluoride, Sulfate, TDS, pH, alkalinity, Metals, hardness, Nitrate+Nitrite by 353.2, Radium 226, Radium 228

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW-313	GW	G	1/24/23	1145				6
MW-314	GW	G	1/24	1025				6
MW-315	GW	G	1/24	1200				6
Field Blank MOD 10-11		G	1/24	1230				4

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact Y N NA

Custody Signatures Present Y N NA

Collector Signature Present Y N NA

Bottles Intact Y N NA

Correct Bottles Y N NA

Sufficient Volume Y N NA

Samples Received on Ice Y N NA

VOA - Headspace Acceptable Y N NA

USDA Regulated Soils Y N NA

Samples in Holding Time Y N NA

Residual Chlorine Present Y N NA

Cl Strips: _____

Sample pH Acceptable Y N NA

pH Strips: _____

Sulfide Present Y N NA

Lead Acetate Strips: _____

LAB USE ONLY: Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used:

Lab Tracking #: 2824299

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____ oC

Cooler 1 Therm Corr. Factor: _____ oC

Cooler 1 Corrected Temp: _____ oC

Comments:

Relinquished by/Company: (Signature) [Signature] SES

Date/Time: 1/24/23/400

Received by/Company: (Signature)

Date/Time:

MTJL LAB USE ONLY

Relinquished by/Company: (Signature) CS Logistics

Date/Time: 1/25/23 0800

Received by/Company: (Signature) [Signature]

Date/Time: 1/25/23 0800

Table #: _____
Acctnum: _____
Template: _____
Prelogin: _____

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

PM: _____
PB: _____


Trip Blank Received: Y N NA
HCL MeCl TSP Other

Non Conformance(s): YES NO

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: SCS

WO# : 40257467

 40257467

Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____

Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - 120 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr. 3.0 /Corr 3.0

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
 Date: 1/25/23 /Initials: mt
 Labeled By Initials: YJA

Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>pg # mt 1/25/23</u>
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt <input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time.
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay, Pace IR, Non-Pace</u>	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC: <u>mt 1/25/23</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>QOI has a variation of times mt 1/25/23</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>	
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample log

**Table 2. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Columbia Energy Center / SCS Engineers Project #25219067**

Parameter	Landfill Modules 10-11				FIELD BLANK-MOD10-11	
	MW-313	MW-314	MW-315			
Appendix III Parameters (Detection Monitoring)	Boron	X	X	X	X	
	Calcium	X	X	X	X	
	Chloride	X	X	X	X	
	Fluoride	X	X	X	X	
	pH	X	X	X	X	
	Sulfate	X	X	X	X	
	TDS	X	X	X	X	
	Appendix IV Parameters (Assessment Monitoring)	Antimony	X	X	X	X
		Arsenic	X	X	X	X
		Barium	X	X	X	X
		Beryllium	X	X	X	X
		Cadmium	X	X	X	X
		Chromium	X	X	X	X
		Cobalt	X	X	X	X
		Fluoride	X	X	X	X
Lead		X	X	X	X	
Lithium		X	X	X	X	
Mercury		X	X	X	X	
Molybdenum		X	X	X	X	
Selenium		X	X	X	X	
Thallium		X	X	X	X	
Radium 226+228		X	X	X	X	
Additional WDNR Parameters	Alkalinity	X	X	X	X	
	Hardness	X	X	X	X	
	Nitrate + Nitrite as N	X	X	X	X	
	Copper	X	X	X	X	
	Manganese	X	X	X	X	
	Silver	X	X	X	X	
	Zinc	X	X	X	X	
	CCR Rule Field Parameters	Groundwater Elevation	X	X	X	
		pH	X	X	X	
		Low-Flow Sampling Parameters	Specific Conductance	X	X	X
Dissolved Oxygen	X		X	X		
ORP	X		X	X		
Temperature	X		X	X		
Turbidity	X		X	X		
Color	X		X	X		
Odor	X	X	X			

Notes: All samples are unfiltered (total).

X:\reports\40257\40257467\2023 Mod 10 11_COL CCR.xls\Sheet1

March 20, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on February 24, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40258611001	MW-313	Water	02/23/23 13:30	02/24/23 07:30
40258611002	MW-314	Water	02/23/23 12:00	02/24/23 07:30
40258611003	MW-315	Water	02/23/23 13:20	02/24/23 07:30
40258611004	FIELD BLANK MOD 10-11	Water	02/23/23 13:50	02/24/23 07:30

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SAMPLE ANALYTE COUNT

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40258611001	MW-313	EPA 6010D	SIS	5	PASI-G
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	JGH	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	HNT	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
		40258611002	MW-314	EPA 6010D	SIS
EPA 6020B	KXS			14	PASI-G
EPA 7470	AJT			1	PASI-G
	LB			7	PASI-G
EPA 903.1	GDH			1	PASI-PA
EPA 904.0	JGH			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	HNT			1	PASI-G
EPA 9040	YER			1	PASI-G
EPA 300.0	HMB			3	PASI-G
EPA 310.2	DAW			1	PASI-G
EPA 353.2	DAW			1	PASI-G
40258611003	MW-315			EPA 6010D	SIS
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	JGH	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	HNT	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
		40258611004	FIELD BLANK MOD 10-11	EPA 6010D	SIS

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	JGH	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	HNT	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-313 **Lab ID: 40258611001** Collected: 02/23/23 13:30 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	02/28/23 05:36	02/28/23 17:12	7440-50-8	
Manganese	151	ug/L	5.0	1.5	1	02/28/23 05:36	02/28/23 17:12	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	02/28/23 05:36	02/28/23 17:12	7440-22-4	
Total Hardness by 2340B	324	mg/L	5.4	1.0	1	02/28/23 05:36	02/28/23 17:12		
Zinc	<11.6	ug/L	40.0	11.6	1	03/03/23 05:15	03/06/23 15:56	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 10:49	7440-36-0	
Arsenic	0.35J	ug/L	1.0	0.28	1	02/28/23 06:45	03/02/23 10:49	7440-38-2	
Barium	55.9	ug/L	2.3	0.70	1	02/28/23 06:45	03/02/23 10:49	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	02/28/23 06:45	03/02/23 10:49	7440-41-7	
Boron	46.6	ug/L	10.0	3.0	1	02/28/23 06:45	03/02/23 10:49	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 10:49	7440-43-9	
Calcium	62900	ug/L	2540	762	10	02/28/23 06:45	03/02/23 08:54	7440-70-2	P6
Chromium	<1.0	ug/L	3.4	1.0	1	02/28/23 06:45	03/02/23 10:49	7440-47-3	
Cobalt	0.16J	ug/L	1.0	0.12	1	02/28/23 06:45	03/02/23 10:49	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	02/28/23 06:45	03/02/23 10:49	7439-92-1	
Lithium	0.46J	ug/L	1.0	0.22	1	02/28/23 06:45	03/02/23 10:49	7439-93-2	
Molybdenum	2.0	ug/L	1.5	0.44	1	02/28/23 06:45	03/02/23 10:49	7439-98-7	
Selenium	0.55J	ug/L	1.1	0.32	1	02/28/23 06:45	03/02/23 10:49	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/28/23 06:45	03/02/23 10:49	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	02/28/23 11:10	03/01/23 07:44	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.35	Std. Units			1		02/23/23 13:30		
Field Specific Conductance	557.9	umhos/cm			1		02/23/23 13:30		
Oxygen, Dissolved	5.51	mg/L			1		02/23/23 13:30	7782-44-7	
REDOX	56.9	mV			1		02/23/23 13:30		
Turbidity	1.25	NTU			1		02/23/23 13:30		
Static Water Level	783.59	feet			1		02/23/23 13:30		
Temperature, Water (C)	10.0	deg C			1		02/23/23 13:30		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	278	mg/L	20.0	8.7	1		03/01/23 13:27		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.4	Std. Units	0.10	0.010	1		02/28/23 10:52		H6

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-313 **Lab ID: 40258611001** Collected: 02/23/23 13:30 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		03/02/23 14:02	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		03/02/23 14:02	16984-48-8	
Sulfate	7.1	mg/L	2.0	0.44	1		03/02/23 14:02	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	305	mg/L	25.0	7.4	1		03/06/23 10:13		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	4.1	mg/L	0.25	0.059	1		03/01/23 10:51		

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-314 **Lab ID: 40258611002** Collected: 02/23/23 12:00 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	02/28/23 05:36	02/28/23 17:13	7440-50-8	
Manganese	52.1	ug/L	5.0	1.5	1	02/28/23 05:36	02/28/23 17:13	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	02/28/23 05:36	02/28/23 17:13	7440-22-4	
Total Hardness by 2340B	439	mg/L	5.4	1.0	1	02/28/23 05:36	02/28/23 17:13		
Zinc	<11.6	ug/L	40.0	11.6	1	03/03/23 05:15	03/06/23 15:58	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 11:19	7440-36-0	
Arsenic	0.41J	ug/L	1.0	0.28	1	02/28/23 06:45	03/02/23 11:19	7440-38-2	
Barium	43.4	ug/L	2.3	0.70	1	02/28/23 06:45	03/02/23 11:19	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	02/28/23 06:45	03/02/23 11:19	7440-41-7	
Boron	13.0	ug/L	10.0	3.0	1	02/28/23 06:45	03/02/23 11:19	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 11:19	7440-43-9	
Calcium	96200	ug/L	254	76.2	1	02/28/23 06:45	03/02/23 11:19	7440-70-2	
Chromium	1.0J	ug/L	3.4	1.0	1	02/28/23 06:45	03/02/23 11:19	7440-47-3	
Cobalt	0.22J	ug/L	1.0	0.12	1	02/28/23 06:45	03/02/23 11:19	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	02/28/23 06:45	03/02/23 11:19	7439-92-1	
Lithium	0.58J	ug/L	1.0	0.22	1	02/28/23 06:45	03/02/23 11:19	7439-93-2	
Molybdenum	1.4J	ug/L	1.5	0.44	1	02/28/23 06:45	03/02/23 11:19	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	02/28/23 06:45	03/02/23 11:19	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/28/23 06:45	03/02/23 11:19	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	02/28/23 11:10	03/01/23 07:51	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.23	Std. Units			1		02/23/23 12:00		
Field Specific Conductance	804.0	umhos/cm			1		02/23/23 12:00		
Oxygen, Dissolved	5.8	mg/L			1		02/23/23 12:00	7782-44-7	
REDOX	125.3	mV			1		02/23/23 12:00		
Turbidity	2.62	NTU			1		02/23/23 12:00		
Static Water Level	783.82	feet			1		02/23/23 12:00		
Temperature, Water (C)	9.9	deg C			1		02/23/23 12:00		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	396	mg/L	20.0	8.7	1		03/01/23 13:28		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.4	Std. Units	0.10	0.010	1		02/28/23 10:55		H6

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-314 **Lab ID: 40258611002** Collected: 02/23/23 12:00 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	2.2	mg/L	2.0	0.43	1		03/02/23 14:15	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		03/02/23 14:15	16984-48-8	
Sulfate	4.2	mg/L	2.0	0.44	1		03/02/23 14:15	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	457	mg/L	25.0	7.4	1		03/06/23 10:14		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.41	mg/L	0.25	0.059	1		03/01/23 10:52		

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-315 **Lab ID: 40258611003** Collected: 02/23/23 13:20 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	02/28/23 05:36	02/28/23 17:15	7440-50-8	
Manganese	38.3	ug/L	5.0	1.5	1	02/28/23 05:36	02/28/23 17:15	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	02/28/23 05:36	02/28/23 17:15	7440-22-4	
Total Hardness by 2340B	472	mg/L	5.4	1.0	1	02/28/23 05:36	02/28/23 17:15		
Zinc	<11.6	ug/L	40.0	11.6	1	03/03/23 05:15	03/06/23 16:00	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 11:48	7440-36-0	
Arsenic	0.49J	ug/L	1.0	0.28	1	02/28/23 06:45	03/02/23 11:48	7440-38-2	
Barium	46.4	ug/L	2.3	0.70	1	02/28/23 06:45	03/02/23 11:48	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	02/28/23 06:45	03/02/23 11:48	7440-41-7	
Boron	9.3J	ug/L	10.0	3.0	1	02/28/23 06:45	03/02/23 11:48	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 11:48	7440-43-9	
Calcium	100000	ug/L	254	76.2	1	02/28/23 06:45	03/02/23 11:48	7440-70-2	
Chromium	1.7J	ug/L	3.4	1.0	1	02/28/23 06:45	03/02/23 11:48	7440-47-3	
Cobalt	0.12J	ug/L	1.0	0.12	1	02/28/23 06:45	03/02/23 11:48	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	02/28/23 06:45	03/02/23 11:48	7439-92-1	
Lithium	0.73J	ug/L	1.0	0.22	1	02/28/23 06:45	03/02/23 11:48	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	02/28/23 06:45	03/02/23 11:48	7439-98-7	
Selenium	0.52J	ug/L	1.1	0.32	1	02/28/23 06:45	03/02/23 11:48	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/28/23 06:45	03/02/23 11:48	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	02/28/23 11:10	03/01/23 07:53	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.16	Std. Units			1		02/23/23 13:20		
Field Specific Conductance	892	umhos/cm			1		02/23/23 13:20		
Oxygen, Dissolved	7.28	mg/L			1		02/23/23 13:20	7782-44-7	
REDOX	118.2	mV			1		02/23/23 13:20		
Turbidity	2.70	NTU			1		02/23/23 13:20		
Static Water Level	783.96	feet			1		02/23/23 13:20		
Temperature, Water (C)	10.0	deg C			1		02/23/23 13:20		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	448	mg/L	20.0	8.7	1		03/01/23 13:28		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.3	Std. Units	0.10	0.010	1		02/28/23 11:00		H6

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-315 **Lab ID: 40258611003** Collected: 02/23/23 13:20 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	5.6	mg/L	2.0	0.43	1		03/02/23 14:28	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		03/02/23 14:28	16984-48-8	
Sulfate	8.7	mg/L	2.0	0.44	1		03/02/23 14:28	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	492	mg/L	50.0	14.9	2		03/06/23 10:15		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.77	mg/L	0.25	0.059	1		03/01/23 10:52		

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

Sample: FIELD BLANK MOD 10-11 **Lab ID: 40258611004** Collected: 02/23/23 13:50 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	02/28/23 05:36	02/28/23 17:17	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	02/28/23 05:36	02/28/23 17:17	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	02/28/23 05:36	02/28/23 17:17	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	02/28/23 05:36	02/28/23 17:17		
Zinc	<11.6	ug/L	40.0	11.6	1	03/03/23 05:15	03/06/23 16:02	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 10:35	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	02/28/23 06:45	03/02/23 10:35	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	02/28/23 06:45	03/02/23 10:35	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	02/28/23 06:45	03/02/23 10:35	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	02/28/23 06:45	03/02/23 10:35	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	02/28/23 06:45	03/02/23 10:35	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	02/28/23 06:45	03/02/23 10:35	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	02/28/23 06:45	03/02/23 10:35	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	02/28/23 06:45	03/02/23 10:35	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	02/28/23 06:45	03/02/23 10:35	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	02/28/23 06:45	03/02/23 10:35	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	02/28/23 06:45	03/02/23 10:35	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	02/28/23 06:45	03/02/23 10:35	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/28/23 06:45	03/02/23 10:35	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	02/28/23 11:10	03/01/23 07:55	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		03/01/23 13:28		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	5.1	Std. Units	0.10	0.010	1		02/28/23 11:58		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		03/02/23 15:23	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		03/02/23 15:23	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		03/02/23 15:23	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<7.4	mg/L	25.0	7.4	1		03/06/23 10:16		

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ANALYTICAL RESULTS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: FIELD BLANK MOD 10-11 **Lab ID: 40258611004** Collected: 02/23/23 13:50 Received: 02/24/23 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		03/01/23 10:55		

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch: 438803	Analysis Method: EPA 7470
QC Batch Method: EPA 7470	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2520927 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	03/01/23 07:28	

LABORATORY CONTROL SAMPLE: 2520928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2520929 2520930

Parameter	Units	40258657001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.066	5	5	4.6	4.7	92	94	85-115	3	20	

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

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

QC Batch: 438752	Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A	Analysis Description: 6010D MET
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2520746 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	9.8J	10.0	03/01/23 13:43	
Manganese	ug/L	<1.5	5.0	03/01/23 13:43	
Silver	ug/L	<3.2	10.0	03/01/23 13:43	
Total Hardness by 2340B	mg/L	<1.0	5.4	03/01/23 13:43	

LABORATORY CONTROL SAMPLE: 2520747

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	264	106	80-120	
Manganese	ug/L	250	265	106	80-120	
Silver	ug/L	125	126	101	80-120	
Total Hardness by 2340B	mg/L		68.1			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2520748 2520749

Parameter	Units	40258610003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Copper	ug/L	<3.4	250	262	250	262	104	104	75-125	0	20	
Manganese	ug/L	1.6J	250	265	250	265	106	105	75-125	0	20	
Silver	ug/L	<3.2	125	128	125	127	102	102	75-125	0	20	
Total Hardness by 2340B	mg/L	279		352		351				0	20	

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

QC Batch: 438996 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2521940 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Zinc	ug/L	<11.6	40.0	03/06/23 15:22	

LABORATORY CONTROL SAMPLE: 2521941

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Zinc	ug/L	250	266	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2521942 2521943

Parameter	Units	40258610004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Zinc	ug/L	<11.6	250	250	259	257	103	102	75-125	1	20	

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch: 438772

Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A

Analysis Description: 6020B MET

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2520811

Matrix: Water

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	03/02/23 08:40	
Arsenic	ug/L	<0.28	1.0	03/02/23 08:40	
Barium	ug/L	<0.70	2.3	03/02/23 08:40	
Beryllium	ug/L	<0.25	1.0	03/02/23 08:40	
Boron	ug/L	<3.0	10.0	03/02/23 08:40	
Cadmium	ug/L	<0.15	1.0	03/02/23 08:40	
Calcium	ug/L	<76.2	254	03/02/23 08:40	
Chromium	ug/L	<1.0	3.4	03/02/23 08:40	
Cobalt	ug/L	<0.12	1.0	03/02/23 08:40	
Lead	ug/L	<0.24	1.0	03/02/23 08:40	
Lithium	ug/L	<0.22	1.0	03/02/23 08:40	
Molybdenum	ug/L	<0.44	1.5	03/02/23 08:40	
Selenium	ug/L	<0.32	1.1	03/02/23 08:40	
Thallium	ug/L	<0.14	1.0	03/02/23 08:40	

LABORATORY CONTROL SAMPLE: 2520812

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	247	99	80-120	
Arsenic	ug/L	250	247	99	80-120	
Barium	ug/L	250	234	93	80-120	
Beryllium	ug/L	250	256	103	80-120	
Boron	ug/L	250	217	87	80-120	
Cadmium	ug/L	250	242	97	80-120	
Calcium	ug/L	10000	9760	98	80-120	
Chromium	ug/L	250	242	97	80-120	
Cobalt	ug/L	250	239	95	80-120	
Lead	ug/L	250	244	98	80-120	
Lithium	ug/L	250	245	98	80-120	
Molybdenum	ug/L	250	240	96	80-120	
Selenium	ug/L	250	264	106	80-120	
Thallium	ug/L	250	245	98	80-120	

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Parameter	Units	2520813		2520814		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony	ug/L	<0.15	250	250	254	248	102	99	75-125	2	20		
Arsenic	ug/L	0.35J	250	250	250	245	100	98	75-125	2	20		
Barium	ug/L	55.9	250	250	303	294	99	95	75-125	3	20		
Beryllium	ug/L	<0.25	250	250	251	237	101	95	75-125	6	20		
Boron	ug/L	46.6	250	250	260	246	86	80	75-125	6	20		
Cadmium	ug/L	<0.15	250	250	256	240	102	96	75-125	6	20		
Calcium	ug/L	62900	10000	10000	74600	69700	117	68	75-125	7	20	P6	
Chromium	ug/L	<1.0	250	250	247	239	98	95	75-125	3	20		
Cobalt	ug/L	0.16J	250	250	239	234	96	93	75-125	2	20		
Lead	ug/L	<0.24	250	250	255	250	102	100	75-125	2	20		
Lithium	ug/L	0.46J	250	250	246	236	98	94	75-125	4	20		
Molybdenum	ug/L	2.0	250	250	244	240	97	95	75-125	2	20		
Selenium	ug/L	0.55J	250	250	266	260	106	104	75-125	2	20		
Thallium	ug/L	<0.14	250	250	255	248	102	99	75-125	3	20		

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch:	438916	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2521493 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	03/01/23 13:27	

LABORATORY CONTROL SAMPLE: 2521494

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	540	514	95	80-120	

SAMPLE DUPLICATE: 2521495

Parameter	Units	40258611001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	278	290	4	10	

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch: 438757

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

SAMPLE DUPLICATE: 2520759

Parameter	Units	40258366001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.7	7.7	0	20	H6

SAMPLE DUPLICATE: 2520760

Parameter	Units	40258512001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.4	6.3	0	20	H6

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

QC Batch: 438640 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2520461 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	02/28/23 19:51	
Fluoride	mg/L	<0.095	0.32	02/28/23 19:51	
Sulfate	mg/L	<0.44	2.0	02/28/23 19:51	

LABORATORY CONTROL SAMPLE: 2520462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.9	104	90-110	
Fluoride	mg/L	2	2.1	104	90-110	
Sulfate	mg/L	20	18.4	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2520463 2520464

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40258595001 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	22.0	20	20	41.1	41.4	95	97	90-110	1	15		
Fluoride	mg/L	<0.095	2	2	2.1	2.1	104	105	90-110	1	15		
Sulfate	mg/L	7.7	20	20	26.1	26.4	92	93	90-110	1	15		

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch:	439129	Analysis Method:	EPA 310.2
QC Batch Method:	EPA 310.2	Analysis Description:	310.2 Alkalinity
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2522651 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.4	25.0	03/06/23 09:55	

LABORATORY CONTROL SAMPLE: 2522652

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	105	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522653 2522654

Parameter	Units	2522653		2522654		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Alkalinity, Total as CaCO3	mg/L	249	200	200	460	451	105	101	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522655 2522656

Parameter	Units	2522655		2522656		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Alkalinity, Total as CaCO3	mg/L	406	200	200	602	598	98	96	90-110	1	20	

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QUALITY CONTROL DATA

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch: 438850	Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2	Analysis Description: 353.2 Nitrate + Nitrite, preserved
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2521071 Matrix: Water
Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	03/01/23 10:36	

LABORATORY CONTROL SAMPLE: 2521072

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2521073 2521074

Parameter	Units	2521073		2521074		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40258610007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Nitrogen, NO2 plus NO3	mg/L	1.8	2.5	2.5	4.2	4.1	97	95	90-110	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2521075 2521076

Parameter	Units	2521075		2521076		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40258611003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Nitrogen, NO2 plus NO3	mg/L	0.77	2.5	2.5	3.3	3.2	99	96	90-110	2	20

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-313 **Lab ID: 40258611001** Collected: 02/23/23 13:30 Received: 02/24/23 07:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.130 ± 0.539 (1.13) C:NA T:99%	pCi/L	03/12/23 13:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.346 ± 0.347 (0.711) C:73% T:88%	pCi/L	03/10/23 15:55	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.346 ± 0.886 (1.84)	pCi/L	03/16/23 11:01	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-314 **Lab ID: 40258611002** Collected: 02/23/23 12:00 Received: 02/24/23 07:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.233 ± 0.458 (0.838) C:NA T:97%	pCi/L	03/12/23 13:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.0135 ± 0.285 (0.667) C:74% T:99%	pCi/L	03/10/23 15:55	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.247 ± 0.743 (1.51)	pCi/L	03/16/23 11:01	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: MW-315 **Lab ID: 40258611003** Collected: 02/23/23 13:20 Received: 02/24/23 07:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.149 ± 0.414 (0.803) C:NA T:101%	pCi/L	03/12/23 13:59	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.224 ± 0.365 (0.793) C:71% T:92%	pCi/L	03/10/23 15:56	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.373 ± 0.779 (1.60)	pCi/L	03/16/23 11:01	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Sample: FIELD BLANK MOD 10-11 **Lab ID:** 40258611004 Collected: 02/23/23 13:50 Received: 02/24/23 07:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.462 ± 0.595 (0.991) C:NA T:99%	pCi/L	03/12/23 13:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.270 ± 0.350 (0.743) C:73% T:86%	pCi/L	03/10/23 15:56	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.732 ± 0.945 (1.73)	pCi/L	03/16/23 11:01	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch: 570529

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2770209

Matrix: Water

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.200 ± 0.312 (0.674) C:71% T:86%	pCi/L	03/10/23 15:53	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

QC Batch: 570528

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

METHOD BLANK: 2770205

Matrix: Water

Associated Lab Samples: 40258611001, 40258611002, 40258611003, 40258611004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.190 ± 0.330 (0.589) C:NA T:96%	pCi/L	03/12/23 13:28	

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QUALIFIERS

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157.00 COL CCR MOD10-11
Pace Project No.: 40258611

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40258611001	MW-313	EPA 3010A	438752	EPA 6010D	438851
40258611001	MW-313	EPA 3010A	438996	EPA 6010D	439134
40258611002	MW-314	EPA 3010A	438752	EPA 6010D	438851
40258611002	MW-314	EPA 3010A	438996	EPA 6010D	439134
40258611003	MW-315	EPA 3010A	438752	EPA 6010D	438851
40258611003	MW-315	EPA 3010A	438996	EPA 6010D	439134
40258611004	FIELD BLANK MOD 10-11	EPA 3010A	438752	EPA 6010D	438851
40258611004	FIELD BLANK MOD 10-11	EPA 3010A	438996	EPA 6010D	439134
40258611001	MW-313	EPA 3010A	438772	EPA 6020B	438845
40258611002	MW-314	EPA 3010A	438772	EPA 6020B	438845
40258611003	MW-315	EPA 3010A	438772	EPA 6020B	438845
40258611004	FIELD BLANK MOD 10-11	EPA 3010A	438772	EPA 6020B	438845
40258611001	MW-313	EPA 7470	438803	EPA 7470	438834
40258611002	MW-314	EPA 7470	438803	EPA 7470	438834
40258611003	MW-315	EPA 7470	438803	EPA 7470	438834
40258611004	FIELD BLANK MOD 10-11	EPA 7470	438803	EPA 7470	438834
40258611001	MW-313				
40258611002	MW-314				
40258611003	MW-315				
40258611001	MW-313	EPA 903.1	570528		
40258611002	MW-314	EPA 903.1	570528		
40258611003	MW-315	EPA 903.1	570528		
40258611004	FIELD BLANK MOD 10-11	EPA 903.1	570528		
40258611001	MW-313	EPA 904.0	570529		
40258611002	MW-314	EPA 904.0	570529		
40258611003	MW-315	EPA 904.0	570529		
40258611004	FIELD BLANK MOD 10-11	EPA 904.0	570529		
40258611001	MW-313	Total Radium Calculation	574305		
40258611002	MW-314	Total Radium Calculation	574305		
40258611003	MW-315	Total Radium Calculation	574305		
40258611004	FIELD BLANK MOD 10-11	Total Radium Calculation	574305		
40258611001	MW-313	SM 2540C	438916		
40258611002	MW-314	SM 2540C	438916		
40258611003	MW-315	SM 2540C	438916		
40258611004	FIELD BLANK MOD 10-11	SM 2540C	438916		
40258611001	MW-313	EPA 9040	438757		
40258611002	MW-314	EPA 9040	438757		
40258611003	MW-315	EPA 9040	438757		
40258611004	FIELD BLANK MOD 10-11	EPA 9040	438757		
40258611001	MW-313	EPA 300.0	438640		
40258611002	MW-314	EPA 300.0	438640		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157.00 COL CCR MOD10-11

Pace Project No.: 40258611

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40258611003	MW-315	EPA 300.0	438640		
40258611004	FIELD BLANK MOD 10-11	EPA 300.0	438640		
40258611001	MW-313	EPA 310.2	439129		
40258611002	MW-314	EPA 310.2	439129		
40258611003	MW-315	EPA 310.2	439129		
40258611004	FIELD BLANK MOD 10-11	EPA 310.2	439129		
40258611001	MW-313	EPA 353.2	438850		
40258611002	MW-314	EPA 353.2	438850		
40258611003	MW-315	EPA 353.2	438850		
40258611004	FIELD BLANK MOD 10-11	EPA 353.2	438850		

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

U0258611

ALL SHADED AREAS are for LAB USE ONLY

Company: SCS Engineers

Billing Information: 25222157.00

Address: 2530 Dairy Dr, Marsh WI 53718

Email To: mbloodset@scsengineers.com

Report To: Meghan Bloodset

Site Collection Info/Address:

Copy To:

State: / County/City: Time Zone Collected: [] PT [] MT [] CT [] ET

Customer Project Name/Number:

Compliance Monitoring? [] Yes [] No

Phone: 414-877-4253

Site/Facility ID #:

DW PWS ID #:

Email: eschuel@scsengineers.com

Purchase Order #:

DW Location Code:

Collected By (print): Ethan Schookes

Quote #:

Immediately Packed on Ice: [] Yes [] No

Collected By (signature): [Signature]

Turnaround Date Required:

Field Filtered (if applicable): [] Yes [] No

Sample Disposal: [] Dispose as appropriate [] Return [] Archive [] Hold

Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Analyses																		
			Date	Time	Date	Time			1	2	3	4	5	6	7	8	9	10	11	12							
MW-313	GW	6	2/23	1330				6	X	X	X	X	X														
MW-314	GW	6	2/23	1200				6	X	X	X	X	X														
MW-315	GW	6	2/23	1320				6	X	X	X	X	X														
Field Blank Mod10-11			2/23	1350				6	X	X	X	X	X														

Medium U6+225 Nitrate + Nitrite Metals + Hardness TDS, pH, alkalinity Chloride, Fluoride, Sulfate

Lab Profile/Line:
 Lab Sample Receipt Checklist:
 Custody Seals Present/Intact Y N NA
 Custody Signatures Present Y N NA
 Collector Signature Present Y N NA
 Bottles Intact Y N NA
 Correct Bottles Y N NA
 Sufficient Volume Y N NA
 Samples Received on Ice Y N NA
 VOA - Headspace Acceptable Y N NA
 USDA Regulated Soils Y N NA
 Samples in Holding Time Y N NA
 Residual Chlorine Present Y N NA
 Cl Strips Y N NA
 Sample pH Acceptable Y N NA
 pH Strips Y N NA
 Sulfide Present Y N NA
 Lead Acetate Strips: Y N NA

LAB USE ONLY: Lab Sample # / Comments:

001
002
003
004

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Sample Temperature Info:

Packing Material Used:

Lab Tracking #: 2824347

Temp Blank Received: Y N NA

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via: FEDEX UPS Client Courier Pace Courier

Cooler 1 Temp Upon Receipt: 00
Cooler 1 Therm Corr. Factor: 00
Cooler 1 Corrected Temp: 00

Relinquished by/Company: (Signature) [Signature]

Date/Time: 2/23/23 1530

Received by/Company: (Signature)

Date/Time:

MTJL LAB USE ONLY

Relinquished by/Company: (Signature) [Signature]

Date/Time: 2/24/23 0730

Received by/Company: (Signature) [Signature]

Date/Time: 2/24/23 0730

Table #:

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

Acctnum:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

02/26/2024 - Classification: Internal - ECRM1238746

238746

Received by/Company: (Signature)

Date/Time:

PM:

PB:

Non Conformance(s): YES / NO

Page 33 of 35 of:

Effective Date: 8/16/2022

Client Name: SCS Engineers

Sample Preservation Receipt Form
Project # U0258611

All containers needing preservation have been checked and noted below

Yes No N/A

Lab Lot# of pH paper. 1000722

Lab Std #ID of preservation (if pH adjusted)

Initial when completed SN

Date/Time:

Pace Lab #	Glass						Plastic						Vials					Jars				General		VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≤9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)					
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T								ZPLC	GN 1	GN 2		
001							2		1	1															2										2.5 / 5
002							2		1	1															2										2.5 / 5
003							2		1	1															2										2.5 / 5
004							2		1	1															2										2.5 / 5
005	/																																		
006	/																																		
007	/																																		
008	/																																		
009	/																																		
010	/																																		
011	/																																		
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014	/																																		
015	/																																		
016	/																																		
017	/																																		
018	/																																		
019	/																																		
020	/																																		

YH 2/24/23

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	1L poly HNO3
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Project #: _____

Client Name: SCS Engineers

WO#: **40258611**

Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____



Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used SR - 125 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr: 3.0 / Corr: 3.0

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:
 Date: 2/24/23 Initials: GA
 Labeled By Initials: mt

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice

Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. pg # <u>GA</u> <u>2/24/23</u>
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt <input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> , Pace IR, Non-Pace	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. "001" Client labeled various times on labels from 1320-1332. <u>GA</u> <u>GA</u> <u>2/24/23</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>	
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample log

April 24, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on March 29, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burris, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

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SAMPLE SUMMARY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40259992001	MW-313	Water	03/27/23 10:30	03/29/23 09:45
40259992002	MW-314	Water	03/27/23 11:20	03/29/23 09:45
40259992003	MW-315	Water	03/27/23 12:15	03/29/23 09:45
40259992004	FIELD BLANK MOD 10-11	Water	03/27/23 11:30	03/29/23 09:45

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SAMPLE ANALYTE COUNT

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40259992001	MW-313	EPA 6010D	SIS	5	PASI-G
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	JGH	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
		40259992002	MW-314	EPA 6010D	SIS
EPA 6020B	KXS			14	PASI-G
EPA 7470	AJT			1	PASI-G
	LB			7	PASI-G
EPA 903.1	GDH			1	PASI-PA
EPA 904.0	JGH			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	SRK			1	PASI-G
EPA 9040	YER			1	PASI-G
EPA 300.0	HMB			3	PASI-G
EPA 310.2	DAW			1	PASI-G
EPA 353.2	DAW			1	PASI-G
40259992003	MW-315			EPA 6010D	SIS
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	JGH	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G
		40259992004	FIELD BLANK MOD 10-11	EPA 6010D	SIS

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SAMPLE ANALYTE COUNT

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	GDH	1	PASI-PA
		EPA 904.0	JGH	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	DAW	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Sample: MW-313 **Lab ID: 40259992001** Collected: 03/27/23 10:30 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	03/31/23 05:16	03/31/23 15:50	7440-50-8	
Manganese	86.4	ug/L	5.0	1.5	1	03/31/23 05:16	03/31/23 15:50	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	03/31/23 05:16	03/31/23 15:50	7440-22-4	
Total Hardness by 2340B	318	mg/L	27.0	5.0	5	03/31/23 05:16	04/03/23 12:44		
Zinc	<11.6	ug/L	40.0	11.6	1	03/31/23 05:16	03/31/23 15:50	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 00:26	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	03/31/23 06:18	04/04/23 00:26	7440-38-2	
Barium	47.3	ug/L	2.3	0.70	1	03/31/23 06:18	04/04/23 00:26	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	03/31/23 06:18	04/04/23 00:26	7440-41-7	
Boron	67.1	ug/L	10.0	3.0	1	03/31/23 06:18	04/04/23 00:26	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 00:26	7440-43-9	
Calcium	63300	ug/L	2540	762	10	03/31/23 06:18	04/03/23 17:24	7440-70-2	P6
Chromium	<1.0	ug/L	3.4	1.0	1	03/31/23 06:18	04/04/23 00:26	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	03/31/23 06:18	04/04/23 00:26	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	03/31/23 06:18	04/04/23 00:26	7439-92-1	
Lithium	0.46J	ug/L	1.0	0.22	1	03/31/23 06:18	04/04/23 00:26	7439-93-2	
Molybdenum	1.4J	ug/L	1.5	0.44	1	03/31/23 06:18	04/04/23 00:26	7439-98-7	
Selenium	0.49J	ug/L	1.1	0.32	1	03/31/23 06:18	04/04/23 00:26	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	03/31/23 06:18	04/04/23 00:26	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	04/03/23 08:31	04/04/23 07:15	7439-97-6	
Field Data									
Analytical Method: Pace Analytical Services - Green Bay									
Field pH	7.40	Std. Units			1		03/27/23 10:30		
Field Specific Conductance	490.5	umhos/cm			1		03/27/23 10:30		
Oxygen, Dissolved	7.03	mg/L			1		03/27/23 10:30	7782-44-7	
REDOX	51.5	mV			1		03/27/23 10:30		
Turbidity	0.00	NTU			1		03/27/23 10:30		
Static Water Level	784.12	feet			1		03/27/23 10:30		
Temperature, Water (C)	10.0	deg C			1		03/27/23 10:30		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C Pace Analytical Services - Green Bay									
Total Dissolved Solids	320	mg/L	20.0	8.7	1		03/30/23 10:37		
9040 pH									
Analytical Method: EPA 9040 Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.5	Std. Units	0.10	0.010	1		04/03/23 07:41		H6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-313 **Lab ID: 40259992001** Collected: 03/27/23 10:30 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	1.3J	mg/L	2.0	0.43	1		04/03/23 23:58	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		04/03/23 23:58	16984-48-8	
Sulfate	8.7	mg/L	2.0	0.44	1		04/03/23 23:58	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	286	mg/L	25.0	7.4	1		04/04/23 14:58		
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	3.9	mg/L	0.25	0.059	1		04/06/23 10:20		

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Date: 04/24/2023 12:10 PM

02/26/2024 - Classification: Internal - ECRM13238746

ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-314 **Lab ID: 40259992002** Collected: 03/27/23 11:20 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	03/31/23 05:16	03/31/23 15:58	7440-50-8	
Manganese	21.5	ug/L	5.0	1.5	1	03/31/23 05:16	03/31/23 15:58	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	03/31/23 05:16	03/31/23 15:58	7440-22-4	
Total Hardness by 2340B	460	mg/L	5.4	1.0	1	03/31/23 05:16	03/31/23 15:58		
Zinc	<11.6	ug/L	40.0	11.6	1	03/31/23 05:16	03/31/23 15:58	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 00:56	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	03/31/23 06:18	04/04/23 00:56	7440-38-2	
Barium	43.3	ug/L	2.3	0.70	1	03/31/23 06:18	04/04/23 00:56	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	03/31/23 06:18	04/04/23 00:56	7440-41-7	
Boron	15.2	ug/L	10.0	3.0	1	03/31/23 06:18	04/04/23 00:56	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 00:56	7440-43-9	
Calcium	99300	ug/L	254	76.2	1	03/31/23 06:18	04/04/23 00:56	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	03/31/23 06:18	04/04/23 00:56	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	03/31/23 06:18	04/04/23 00:56	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	03/31/23 06:18	04/04/23 00:56	7439-92-1	
Lithium	0.69J	ug/L	1.0	0.22	1	03/31/23 06:18	04/04/23 00:56	7439-93-2	
Molybdenum	1.5J	ug/L	1.5	0.44	1	03/31/23 06:18	04/04/23 00:56	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	03/31/23 06:18	04/04/23 00:56	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	03/31/23 06:18	04/04/23 00:56	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	04/03/23 08:31	04/04/23 07:17	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.25	Std. Units			1		03/27/23 11:20		
Field Specific Conductance	667.3	umhos/cm			1		03/27/23 11:20		
Oxygen, Dissolved	5.51	mg/L			1		03/27/23 11:20	7782-44-7	
REDOX	45.6	mV			1		03/27/23 11:20		
Turbidity	0.00	NTU			1		03/27/23 11:20		
Static Water Level	784.41	feet			1		03/27/23 11:20		
Temperature, Water (C)	10.0	deg C			1		03/27/23 11:20		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	412	mg/L	20.0	8.7	1		03/30/23 10:37		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.2	Std. Units	0.10	0.010	1		04/03/23 07:44		H6

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-314 **Lab ID: 40259992002** Collected: 03/27/23 11:20 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	2.6	mg/L	2.0	0.43	1		04/17/23 14:18	16887-00-6	M0,R1
Fluoride	<0.095	mg/L	0.32	0.095	1		04/17/23 14:18	16984-48-8	M0,R1
Sulfate	5.0	mg/L	2.0	0.44	1		04/17/23 14:18	14808-79-8	M0,R1
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	414	mg/L	25.0	7.4	1		04/04/23 14:59		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.15J	mg/L	0.25	0.059	1		04/06/23 10:21		

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-315 Lab ID: 40259992003 Collected: 03/27/23 12:15 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	03/31/23 05:16	03/31/23 16:02	7440-50-8	
Manganese	20.0	ug/L	5.0	1.5	1	03/31/23 05:16	03/31/23 16:02	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	03/31/23 05:16	03/31/23 16:02	7440-22-4	
Total Hardness by 2340B	486	mg/L	5.4	1.0	1	03/31/23 05:16	03/31/23 16:02		
Zinc	<11.6	ug/L	40.0	11.6	1	03/31/23 05:16	03/31/23 16:02	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 01:10	7440-36-0	
Arsenic	0.45J	ug/L	1.0	0.28	1	03/31/23 06:18	04/04/23 01:10	7440-38-2	
Barium	36.6	ug/L	2.3	0.70	1	03/31/23 06:18	04/04/23 01:10	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	03/31/23 06:18	04/04/23 01:10	7440-41-7	
Boron	11.9	ug/L	10.0	3.0	1	03/31/23 06:18	04/04/23 01:10	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 01:10	7440-43-9	
Calcium	106000	ug/L	254	76.2	1	03/31/23 06:18	04/04/23 01:10	7440-70-2	
Chromium	1.8J	ug/L	3.4	1.0	1	03/31/23 06:18	04/04/23 01:10	7440-47-3	
Cobalt	0.13J	ug/L	1.0	0.12	1	03/31/23 06:18	04/04/23 01:10	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	03/31/23 06:18	04/04/23 01:10	7439-92-1	
Lithium	0.85J	ug/L	1.0	0.22	1	03/31/23 06:18	04/04/23 01:10	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	03/31/23 06:18	04/04/23 01:10	7439-98-7	
Selenium	0.41J	ug/L	1.1	0.32	1	03/31/23 06:18	04/04/23 01:10	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	03/31/23 06:18	04/04/23 01:10	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	04/03/23 08:31	04/04/23 07:20	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.21	Std. Units			1		03/27/23 12:15		
Field Specific Conductance	711	umhos/cm			1		03/27/23 12:15		
Oxygen, Dissolved	7.83	mg/L			1		03/27/23 12:15	7782-44-7	
REDOX	45.8	mV			1		03/27/23 12:15		
Turbidity	0.00	NTU			1		03/27/23 12:15		
Static Water Level	784.57	feet			1		03/27/23 12:15		
Temperature, Water (C)	10.1	deg C			1		03/27/23 12:15		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	480	mg/L	20.0	8.7	1		03/30/23 10:37		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.4	Std. Units	0.10	0.010	1		04/03/23 07:50		H6

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Sample: MW-315 **Lab ID: 40259992003** Collected: 03/27/23 12:15 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	6.0	mg/L	2.0	0.43	1		04/17/23 15:01	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		04/17/23 15:01	16984-48-8	
Sulfate	10.7	mg/L	2.0	0.44	1		04/17/23 15:01	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	451	mg/L	50.0	14.9	2		04/04/23 15:00		M0
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.72	mg/L	0.25	0.059	1		04/06/23 10:21		

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: FIELD BLANK MOD 10-11 **Lab ID:** 40259992004 Collected: 03/27/23 11:30 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	03/31/23 05:16	03/31/23 16:04	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	03/31/23 05:16	03/31/23 16:04	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	03/31/23 05:16	03/31/23 16:04	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	03/31/23 05:16	03/31/23 16:04		
Zinc	<11.6	ug/L	40.0	11.6	1	03/31/23 05:16	03/31/23 16:04	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 01:18	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	03/31/23 06:18	04/04/23 01:18	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	03/31/23 06:18	04/04/23 01:18	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	03/31/23 06:18	04/04/23 01:18	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	03/31/23 06:18	04/04/23 01:18	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	03/31/23 06:18	04/04/23 01:18	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	03/31/23 06:18	04/04/23 01:18	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	03/31/23 06:18	04/04/23 01:18	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	03/31/23 06:18	04/04/23 01:18	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	03/31/23 06:18	04/04/23 01:18	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	03/31/23 06:18	04/04/23 01:18	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	03/31/23 06:18	04/04/23 01:18	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	03/31/23 06:18	04/04/23 01:18	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	03/31/23 06:18	04/04/23 01:18	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	04/03/23 08:31	04/04/23 07:27	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	16.0J	mg/L	20.0	8.7	1		03/30/23 10:37		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	5.9	Std. Units	0.10	0.010	1		04/03/23 07:57		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		04/17/23 15:15	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		04/17/23 15:15	16984-48-8	
Sulfate	0.47J	mg/L	2.0	0.44	1		04/17/23 15:15	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<7.4	mg/L	25.0	7.4	1		04/04/23 15:03		

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ANALYTICAL RESULTS

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: FIELD BLANK MOD 10-11 **Lab ID: 40259992004** Collected: 03/27/23 11:30 Received: 03/29/23 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay								
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		04/06/23 10:23		

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch:	441349	Analysis Method:	EPA 7470
QC Batch Method:	EPA 7470	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2534533 Matrix: Water
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	04/04/23 06:59	

LABORATORY CONTROL SAMPLE: 2534534

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.5	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2534535 2534536

Parameter	Units	40260143001		2534536		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Mercury	ug/L	<0.066	5	5	5.4	5.3	108	106	85-115	2	20	

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

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch:	441238	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3010A	Analysis Description:	6010D MET
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2533505 Matrix: Water
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<3.4	10.0	03/31/23 15:46	
Manganese	ug/L	<1.5	5.0	03/31/23 15:46	
Silver	ug/L	<3.2	10.0	03/31/23 15:46	
Total Hardness by 2340B	mg/L	<1.0	5.4	03/31/23 15:46	
Zinc	ug/L	<11.6	40.0	03/31/23 15:46	

LABORATORY CONTROL SAMPLE: 2533506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	255	102	80-120	
Manganese	ug/L	250	259	104	80-120	
Silver	ug/L	125	124	99	80-120	
Total Hardness by 2340B	mg/L		66.1			
Zinc	ug/L	250	256	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2533507 2533508

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40259992001 Result	Spike Conc.	Spike Conc.	Result						
Copper	ug/L	<3.4	250	250	257	260	102	104	75-125	1	20
Manganese	ug/L	86.4	250	250	344	352	103	106	75-125	2	20
Silver	ug/L	<3.2	125	125	125	126	100	101	75-125	1	20
Total Hardness by 2340B	mg/L	318			379	402				6	20
Zinc	ug/L	<11.6	250	250	253	257	101	102	75-125	1	20

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch: 441244

Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A

Analysis Description: 6020B MET

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2533532

Matrix: Water

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	04/03/23 17:09	
Arsenic	ug/L	<0.28	1.0	04/03/23 17:09	
Barium	ug/L	<0.70	2.3	04/03/23 17:09	
Beryllium	ug/L	<0.25	1.0	04/03/23 17:09	
Boron	ug/L	<3.0	10.0	04/03/23 17:09	
Cadmium	ug/L	<0.15	1.0	04/03/23 17:09	
Calcium	ug/L	<76.2	254	04/03/23 17:09	
Chromium	ug/L	<1.0	3.4	04/03/23 17:09	
Cobalt	ug/L	<0.12	1.0	04/03/23 17:09	
Lead	ug/L	<0.24	1.0	04/03/23 17:09	
Lithium	ug/L	<0.22	1.0	04/03/23 17:09	
Molybdenum	ug/L	<0.44	1.5	04/03/23 17:09	
Selenium	ug/L	<0.32	1.1	04/03/23 17:09	
Thallium	ug/L	<0.14	1.0	04/03/23 17:09	

LABORATORY CONTROL SAMPLE: 2533533

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	261	105	80-120	
Arsenic	ug/L	250	249	100	80-120	
Barium	ug/L	250	248	99	80-120	
Beryllium	ug/L	250	251	100	80-120	
Boron	ug/L	250	249	99	80-120	
Cadmium	ug/L	250	254	102	80-120	
Calcium	ug/L	10000	9600	96	80-120	
Chromium	ug/L	250	252	101	80-120	
Cobalt	ug/L	250	252	101	80-120	
Lead	ug/L	250	242	97	80-120	
Lithium	ug/L	250	242	97	80-120	
Molybdenum	ug/L	250	244	98	80-120	
Selenium	ug/L	250	250	100	80-120	
Thallium	ug/L	250	245	98	80-120	

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Parameter	Units	2533534		2533535		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40259992001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	<0.15	250	250	267	267	107	107	75-125	0	20		
Arsenic	ug/L	<0.28	250	250	250	251	100	100	75-125	1	20		
Barium	ug/L	47.3	250	250	296	296	99	100	75-125	0	20		
Beryllium	ug/L	<0.25	250	250	231	232	92	93	75-125	0	20		
Boron	ug/L	67.1	250	250	303	296	94	92	75-125	2	20		
Cadmium	ug/L	<0.15	250	250	249	252	100	101	75-125	1	20		
Calcium	ug/L	63300	10000	10000	76000	74300	127	110	75-125	2	20	P6	
Chromium	ug/L	<1.0	250	250	245	245	98	98	75-125	0	20		
Cobalt	ug/L	<0.12	250	250	240	240	96	96	75-125	0	20		
Lead	ug/L	<0.24	250	250	251	250	101	100	75-125	0	20		
Lithium	ug/L	0.46J	250	250	244	241	97	96	75-125	1	20		
Molybdenum	ug/L	1.4J	250	250	250	250	100	99	75-125	0	20		
Selenium	ug/L	0.49J	250	250	255	260	102	104	75-125	2	20		
Thallium	ug/L	<0.14	250	250	248	249	99	100	75-125	0	20		

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

QC Batch: 441178 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2533004 Matrix: Water
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	03/30/23 10:30	

LABORATORY CONTROL SAMPLE: 2533005

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	549	584	106	80-120	

SAMPLE DUPLICATE: 2533006

Parameter	Units	40259908001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	684	706	3	10	

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch:	441342	Analysis Method:	EPA 9040
QC Batch Method:	EPA 9040	Analysis Description:	9040 pH
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

SAMPLE DUPLICATE: 2534517

Parameter	Units	40259877001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.9	0	20	H6

SAMPLE DUPLICATE: 2534614

Parameter	Units	40259904001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	5.8	5.4	6	20	1q,H6,PI

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch: 441321

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40259992001

METHOD BLANK: 2534008

Matrix: Water

Associated Lab Samples: 40259992001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	04/03/23 18:56	
Fluoride	mg/L	<0.095	0.32	04/03/23 18:56	
Sulfate	mg/L	<0.44	2.0	04/03/23 18:56	

LABORATORY CONTROL SAMPLE: 2534009

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.5	102	90-110	
Fluoride	mg/L	2	1.9	96	90-110	
Sulfate	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2534010 2534011

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40259816006 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	148	200	200	351	351	102	101	90-110	0	15		
Fluoride	mg/L	<0.95	20	20	20.8	21.0	104	105	90-110	1	15		
Sulfate	mg/L	64.1	200	200	289	289	112	112	90-110	0	15	M0	

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch:	441977	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40259992002, 40259992003, 40259992004

METHOD BLANK: 2537881 Matrix: Water
Associated Lab Samples: 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	04/17/23 13:49	
Fluoride	mg/L	<0.095	0.32	04/17/23 13:49	
Sulfate	mg/L	<0.44	2.0	04/17/23 13:49	

LABORATORY CONTROL SAMPLE: 2537882

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.8	94	90-110	
Fluoride	mg/L	2	1.9	96	90-110	
Sulfate	mg/L	20	18.7	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2537883 2537884

Parameter	Units	40259992002		40259992003		2537883		2537884		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	2.6	20	20	20	18.1	24.4	77	109	90-110	29	15	M0,R1
Fluoride	mg/L	<0.095	2	2	2	1.7	2.3	85	114	90-110	29	15	M0,R1
Sulfate	mg/L	5.0	20	20	20	19.9	26.9	75	109	90-110	30	15	M0,R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2537885 2537886

Parameter	Units	40260038001		40260038002		2537885		2537886		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	4.8	20	20	20	26.6	26.6	109	109	90-110	0	15	
Fluoride	mg/L	<0.095	2	2	2	2.3	2.3	113	113	90-110	0	15	M0
Sulfate	mg/L	17.0	20	20	20	38.7	38.7	108	108	90-110	0	15	

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

QC Batch: 441538 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2535254 Matrix: Water
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<7.4	25.0	04/04/23 14:51	

LABORATORY CONTROL SAMPLE: 2535255

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	95.5	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2535256 2535257

Parameter	Units	2535256		2535257		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40259992003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Alkalinity, Total as CaCO ₃	mg/L	451	200	200	627	630	88	89	90-110	0	20 M0

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QUALITY CONTROL DATA

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

QC Batch: 441665 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2535928 Matrix: Water
Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	04/06/23 10:03	

LABORATORY CONTROL SAMPLE: 2535929

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2535930 2535931

Parameter	Units	40259827005		2535931		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.							
Nitrogen, NO2 plus NO3	mg/L	<0.059	2.5	2.5	2.4	2.4	95	95	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2535932 2535933

Parameter	Units	40259992003		2535933		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.							
Nitrogen, NO2 plus NO3	mg/L	0.72	2.5	2.5	3.1	3.1	94	94	90-110	0	20	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-313 **Lab ID: 40259992001** Collected: 03/27/23 10:30 Received: 03/29/23 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.562 ± 0.572 (1.40) C:NA T:96%	pCi/L	04/08/23 16:42	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	-0.00854 ± 0.298 (0.699) C:81% T:87%	pCi/L	04/07/23 11:09	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.000 ± 0.870 (2.10)	pCi/L	04/17/23 16:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-314 **Lab ID: 40259992002** Collected: 03/27/23 11:20 Received: 03/29/23 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.164 ± 0.507 (1.15) C:NA T:97%	pCi/L	04/08/23 16:58	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.666 ± 0.382 (0.700) C:77% T:91%	pCi/L	04/07/23 11:09	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.666 ± 0.889 (1.85)	pCi/L	04/17/23 16:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: MW-315 **Lab ID: 40259992003** Collected: 03/27/23 12:15 Received: 03/29/23 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.173 ± 0.538 (1.22) C:NA T:94%	pCi/L	04/08/23 16:58	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.385 ± 0.366 (0.755) C:82% T:90%	pCi/L	04/07/23 11:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.385 ± 0.904 (1.98)	pCi/L	04/17/23 16:00	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Sample: FIELD BLANK MOD 10-11 **Lab ID:** 40259992004 Collected: 03/27/23 11:30 Received: 03/29/23 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.0842 ± 0.595 (1.19) C:NA T:90%	pCi/L	04/08/23 16:58	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.354 ± 0.318 (0.647) C:84% T:91%	pCi/L	04/07/23 11:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.438 ± 0.913 (1.84)	pCi/L	04/17/23 16:00	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch: 577952

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2806236

Matrix: Water

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.115 ± 0.278 (0.620) C:81% T:88%	pCi/L	04/07/23 11:07	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

QC Batch: 577951

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

METHOD BLANK: 2806235

Matrix: Water

Associated Lab Samples: 40259992001, 40259992002, 40259992003, 40259992004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.288 (0.586) C:NA T:97%	pCi/L	04/08/23 16:42	

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QUALIFIERS

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q	Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
P1	The precision between the sample and the duplicate sample exceeded laboratory control limits.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WPL_COLUMBIA ENERGY CTR CCR

Pace Project No.: 40259992

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40259992001	MW-313	EPA 3010A	441238	EPA 6010D	441303
40259992002	MW-314	EPA 3010A	441238	EPA 6010D	441303
40259992003	MW-315	EPA 3010A	441238	EPA 6010D	441303
40259992004	FIELD BLANK MOD 10-11	EPA 3010A	441238	EPA 6010D	441303
40259992001	MW-313	EPA 3010A	441244	EPA 6020B	441314
40259992002	MW-314	EPA 3010A	441244	EPA 6020B	441314
40259992003	MW-315	EPA 3010A	441244	EPA 6020B	441314
40259992004	FIELD BLANK MOD 10-11	EPA 3010A	441244	EPA 6020B	441314
40259992001	MW-313	EPA 7470	441349	EPA 7470	441416
40259992002	MW-314	EPA 7470	441349	EPA 7470	441416
40259992003	MW-315	EPA 7470	441349	EPA 7470	441416
40259992004	FIELD BLANK MOD 10-11	EPA 7470	441349	EPA 7470	441416
40259992001	MW-313				
40259992002	MW-314				
40259992003	MW-315				
40259992001	MW-313	EPA 903.1	577951		
40259992002	MW-314	EPA 903.1	577951		
40259992003	MW-315	EPA 903.1	577951		
40259992004	FIELD BLANK MOD 10-11	EPA 903.1	577951		
40259992001	MW-313	EPA 904.0	577952		
40259992002	MW-314	EPA 904.0	577952		
40259992003	MW-315	EPA 904.0	577952		
40259992004	FIELD BLANK MOD 10-11	EPA 904.0	577952		
40259992001	MW-313	Total Radium Calculation	581519		
40259992002	MW-314	Total Radium Calculation	581519		
40259992003	MW-315	Total Radium Calculation	581519		
40259992004	FIELD BLANK MOD 10-11	Total Radium Calculation	581519		
40259992001	MW-313	SM 2540C	441178		
40259992002	MW-314	SM 2540C	441178		
40259992003	MW-315	SM 2540C	441178		
40259992004	FIELD BLANK MOD 10-11	SM 2540C	441178		
40259992001	MW-313	EPA 9040	441342		
40259992002	MW-314	EPA 9040	441342		
40259992003	MW-315	EPA 9040	441342		
40259992004	FIELD BLANK MOD 10-11	EPA 9040	441342		
40259992001	MW-313	EPA 300.0	441321		
40259992002	MW-314	EPA 300.0	441977		
40259992003	MW-315	EPA 300.0	441977		
40259992004	FIELD BLANK MOD 10-11	EPA 300.0	441977		
40259992001	MW-313	EPA 310.2	441538		
40259992002	MW-314	EPA 310.2	441538		
40259992003	MW-315	EPA 310.2	441538		
40259992004	FIELD BLANK MOD 10-11	EPA 310.2	441538		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WPL_COLUMBIA ENERGY CTR CCR
Pace Project No.: 40259992

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40259992001	MW-313	EPA 353.2	441665		
40259992002	MW-314	EPA 353.2	441665		
40259992003	MW-315	EPA 353.2	441665		
40259992004	FIELD BLANK MOD 10-11	EPA 353.2	441665		

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

40259992

ALL SHADED AREAS are for LAB USE ONLY

Company: SCS Engineers Billing Information: 25222157

Address: 2830 Dairy Dr

Report To: Meghan Blodgett Email To: m.blodgett@scsengineers.com

Copy To: WPL - Columbia Energy Center Site Collection Info/Address: WI Postage

Customer Project Name/Number: WI Postage State: WI County/City: Portage Time Zone Collected: [] PT [] MT [X] CT [] ET

Phone: 414-897-4253 Site/Facility ID #: SCS Engineers Compliance Monitoring? [] Yes [] No

Collected By (print): Ethan Schocker Purchase Order #: Quote #: DW PWS ID #: DW Location Code:

Collected By (signature): [Signature] Turnaround Date Required: Immediately Packed on Ice: [] Yes [] No

Sample Disposal: [] Dispose as appropriate [] Return [] Archive [] Hold Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day Field Filtered (if applicable): [] Yes [] No Analysis: []

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW-313	GW	G	3/27	1030			6	X
MW-314	GW	G	3/27	1120			6	X
MW-315	GW	G	3/27	1215			6	X
Field Blank W0110-11		G	3/27	1130			6	X

Container Preservative Type ** U U I I I Z

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

TDS, Chloride, Fluoride, Sulfate	pH, alkalinity	Radium 226	Radium 228	Metals, Hardness	Nitrate + Nitrite
----------------------------------	----------------	------------	------------	------------------	-------------------

Lab Project Manager:

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY: Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: Types of Ice Used: Wet Blue Dry None

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Sample Temperature Info:

Packing Material Used: 1

Lab Tracking #: 2829932

Temp Blank Received: Y N NA

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via: FEDEX UPS Client Courier Pace Courier

Cooler 1 Temp Upon Receipt: oC

Relinquished by/Company: (Signature) [Signature]

Date/Time: 3/28/23 1600

Received by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

MTJL LAB USE ONLY

Cooler 1 Therm Corr. Factor: oC

Relinquished by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Received by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Table #: 1

Cooler 1 Corrected Temp: oC

Relinquished by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Received by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Acctnum:

Cooler 1 Therm ID#:

Relinquished by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Received by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Template:

Trip Blank Received: Y N NA

Relinquished by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Received by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Prelogin:

HCL MeOH TSP Other

Relinquished by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

Received by/Company: (Signature) [Signature]

Date/Time: 3/29/23 0945

PM:

Non Conformance(s): Page 33 of 35

Client Name: SCS Engineers
 All containers needing preservation have been checked and noted below

Sample Preservation Receipt Form
 Project # 40259992
 Yes No N/A
 Lab Lot# of pH paper 106722 Lab Std #ID of preservation (if pH adjusted):

Initial when completed: SG Date/Time:

Pace Lab #	Glass						Plastic						Vials					Jars				General		VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)										
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T								ZPLC	GN 1	GN 2							
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020																																								

Exceptions to preservation check. VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm): Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	<u>1L Poly H2O3</u>
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Project #: _____

Client Name: SES Engineers

WO#: **40259992**

Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____



Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - 9 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr: 0.5 / Corr: 1.5

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:
 Date: 3/29/23 Initials: SE
 Labeled By Initials: R, A

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> Pace IR, Non-Pace		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logir

May 26, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

Revised Report: REDOX has been added to the field data list for MW-84A.

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burris, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40261460001	MW-301	Water	04/27/23 12:20	04/28/23 08:40
40261460002	MW-84A	Water	04/27/23 14:05	04/28/23 08:40

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SAMPLE ANALYTE COUNT

Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40261460001	MW-301	EPA 6020B	TXW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	JLJ	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	HNT	1	PASI-G
		EPA 9040	SRK	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40261460002	MW-84A	EPA 6020B	TXW
EPA 7470	AJT			1	PASI-G
	LB			7	PASI-G
EPA 903.1	JLJ			1	PASI-PA
EPA 904.0	VAL			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	HNT			1	PASI-G
EPA 9040	SRK			1	PASI-G
EPA 300.0	HMB			3	PASI-G

PASI-G = Pace Analytical Services - Green Bay
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

Sample: MW-301 **Lab ID: 40261460001** Collected: 04/27/23 12:20 Received: 04/28/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 08:01	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	05/01/23 06:24	05/15/23 08:01	7440-38-2	
Barium	9.8	ug/L	2.3	0.70	1	05/01/23 06:24	05/15/23 08:01	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	05/01/23 06:24	05/15/23 08:01	7440-41-7	
Boron	20.1	ug/L	10.0	3.0	1	05/01/23 06:24	05/15/23 08:01	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 08:01	7440-43-9	
Calcium	120000	ug/L	254	76.2	1	05/01/23 06:24	05/15/23 08:01	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	05/01/23 06:24	05/15/23 08:01	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	05/01/23 06:24	05/15/23 08:01	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	05/01/23 06:24	05/15/23 08:01	7439-92-1	
Lithium	0.62J	ug/L	1.0	0.22	1	05/01/23 06:24	05/15/23 08:01	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	05/01/23 06:24	05/15/23 08:01	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	05/01/23 06:24	05/15/23 08:01	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	05/01/23 06:24	05/15/23 08:01	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	05/08/23 10:55	05/09/23 09:00	7439-97-6	M0
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	6.65	Std. Units			1		04/27/23 12:20		
Field Specific Conductance	857.0	umhos/cm			1		04/27/23 12:20		
Oxygen, Dissolved	6.50	mg/L			1		04/27/23 12:20	7782-44-7	
REDOX	95.3	mV			1		04/27/23 12:20		
Turbidity	0.00	NTU			1		04/27/23 12:20		
Static Water Level	787.57	feet			1		04/27/23 12:20		
Temperature, Water (C)	8.0	deg C			1		04/27/23 12:20		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	526	mg/L	20.0	8.7	1		05/01/23 10:51		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	6.9	Std. Units	0.10	0.010	1		05/02/23 16:48		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	1.5J	mg/L	2.0	0.43	1		05/12/23 16:00	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		05/12/23 16:00	16984-48-8	
Sulfate	12.3	mg/L	2.0	0.44	1		05/12/23 16:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

Sample: MW-84A **Lab ID: 40261460002** Collected: 04/27/23 14:05 Received: 04/28/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 08:08	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	05/01/23 06:24	05/15/23 08:08	7440-38-2	
Barium	12.6	ug/L	2.3	0.70	1	05/01/23 06:24	05/15/23 08:08	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	05/01/23 06:24	05/15/23 08:08	7440-41-7	
Boron	10.3	ug/L	10.0	3.0	1	05/01/23 06:24	05/15/23 08:08	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 08:08	7440-43-9	
Calcium	68600	ug/L	254	76.2	1	05/01/23 06:24	05/15/23 08:08	7440-70-2	
Chromium	1.7J	ug/L	3.4	1.0	1	05/01/23 06:24	05/15/23 08:08	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	05/01/23 06:24	05/15/23 08:08	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	05/01/23 06:24	05/15/23 08:08	7439-92-1	
Lithium	0.71J	ug/L	1.0	0.22	1	05/01/23 06:24	05/15/23 08:08	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	05/01/23 06:24	05/15/23 08:08	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	05/01/23 06:24	05/15/23 08:08	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	05/01/23 06:24	05/15/23 08:08	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	05/08/23 10:55	05/09/23 09:12	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.01	Std. Units			1		04/27/23 14:05		
Field Specific Conductance	556.6	umhos/cm			1		04/27/23 14:05		
Field Oxidation Potential	103.4	mV			1		04/27/23 14:05		
Oxygen, Dissolved	9.37	mg/L			1		04/27/23 14:05	7782-44-7	
Turbidity	0.72	NTU			1		04/27/23 14:05		
Static Water Level	786.97	feet			1		04/27/23 14:05		
Temperature, Water (C)	10.7	deg C			1		04/27/23 14:05		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	326	mg/L	20.0	8.7	1		05/01/23 10:51		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.6	Std. Units	0.10	0.010	1		05/02/23 16:52		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.0	mg/L	2.0	0.43	1		05/12/23 16:59	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		05/12/23 16:59	16984-48-8	
Sulfate	1.3J	mg/L	2.0	0.44	1		05/12/23 16:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

QC Batch: 444256

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261460001, 40261460002

METHOD BLANK: 2550653

Matrix: Water

Associated Lab Samples: 40261460001, 40261460002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	05/09/23 08:56	

LABORATORY CONTROL SAMPLE: 2550654

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.5	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2550655 2550656

Parameter	Units	40261460001		2550655		2550656		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	ug/L	<0.066	5	5	5.8	5.9	115	119	85-115	3	20 M0

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

QC Batch: 443628 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261460001, 40261460002

METHOD BLANK: 2547530 Matrix: Water

Associated Lab Samples: 40261460001, 40261460002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	05/11/23 17:42	
Arsenic	ug/L	<0.28	1.0	05/11/23 17:42	
Barium	ug/L	<0.70	2.3	05/11/23 17:42	
Beryllium	ug/L	<0.25	1.0	05/11/23 17:42	
Boron	ug/L	<3.0	10.0	05/11/23 17:42	
Cadmium	ug/L	<0.15	1.0	05/11/23 17:42	
Calcium	ug/L	<76.2	254	05/11/23 17:42	
Chromium	ug/L	<1.0	3.4	05/11/23 17:42	
Cobalt	ug/L	<0.12	1.0	05/11/23 17:42	
Lead	ug/L	<0.24	1.0	05/11/23 17:42	
Lithium	ug/L	<0.22	1.0	05/11/23 17:42	
Molybdenum	ug/L	<0.44	1.5	05/11/23 17:42	
Selenium	ug/L	<0.32	1.1	05/11/23 17:42	
Thallium	ug/L	<0.14	1.0	05/11/23 17:42	

LABORATORY CONTROL SAMPLE: 2547531

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	250	100	80-120	
Arsenic	ug/L	250	255	102	80-120	
Barium	ug/L	250	234	94	80-120	
Beryllium	ug/L	250	233	93	80-120	
Boron	ug/L	250	220	88	80-120	
Cadmium	ug/L	250	254	102	80-120	
Calcium	ug/L	10000	10200	102	80-120	
Chromium	ug/L	250	241	96	80-120	
Cobalt	ug/L	250	241	96	80-120	
Lead	ug/L	250	241	96	80-120	
Lithium	ug/L	250	237	95	80-120	
Molybdenum	ug/L	250	245	98	80-120	
Selenium	ug/L	250	257	103	80-120	
Thallium	ug/L	250	227	91	80-120	

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

Parameter	Units	2547532		2547533		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40261434001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	0.52J	250	250	268	263	107	105	75-125	2	20		
Arsenic	ug/L	12.4	250	250	264	262	100	100	75-125	1	20		
Barium	ug/L	128	250	250	405	384	111	102	75-125	5	20		
Beryllium	ug/L	0.83J	250	250	261	259	104	103	75-125	1	20		
Boron	ug/L	43.8	250	250	309	302	106	103	75-125	2	20		
Cadmium	ug/L	0.56J	250	250	249	243	99	97	75-125	3	20		
Calcium	ug/L	147000	10000	10000	163000	156000	157	94	75-125	4	20	P6	
Chromium	ug/L	30.1	250	250	279	274	100	98	75-125	2	20		
Cobalt	ug/L	19.2	250	250	257	254	95	94	75-125	1	20		
Lead	ug/L	26.6	250	250	280	274	102	99	75-125	2	20		
Lithium	ug/L	23.9	250	250	277	276	101	101	75-125	0	20		
Molybdenum	ug/L	1.3J	250	250	246	241	98	96	75-125	2	20		
Selenium	ug/L	1.9J	250	250	267	264	106	105	75-125	1	20		
Thallium	ug/L	0.44J	250	250	250	251	100	100	75-125	0	20		

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

QC Batch: 443675 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40261460001, 40261460002

METHOD BLANK: 2547666 Matrix: Water
Associated Lab Samples: 40261460001, 40261460002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	05/01/23 10:47	

LABORATORY CONTROL SAMPLE: 2547667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	582	552	95	80-120	

SAMPLE DUPLICATE: 2547668

Parameter	Units	40261457001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	448	464	4	10	

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

QC Batch: 443847	Analysis Method: EPA 9040
QC Batch Method: EPA 9040	Analysis Description: 9040 pH
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261460001, 40261460002

SAMPLE DUPLICATE: 2548305

Parameter	Units	40261459003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	20	H6

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

QC Batch: 444310

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261460001, 40261460002

METHOD BLANK: 2550800

Matrix: Water

Associated Lab Samples: 40261460001, 40261460002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	05/12/23 14:40	
Fluoride	mg/L	<0.095	0.32	05/12/23 14:40	
Sulfate	mg/L	<0.44	2.0	05/12/23 14:40	

LABORATORY CONTROL SAMPLE: 2550801

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.5	98	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	19.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2550802 2550803

Parameter	Units	40261459001		2550802		2550803		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	2.3	20	20	22.6	22.7	102	102	90-110	0	15		
Fluoride	mg/L	<0.095	2	2	2.1	2.1	105	104	90-110	0	15		
Sulfate	mg/L	11.0	20	20	31.5	31.5	103	103	90-110	0	15		

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

Sample: MW-301 **Lab ID: 40261460001** Collected: 04/27/23 12:20 Received: 04/28/23 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.387 (0.805) C:NA T:99%	pCi/L	05/18/23 14:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.417 ± 0.322 (0.623) C:80% T:87%	pCi/L	05/15/23 15:22	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.417 ± 0.709 (1.43)	pCi/L	05/22/23 12:45	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

Sample: MW-84A **Lab ID: 40261460002** Collected: 04/27/23 14:05 Received: 04/28/23 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.000 ± 0.365 (0.772) C:NA T:95%	pCi/L	05/18/23 15:08	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.326 ± 0.316 (0.647) C:79% T:93%	pCi/L	05/15/23 15:22	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.326 ± 0.681 (1.42)	pCi/L	05/22/23 12:45	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

QC Batch: 585758

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40261460001, 40261460002

METHOD BLANK: 2845167

Matrix: Water

Associated Lab Samples: 40261460001, 40261460002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.356 ± 0.319 (0.642) C:76% T:89%	pCi/L	05/15/23 15:19	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

QC Batch: 585757

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40261460001, 40261460002

METHOD BLANK: 2845166

Matrix: Water

Associated Lab Samples: 40261460001, 40261460002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0428 ± 0.195 (0.397) C:NA T:94%	pCi/L	05/18/23 14:53	

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QUALIFIERS

Project: 25223067 COLUMBIA CCR BCKGRND

Pace Project No.: 40261460

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 COLUMBIA CCR BCKGRND
Pace Project No.: 40261460

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40261460001	MW-301	EPA 3010A	443628	EPA 6020B	443733
40261460002	MW-84A	EPA 3010A	443628	EPA 6020B	443733
40261460001	MW-301	EPA 7470	444256	EPA 7470	444285
40261460002	MW-84A	EPA 7470	444256	EPA 7470	444285
40261460001	MW-301				
40261460002	MW-84A				
40261460001	MW-301	EPA 903.1	585757		
40261460002	MW-84A	EPA 903.1	585757		
40261460001	MW-301	EPA 904.0	585758		
40261460002	MW-84A	EPA 904.0	585758		
40261460001	MW-301	Total Radium Calculation	589747		
40261460002	MW-84A	Total Radium Calculation	589747		
40261460001	MW-301	SM 2540C	443675		
40261460002	MW-84A	SM 2540C	443675		
40261460001	MW-301	EPA 9040	443847		
40261460002	MW-84A	EPA 9040	443847		
40261460001	MW-301	EPA 300.0	444310		
40261460002	MW-84A	EPA 300.0	444310		

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CHAIN-OF-CUSTODY / Analytical Request Document

40261460

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at <https://info.pacelabs.com/nubts/pas-standard-terms.pdf>

Page : 1 Of 1

Section A

Required Client Information:
 Company: SCS ENGINEERS
 Address: 2880 Dairy Drive
 Madison, WI 53718
 Email: mblodgett@scsenigneers.com
 Phone: 608-216-7362 Fax: []
 Requested Due Date: []

Required Project Information:
 Report To: Meghan Blodgett
 Copy To: []
 Purchase Order #: []
 Project Name: 25223067 Columbia CCR Background
 Project #: 25223067

Invoice Information:
 Attention: []
 Company Name: []
 Address: []
 Pace Quote: []
 Pace Project Manager: dan.milwsky@pacelabs.com
 Pace Profile #: []

Regulatory Agency: []
 State / Location: WI

ITEM #	SAMPLE ID <small>One Character per box. (A-Z, 0-9 /, -) Sample ids must be unique</small>	MATRIX	CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analyses Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				START DATE	END DATE						
1	MW-301	Drinking Water	DW	4/27	1220		1	npreserved	Radium 226	N	
2	MW-84A	Drinking Water	DW	4/27	1105		1	2SO4	Radium 228	N	
3		Drinking Water	DW					F NO3	Metals	N	
4		Drinking Water	DW					HCl	TDS and pH	N	
5		Drinking Water	DW					NaOH	Chloride, Fluoride, Sulfate	N	
6		Drinking Water	DW					Na2S2O3			
7		Drinking Water	DW					Methanol			
8		Drinking Water	DW					Other			
9		Drinking Water	DW								
10		Drinking Water	DW								
11		Drinking Water	DW								
12		Drinking Water	DW								

Full List Metals = B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, U, Hg, Mo, Se, Tl
 ALL SAMPLES UNFILTERED

ADDITIONAL COMMENTS: []

RELINQUISHED BY / AFFILIATION: Budget Russell
 DATE: 4/27
 TIME: 1600

ACCEPTED BY / AFFILIATION: []
 DATE: []
 TIME: []

SAMPLER NAME AND SIGNATURE: Budget Russell
 PRINT Name of SAMPLER: Budget Russell
 SIGNATURE of SAMPLER: []
 DATE Signed: 4/27/2023

TEMP in C: []
 Received on ice (Y/N): Y
 Custody Sealed Cooler (Y/N): Y
 Samples Intact (Y/N): Y

Sample Condition Upon Receipt Form (SCUR)

Project #: _____

Client Name: SLS Engineers

WO#: **40261460**

Courier: CS Logistics Fed Ex Speedee UPS Walto
 Client Pace Other: _____



Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - 9 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr: 1.0 / Corr: 2.0

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:
 Date: 4/28/23 Initials: SG
 Labeled By Initials: mit

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> Pace IR, Non-Pace		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>002 same "1045"</u>
-Includes date/time/ID/Analysis Matrix: <u>W3</u>		<u>4/28/23 SG</u>
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: chest used white out on bottle types 4/28/23 SG

May 23, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burris, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

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SAMPLE SUMMARY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40261459001	MW-313	Water	04/26/23 14:05	04/28/23 08:40
40261459002	MW-314	Water	04/26/23 13:30	04/28/23 08:40
40261459003	MW-315	Water	04/26/23 14:25	04/28/23 08:40
40261459004	FIELD BLANK-MOD 10-11	Water	04/26/23 14:00	04/28/23 08:40

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SAMPLE ANALYTE COUNT

Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40261459001	MW-313	EPA 6020B	TXW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	JLJ	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	HNT	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40261459002	MW-314	EPA 6020B	TXW
EPA 7470	AJT			1	PASI-G
	LB			7	PASI-G
EPA 903.1	JLJ			1	PASI-PA
EPA 904.0	ZPC			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	HNT			1	PASI-G
EPA 9040	YER			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40261459003	MW-315			EPA 6020B	TXW
		EPA 7470	AJT	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	JLJ	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	HNT	1	PASI-G
		EPA 9040	SRK	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40261459004	FIELD BLANK-MOD 10-11	EPA 6020B	TXW
EPA 7470	AJT			1	PASI-G
EPA 903.1	JLJ			1	PASI-PA
EPA 904.0	ZPC			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	HNT			1	PASI-G
EPA 9040	SRK			1	PASI-G
EPA 300.0	HMB			3	PASI-G

PASI-G = Pace Analytical Services - Green Bay
PASI-PA = Pace Analytical Services - Greensburg

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ANALYTICAL RESULTS

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: MW-313 **Lab ID: 40261459001** Collected: 04/26/23 14:05 Received: 04/28/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 07:39	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	05/01/23 06:24	05/15/23 07:39	7440-38-2	
Barium	44.3	ug/L	2.3	0.70	1	05/01/23 06:24	05/15/23 07:39	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	05/01/23 06:24	05/15/23 07:39	7440-41-7	
Boron	108	ug/L	10.0	3.0	1	05/01/23 06:24	05/15/23 07:39	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 07:39	7440-43-9	
Calcium	63900	ug/L	254	76.2	1	05/01/23 06:24	05/15/23 07:39	7440-70-2	
Chromium	1.2J	ug/L	3.4	1.0	1	05/01/23 06:24	05/15/23 07:39	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	05/01/23 06:24	05/15/23 07:39	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	05/01/23 06:24	05/15/23 07:39	7439-92-1	
Lithium	0.67J	ug/L	1.0	0.22	1	05/01/23 06:24	05/15/23 07:39	7439-93-2	
Molybdenum	1.3J	ug/L	1.5	0.44	1	05/01/23 06:24	05/15/23 07:39	7439-98-7	
Selenium	0.58J	ug/L	1.1	0.32	1	05/01/23 06:24	05/15/23 07:39	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	05/01/23 06:24	05/15/23 07:39	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	05/01/23 10:55	05/02/23 07:51	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.06	Std. Units			1		04/26/23 14:05		
Field Specific Conductance	552.6	umhos/cm			1		04/26/23 14:05		
Oxygen, Dissolved	7.96	mg/L			1		04/26/23 14:05	7782-44-7	
REDOX	103.2	mV			1		04/26/23 14:05		
Turbidity	1.02	NTU			1		04/26/23 14:05		
Static Water Level	785.21	feet			1		04/26/23 14:05		
Temperature, Water (C)	10.1	deg C			1		04/26/23 14:05		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	318	mg/L	20.0	8.7	1		05/01/23 10:49		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.6	Std. Units	0.10	0.010	1		05/02/23 12:04		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	2.3	mg/L	2.0	0.43	1		05/12/23 15:16	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		05/12/23 15:16	16984-48-8	
Sulfate	11.0	mg/L	2.0	0.44	1		05/12/23 15:16	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: MW-314 **Lab ID: 40261459002** Collected: 04/26/23 13:30 Received: 04/28/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 07:46	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	05/01/23 06:24	05/15/23 07:46	7440-38-2	
Barium	42.7	ug/L	2.3	0.70	1	05/01/23 06:24	05/15/23 07:46	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	05/01/23 06:24	05/15/23 07:46	7440-41-7	
Boron	15.5	ug/L	10.0	3.0	1	05/01/23 06:24	05/15/23 07:46	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 07:46	7440-43-9	
Calcium	92400	ug/L	254	76.2	1	05/01/23 06:24	05/15/23 07:46	7440-70-2	
Chromium	1.1J	ug/L	3.4	1.0	1	05/01/23 06:24	05/15/23 07:46	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	05/01/23 06:24	05/15/23 07:46	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	05/01/23 06:24	05/15/23 07:46	7439-92-1	
Lithium	0.40J	ug/L	1.0	0.22	1	05/01/23 06:24	05/15/23 07:46	7439-93-2	
Molybdenum	1.5	ug/L	1.5	0.44	1	05/01/23 06:24	05/15/23 07:46	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	05/01/23 06:24	05/15/23 07:46	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	05/01/23 06:24	05/15/23 07:46	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	05/01/23 10:55	05/02/23 07:53	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.21	Std. Units			1		04/26/23 13:30		
Field Specific Conductance	735	umhos/cm			1		04/26/23 13:30		
Oxygen, Dissolved	6.15	mg/L			1		04/26/23 13:30	7782-44-7	
REDOX	121.6	mV			1		04/26/23 13:30		
Turbidity	1.80	NTU			1		04/26/23 13:30		
Static Water Level	785.43	feet			1		04/26/23 13:30		
Temperature, Water (C)	10.0	deg C			1		04/26/23 13:30		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	418	mg/L	20.0	8.7	1		05/01/23 10:50		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.4	Std. Units	0.10	0.010	1		05/02/23 12:13		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.2	mg/L	2.0	0.43	1		05/12/23 16:14	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		05/12/23 16:14	16984-48-8	
Sulfate	4.6	mg/L	2.0	0.44	1		05/12/23 16:14	14808-79-8	

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ANALYTICAL RESULTS

Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

Sample: MW-315 **Lab ID: 40261459003** Collected: 04/26/23 14:25 Received: 04/28/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 07:54	7440-36-0	
Arsenic	0.39J	ug/L	1.0	0.28	1	05/01/23 06:24	05/15/23 07:54	7440-38-2	
Barium	31.7	ug/L	2.3	0.70	1	05/01/23 06:24	05/15/23 07:54	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	05/01/23 06:24	05/15/23 07:54	7440-41-7	
Boron	12.0	ug/L	10.0	3.0	1	05/01/23 06:24	05/15/23 07:54	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 07:54	7440-43-9	
Calcium	101000	ug/L	254	76.2	1	05/01/23 06:24	05/13/23 03:35	7440-70-2	
Chromium	1.9J	ug/L	3.4	1.0	1	05/01/23 06:24	05/13/23 03:35	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	05/01/23 06:24	05/13/23 03:35	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	05/01/23 06:24	05/15/23 07:54	7439-92-1	
Lithium	0.80J	ug/L	1.0	0.22	1	05/01/23 06:24	05/15/23 07:54	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	05/01/23 06:24	05/15/23 07:54	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	05/01/23 06:24	05/15/23 07:54	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	05/01/23 06:24	05/15/23 07:54	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	05/01/23 10:55	05/02/23 07:56	7439-97-6	
Field Data									
Analytical Method: Pace Analytical Services - Green Bay									
Field pH	7.18	Std. Units			1		04/26/23 14:25		
Field Specific Conductance	776	umhos/cm			1		04/26/23 14:25		
Oxygen, Dissolved	8.46	mg/L			1		04/26/23 14:25	7782-44-7	
REDOX	123.4	mV			1		04/26/23 14:25		
Turbidity	2.66	NTU			1		04/26/23 14:25		
Static Water Level	785.59	feet			1		04/26/23 14:25		
Temperature, Water (C)	10.3	deg C			1		04/26/23 14:25		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C Pace Analytical Services - Green Bay									
Total Dissolved Solids	452	mg/L	20.0	8.7	1		05/01/23 10:50		
9040 pH									
Analytical Method: EPA 9040 Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.3	Std. Units	0.10	0.010	1		05/02/23 16:34		H6
300.0 IC Anions									
Analytical Method: EPA 300.0 Pace Analytical Services - Green Bay									
Chloride	5.3	mg/L	2.0	0.43	1		05/12/23 16:29	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		05/12/23 16:29	16984-48-8	
Sulfate	10.1	mg/L	2.0	0.44	1		05/12/23 16:29	14808-79-8	

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ANALYTICAL RESULTS

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: FIELD BLANK-MOD 10-11 Lab ID: 40261459004 Collected: 04/26/23 14:00 Received: 04/28/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 06:27	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	05/01/23 06:24	05/15/23 06:27	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	05/01/23 06:24	05/15/23 06:27	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	05/01/23 06:24	05/15/23 06:27	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	05/01/23 06:24	05/15/23 06:27	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	05/01/23 06:24	05/15/23 06:27	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	05/01/23 06:24	05/15/23 06:27	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	05/01/23 06:24	05/15/23 06:27	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	05/01/23 06:24	05/15/23 06:27	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	05/01/23 06:24	05/15/23 06:27	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	05/01/23 06:24	05/15/23 06:27	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	05/01/23 06:24	05/15/23 06:27	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	05/01/23 06:24	05/15/23 06:27	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	05/01/23 06:24	05/15/23 06:27	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	0.080J	ug/L	0.20	0.066	1	05/01/23 10:55	05/02/23 07:58	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		05/01/23 10:50		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	6.3	Std. Units	0.10	0.010	1		05/02/23 16:45		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		05/12/23 16:44	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		05/12/23 16:44	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		05/12/23 16:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

QC Batch: 443687	Analysis Method: EPA 7470
QC Batch Method: EPA 7470	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

METHOD BLANK: 2547707 Matrix: Water
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	05/02/23 06:58	

LABORATORY CONTROL SAMPLE: 2547708

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2547709 2547710

Parameter	Units	40261076001		2547710		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	ug/L	<0.066	5	5	5.1	5.1	101	101	85-115	0	20

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

QC Batch: 443628 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

METHOD BLANK: 2547530 Matrix: Water
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	05/11/23 17:42	
Arsenic	ug/L	<0.28	1.0	05/11/23 17:42	
Barium	ug/L	<0.70	2.3	05/11/23 17:42	
Beryllium	ug/L	<0.25	1.0	05/11/23 17:42	
Boron	ug/L	<3.0	10.0	05/11/23 17:42	
Cadmium	ug/L	<0.15	1.0	05/11/23 17:42	
Calcium	ug/L	<76.2	254	05/11/23 17:42	
Chromium	ug/L	<1.0	3.4	05/11/23 17:42	
Cobalt	ug/L	<0.12	1.0	05/11/23 17:42	
Lead	ug/L	<0.24	1.0	05/11/23 17:42	
Lithium	ug/L	<0.22	1.0	05/11/23 17:42	
Molybdenum	ug/L	<0.44	1.5	05/11/23 17:42	
Selenium	ug/L	<0.32	1.1	05/11/23 17:42	
Thallium	ug/L	<0.14	1.0	05/11/23 17:42	

LABORATORY CONTROL SAMPLE: 2547531

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	250	100	80-120	
Arsenic	ug/L	250	255	102	80-120	
Barium	ug/L	250	234	94	80-120	
Beryllium	ug/L	250	233	93	80-120	
Boron	ug/L	250	220	88	80-120	
Cadmium	ug/L	250	254	102	80-120	
Calcium	ug/L	10000	10200	102	80-120	
Chromium	ug/L	250	241	96	80-120	
Cobalt	ug/L	250	241	96	80-120	
Lead	ug/L	250	241	96	80-120	
Lithium	ug/L	250	237	95	80-120	
Molybdenum	ug/L	250	245	98	80-120	
Selenium	ug/L	250	257	103	80-120	
Thallium	ug/L	250	227	91	80-120	

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Parameter	Units	2547532		2547533		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40261434001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	0.52J	250	250	268	263	107	105	75-125	2	20		
Arsenic	ug/L	12.4	250	250	264	262	100	100	75-125	1	20		
Barium	ug/L	128	250	250	405	384	111	102	75-125	5	20		
Beryllium	ug/L	0.83J	250	250	261	259	104	103	75-125	1	20		
Boron	ug/L	43.8	250	250	309	302	106	103	75-125	2	20		
Cadmium	ug/L	0.56J	250	250	249	243	99	97	75-125	3	20		
Calcium	ug/L	147000	10000	10000	163000	156000	157	94	75-125	4	20	P6	
Chromium	ug/L	30.1	250	250	279	274	100	98	75-125	2	20		
Cobalt	ug/L	19.2	250	250	257	254	95	94	75-125	1	20		
Lead	ug/L	26.6	250	250	280	274	102	99	75-125	2	20		
Lithium	ug/L	23.9	250	250	277	276	101	101	75-125	0	20		
Molybdenum	ug/L	1.3J	250	250	246	241	98	96	75-125	2	20		
Selenium	ug/L	1.9J	250	250	267	264	106	105	75-125	1	20		
Thallium	ug/L	0.44J	250	250	250	251	100	100	75-125	0	20		

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

QC Batch: 443675 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

METHOD BLANK: 2547666 Matrix: Water
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	05/01/23 10:47	

LABORATORY CONTROL SAMPLE: 2547667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	582	552	95	80-120	

SAMPLE DUPLICATE: 2547668

Parameter	Units	40261457001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	448	464	4	10	

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

QC Batch: 443778

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261459001, 40261459002

SAMPLE DUPLICATE: 2547973

Parameter	Units	40261401001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	8.0	1	20	H6

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

QC Batch: 443847

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40261459003, 40261459004

SAMPLE DUPLICATE: 2548305

Parameter	Units	40261459003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	20	H6

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QUALITY CONTROL DATA

Project: 25223067COLUMBIA CCR MODS10-11
Pace Project No.: 40261459

QC Batch: 444310 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

METHOD BLANK: 2550800 Matrix: Water
Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	05/12/23 14:40	
Fluoride	mg/L	<0.095	0.32	05/12/23 14:40	
Sulfate	mg/L	<0.44	2.0	05/12/23 14:40	

LABORATORY CONTROL SAMPLE: 2550801

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.5	98	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	19.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2550802 2550803

Parameter	Units	40261459001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.3	20	20	22.6	22.7	102	102	90-110	0	15	
Fluoride	mg/L	<0.095	2	2	2.1	2.1	105	104	90-110	0	15	
Sulfate	mg/L	11.0	20	20	31.5	31.5	103	103	90-110	0	15	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: MW-313 **Lab ID: 40261459001** Collected: 04/26/23 14:05 Received: 04/28/23 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.294 ± 0.477 (0.829) C:NA T:97%	pCi/L	05/19/23 14:12	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.383 ± 0.290 (0.560) C:85% T:92%	pCi/L	05/12/23 15:54	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.677 ± 0.767 (1.39)	pCi/L	05/22/23 12:37	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: MW-314 **Lab ID: 40261459002** Collected: 04/26/23 13:30 Received: 04/28/23 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.186 ± 0.366 (0.876) C:NA T:93%	pCi/L	05/19/23 14:24	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	-0.0181 ± 0.290 (0.691) C:72% T:91%	pCi/L	05/12/23 15:54	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.000 ± 0.656 (1.57)	pCi/L	05/22/23 12:37	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: MW-315 **Lab ID: 40261459003** Collected: 04/26/23 14:25 Received: 04/28/23 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.174 ± 0.301 (0.760) C:NA T:90%	pCi/L	05/19/23 14:24	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.257 ± 0.328 (0.697) C:80% T:92%	pCi/L	05/12/23 15:54	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.257 ± 0.629 (1.46)	pCi/L	05/22/23 12:37	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Sample: FIELD BLANK-MOD 10-11 **Lab ID:** 40261459004 Collected: 04/26/23 14:00 Received: 04/28/23 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.179 ± 0.454 (0.843) C:NA T:92%	pCi/L	05/19/23 14:24	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	-0.346 ± 0.312 (0.799) C:75% T:90%	pCi/L	05/12/23 15:54	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.179 ± 0.766 (1.64)	pCi/L	05/22/23 12:37	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

QC Batch: 585857

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

METHOD BLANK: 2845633

Matrix: Water

Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0964 ± 0.220 (0.131) C:NA T:86%	pCi/L	05/19/23 14:12	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

QC Batch: 585859

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

METHOD BLANK: 2845642

Matrix: Water

Associated Lab Samples: 40261459001, 40261459002, 40261459003, 40261459004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.159 ± 0.298 (0.655) C:87% T:85%	pCi/L	05/12/23 15:53	

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QUALIFIERS

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067COLUMBIA CCR MODS10-11

Pace Project No.: 40261459

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40261459001	MW-313	EPA 3010A	443628	EPA 6020B	443733
40261459002	MW-314	EPA 3010A	443628	EPA 6020B	443733
40261459003	MW-315	EPA 3010A	443628	EPA 6020B	443733
40261459004	FIELD BLANK-MOD 10-11	EPA 3010A	443628	EPA 6020B	443733
40261459001	MW-313	EPA 7470	443687	EPA 7470	443719
40261459002	MW-314	EPA 7470	443687	EPA 7470	443719
40261459003	MW-315	EPA 7470	443687	EPA 7470	443719
40261459004	FIELD BLANK-MOD 10-11	EPA 7470	443687	EPA 7470	443719
40261459001	MW-313				
40261459002	MW-314				
40261459003	MW-315				
40261459001	MW-313	EPA 903.1	585857		
40261459002	MW-314	EPA 903.1	585857		
40261459003	MW-315	EPA 903.1	585857		
40261459004	FIELD BLANK-MOD 10-11	EPA 903.1	585857		
40261459001	MW-313	EPA 904.0	585859		
40261459002	MW-314	EPA 904.0	585859		
40261459003	MW-315	EPA 904.0	585859		
40261459004	FIELD BLANK-MOD 10-11	EPA 904.0	585859		
40261459001	MW-313	Total Radium Calculation	589741		
40261459002	MW-314	Total Radium Calculation	589741		
40261459003	MW-315	Total Radium Calculation	589741		
40261459004	FIELD BLANK-MOD 10-11	Total Radium Calculation	589741		
40261459001	MW-313	SM 2540C	443675		
40261459002	MW-314	SM 2540C	443675		
40261459003	MW-315	SM 2540C	443675		
40261459004	FIELD BLANK-MOD 10-11	SM 2540C	443675		
40261459001	MW-313	EPA 9040	443778		
40261459002	MW-314	EPA 9040	443778		
40261459003	MW-315	EPA 9040	443847		
40261459004	FIELD BLANK-MOD 10-11	EPA 9040	443847		
40261459001	MW-313	EPA 300.0	444310		
40261459002	MW-314	EPA 300.0	444310		
40261459003	MW-315	EPA 300.0	444310		
40261459004	FIELD BLANK-MOD 10-11	EPA 300.0	444310		

REPORT OF LABORATORY ANALYSIS


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Sample Condition Upon Receipt Form (SCUR)

Project #: _____

Client Name: SLS Engineers

WO#: **40261459**



40261459

Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____

Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - 9 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr: 1.0 / Corr: 2.0

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:
 Date: 4/28/23 Initials: SG
 Labeled By Initials: mtt

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> , Pace IR, Non-Pace		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W3</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample log in

June 23, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on June 01, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,



Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burris, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150

South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

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SAMPLE SUMMARY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40262930001	MW-313	Water	05/30/23 09:45	06/01/23 10:05
40262930002	MW-314	Water	05/30/23 10:45	06/01/23 10:05
40262930003	MW-315	Water	05/30/23 11:40	06/01/23 10:05
40262930004	FIELD BLANK MOD10-11	Water	05/30/23 12:10	06/01/23 10:05

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SAMPLE ANALYTE COUNT

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40262930001	MW-313	EPA 6010D	SIS	5	PASI-G
		EPA 6020B	TXW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AG1	7	PASI-G
		EPA 903.1	JLJ	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	EXM	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	DAW	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	MT	1	PASI-G
		40262930002	MW-314	EPA 6010D	SIS
EPA 6020B	KXS, TXW			14	PASI-G
EPA 7470	AJT			1	PASI-G
	AG1			7	PASI-G
EPA 903.1	JLJ			1	PASI-PA
EPA 904.0	JJS1			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	EXM			1	PASI-G
EPA 9040	YER			1	PASI-G
EPA 300.0	DAW			3	PASI-G
EPA 310.2	DAW			1	PASI-G
EPA 353.2	MT			1	PASI-G
40262930003	MW-315			EPA 6010D	SIS
		EPA 6020B	KXS, TXW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AG1	7	PASI-G
		EPA 903.1	JLJ	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	EXM	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	DAW	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	MT	1	PASI-G
		40262930004	FIELD BLANK MOD10-11	EPA 6010D	SIS

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SAMPLE ANALYTE COUNT

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	KXS, TXW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	JLJ	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	EXM	1	PASI-G
		EPA 9040	YER	1	PASI-G
		EPA 300.0	DAW	3	PASI-G
		EPA 310.2	DAW	1	PASI-G
		EPA 353.2	MT	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-313 **Lab ID: 40262930001** Collected: 05/30/23 09:45 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	06/02/23 06:08	06/05/23 17:20	7440-50-8	
Manganese	77.9	ug/L	5.0	1.5	1	06/02/23 06:08	06/05/23 17:20	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	06/02/23 06:08	06/05/23 17:20	7440-22-4	
Total Hardness by 2340B	365	mg/L	5.4	1.0	1	06/02/23 06:08	06/05/23 17:20		
Zinc	<11.6	ug/L	40.0	11.6	1	06/02/23 06:08	06/05/23 17:20	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Lithium	0.68J	ug/L	1.0	0.22	1	06/06/23 06:22	06/10/23 15:42	7439-93-2	
Beryllium	<0.25	ug/L	1.0	0.25	1	06/06/23 06:22	06/10/23 15:42	7440-41-7	
Boron	191	ug/L	10.0	3.0	1	06/06/23 06:22	06/10/23 15:42	7440-42-8	
Calcium	69100	ug/L	254	76.2	1	06/06/23 06:22	06/10/23 15:42	7440-70-2	
Chromium	1.2J	ug/L	3.4	1.0	1	06/06/23 06:22	06/10/23 15:42	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	06/06/23 06:22	06/10/23 15:42	7440-48-4	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/06/23 06:22	06/10/23 15:42	7440-38-2	
Selenium	0.59J	ug/L	1.1	0.32	1	06/06/23 06:22	06/10/23 15:42	7782-49-2	
Molybdenum	1.5	ug/L	1.5	0.44	1	06/06/23 06:22	06/10/23 15:42	7439-98-7	
Cadmium	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 15:42	7440-43-9	
Antimony	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 15:42	7440-36-0	
Barium	47.8	ug/L	2.3	0.70	1	06/06/23 06:22	06/10/23 15:42	7440-39-3	
Thallium	0.21J	ug/L	1.0	0.14	1	06/06/23 06:22	06/10/23 15:42	7440-28-0	
Lead	<0.24	ug/L	1.0	0.24	1	06/06/23 06:22	06/10/23 15:42	7439-92-1	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	06/05/23 10:10	06/06/23 07:42	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.55	Std. Units			1		05/30/23 09:45		
Field Specific Conductance	520.9	umhos/cm			1		05/30/23 09:45		
Oxygen, Dissolved	7.38	mg/L			1		05/30/23 09:45	7782-44-7	
REDOX	177.0	mV			1		05/30/23 09:45		
Turbidity	2.52	NTU			1		05/30/23 09:45		
Static Water Level	785.24	feet			1		05/30/23 09:45		
Temperature, Water (C)	10.4	deg C			1		05/30/23 09:45		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	334	mg/L	20.0	8.7	1		06/05/23 07:49		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.5	Std. Units	0.10	0.010	1		06/06/23 09:13		H6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-313 **Lab ID: 40262930001** Collected: 05/30/23 09:45 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	10.0	mg/L	2.0	0.43	1		06/16/23 15:59	16887-00-6	
Fluoride	0.61	mg/L	0.32	0.095	1		06/19/23 11:54	16984-48-8	
Sulfate	16.5	mg/L	2.0	0.44	1		06/16/23 15:59	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	302	mg/L	50.0	14.9	2		06/05/23 10:37		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	5.2	mg/L	0.25	0.059	1		06/06/23 13:54		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Sample: MW-314 **Lab ID: 40262930002** Collected: 05/30/23 10:45 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	06/02/23 06:08	06/05/23 17:22	7440-50-8	
Manganese	11.7	ug/L	5.0	1.5	1	06/02/23 06:08	06/05/23 17:22	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	06/02/23 06:08	06/05/23 17:22	7440-22-4	
Total Hardness by 2340B	502	mg/L	5.4	1.0	1	06/02/23 06:08	06/05/23 17:22		
Zinc	<11.6	ug/L	40.0	11.6	1	06/02/23 06:08	06/05/23 17:22	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 16:17	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/06/23 06:22	06/10/23 16:17	7440-38-2	
Barium	46.0	ug/L	2.3	0.70	1	06/06/23 06:22	06/10/23 16:17	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	06/06/23 06:22	06/15/23 18:46	7440-41-7	
Boron	16.9	ug/L	10.0	3.0	1	06/06/23 06:22	06/15/23 18:46	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 16:17	7440-43-9	
Calcium	102000	ug/L	254	76.2	1	06/06/23 06:22	06/10/23 16:17	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	06/06/23 06:22	06/10/23 16:17	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	06/06/23 06:22	06/10/23 16:17	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	06/06/23 06:22	06/10/23 16:17	7439-92-1	
Lithium	0.34J	ug/L	1.0	0.22	1	06/06/23 06:22	06/15/23 18:46	7439-93-2	
Molybdenum	1.7	ug/L	1.5	0.44	1	06/06/23 06:22	06/10/23 16:17	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	06/06/23 06:22	06/10/23 16:17	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/06/23 06:22	06/10/23 16:17	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470 Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	06/05/23 10:10	06/06/23 07:49	7439-97-6	
Field Data									
Analytical Method: Pace Analytical Services - Green Bay									
Field pH	7.34	Std. Units			1		05/30/23 10:45		
Field Specific Conductance	674.5	umhos/cm			1		05/30/23 10:45		
Oxygen, Dissolved	6.46	mg/L			1		05/30/23 10:45	7782-44-7	
REDOX	167.5	mV			1		05/30/23 10:45		
Turbidity	1.21	NTU			1		05/30/23 10:45		
Static Water Level	785.55	feet			1		05/30/23 10:45		
Temperature, Water (C)	10.4	deg C			1		05/30/23 10:45		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C Pace Analytical Services - Green Bay									
Total Dissolved Solids	444	mg/L	20.0	8.7	1		06/05/23 07:49		
9040 pH									
Analytical Method: EPA 9040 Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.3	Std. Units	0.10	0.010	1		06/06/23 09:15		H6

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-314 **Lab ID: 40262930002** Collected: 05/30/23 10:45 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	2.3	mg/L	2.0	0.43	1		06/16/23 16:14	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		06/16/23 16:14	16984-48-8	
Sulfate	3.4	mg/L	2.0	0.44	1		06/16/23 16:14	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	470	mg/L	25.0	7.4	1		06/05/23 10:40		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.27	mg/L	0.25	0.059	1		06/06/23 13:55		

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-315 **Lab ID: 40262930003** Collected: 05/30/23 11:40 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	06/02/23 06:08	06/05/23 17:24	7440-50-8	
Manganese	85.9	ug/L	5.0	1.5	1	06/02/23 06:08	06/05/23 17:24	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	06/02/23 06:08	06/05/23 17:24	7440-22-4	
Total Hardness by 2340B	531	mg/L	5.4	1.0	1	06/02/23 06:08	06/05/23 17:24		
Zinc	<11.6	ug/L	40.0	11.6	1	06/02/23 06:08	06/05/23 17:24	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 16:27	7440-36-0	
Arsenic	0.37J	ug/L	1.0	0.28	1	06/06/23 06:22	06/10/23 16:27	7440-38-2	
Barium	47.7	ug/L	2.3	0.70	1	06/06/23 06:22	06/10/23 16:27	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	06/06/23 06:22	06/15/23 19:01	7440-41-7	
Boron	13.6	ug/L	10.0	3.0	1	06/06/23 06:22	06/15/23 19:01	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 16:27	7440-43-9	
Calcium	108000	ug/L	254	76.2	1	06/06/23 06:22	06/10/23 16:27	7440-70-2	
Chromium	1.7J	ug/L	3.4	1.0	1	06/06/23 06:22	06/10/23 16:27	7440-47-3	
Cobalt	0.22J	ug/L	1.0	0.12	1	06/06/23 06:22	06/10/23 16:27	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	06/06/23 06:22	06/10/23 16:27	7439-92-1	
Lithium	0.45J	ug/L	1.0	0.22	1	06/06/23 06:22	06/15/23 19:01	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	06/06/23 06:22	06/10/23 16:27	7439-98-7	
Selenium	0.36J	ug/L	1.1	0.32	1	06/06/23 06:22	06/10/23 16:27	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/06/23 06:22	06/10/23 16:27	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	06/05/23 10:10	06/06/23 07:51	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.34	Std. Units			1		05/30/23 11:40		
Field Specific Conductance	716	umhos/cm			1		05/30/23 11:40		
Oxygen, Dissolved	7.02	mg/L			1		05/30/23 11:40	7782-44-7	
REDOX	116.0	mV			1		05/30/23 11:40		
Turbidity	2.83	NTU			1		05/30/23 11:40		
Static Water Level	785.77	feet			1		05/30/23 11:40		
Temperature, Water (C)	10.8	deg C			1		05/30/23 11:40		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	456	mg/L	20.0	8.7	1		06/05/23 07:49		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.3	Std. Units	0.10	0.010	1		06/06/23 09:17		H6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-315 **Lab ID: 40262930003** Collected: 05/30/23 11:40 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.9	mg/L	2.0	0.43	1		06/16/23 16:28	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		06/16/23 16:28	16984-48-8	
Sulfate	8.8	mg/L	2.0	0.44	1		06/16/23 16:28	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO ₃	495	mg/L	50.0	14.9	2		06/05/23 10:41		
353.2 Nitrogen, NO₂/NO₃ pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO ₂ plus NO ₃	0.57	mg/L	0.25	0.059	1		06/06/23 13:56		

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Sample: FIELD BLANK MOD10-11 **Lab ID: 40262930004** Collected: 05/30/23 12:10 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	06/02/23 06:08	06/05/23 17:25	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	06/02/23 06:08	06/05/23 17:25	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	06/02/23 06:08	06/05/23 17:25	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	06/02/23 06:08	06/05/23 17:25		
Zinc	<11.6	ug/L	40.0	11.6	1	06/02/23 06:08	06/05/23 17:25	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 16:12	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/06/23 06:22	06/10/23 16:12	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	06/06/23 06:22	06/10/23 16:12	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	06/06/23 06:22	06/15/23 18:39	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	06/06/23 06:22	06/15/23 18:39	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	06/06/23 06:22	06/10/23 16:12	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	06/06/23 06:22	06/10/23 16:12	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	06/06/23 06:22	06/10/23 16:12	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	06/06/23 06:22	06/10/23 16:12	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	06/06/23 06:22	06/10/23 16:12	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	06/06/23 06:22	06/15/23 18:39	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	06/06/23 06:22	06/10/23 16:12	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	06/06/23 06:22	06/10/23 16:12	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/06/23 06:22	06/10/23 16:12	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	06/05/23 10:10	06/06/23 07:54	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		06/05/23 07:50		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	6.7	Std. Units	0.10	0.010	1		06/06/23 09:32		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		06/16/23 16:42	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		06/16/23 16:42	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		06/16/23 16:42	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<7.4	mg/L	25.0	7.4	1		06/05/23 10:42		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: FIELD BLANK MOD10-11 **Lab ID: 40262930004** Collected: 05/30/23 12:10 Received: 06/01/23 10:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay								
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		06/06/23 13:56		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch: 446548	Analysis Method: EPA 7470
QC Batch Method: EPA 7470	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2563218 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	06/06/23 07:21	

LABORATORY CONTROL SAMPLE: 2563219

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2563220 2563221

Parameter	Units	40262948001		2563221		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Mercury	ug/L	<0.066	5	5	4.9	4.9	98	98	85-115	1	20	

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

QC Batch: 446389 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2562330 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<3.4	10.0	06/05/23 16:40	
Manganese	ug/L	<1.5	5.0	06/05/23 16:40	
Silver	ug/L	<3.2	10.0	06/05/23 16:40	
Total Hardness by 2340B	mg/L	<1.0	5.4	06/05/23 16:40	
Zinc	ug/L	<11.6	40.0	06/05/23 16:40	

LABORATORY CONTROL SAMPLE: 2562331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	266	106	80-120	
Manganese	ug/L	250	269	108	80-120	
Silver	ug/L	125	129	104	80-120	
Total Hardness by 2340B	mg/L		70.5			
Zinc	ug/L	250	266	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2562332 2562333

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		40262953001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Copper	ug/L	<3.4	250	250	263	258	105	103	75-125	2	20		
Manganese	ug/L	<1.5	250	250	265	261	106	104	75-125	2	20		
Silver	ug/L	<3.2	125	125	129	126	103	101	75-125	2	20		
Total Hardness by 2340B	mg/L	290			368	345				6	20		
Zinc	ug/L	<11.6	250	250	259	255	104	102	75-125	2	20		

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

QC Batch: 446643 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2563575 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	06/10/23 15:12	
Arsenic	ug/L	<0.28	1.0	06/10/23 15:12	
Barium	ug/L	<0.70	2.3	06/10/23 15:12	
Beryllium	ug/L	<0.25	1.0	06/10/23 15:12	
Boron	ug/L	<3.0	10.0	06/10/23 15:12	
Cadmium	ug/L	<0.15	1.0	06/10/23 15:12	
Calcium	ug/L	<76.2	254	06/10/23 15:12	
Chromium	ug/L	<1.0	3.4	06/10/23 15:12	
Cobalt	ug/L	<0.12	1.0	06/10/23 15:12	
Lead	ug/L	<0.24	1.0	06/10/23 15:12	
Lithium	ug/L	<0.22	1.0	06/10/23 15:12	
Molybdenum	ug/L	<0.44	1.5	06/10/23 15:12	
Selenium	ug/L	<0.32	1.1	06/10/23 15:12	
Thallium	ug/L	<0.14	1.0	06/10/23 15:12	

LABORATORY CONTROL SAMPLE: 2563576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	255	102	80-120	
Arsenic	ug/L	250	262	105	80-120	
Barium	ug/L	250	251	100	80-120	
Beryllium	ug/L	250	265	106	80-120	
Boron	ug/L	250	247	99	80-120	
Cadmium	ug/L	250	255	102	80-120	
Calcium	ug/L	10000	10600	106	80-120	
Chromium	ug/L	250	253	101	80-120	
Cobalt	ug/L	250	250	100	80-120	
Lead	ug/L	250	245	98	80-120	
Lithium	ug/L	250	250	100	80-120	
Molybdenum	ug/L	250	246	98	80-120	
Selenium	ug/L	250	267	107	80-120	
Thallium	ug/L	250	237	95	80-120	

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Parameter	Units	2563577		2563578		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40262930001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	<0.15	250	250	257	257	103	103	75-125	0	20		
Arsenic	ug/L	<0.28	250	250	261	264	104	105	75-125	1	20		
Barium	ug/L	47.8	250	250	307	308	104	104	75-125	0	20		
Beryllium	ug/L	<0.25	250	250	267	270	107	108	75-125	1	20		
Boron	ug/L	191	250	250	451	458	104	107	75-125	1	20		
Cadmium	ug/L	<0.15	250	250	255	256	102	102	75-125	1	20		
Calcium	ug/L	69100	10000	10000	81500	80800	124	116	75-125	1	20		
Chromium	ug/L	1.2J	250	250	255	258	101	103	75-125	1	20		
Cobalt	ug/L	<0.12	250	250	248	252	99	101	75-125	2	20		
Lead	ug/L	<0.24	250	250	253	255	101	102	75-125	1	20		
Lithium	ug/L	0.68J	250	250	253	254	101	101	75-125	1	20		
Molybdenum	ug/L	1.5	250	250	258	258	102	103	75-125	0	20		
Selenium	ug/L	0.59J	250	250	261	262	104	104	75-125	0	20		
Thallium	ug/L	0.21J	250	250	250	253	100	101	75-125	1	20		

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch:	446511	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2563103 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	06/05/23 07:48	

LABORATORY CONTROL SAMPLE: 2563104

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	593	554	93	80-120	

SAMPLE DUPLICATE: 2563159

Parameter	Units	40262930001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	334	350	5	10	

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch: 446640

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

SAMPLE DUPLICATE: 2563573

Parameter	Units	40262882001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.3	0	20	H6

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

QC Batch: 447068 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2566193 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	06/16/23 15:02	
Fluoride	mg/L	<0.095	0.32	06/16/23 15:02	
Sulfate	mg/L	<0.44	2.0	06/16/23 15:02	

LABORATORY CONTROL SAMPLE: 2566194

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.9	99	90-110	
Fluoride	mg/L	2	2.0	99	90-110	
Sulfate	mg/L	20	20.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2566195 2566196

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40262931002 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	86.5	100	100	184	184	97	97	90-110	0	15		
Fluoride	mg/L	<0.48	10	10	10	10.1	100	101	90-110	1	15		
Sulfate	mg/L	14.4	100	100	115	115	101	101	90-110	0	15		

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch: 446512	Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2	Analysis Description: 310.2 Alkalinity
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2563105 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.4	25.0	06/05/23 10:35	

LABORATORY CONTROL SAMPLE: 2563106

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	100	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2563107 2563108

Parameter	Units	40262930001		2563108		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Alkalinity, Total as CaCO3	mg/L	302	200	490	200	94	92	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2563109 2563110

Parameter	Units	40262980005		2563110		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Alkalinity, Total as CaCO3	mg/L	138	200	343	200	102	98	90-110	3	20	

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QUALITY CONTROL DATA

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch: 446621	Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2	Analysis Description: 353.2 Nitrate + Nitrite, preserved
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2563495 Matrix: Water
Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	06/06/23 13:35	

LABORATORY CONTROL SAMPLE: 2563496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.7	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2563497 2563498

Parameter	Units	40262917005		2563497		2563498		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result				
Nitrogen, NO2 plus NO3	mg/L	8.4	12.5	12.5	22.0	21.2	109	103	90-110	3	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2563499 2563500

Parameter	Units	40262917018		2563499		2563500		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result				
Nitrogen, NO2 plus NO3	mg/L	3.9	12.5	12.5	17.1	17.0	106	104	90-110	1	20

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-313 **Lab ID: 40262930001** Collected: 05/30/23 09:45 Received: 06/01/23 10:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.257 ± 0.771 (1.61) C:NA T:91%	pCi/L	06/20/23 17:09	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.0341 ± 0.261 (0.604) C:85% T:92%	pCi/L	06/16/23 15:27	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.0341 ± 1.03 (2.21)	pCi/L	06/21/23 13:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-314 **Lab ID: 40262930002** Collected: 05/30/23 10:45 Received: 06/01/23 10:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0795 ± 0.412 (0.955) C:NA T:96%	pCi/L	06/20/23 17:09	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.162 ± 0.364 (0.806) C:81% T:85%	pCi/L	06/16/23 15:27	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.162 ± 0.776 (1.76)	pCi/L	06/21/23 13:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: MW-315 **Lab ID: 40262930003** Collected: 05/30/23 11:40 Received: 06/01/23 10:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.0827 ± 0.378 (0.890) C:NA T:95%	pCi/L	06/20/23 17:09	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.666 ± 0.407 (0.759) C:79% T:91%	pCi/L	06/16/23 15:27	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.666 ± 0.785 (1.65)	pCi/L	06/21/23 13:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

Sample: FIELD BLANK MOD10-11 **Lab ID:** 40262930004 Collected: 05/30/23 12:10 Received: 06/01/23 10:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.606 ± 0.475 (0.558) C:NA T:89%	pCi/L	06/20/23 17:09	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.712 ± 0.434 (0.790) C:83% T:87%	pCi/L	06/16/23 15:27	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.32 ± 0.909 (1.35)	pCi/L	06/21/23 13:17	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch: 592606

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2879376

Matrix: Water

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.967 ± 0.438 (0.719) C:85% T:87%	pCi/L	06/16/23 15:24	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 WPL-COLUMB CCR LF MOD

Pace Project No.: 40262930

QC Batch: 592605

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

METHOD BLANK: 2879375

Matrix: Water

Associated Lab Samples: 40262930001, 40262930002, 40262930003, 40262930004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.115 ± 0.276 (0.533) C:NA T:93%	pCi/L	06/20/23 16:56	

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QUALIFIERS

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40262930001	MW-313	EPA 3010A	446389	EPA 6010D	446472
40262930002	MW-314	EPA 3010A	446389	EPA 6010D	446472
40262930003	MW-315	EPA 3010A	446389	EPA 6010D	446472
40262930004	FIELD BLANK MOD10-11	EPA 3010A	446389	EPA 6010D	446472
40262930001	MW-313	EPA 3010A	446643	EPA 6020B	446713
40262930002	MW-314	EPA 3010A	446643	EPA 6020B	446713
40262930003	MW-315	EPA 3010A	446643	EPA 6020B	446713
40262930004	FIELD BLANK MOD10-11	EPA 3010A	446643	EPA 6020B	446713
40262930001	MW-313	EPA 7470	446548	EPA 7470	446600
40262930002	MW-314	EPA 7470	446548	EPA 7470	446600
40262930003	MW-315	EPA 7470	446548	EPA 7470	446600
40262930004	FIELD BLANK MOD10-11	EPA 7470	446548	EPA 7470	446600
40262930001	MW-313				
40262930002	MW-314				
40262930003	MW-315				
40262930001	MW-313	EPA 903.1	592605		
40262930002	MW-314	EPA 903.1	592605		
40262930003	MW-315	EPA 903.1	592605		
40262930004	FIELD BLANK MOD10-11	EPA 903.1	592605		
40262930001	MW-313	EPA 904.0	592606		
40262930002	MW-314	EPA 904.0	592606		
40262930003	MW-315	EPA 904.0	592606		
40262930004	FIELD BLANK MOD10-11	EPA 904.0	592606		
40262930001	MW-313	Total Radium Calculation	596578		
40262930002	MW-314	Total Radium Calculation	596578		
40262930003	MW-315	Total Radium Calculation	596578		
40262930004	FIELD BLANK MOD10-11	Total Radium Calculation	596578		
40262930001	MW-313	SM 2540C	446511		
40262930002	MW-314	SM 2540C	446511		
40262930003	MW-315	SM 2540C	446511		
40262930004	FIELD BLANK MOD10-11	SM 2540C	446511		
40262930001	MW-313	EPA 9040	446640		
40262930002	MW-314	EPA 9040	446640		
40262930003	MW-315	EPA 9040	446640		
40262930004	FIELD BLANK MOD10-11	EPA 9040	446640		
40262930001	MW-313	EPA 300.0	447068		
40262930002	MW-314	EPA 300.0	447068		
40262930003	MW-315	EPA 300.0	447068		
40262930004	FIELD BLANK MOD10-11	EPA 300.0	447068		
40262930001	MW-313	EPA 310.2	446512		
40262930002	MW-314	EPA 310.2	446512		
40262930003	MW-315	EPA 310.2	446512		
40262930004	FIELD BLANK MOD10-11	EPA 310.2	446512		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 WPL-COLUMB CCR LF MOD
Pace Project No.: 40262930

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40262930001	MW-313	EPA 353.2	446621		
40262930002	MW-314	EPA 353.2	446621		
40262930003	MW-315	EPA 353.2	446621		
40262930004	FIELD BLANK MOD10-11	EPA 353.2	446621		

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

40262930

ALL SHADED AREAS are for LAB USE ONLY

Company: SCS Engineers
 Address: 2530 Dwy Dr, Madison, WI
 Report To: Meghan Blodgett 3378
 Copy To: _____

Billing Information: 25223067.00
 Email To: mblodgett@scsengineers.com
 Site Collection Info/Address: WPL-Columbia
 State: WI County/City: Portage Time Zone Collected: [] PT [] MT [] CT [] ET
 Compliance Monitoring? [] Yes [] No
 DW PWS ID #: _____ DW Location Code: _____
 Turnaround Date Required: _____
 Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day
 Field Filtered (if applicable): [] Yes [X] No
 Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW-313	GW	G	5/30	945			6	X
MW-314	GW	G	5/30	1045			6	X
MW-315	GW	G	5/30	1140			6	X
Field Blank Mod 10/11		G	5/30	1210			5	X

Container Preservative Type **
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

TDS, Chloride, Fluoride, Sulfate	PH, alkalinity	Radium 226	Radium 228	Metals, hardness	Nitrate + Nitrite
----------------------------------	----------------	------------	------------	------------------	-------------------

Lab Profile/Line:
 Lab Sample Receipt Checklist:
 Custody Seals Present/Intact Y N NA
 Custody Signatures Present Y N NA
 Collector Signature Present Y N NA
 Bottles Intact Y N NA
 Correct Bottles Y N NA
 Sufficient Volume Y N NA
 Samples Received on Ice Y N NA
 VOA - Headspace Acceptable Y N NA
 USDA Regulated Soils Y N NA
 Samples in Holding Time Y N NA
 Residual Chlorine Present Y N NA
 CI Strips: _____
 Sample pH Acceptable Y N NA
 pH Strips: _____
 Sulfide Present Y N NA
 Lead Acetate Strips: _____
 LAB USE ONLY:
 Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:
 Type of Ice Used: Wet Blue Dry None
 Packing Material Used: (D)
 Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #: 2839165
 Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: _____ oC
 Cooler 1 Therm Corr. Factor: _____ oC
 Cooler 1 Corrected Temp: _____ oC
 Comments:

Relinquished by/Company: (Signature) SCS
 Date/Time: 5/31/23 1500

Received by/Company: (Signature) _____
 Date/Time: _____

Relinquished by/Company: (Signature) CS Logistics
 Date/Time: 6/1/23 1005

Relinquished by/Company: (Signature) _____
 Date/Time: _____

Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): _____
 YES / NO
 Page 32 of 35
 of: _____

40262930

Table 2. Sampling Points and Parameters - CCR Rule Sampling Program
Groundwater Monitoring - Columbia Energy Center / ECS Englewood Field #2319067

Field Parameters	Lab Parameters																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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	CCR #3 - Landfill Media 4-6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Low-Flow Sampling Field Parameters Specific Conductance Dissolved Oxygen Temperature Turbidity Chloride Oxidation-Reduction Potential	Background Wells	CCR #3 - Landfill Media 1-3	CCR #3 - Landfill Media 4-6	CCR #4 - Landfill Media 1a1	CCR #4 - Landfill Media 1b1	Primary Pond	Secondary Pond	Site Program Wells - High Level Only						TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	AW-301	AW-302	AW-303	AW-304	AW-305	AW-306	AW-307	AW-308	AW-309	AW-310	AW-311	AW-312	AW-313	AW-314	AW-315	AW-316	AW-317	AW-318	AW-319	AW-320	AW-321	AW-322	AW-323	AW-324	AW-325	AW-326	AW-327	AW-328	AW-329	AW-330	AW-331	AW-332	AW-333	AW-334	AW-335	AW-336	AW-337	AW-338	AW-339	AW-340	AW-341	AW-342	AW-343	AW-344	AW-345	AW-346	AW-347	AW-348	AW-349	AW-350	AW-351	AW-352	AW-353	AW-354	AW-355	AW-356	AW-357	AW-358	AW-359	AW-360	AW-361	AW-362	AW-363	AW-364	AW-365	AW-366	AW-367	AW-368	AW-369	AW-370	AW-371	AW-372	AW-373	AW-374	AW-375	AW-376	AW-377	AW-378	AW-379	AW-380	AW-381	AW-382	AW-383	AW-384	AW-385	AW-386	AW-387	AW-388	AW-389	AW-390	AW-391	AW-392	AW-393	AW-394	AW-395	AW-396	AW-397	AW-398	AW-399	AW-400	AW-401	AW-402	AW-403	AW-404	AW-405	AW-406	AW-407	AW-408	AW-409	AW-410	AW-411	AW-412	AW-413	AW-414	AW-415	AW-416	AW-417	AW-418	AW-419	AW-420	AW-421	AW-422	AW-423	AW-424	AW-425	AW-426	AW-427	AW-428	AW-429	AW-430	AW-431	AW-432	AW-433	AW-434	AW-435	AW-436	AW-437	AW-438	AW-439	AW-440	AW-441	AW-442	AW-443	AW-444	AW-445	AW-446	AW-447	AW-448	AW-449	AW-450	AW-451	AW-452	AW-453	AW-454	AW-455	AW-456	AW-457	AW-458	AW-459	AW-460	AW-461	AW-462	AW-463	AW-464	AW-465	AW-466	AW-467	AW-468	AW-469	AW-470	AW-471	AW-472	AW-473	AW-474	AW-475	AW-476	AW-477	AW-478	AW-479	AW-480	AW-481	AW-482	AW-483	AW-484	AW-485	AW-486	AW-487	AW-488	AW-489	AW-490	AW-491	AW-492	AW-493	AW-494	AW-495	AW-496	AW-497	AW-498	AW-499	AW-500	AW-501	AW-502	AW-503	AW-504	AW-505	AW-506	AW-507	AW-508	AW-509	AW-510	AW-511	AW-512	AW-513	AW-514	AW-515	AW-516	AW-517	AW-518	AW-519	AW-520	AW-521	AW-522	AW-523	AW-524	AW-525	AW-526	AW-527	AW-528	AW-529	AW-530	AW-531	AW-532	AW-533	AW-534	AW-535	AW-536	AW-537	AW-538	AW-539	AW-540	AW-541	AW-542	AW-543	AW-544	AW-545	AW-546	AW-547	AW-548	AW-549	AW-550	AW-551	AW-552	AW-553	AW-554	AW-555	AW-556	AW-557	AW-558	AW-559	AW-560	AW-561	AW-562	AW-563	AW-564	AW-565	AW-566	AW-567	AW-568	AW-569	AW-570	AW-571	AW-572	AW-573	AW-574	AW-575	AW-576	AW-577	AW-578	AW-579	AW-580	AW-581	AW-582	AW-583	AW-584	AW-585	AW-586	AW-587	AW-588	AW-589	AW-590	AW-591	AW-592	AW-593	AW-594	AW-595	AW-596	AW-597	AW-598	AW-599	AW-600	AW-601	AW-602	AW-603	AW-604	AW-605	AW-606	AW-607	AW-608	AW-609	AW-610	AW-611	AW-612	AW-613	AW-614	AW-615	AW-616	AW-617	AW-618	AW-619	AW-620	AW-621	AW-622	AW-623	AW-624	AW-625	AW-626	AW-627	AW-628	AW-629	AW-630	AW-631	AW-632	AW-633	AW-634	AW-635	AW-636	AW-637	AW-638	AW-639	AW-640	AW-641	AW-642	AW-643	AW-644	AW-645	AW-646	AW-647	AW-648	AW-649	AW-650	AW-651	AW-652	AW-653	AW-654	AW-655	AW-656	AW-657	AW-658	AW-659	AW-660	AW-661	AW-662	AW-663	AW-664	AW-665	AW-666	AW-667	AW-668	AW-669	AW-670	AW-671	AW-672	AW-673	AW-674	AW-675	AW-676	AW-677	AW-678	AW-679	AW-680	AW-681	AW-682	AW-683	AW-684	AW-685	AW-686	AW-687	AW-688	AW-689	AW-690	AW-691	AW-692	AW-693	AW-694	AW-695	AW-696	AW-697	AW-698	AW-699	AW-700	AW-701	AW-702	AW-703	AW-704	AW-705	AW-706	AW-707	AW-708	AW-709	AW-710	AW-711	AW-712	AW-713	AW-714	AW-715	AW-716	AW-717	AW-718	AW-719	AW-720	AW-721	AW-722	AW-723	AW-724	AW-725	AW-726	AW-727	AW-728	AW-729	AW-730	AW-731	AW-732	AW-733	AW-734	AW-735	AW-736	AW-737	AW-738	AW-739	AW-740	AW-741	AW-742	AW-743	AW-744	AW-745	AW-746	AW-747	AW-748	AW-749	AW-750	AW-751	AW-752	AW-753	AW-754	AW-755	AW-756	AW-757	AW-758	AW-759	AW-760	AW-761	AW-762	AW-763	AW-764	AW-765	AW-766	AW-767	AW-768	AW-769	AW-770	AW-771	AW-772	AW-773	AW-774	AW-775	AW-776	AW-777	AW-778	AW-779	AW-780	AW-781	AW-782	AW-783	AW-784	AW-785	AW-786	AW-787	AW-788	AW-789	AW-790	AW-791	AW-792	AW-793	AW-794	AW-795	AW-796	AW-797	AW-798	AW-799	AW-800	AW-801	AW-802	AW-803	AW-804	AW-805	AW-806	AW-807	AW-808	AW-809	AW-810	AW-811	AW-812	AW-813	AW-814	AW-815	AW-816	AW-817	AW-818	AW-819	AW-820	AW-821	AW-822	AW-823	AW-824	AW-825	AW-826	AW-827	AW-828	AW-829	AW-830	AW-831	AW-832	AW-833	AW-834	AW-835	AW-836	AW-837	AW-838	AW-839	AW-840	AW-841	AW-842	AW-843	AW-844	AW-845	AW-846	AW-847	AW-848	AW-849	AW-850	AW-851	AW-852	AW-853	AW-854	AW-855	AW-856	AW-857	AW-858	AW-859	AW-860	AW-861	AW-862	AW-863	AW-864	AW-865	AW-866	AW-867	AW-868	AW-869	AW-870	AW-871	AW-872	AW-873	AW-874	AW-875	AW-876	AW-877	AW-878	AW-879	AW-880	AW-881	AW-882	AW-883	AW-884	AW-885	AW-886	AW-887	AW-888	AW-889	AW-890	AW-891	AW-892	AW-893	AW-894	AW-895	AW-896	AW-897	AW-898	AW-899	AW-900	AW-901	AW-902	AW-903	AW-904	AW-905	AW-906	AW-907	AW-908	AW-909	AW-910	AW-911	AW-912	AW-913	AW-914	AW-915	AW-916	AW-917	AW-918	AW-919	AW-920	AW-921	AW-922	AW-923	AW-924	AW-925	AW-926	AW-927	AW-928	AW-929	AW-930	AW-931	AW-932	AW-933	AW-934	AW-935	AW-936	AW-937	AW-938	AW-939	AW-940	AW-941	AW-942	AW-943	AW-944	AW-945	AW-946	AW-947	AW-948	AW-949	AW-950	AW-951	AW-952	AW-953	AW-954	AW-955	AW-956	AW-957	AW-958	AW-959	AW-960	AW-961	AW-962	AW-963	AW-964	AW-965	AW-966	AW-967	AW-968	AW-969	AW-970	AW-971	AW-972	AW-973	AW-974	AW-975	AW-976	AW-977	AW-978	AW-979	AW-980	AW-981	AW-982	AW-983	AW-984	AW-985	AW-986	AW-987	AW-988	AW-989	AW-990	AW-991	AW-992	AW-993	AW-994	AW-995	AW-996	AW-997	AW-998	AW-999	AW-1000

Notes: All samples are analyzed (total)

Client Name: SCS Engineers

Sample Preservation Receipt Form

Project # 40262930

All containers needing preservation have been checked and noted below.

Yes No N/A

Initial when completed JG Date/Time

Lab Lot# of pH paper: 1000703

Lab Std #ID of preservation (if pH adjusted)

Pace Lab #	Glass						Plastic						Vials					Jars				General		VOA Vials (>6mm) *	H ₂ SO ₄ pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO ₃ pH ≤2	pH after adjusted	Volume (mL)			
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T								ZPLC	GN 1	GN 2
001							2																					X					2.5 / 5
002							2																					X					2.5 / 5
003							2																					X					2.5 / 5
004							2																					X					2.5 / 5
005																																	2.5 / 5
006																																	2.5 / 5
007																																	2.5 / 5
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017																																	2.5 / 5
018																																	2.5 / 5
019																																	2.5 / 5
020																																	2.5 / 5

6/1/23 JG

Exceptions to preservation check VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: 1

Headspace in VOA Vials (>6mm) Yes No N/A


*If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H ₂ SO ₄	BP3N	250 mL plastic HNO ₃	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H ₂ SO ₄	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H ₂ SO ₄	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	<u>1L poly bNDS</u>
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: SCS Engineers
Courier: CS Logistics Fed Ex Speedee UPS Walto
 Client Pace Other: _____

WO# : 40262930

 40262930

Tracking #: _____
Custody Seal on Cooler/Box Present: yes no **Seals intact:** yes no
Custody Seal on Samples Present: yes no **Seals intact:** yes no
Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR-9 **Type of Ice:** Wet Blue Dry None Meltwater Only
Cooler Temperature Uncorr: 0.5 / Corr: 1.5

Temp Blank Present: yes no **Biological Tissue is Frozen:** yes no

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
 Date: 6/1/23 / Initials: SG
 Labeled By Initials: NP

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> , Pace IR, Non-Pace		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>002 time "1035"</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>		<u>6/1/23 SG</u>
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample log



July 26, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25222157 WPL-COLUMBIA
Pace Project No.: 40264568

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on July 01, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burris, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

ANABISO/IEC 17025:2017 Rad Cert#: L24170

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 2950

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA010

Louisiana DEQ/TNI Certification #: 04086

Maine Certification #: 2023021

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572023-03

New Hampshire/TNI Certification #: 297622

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-015

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN02867

Texas/TNI Certification #: T104704188-22-18

Utah/TNI Certification #: PA014572223-14

USDA Soil Permit #: 525-23-67-77263

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-21-8

Virginia VELAP Certification ID: 11873

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-21-00008

Federal Fish & Wildlife Permit #: 51774A

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SAMPLE SUMMARY

Project: 25222157 WPL-COLUMBIA
Pace Project No.: 40264568

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40264568001	MW-313	Water	06/29/23 11:50	07/01/23 09:00
40264568002	MW-314	Water	06/29/23 12:40	07/01/23 09:00
40264568003	MW-315	Water	06/29/23 13:20	07/01/23 09:00
40264568004	FIELD BLANK MOD 10-11	Water	06/29/23 11:30	07/01/23 09:00

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SAMPLE ANALYTE COUNT

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
40264568001	MW-313	EPA 6010D	SIS	5	PASI-G		
		EPA 6020B	TXW	14	PASI-G		
		EPA 7470	YER	1	PASI-G		
			AG1	7	PASI-G		
		EPA 903.1	CLM	1	PASI-PA		
		EPA 904.0	JJS1	1	PASI-PA		
		Total Radium Calculation	JAL	1	PASI-PA		
		SM 2540C	SRK	1	PASI-G		
		EPA 9040	HML	1	PASI-G		
		EPA 300.0	DAW	3	PASI-G		
		EPA 310.2	MT	1	PASI-G		
		EPA 353.2	MT	1	PASI-G		
		40264568002	MW-314	EPA 6010D	SIS	5	PASI-G
				EPA 6020B	TXW	14	PASI-G
EPA 7470	YER			1	PASI-G		
	AG1			7	PASI-G		
EPA 903.1	CLM			1	PASI-PA		
EPA 904.0	JJS1			1	PASI-PA		
Total Radium Calculation	JAL			1	PASI-PA		
SM 2540C	SRK			1	PASI-G		
EPA 9040	HML			1	PASI-G		
EPA 300.0	DAW			3	PASI-G		
EPA 310.2	MT			1	PASI-G		
EPA 353.2	MT			1	PASI-G		
40264568003	MW-315			EPA 6010D	SIS	5	PASI-G
				EPA 6020B	TXW	14	PASI-G
		EPA 7470	YER	1	PASI-G		
			AG1	7	PASI-G		
		EPA 903.1	CLM	1	PASI-PA		
		EPA 904.0	JJS1	1	PASI-PA		
		Total Radium Calculation	JAL	1	PASI-PA		
		SM 2540C	SRK	1	PASI-G		
		EPA 9040	HML	1	PASI-G		
		EPA 300.0	DAW	3	PASI-G		
		EPA 310.2	MT	1	PASI-G		
		EPA 353.2	MT	1	PASI-G		
		40264568004	FIELD BLANK MOD 10-11	EPA 6010D	SIS	5	PASI-G

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SAMPLE ANALYTE COUNT

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	TXW	14	PASI-G
		EPA 7470	YER	1	PASI-G
		EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	HML	1	PASI-G
		EPA 300.0	DAW	3	PASI-G
		EPA 310.2	MT	1	PASI-G
		EPA 353.2	MT	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

PASI-PA = Pace Analytical Services - Greensburg

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SUMMARY OF DETECTION

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40264568001	MW-313					
EPA 6010D	Copper	3.7J	ug/L	10.0	07/05/23 19:06	B
EPA 6010D	Manganese	82.3	ug/L	5.0	07/05/23 19:06	
EPA 6010D	Total Hardness by 2340B	364	mg/L	5.4	07/05/23 19:06	
EPA 6020B	Barium	47.0	ug/L	2.3	07/07/23 09:55	
EPA 6020B	Boron	189	ug/L	10.0	07/07/23 09:55	
EPA 6020B	Calcium	71900	ug/L	254	07/07/23 09:55	
EPA 6020B	Chromium	1.4J	ug/L	3.4	07/07/23 09:55	
EPA 6020B	Lithium	1.0	ug/L	1.0	07/07/23 09:55	B
EPA 6020B	Molybdenum	1.3J	ug/L	1.5	07/07/23 09:55	
EPA 6020B	Selenium	0.65J	ug/L	1.1	07/07/23 09:55	
	Field pH	7.41	Std. Units		06/29/23 11:50	
	Field Specific Conductance	632.0	umhos/cm		06/29/23 11:50	
	Oxygen, Dissolved	7.17	mg/L		06/29/23 11:50	
	REDOX	249.4	mV		06/29/23 11:50	
	Turbidity	0.00	NTU		06/29/23 11:50	
	Static Water Level	784.67	feet		06/29/23 11:50	
	Temperature, Water (C)	11.2	deg C		06/29/23 11:50	
EPA 903.1	Radium-226	-0.132 ± 0.334 (0.731)	pCi/L		07/24/23 14:57	
EPA 904.0	Radium-228	C:NA T:83% 0.350 ± 0.381 (0.796)	pCi/L		07/14/23 15:05	
		C:84% T:83%				
Total Radium Calculation	Total Radium	0.350 ± 0.715 (1.53)	pCi/L		07/25/23 10:45	
SM 2540C	Total Dissolved Solids	408	mg/L	20.0	07/03/23 14:12	
EPA 9040	pH at 25 Degrees C	7.6	Std. Units	0.10	07/03/23 13:38	H6
EPA 300.0	Chloride	22.8	mg/L	2.0	07/13/23 05:48	
EPA 300.0	Fluoride	0.19J	mg/L	0.32	07/13/23 05:48	
EPA 300.0	Sulfate	19.9	mg/L	2.0	07/13/23 05:48	
EPA 310.2	Alkalinity, Total as CaCO3	300	mg/L	25.0	07/05/23 13:14	
EPA 353.2	Nitrogen, NO2 plus NO3	6.8	mg/L	0.25	07/12/23 15:30	
40264568002	MW-314					
EPA 6010D	Manganese	11.1	ug/L	5.0	07/05/23 19:07	
EPA 6010D	Total Hardness by 2340B	521	mg/L	5.4	07/05/23 19:07	
EPA 6020B	Barium	41.3	ug/L	2.3	07/07/23 10:00	
EPA 6020B	Boron	15.4	ug/L	10.0	07/07/23 10:00	
EPA 6020B	Calcium	103000	ug/L	254	07/07/23 10:00	
EPA 6020B	Cobalt	0.14J	ug/L	1.0	07/07/23 10:00	
EPA 6020B	Lithium	0.94J	ug/L	1.0	07/07/23 10:00	B
EPA 6020B	Molybdenum	1.3J	ug/L	1.5	07/07/23 10:00	
	Field pH	7.20	Std. Units		06/29/23 12:40	
	Field Specific Conductance	807	umhos/cm		06/29/23 12:40	
	Oxygen, Dissolved	6.53	mg/L		06/29/23 12:40	
	REDOX	254.0	mV		06/29/23 12:40	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40264568002	MW-314					
	Turbidity	0.00	NTU		06/29/23 12:40	
	Static Water Level	784.95	feet		06/29/23 12:40	
	Temperature, Water (C)	11.0	deg C		06/29/23 12:40	
EPA 903.1	Radium-226	0.0476 ± 0.385 (0.755)	pCi/L		07/24/23 14:57	
		C:NA T:80%				
EPA 904.0	Radium-228	0.374 ± 0.395 (0.819)	pCi/L		07/14/23 15:06	
		C:83% T:80%				
Total Radium Calculation	Total Radium	0.422 ± 0.780 (1.57)	pCi/L		07/25/23 10:45	
SM 2540C	Total Dissolved Solids	470	mg/L	20.0	07/03/23 14:13	
EPA 9040	pH at 25 Degrees C	7.3	Std. Units	0.10	07/03/23 13:44	H6
EPA 300.0	Chloride	2.4	mg/L	2.0	07/13/23 06:02	
EPA 300.0	Sulfate	3.2	mg/L	2.0	07/13/23 06:02	
EPA 310.2	Alkalinity, Total as CaCO3	466	mg/L	25.0	07/05/23 13:17	
EPA 353.2	Nitrogen, NO2 plus NO3	3.1	mg/L	0.25	07/12/23 15:31	
40264568003	MW-315					
EPA 6010D	Copper	3.4J	ug/L	10.0	07/05/23 19:09	B
EPA 6010D	Manganese	103	ug/L	5.0	07/05/23 19:09	
EPA 6010D	Total Hardness by 2340B	530	mg/L	5.4	07/05/23 19:09	
EPA 6020B	Arsenic	0.38J	ug/L	1.0	07/07/23 10:05	
EPA 6020B	Barium	52.7	ug/L	2.3	07/07/23 10:05	
EPA 6020B	Boron	13.3	ug/L	10.0	07/07/23 10:05	
EPA 6020B	Calcium	110000	ug/L	254	07/07/23 10:05	
EPA 6020B	Chromium	1.6J	ug/L	3.4	07/07/23 10:05	
EPA 6020B	Cobalt	0.21J	ug/L	1.0	07/07/23 10:05	
EPA 6020B	Lead	0.32J	ug/L	1.0	07/07/23 10:05	
EPA 6020B	Lithium	1.2	ug/L	1.0	07/07/23 10:05	B
EPA 6020B	Selenium	0.58J	ug/L	1.1	07/07/23 10:05	
	Field pH	7.13	Std. Units		06/29/23 13:20	
	Field Specific Conductance	834	umhos/cm		06/29/23 13:20	
	Oxygen, Dissolved	5.40	mg/L		06/29/23 13:20	
	REDOX	230.7	mV		06/29/23 13:20	
	Turbidity	0.00	NTU		06/29/23 13:20	
	Static Water Level	785.17	feet		06/29/23 13:20	
	Temperature, Water (C)	11.0	deg C		06/29/23 13:20	
EPA 903.1	Radium-226	-0.117 ± 0.276 (0.619)	pCi/L		07/24/23 14:57	
		C:NA T:89%				
EPA 904.0	Radium-228	0.464 ± 0.345 (0.669)	pCi/L		07/14/23 15:06	
		C:78% T:89%				

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SUMMARY OF DETECTION

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40264568003	MW-315					
Total Radium Calculation	Total Radium	0.464 ± 0.621 (1.29)	pCi/L		07/25/23 10:45	
SM 2540C	Total Dissolved Solids	482	mg/L	20.0	07/03/23 14:13	
EPA 9040	pH at 25 Degrees C	7.1	Std. Units	0.10	07/03/23 13:45	H6
EPA 300.0	Chloride	3.3	mg/L	2.0	07/13/23 06:17	
EPA 300.0	Sulfate	7.0	mg/L	2.0	07/13/23 06:17	
EPA 310.2	Alkalinity, Total as CaCO3	493	mg/L	25.0	07/05/23 13:18	
EPA 353.2	Nitrogen, NO2 plus NO3	0.58	mg/L	0.25	07/12/23 14:59	
40264568004	FIELD BLANK MOD 10-11					
EPA 6020B	Lithium	0.48J	ug/L	1.0	07/07/23 09:34	B
EPA 903.1	Radium-226	-0.0447 ± 0.382 (0.779) C:NA T:84%	pCi/L		07/24/23 14:57	
EPA 904.0	Radium-228	0.414 ± 0.372 (0.755) C:84% T:84%	pCi/L		07/14/23 15:06	
Total Radium Calculation	Total Radium	0.414 ± 0.754 (1.53)	pCi/L		07/25/23 10:45	
EPA 9040	pH at 25 Degrees C	6.7	Std. Units	0.10	07/03/23 13:52	H6

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-313 Lab ID: 40264568001 Collected: 06/29/23 11:50 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	3.7J	ug/L	10.0	3.4	1	07/05/23 05:23	07/05/23 19:06	7440-50-8	B
Manganese	82.3	ug/L	5.0	1.5	1	07/05/23 05:23	07/05/23 19:06	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	07/05/23 05:23	07/05/23 19:06	7440-22-4	
Total Hardness by 2340B	364	mg/L	5.4	1.0	1	07/05/23 05:23	07/05/23 19:06		
Zinc	<11.6	ug/L	40.0	11.6	1	07/05/23 05:23	07/05/23 19:06	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 09:55	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	07/05/23 06:10	07/07/23 09:55	7440-38-2	
Barium	47.0	ug/L	2.3	0.70	1	07/05/23 06:10	07/07/23 09:55	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	07/05/23 06:10	07/07/23 09:55	7440-41-7	
Boron	189	ug/L	10.0	3.0	1	07/05/23 06:10	07/07/23 09:55	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 09:55	7440-43-9	
Calcium	71900	ug/L	254	76.2	1	07/05/23 06:10	07/07/23 09:55	7440-70-2	
Chromium	1.4J	ug/L	3.4	1.0	1	07/05/23 06:10	07/07/23 09:55	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	07/05/23 06:10	07/07/23 09:55	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	07/05/23 06:10	07/07/23 09:55	7439-92-1	
Lithium	1.0	ug/L	1.0	0.22	1	07/05/23 06:10	07/07/23 09:55	7439-93-2	B
Molybdenum	1.3J	ug/L	1.5	0.44	1	07/05/23 06:10	07/07/23 09:55	7439-98-7	
Selenium	0.65J	ug/L	1.1	0.32	1	07/05/23 06:10	07/07/23 09:55	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/05/23 06:10	07/07/23 09:55	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	07/11/23 10:42	07/12/23 08:13	7439-97-6	1q
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.41	Std. Units			1		06/29/23 11:50		
Field Specific Conductance	632.0	umhos/cm			1		06/29/23 11:50		
Oxygen, Dissolved	7.17	mg/L			1		06/29/23 11:50	7782-44-7	
REDOX	249.4	mV			1		06/29/23 11:50		
Turbidity	0.00	NTU			1		06/29/23 11:50		
Static Water Level	784.67	feet			1		06/29/23 11:50		
Temperature, Water (C)	11.2	deg C			1		06/29/23 11:50		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	408	mg/L	20.0	8.7	1		07/03/23 14:12		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.6	Std. Units	0.10	0.010	1		07/03/23 13:38		H6

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-313 Lab ID: 40264568001 Collected: 06/29/23 11:50 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions		Analytical Method: EPA 300.0 Pace Analytical Services - Green Bay							
Chloride	22.8	mg/L	2.0	0.43	1		07/13/23 05:48	16887-00-6	
Fluoride	0.19J	mg/L	0.32	0.095	1		07/13/23 05:48	16984-48-8	
Sulfate	19.9	mg/L	2.0	0.44	1		07/13/23 05:48	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2 Pace Analytical Services - Green Bay							
Alkalinity, Total as CaCO3	300	mg/L	25.0	7.4	1		07/05/23 13:14		
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay							
Nitrogen, NO2 plus NO3	6.8	mg/L	0.25	0.059	1		07/12/23 15:30		

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-314 Lab ID: 40264568002 Collected: 06/29/23 12:40 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	07/05/23 05:23	07/05/23 19:07	7440-50-8	
Manganese	11.1	ug/L	5.0	1.5	1	07/05/23 05:23	07/05/23 19:07	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	07/05/23 05:23	07/05/23 19:07	7440-22-4	
Total Hardness by 2340B	521	mg/L	5.4	1.0	1	07/05/23 05:23	07/05/23 19:07		
Zinc	<11.6	ug/L	40.0	11.6	1	07/05/23 05:23	07/05/23 19:07	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 10:00	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	07/05/23 06:10	07/07/23 10:00	7440-38-2	
Barium	41.3	ug/L	2.3	0.70	1	07/05/23 06:10	07/07/23 10:00	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	07/05/23 06:10	07/07/23 10:00	7440-41-7	
Boron	15.4	ug/L	10.0	3.0	1	07/05/23 06:10	07/07/23 10:00	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 10:00	7440-43-9	
Calcium	103000	ug/L	254	76.2	1	07/05/23 06:10	07/07/23 10:00	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	07/05/23 06:10	07/07/23 10:00	7440-47-3	
Cobalt	0.14J	ug/L	1.0	0.12	1	07/05/23 06:10	07/07/23 10:00	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	07/05/23 06:10	07/07/23 10:00	7439-92-1	
Lithium	0.94J	ug/L	1.0	0.22	1	07/05/23 06:10	07/07/23 10:00	7439-93-2	B
Molybdenum	1.3J	ug/L	1.5	0.44	1	07/05/23 06:10	07/07/23 10:00	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	07/05/23 06:10	07/07/23 10:00	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/05/23 06:10	07/07/23 10:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	07/11/23 10:42	07/12/23 08:28	7439-97-6	1q
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.20	Std. Units			1		06/29/23 12:40		
Field Specific Conductance	807	umhos/cm			1		06/29/23 12:40		
Oxygen, Dissolved	6.53	mg/L			1		06/29/23 12:40	7782-44-7	
REDOX	254.0	mV			1		06/29/23 12:40		
Turbidity	0.00	NTU			1		06/29/23 12:40		
Static Water Level	784.95	feet			1		06/29/23 12:40		
Temperature, Water (C)	11.0	deg C			1		06/29/23 12:40		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	470	mg/L	20.0	8.7	1		07/03/23 14:13		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.3	Std. Units	0.10	0.010	1		07/03/23 13:44		H6

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-314 Lab ID: 40264568002 Collected: 06/29/23 12:40 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	2.4	mg/L	2.0	0.43	1		07/13/23 06:02	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		07/13/23 06:02	16984-48-8	
Sulfate	3.2	mg/L	2.0	0.44	1		07/13/23 06:02	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	466	mg/L	25.0	7.4	1		07/05/23 13:17		
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	3.1	mg/L	0.25	0.059	1		07/12/23 15:31		

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-315 **Lab ID: 40264568003** Collected: 06/29/23 13:20 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	3.4J	ug/L	10.0	3.4	1	07/05/23 05:23	07/05/23 19:09	7440-50-8	B
Manganese	103	ug/L	5.0	1.5	1	07/05/23 05:23	07/05/23 19:09	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	07/05/23 05:23	07/05/23 19:09	7440-22-4	
Total Hardness by 2340B	530	mg/L	5.4	1.0	1	07/05/23 05:23	07/05/23 19:09		
Zinc	<11.6	ug/L	40.0	11.6	1	07/05/23 05:23	07/05/23 19:09	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 10:05	7440-36-0	
Arsenic	0.38J	ug/L	1.0	0.28	1	07/05/23 06:10	07/07/23 10:05	7440-38-2	
Barium	52.7	ug/L	2.3	0.70	1	07/05/23 06:10	07/07/23 10:05	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	07/05/23 06:10	07/07/23 10:05	7440-41-7	
Boron	13.3	ug/L	10.0	3.0	1	07/05/23 06:10	07/07/23 10:05	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 10:05	7440-43-9	
Calcium	110000	ug/L	254	76.2	1	07/05/23 06:10	07/07/23 10:05	7440-70-2	
Chromium	1.6J	ug/L	3.4	1.0	1	07/05/23 06:10	07/07/23 10:05	7440-47-3	
Cobalt	0.21J	ug/L	1.0	0.12	1	07/05/23 06:10	07/07/23 10:05	7440-48-4	
Lead	0.32J	ug/L	1.0	0.24	1	07/05/23 06:10	07/07/23 10:05	7439-92-1	
Lithium	1.2	ug/L	1.0	0.22	1	07/05/23 06:10	07/07/23 10:05	7439-93-2	B
Molybdenum	<0.44	ug/L	1.5	0.44	1	07/05/23 06:10	07/07/23 10:05	7439-98-7	
Selenium	0.58J	ug/L	1.1	0.32	1	07/05/23 06:10	07/07/23 10:05	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/05/23 06:10	07/07/23 10:05	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	07/11/23 10:42	07/12/23 08:30	7439-97-6	1q
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.13	Std. Units			1		06/29/23 13:20		
Field Specific Conductance	834	umhos/cm			1		06/29/23 13:20		
Oxygen, Dissolved	5.40	mg/L			1		06/29/23 13:20	7782-44-7	
REDOX	230.7	mV			1		06/29/23 13:20		
Turbidity	0.00	NTU			1		06/29/23 13:20		
Static Water Level	785.17	feet			1		06/29/23 13:20		
Temperature, Water (C)	11.0	deg C			1		06/29/23 13:20		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	482	mg/L	20.0	8.7	1		07/03/23 14:13		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.1	Std. Units	0.10	0.010	1		07/03/23 13:45		H6

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-315 Lab ID: 40264568003 Collected: 06/29/23 13:20 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions		Analytical Method: EPA 300.0 Pace Analytical Services - Green Bay							
Chloride	3.3	mg/L	2.0	0.43	1		07/13/23 06:17	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		07/13/23 06:17	16984-48-8	
Sulfate	7.0	mg/L	2.0	0.44	1		07/13/23 06:17	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2 Pace Analytical Services - Green Bay							
Alkalinity, Total as CaCO3	493	mg/L	25.0	7.4	1		07/05/23 13:18		
353.2 Nitrogen, NO2/NO3 pres.		Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay							
Nitrogen, NO2 plus NO3	0.58	mg/L	0.25	0.059	1		07/12/23 14:59		

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: FIELD BLANK MOD 10-11 Lab ID: 40264568004 Collected: 06/29/23 11:30 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	07/05/23 05:23	07/05/23 19:11	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	07/05/23 05:23	07/05/23 19:11	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	07/05/23 05:23	07/05/23 19:11	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	07/05/23 05:23	07/05/23 19:11		
Zinc	<11.6	ug/L	40.0	11.6	1	07/05/23 05:23	07/05/23 19:11	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 09:34	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	07/05/23 06:10	07/07/23 09:34	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	07/05/23 06:10	07/07/23 09:34	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	07/05/23 06:10	07/07/23 09:34	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	07/05/23 06:10	07/07/23 09:34	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	07/05/23 06:10	07/07/23 09:34	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	07/05/23 06:10	07/07/23 09:34	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	07/05/23 06:10	07/07/23 09:34	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	07/05/23 06:10	07/07/23 09:34	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	07/05/23 06:10	07/07/23 09:34	7439-92-1	
Lithium	0.48J	ug/L	1.0	0.22	1	07/05/23 06:10	07/07/23 09:34	7439-93-2	B
Molybdenum	<0.44	ug/L	1.5	0.44	1	07/05/23 06:10	07/07/23 09:34	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	07/05/23 06:10	07/07/23 09:34	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/05/23 06:10	07/07/23 09:34	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	07/11/23 10:42	07/12/23 08:32	7439-97-6	1q
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		07/03/23 14:13		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	6.7	Std. Units	0.10	0.010	1		07/03/23 13:52		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		07/13/23 06:31	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		07/13/23 06:31	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		07/13/23 06:31	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<7.4	mg/L	25.0	7.4	1		07/05/23 13:19		

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ANALYTICAL RESULTS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: FIELD BLANK MOD 10-11 Lab ID: 40264568004 Collected: 06/29/23 11:30 Received: 07/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay								
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		07/12/23 14:59		

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch: 449422	Analysis Method: EPA 7470
QC Batch Method: EPA 7470	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2581268 Matrix: Water

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	07/12/23 08:09	

LABORATORY CONTROL SAMPLE: 2581269

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2581270 2581271

Parameter	Units	2581270		2581271		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Mercury	ug/L	<0.066	5	5	5.5	5.2	110	104	85-115	6	20	

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch:	448947	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3010A	Analysis Description:	6010D MET
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2578837 Matrix: Water

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	4.6J	10.0	07/05/23 18:36	
Manganese	ug/L	<1.5	5.0	07/05/23 18:36	
Silver	ug/L	<3.2	10.0	07/05/23 18:36	
Total Hardness by 2340B	mg/L	<1.0	5.4	07/05/23 18:36	
Zinc	ug/L	<11.6	40.0	07/05/23 18:36	

LABORATORY CONTROL SAMPLE: 2578838

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	267	107	80-120	
Manganese	ug/L	250	268	107	80-120	
Silver	ug/L	125	136	109	80-120	
Total Hardness by 2340B	mg/L		71.7			
Zinc	ug/L	250	264	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2578839 2578840

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40264484001 Result	Spike Conc.	Spike Conc.	Result						
Copper	ug/L	218	250	250	497	488	112	108	75-125	2	20
Manganese	ug/L	16.7	250	250	294	288	111	109	75-125	2	20
Silver	ug/L	<3.2	125	125	140	137	110	107	75-125	2	20
Total Hardness by 2340B	mg/L	95400			167	167				0	20
Zinc	ug/L	238	250	250	508	501	108	105	75-125	1	20

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch: 448951	Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A	Analysis Description: 6020B MET
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2578857 Matrix: Water

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	07/07/23 08:32	
Arsenic	ug/L	<0.28	1.0	07/07/23 08:32	
Barium	ug/L	<0.70	2.3	07/07/23 08:32	
Beryllium	ug/L	<0.25	1.0	07/07/23 08:32	
Boron	ug/L	<3.0	10.0	07/07/23 08:32	
Cadmium	ug/L	<0.15	1.0	07/07/23 08:32	
Calcium	ug/L	<76.2	254	07/07/23 08:32	
Chromium	ug/L	<1.0	3.4	07/07/23 08:32	
Cobalt	ug/L	<0.12	1.0	07/07/23 08:32	
Lead	ug/L	<0.24	1.0	07/07/23 08:32	
Lithium	ug/L	0.53J	1.0	07/07/23 08:32	
Molybdenum	ug/L	<0.44	1.5	07/07/23 08:32	
Selenium	ug/L	<0.32	1.1	07/07/23 08:32	
Thallium	ug/L	<0.14	1.0	07/07/23 08:32	

LABORATORY CONTROL SAMPLE: 2578858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	259	104	80-120	
Arsenic	ug/L	250	257	103	80-120	
Barium	ug/L	250	252	101	80-120	
Beryllium	ug/L	250	273	109	80-120	
Boron	ug/L	250	269	107	80-120	
Cadmium	ug/L	250	258	103	80-120	
Calcium	ug/L	10000	10000	100	80-120	
Chromium	ug/L	250	254	101	80-120	
Cobalt	ug/L	250	252	101	80-120	
Lead	ug/L	250	258	103	80-120	
Lithium	ug/L	250	271	109	80-120	
Molybdenum	ug/L	250	255	102	80-120	
Selenium	ug/L	250	270	108	80-120	
Thallium	ug/L	250	250	100	80-120	

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2578859		2578860		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40264526004 Result	MS Spike Conc.	MSD Spike Conc.								
Antimony	ug/L	<0.00015 mg/L	250	250	261	262	104	105	75-125	0	20	
Arsenic	ug/L	0.00036J mg/L	250	250	261	262	104	105	75-125	1	20	
Barium	ug/L	0.074 mg/L	250	250	327	329	101	102	75-125	1	20	
Beryllium	ug/L	<0.00025 mg/L	250	250	285	288	114	115	75-125	1	20	
Boron	ug/L	0.051 mg/L	250	250	328	337	111	114	75-125	3	20	
Cadmium	ug/L	<0.00015 mg/L	250	250	257	259	103	104	75-125	1	20	
Calcium	ug/L	87.5 mg/L	10000	10000	101000	104000	133	160	75-125	3	20	P6
Chromium	ug/L	<0.0010 mg/L	250	250	247	250	99	100	75-125	1	20	
Cobalt	ug/L	0.00033J mg/L	250	250	240	243	96	97	75-125	1	20	
Lead	ug/L	<0.00024 mg/L	250	250	251	254	100	102	75-125	1	20	
Lithium	ug/L	0.0045 mg/L	250	250	285	288	112	114	75-125	1	20	
Molybdenum	ug/L	0.0014J mg/L	250	250	263	265	105	105	75-125	0	20	
Selenium	ug/L	0.0010J mg/L	250	250	271	273	108	109	75-125	1	20	
Thallium	ug/L	0.00026J mg/L	250	250	233	236	93	94	75-125	1	20	

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch:	448880	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2578605 Matrix: Water
 Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	07/03/23 14:10	

LABORATORY CONTROL SAMPLE: 2578606

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	593	590	99	80-120	

SAMPLE DUPLICATE: 2578607

Parameter	Units	40264504001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1520	1490	2	10	

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch: 448888

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

SAMPLE DUPLICATE: 2578712

Parameter	Units	40264445001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.8	8.8	1	20	H6

SAMPLE DUPLICATE: 2578713

Parameter	Units	40264568001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.6	7.6	0	20	H6

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch:	449550	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2582150 Matrix: Water
 Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	07/12/23 20:38	
Fluoride	mg/L	<0.095	0.32	07/12/23 20:38	
Sulfate	mg/L	<0.44	2.0	07/12/23 20:38	

LABORATORY CONTROL SAMPLE: 2582151

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.1	100	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	20.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2582152 2582153

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40264435001 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	30.8	20	20	50.1	50.2	97	97	90-110	0	15		
Fluoride	mg/L	0.17J	2	2	2.2	2.2	100	101	90-110	0	15		
Sulfate	mg/L	5.4	20	20	25.8	25.7	102	102	90-110	0	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2582154 2582155

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40264442002 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	410	400	400	796	788	96	94	90-110	1	15		
Sulfate	mg/L	58.8	400	400	455	451	99	98	90-110	1	15		

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch:	448977	Analysis Method:	EPA 310.2
QC Batch Method:	EPA 310.2	Analysis Description:	310.2 Alkalinity
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2578944 Matrix: Water
 Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.4	25.0	07/05/23 13:12	

LABORATORY CONTROL SAMPLE: 2578945

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	107	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2578946 2578947

Parameter	Units	40264568001		2578946		2578947		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Alkalinity, Total as CaCO3	mg/L	300	100	100	100	396	397	96	97	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2578948 2578949

Parameter	Units	40264571005		2578948		2578949		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Alkalinity, Total as CaCO3	mg/L	258	100	100	100	356	357	97	98	90-110	0	20	

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch: 449498	Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2	Analysis Description: 353.2 Nitrate + Nitrite, preserved
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568001

METHOD BLANK: 2581620 Matrix: Water

Associated Lab Samples: 40264568001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	07/12/23 11:26	

LABORATORY CONTROL SAMPLE: 2581621

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.4	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2581622 2581623

Parameter	Units	40264422002		2581623		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MS Result	MS Spike Conc.						
Nitrogen, NO2 plus NO3	mg/L	<0.30	12.5	11.6	12.5	93	94	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2581624 2581625

Parameter	Units	40264442002		2581625		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MS Result	MS Spike Conc.						
Nitrogen, NO2 plus NO3	mg/L	<0.059	2.5	2.3	2.5	94	91	90-110	3	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch:	449499	Analysis Method:	EPA 353.2
QC Batch Method:	EPA 353.2	Analysis Description:	353.2 Nitrate + Nitrite, preserved
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40264568002, 40264568003, 40264568004

METHOD BLANK: 2581626 Matrix: Water
 Associated Lab Samples: 40264568002, 40264568003, 40264568004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	07/12/23 14:56	

LABORATORY CONTROL SAMPLE: 2581627

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2581628 2581629

Parameter	Units	40264568002		2581629		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, NO2 plus NO3	mg/L	3.1	2.5	5.6	2.5	100	99	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2581630 2581631

Parameter	Units	40264797002		2581631		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Nitrogen, NO2 plus NO3	mg/L	1.4	12.5	13.8	12.5	99	98	90-110	1	20	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-313 **Lab ID: 40264568001** Collected: 06/29/23 11:50 Received: 07/01/23 09:00 Matrix: Water
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.132 ± 0.334 (0.731) C:NA T:83%	pCi/L	07/24/23 14:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.350 ± 0.381 (0.796) C:84% T:83%	pCi/L	07/14/23 15:05	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.350 ± 0.715 (1.53)	pCi/L	07/25/23 10:45	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-314 **Lab ID: 40264568002** Collected: 06/29/23 12:40 Received: 07/01/23 09:00 Matrix: Water
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.0476 ± 0.385 (0.755) C:NA T:80%	pCi/L	07/24/23 14:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.374 ± 0.395 (0.819) C:83% T:80%	pCi/L	07/14/23 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.422 ± 0.780 (1.57)	pCi/L	07/25/23 10:45	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: MW-315 **Lab ID: 40264568003** Collected: 06/29/23 13:20 Received: 07/01/23 09:00 Matrix: Water
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.117 ± 0.276 (0.619) C:NA T:89%	pCi/L	07/24/23 14:57	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.464 ± 0.345 (0.669) C:78% T:89%	pCi/L	07/14/23 15:06	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.464 ± 0.621 (1.29)	pCi/L	07/25/23 10:45	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Sample: FIELD BLANK MOD 10-11 **Lab ID:** 40264568004 Collected: 06/29/23 11:30 Received: 07/01/23 09:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0447 ± 0.382 (0.779) C:NA T:84%	pCi/L	07/24/23 14:57	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.414 ± 0.372 (0.755) C:84% T:84%	pCi/L	07/14/23 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.414 ± 0.754 (1.53)	pCi/L	07/25/23 10:45	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch: 599756

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2914973

Matrix: Water

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0247 ± 0.289 (0.673) C:84% T:84%	pCi/L	07/14/23 15:05	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

QC Batch: 599753

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

METHOD BLANK: 2914969

Matrix: Water

Associated Lab Samples: 40264568001, 40264568002, 40264568003, 40264568004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0414 ± 0.189 (0.446) C:NA T:84%	pCi/L	07/24/23 14:57	

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QUALIFIERS

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q Analyte was measured in the associated method blank at a concentration of -0.10ug/L

B Analyte was detected in the associated method blank.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Table with 6 columns: Lab ID, Sample ID, QC Batch Method, QC Batch, Analytical Method, Analytical Batch. It lists various sample IDs (e.g., MW-313, MW-314, FIELD BLANK MOD 10-11) and their corresponding QC and analytical data.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157 WPL-COLUMBIA

Pace Project No.: 40264568

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40264568001	MW-313	EPA 353.2	449498		
40264568002	MW-314	EPA 353.2	449499		
40264568003	MW-315	EPA 353.2	449499		
40264568004	FIELD BLANK MOD 10-11	EPA 353.2	449499		

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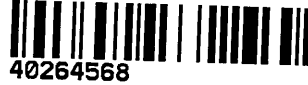
Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: SCS Engineers

WO#: **40264568**

Courier: CS Logistics Fed Ex Speedee UPS Walto
 Client Pace Other: _____



Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - 128 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Un/corr: 0.5 /Corr: 0.5

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:

Date: 07/01/2023 Initials: MJB

Labeled By Initials: SG

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> , Pace IR, Non-Pace		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Table 2. Sampling Points and Parameters - CCR Baseline Sampling Program
Groundwater Monitoring - Columbia Energy Center / SCS Engineers Project #25223067

Parameter	COC #1 - Background Wells		COC #2 - Landfill Modules 1-3						COC #3 - Landfill Modules 4-6				COC #4 - Landfill Modules 10-11				COC #5		
	MW-301	MW-84A	MW-302	MW-33AR	MW-34A	MW-93A	MW-93B	MW-312	FIELD BLANK - MOD1-3LF	MW-309	MW-310	MW-311	FIELD BLANK MOD4	MW-313	MW-314	MW-315	FIELD BLANK MOD10-11	MW-309	FIELD BLANK MOD4
Appendix III Parameters (Detection Monitoring)	Boron													X	X	X	X	X	
	Calcium														X	X	X		
	Chloride														X	X	X		
	Fluoride														X	X	X		
	pH														X	X	X		
	Sulfate														X	X	X	X	X
	TDS														X	X	X		
	Antimony														X	X	X	X	
	Arsenic														X	X	X	X	
	Barium														X	X	X	X	
	Beryllium														X	X	X	X	
	Cadmium														X	X	X	X	
	Chromium														X	X	X	X	
Cobalt														X	X	X	X		
Fluoride														X	X	X	X		
Lead														X	X	X	X		
Lithium														X	X	X	X		
Mercury														X	X	X	X		
Molybdenum														X	X	X	X		
Selenium														X	X	X	X		
Thallium														X	X	X	X		
Radium 226+228														X	X	X	X		
Appendix IV Parameters (Assessment Monitoring)	Alkalinity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Hardness	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Nitrate + Nitrite as N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Copper	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Manganese	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Silver	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Zinc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CCR Rule Field Parameters	Groundwater Elevation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	pH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Well Depth																		
	Specific Conductance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Low-Flow Sampling Field Parameters	Dissolved Oxygen	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	ORP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Temperature	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Turbidity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Color	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Odor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Notes: All samples are unfiltered (total).

X:\reports\40264h\40264568\2306 WDNR Baseline_COL CCR_309 Resample.xls\Sheet1



September 06, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25222157 ALLIANT COLUMBIA
Pace Project No.: 40265991

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on August 01, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burris, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

ANABISO/IEC 17025:2017 Rad Cert#: L24170

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 2950

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA010

Louisiana DEQ/TNI Certification #: 04086

Maine Certification #: 2023021

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572023-03

New Hampshire/TNI Certification #: 297622

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-015

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN02867

Texas/TNI Certification #: T104704188-22-18

Utah/TNI Certification #: PA014572223-14

USDA Soil Permit #: 525-23-67-77263

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-21-8

Virginia VELAP Certification ID: 11873

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-21-00008

Federal Fish & Wildlife Permit #: 51774A

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SAMPLE SUMMARY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40265991001	MW-313	Water	07/31/23 10:00	08/01/23 09:00
40265991002	MW-314	Water	07/31/23 10:30	08/01/23 09:00
40265991003	MW-315	Water	07/31/23 11:10	08/01/23 09:00
40265991004	FIELD BLANK	Water	07/31/23 11:00	08/01/23 09:00

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SAMPLE ANALYTE COUNT

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40265991001	MW-313	EPA 6010D	SIS	5	PASI-G
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	9	PASI-G
		EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	SRK	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	MT	1	PASI-G
		EPA 353.2	MT	1	PASI-G
		40265991002	MW-314	EPA 6010D	SIS
EPA 6020B	KXS			14	PASI-G
EPA 7470	AJT			1	PASI-G
	LB			9	PASI-G
EPA 903.1	LL1			1	PASI-PA
EPA 904.0	ZPC			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	SRK			1	PASI-G
EPA 9040	SRK			1	PASI-G
EPA 300.0	HMB			3	PASI-G
EPA 310.2	MT			1	PASI-G
EPA 353.2	MT			1	PASI-G
40265991003	MW-315			EPA 6010D	SIS
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			LB	9	PASI-G
		EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	SRK	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	MT	1	PASI-G
		EPA 353.2	MT	1	PASI-G
		40265991004	FIELD BLANK	EPA 6010D	SIS

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SAMPLE ANALYTE COUNT

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	SRK	1	PASI-G
		EPA 9040	SRK	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 310.2	MT	1	PASI-G
		EPA 353.2	MT	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

PASI-PA = Pace Analytical Services - Greensburg

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-313 Lab ID: 40265991001 Collected: 07/31/23 10:00 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	08/04/23 06:00	08/04/23 15:08	7440-50-8	
Manganese	47.1	ug/L	5.0	1.5	1	08/04/23 06:00	08/04/23 15:08	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	08/07/23 05:29	08/08/23 11:01	7440-22-4	
Total Hardness by 2340B	376	mg/L	5.4	1.0	1	08/04/23 06:00	08/04/23 15:08		
Zinc	<11.6	ug/L	40.0	11.6	1	08/04/23 06:00	08/04/23 15:08	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 00:32	7440-36-0	
Arsenic	0.34J	ug/L	1.0	0.28	1	08/03/23 05:33	08/05/23 00:32	7440-38-2	
Barium	38.9	ug/L	2.3	0.70	1	08/03/23 05:33	08/05/23 00:32	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	08/03/23 05:33	08/05/23 00:32	7440-41-7	
Boron	97.1	ug/L	10.0	3.0	1	08/03/23 05:33	08/05/23 00:32	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 00:32	7440-43-9	
Calcium	70000	ug/L	254	76.2	1	08/03/23 05:33	08/05/23 00:32	7440-70-2	
Chromium	1.3J	ug/L	3.4	1.0	1	08/03/23 05:33	08/05/23 00:32	7440-47-3	
Cobalt	0.18J	ug/L	1.0	0.12	1	08/03/23 05:33	08/05/23 00:32	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	08/03/23 05:33	08/05/23 00:32	7439-92-1	
Lithium	0.82J	ug/L	1.0	0.22	1	08/03/23 05:33	08/05/23 00:32	7439-93-2	B
Molybdenum	1.1J	ug/L	1.5	0.44	1	08/03/23 05:33	08/05/23 00:32	7439-98-7	
Selenium	0.64J	ug/L	1.1	0.32	1	08/03/23 05:33	08/05/23 00:32	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/03/23 05:33	08/05/23 00:32	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	08/03/23 08:08	08/03/23 15:01	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.40	Std. Units			1		07/31/23 10:00		
Field Specific Conductance	622.8	umhos/cm			1		07/31/23 10:00		
Oxygen, Dissolved	8.16	mg/L			1		07/31/23 10:00	7782-44-7	
REDOX	240.0	mV			1		07/31/23 10:00		
Turbidity	0.00	NTU			1		07/31/23 10:00		
Static Water Level	783.96	feet			1		07/31/23 10:00		
Apparent Color	N	no units			1		07/31/23 10:00		
Odor	N	no units			1		07/31/23 10:00		
Temperature, Water (C)	10.9	deg C			1		07/31/23 10:00		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	354	mg/L	20.0	8.7	1		08/02/23 15:08		

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Page 6 of 34

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-313 Lab ID: 40265991001 Collected: 07/31/23 10:00 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.5	Std. Units	0.10	0.010	1		08/02/23 13:03		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	27.0	mg/L	2.0	0.43	1		08/08/23 15:26	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		08/08/23 15:26	16984-48-8	M0
Sulfate	15.4	mg/L	2.0	0.44	1		08/08/23 15:26	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	293	mg/L	25.0	7.4	1		08/09/23 09:24		
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	6.9	mg/L	0.25	0.059	1		08/09/23 13:46		

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-314 Lab ID: 40265991002 Collected: 07/31/23 10:30 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	08/04/23 06:00	08/04/23 15:10	7440-50-8	
Manganese	5.0J	ug/L	5.0	1.5	1	08/04/23 06:00	08/04/23 15:10	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	08/07/23 05:29	08/08/23 10:54	7440-22-4	
Total Hardness by 2340B	521	mg/L	5.4	1.0	1	08/04/23 06:00	08/04/23 15:10		
Zinc	<11.6	ug/L	40.0	11.6	1	08/04/23 06:00	08/04/23 15:10	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 01:31	7440-36-0	
Arsenic	0.32J	ug/L	1.0	0.28	1	08/03/23 05:33	08/05/23 01:31	7440-38-2	
Barium	34.9	ug/L	2.3	0.70	1	08/03/23 05:33	08/05/23 01:31	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	08/03/23 05:33	08/05/23 01:31	7440-41-7	
Boron	12.4	ug/L	10.0	3.0	1	08/03/23 05:33	08/05/23 01:31	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 01:31	7440-43-9	
Calcium	109000	ug/L	254	76.2	1	08/03/23 05:33	08/05/23 01:31	7440-70-2	
Chromium	1.1J	ug/L	3.4	1.0	1	08/03/23 05:33	08/05/23 01:31	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	08/03/23 05:33	08/05/23 01:31	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	08/03/23 05:33	08/05/23 01:31	7439-92-1	
Lithium	0.71J	ug/L	1.0	0.22	1	08/03/23 05:33	08/05/23 01:31	7439-93-2	B
Molybdenum	0.87J	ug/L	1.5	0.44	1	08/03/23 05:33	08/05/23 01:31	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/03/23 05:33	08/05/23 01:31	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/03/23 05:33	08/05/23 01:31	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	08/03/23 08:08	08/03/23 15:08	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.45	Std. Units			1		07/31/23 10:30		
Field Specific Conductance	862	umhos/cm			1		07/31/23 10:30		
Oxygen, Dissolved	7.65	mg/L			1		07/31/23 10:30	7782-44-7	
REDOX	158.3	mV			1		07/31/23 10:30		
Turbidity	0.70	NTU			1		07/31/23 10:30		
Static Water Level	784.26	feet			1		07/31/23 10:30		
Apparent Color	N	no units			1		07/31/23 10:30		
Odor	N	no units			1		07/31/23 10:30		
Temperature, Water (C)	11.0	deg C			1		07/31/23 10:30		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	464	mg/L	20.0	8.7	1		08/02/23 15:08		

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Page 8 of 34

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-314 Lab ID: 40265991002 Collected: 07/31/23 10:30 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.2	Std. Units	0.10	0.010	1		08/02/23 13:05		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.0	mg/L	2.0	0.43	1		08/08/23 16:09	16887-00-6	
Fluoride	0.62	mg/L	0.32	0.095	1		08/08/23 16:09	16984-48-8	
Sulfate	3.9	mg/L	2.0	0.44	1		08/08/23 16:09	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	475	mg/L	25.0	7.4	1		08/09/23 09:25		
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	6.7	mg/L	0.25	0.059	1		08/09/23 13:47		

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-315 Lab ID: 40265991003 Collected: 07/31/23 11:10 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	08/04/23 06:00	08/04/23 15:16	7440-50-8	
Manganese	54.4	ug/L	5.0	1.5	1	08/04/23 06:00	08/04/23 15:16	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	08/07/23 05:29	08/08/23 11:05	7440-22-4	
Total Hardness by 2340B	558	mg/L	5.4	1.0	1	08/04/23 06:00	08/04/23 15:16		
Zinc	<11.6	ug/L	40.0	11.6	1	08/04/23 06:00	08/04/23 15:16	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 01:46	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	08/03/23 05:33	08/05/23 01:46	7440-38-2	
Barium	50.4	ug/L	2.3	0.70	1	08/03/23 05:33	08/05/23 01:46	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	08/03/23 05:33	08/05/23 01:46	7440-41-7	
Boron	12.3	ug/L	10.0	3.0	1	08/03/23 05:33	08/05/23 01:46	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 01:46	7440-43-9	
Calcium	121000	ug/L	254	76.2	1	08/03/23 05:33	08/05/23 01:46	7440-70-2	
Chromium	1.4J	ug/L	3.4	1.0	1	08/03/23 05:33	08/05/23 01:46	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	08/03/23 05:33	08/05/23 01:46	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	08/03/23 05:33	08/05/23 01:46	7439-92-1	
Lithium	0.75J	ug/L	1.0	0.22	1	08/03/23 05:33	08/05/23 01:46	7439-93-2	B
Molybdenum	<0.44	ug/L	1.5	0.44	1	08/03/23 05:33	08/05/23 01:46	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/03/23 05:33	08/05/23 01:46	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/03/23 05:33	08/05/23 01:46	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	08/03/23 08:08	08/03/23 15:10	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	6.97	Std. Units			1		07/31/23 11:10		
Field Specific Conductance	876	umhos/cm			1		07/31/23 11:10		
Oxygen, Dissolved	4.17	mg/L			1		07/31/23 11:10	7782-44-7	
REDOX	233.3	mV			1		07/31/23 11:10		
Turbidity	0.00	NTU			1		07/31/23 11:10		
Static Water Level	784.49	feet			1		07/31/23 11:10		
Apparent Color	N	no units			1		07/31/23 11:10		
Odor	N	no units			1		07/31/23 11:10		
Temperature, Water (C)	11.1	deg C			1		07/31/23 11:10		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	486	mg/L	20.0	8.7	1		08/02/23 15:09		

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-315 **Lab ID: 40265991003** Collected: 07/31/23 11:10 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	7.0	Std. Units	0.10	0.010	1		08/02/23 13:06		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.2	mg/L	2.0	0.43	1		08/08/23 16:23	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		08/08/23 16:23	16984-48-8	
Sulfate	5.2	mg/L	2.0	0.44	1		08/08/23 16:23	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	566	mg/L	50.0	14.9	2		08/09/23 09:54		
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	0.24J	mg/L	0.25	0.059	1		08/09/23 13:48		

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: FIELD BLANK Lab ID: 40265991004 Collected: 07/31/23 11:00 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	08/04/23 06:00	08/04/23 15:17	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	08/04/23 06:00	08/04/23 15:17	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	08/07/23 05:29	08/08/23 11:06	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	08/04/23 06:00	08/04/23 15:17		
Zinc	<11.6	ug/L	40.0	11.6	1	08/04/23 06:00	08/04/23 15:17	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 01:16	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	08/03/23 05:33	08/05/23 01:16	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	08/03/23 05:33	08/05/23 01:16	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	08/03/23 05:33	08/05/23 01:16	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	08/03/23 05:33	08/05/23 01:16	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	08/03/23 05:33	08/05/23 01:16	7440-43-9	
Calcium	<76.2	ug/L	254	76.2	1	08/03/23 05:33	08/05/23 01:16	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	08/03/23 05:33	08/05/23 01:16	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	08/03/23 05:33	08/05/23 01:16	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	08/03/23 05:33	08/05/23 01:16	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	08/03/23 05:33	08/05/23 01:16	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	08/03/23 05:33	08/05/23 01:16	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/03/23 05:33	08/05/23 01:16	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/03/23 05:33	08/05/23 01:16	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	08/03/23 08:08	08/03/23 15:12	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		08/02/23 15:09		
9040 pH									
Analytical Method: EPA 9040									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	6.3	Std. Units	0.10	0.010	1		08/02/23 13:24		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		08/08/23 16:38	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		08/08/23 16:38	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		08/08/23 16:38	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<7.4	mg/L	25.0	7.4	1		08/09/23 09:27		

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ANALYTICAL RESULTS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: FIELD BLANK Lab ID: 40265991004 Collected: 07/31/23 11:00 Received: 08/01/23 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay								
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		08/09/23 13:48		

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch: 451363	Analysis Method: EPA 7470
QC Batch Method: EPA 7470	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2593250 Matrix: Water
 Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	08/03/23 14:56	

LABORATORY CONTROL SAMPLE: 2593251

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.7	93	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2593252 2593253

Parameter	Units	2593252		2593253		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40265991001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.066	5	5	4.8	4.9	96	97	85-115	1	20

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch:	451468	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3010A	Analysis Description:	6010D MET
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2593894 Matrix: Water

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<3.4	10.0	08/04/23 14:53	
Manganese	ug/L	<1.5	5.0	08/04/23 14:53	
Total Hardness by 2340B	mg/L	<1.0	5.4	08/04/23 14:53	
Zinc	ug/L	<11.6	40.0	08/04/23 14:53	

LABORATORY CONTROL SAMPLE: 2593895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	261	104	80-120	
Manganese	ug/L	250	261	104	80-120	
Total Hardness by 2340B	mg/L		70.2			
Zinc	ug/L	250	260	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2593896 2593897

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40266124001 Result	Spike Conc.	Spike Conc.	Result						
Copper	ug/L	12.4	250	250	270	272	103	104	75-125	1	20
Manganese	ug/L	9.4	250	250	268	271	104	104	75-125	1	20
Total Hardness by 2340B	mg/L	240000 ug/L			303	312				3	20
Zinc	ug/L	<11.6	250	250	264	266	102	103	75-125	1	20

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch:	451360	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3010A	Analysis Description:	6020B MET
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2593233 Matrix: Water

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	08/04/23 23:48	
Arsenic	ug/L	<0.28	1.0	08/04/23 23:48	
Barium	ug/L	<0.70	2.3	08/04/23 23:48	
Beryllium	ug/L	<0.25	1.0	08/04/23 23:48	
Boron	ug/L	<3.0	10.0	08/04/23 23:48	
Cadmium	ug/L	<0.15	1.0	08/04/23 23:48	
Calcium	ug/L	<76.2	254	08/04/23 23:48	
Chromium	ug/L	<1.0	3.4	08/04/23 23:48	
Cobalt	ug/L	<0.12	1.0	08/04/23 23:48	
Lead	ug/L	<0.24	1.0	08/04/23 23:48	
Lithium	ug/L	0.29J	1.0	08/04/23 23:48	
Molybdenum	ug/L	<0.44	1.5	08/04/23 23:48	
Selenium	ug/L	<0.32	1.1	08/04/23 23:48	
Thallium	ug/L	<0.14	1.0	08/04/23 23:48	

LABORATORY CONTROL SAMPLE: 2593234

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	260	104	80-120	
Arsenic	ug/L	250	256	103	80-120	
Barium	ug/L	250	253	101	80-120	
Beryllium	ug/L	250	245	98	80-120	
Boron	ug/L	250	227	91	80-120	
Cadmium	ug/L	250	251	100	80-120	
Calcium	ug/L	10000	10600	106	80-120	
Chromium	ug/L	250	249	100	80-120	
Cobalt	ug/L	250	259	104	80-120	
Lead	ug/L	250	266	106	80-120	
Lithium	ug/L	250	241	96	80-120	
Molybdenum	ug/L	250	263	105	80-120	
Selenium	ug/L	250	259	104	80-120	
Thallium	ug/L	250	252	101	80-120	

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Parameter	Units	2593235		2593236		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40265991001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	<0.15	250	250	258	258	103	103	75-125	0	20		
Arsenic	ug/L	0.34J	250	250	249	249	99	99	75-125	0	20		
Barium	ug/L	38.9	250	250	281	282	97	97	75-125	0	20		
Beryllium	ug/L	<0.25	250	250	231	234	92	94	75-125	1	20		
Boron	ug/L	97.1	250	250	301	308	82	84	75-125	2	20		
Cadmium	ug/L	<0.15	250	250	249	250	100	100	75-125	0	20		
Calcium	ug/L	70000	10000	10000	82000	79900	119	98	75-125	3	20		
Chromium	ug/L	1.3J	250	250	239	237	95	94	75-125	1	20		
Cobalt	ug/L	0.18J	250	250	243	242	97	97	75-125	0	20		
Lead	ug/L	<0.24	250	250	259	260	104	104	75-125	0	20		
Lithium	ug/L	0.82J	250	250	230	230	91	92	75-125	0	20		
Molybdenum	ug/L	1.1J	250	250	258	259	103	103	75-125	0	20		
Selenium	ug/L	0.64J	250	250	256	252	102	101	75-125	1	20		
Thallium	ug/L	<0.14	250	250	250	246	100	99	75-125	2	20		

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch:	451326	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2593071 Matrix: Water
 Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	08/02/23 15:06	

LABORATORY CONTROL SAMPLE: 2593072

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	531	576	108	80-120	

SAMPLE DUPLICATE: 2593073

Parameter	Units	40266010001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	898	922	3	10	

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch: 451276

Analysis Method: EPA 9040

QC Batch Method: EPA 9040

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

SAMPLE DUPLICATE: 2592736

Parameter	Units	40265765003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.2	8.2	0	20	1q,H6

SAMPLE DUPLICATE: 2592737

Parameter	Units	40265991001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.6	0	20	H6

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch:	451751	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2595846 Matrix: Water
 Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	08/08/23 14:38	
Fluoride	mg/L	<0.095	0.32	08/08/23 14:38	
Sulfate	mg/L	<0.44	2.0	08/08/23 14:38	

LABORATORY CONTROL SAMPLE: 2595847

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.2	106	90-110	
Fluoride	mg/L	2	2.1	104	90-110	
Sulfate	mg/L	20	21.1	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2595848 2595849

Parameter	Units	40265991001		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chloride	mg/L	27.0	20	20	47.8	48.0	104	105	90-110	1	15		
Fluoride	mg/L	<0.095	2	2	2.4	2.4	119	120	90-110	2	15	M0	
Sulfate	mg/L	15.4	20	20	37.0	37.3	108	109	90-110	1	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2595850 2595851

Parameter	Units	40266070001		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chloride	mg/L	182	400	400	616	616	109	109	90-110	0	15		
Fluoride	mg/L	<1.9	40	40	43.3	43.5	108	109	90-110	1	15		
Sulfate	mg/L	181	400	400	616	616	109	109	90-110	0	15		

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch:	451867	Analysis Method:	EPA 310.2
QC Batch Method:	EPA 310.2	Analysis Description:	310.2 Alkalinity
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2596348 Matrix: Water
 Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.4	25.0	08/09/23 09:11	

LABORATORY CONTROL SAMPLE: 2596349

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	106	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2596350 2596351

Parameter	Units	40265768004		2596351		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO3	mg/L	220	100	100	311	310	91	90	90-110	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2596352 2596353

Parameter	Units	40266033001		2596353		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO3	mg/L	75.5	100	100	185	183	109	108	90-110	1	20

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QUALITY CONTROL DATA

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch:	451915	Analysis Method:	EPA 353.2
QC Batch Method:	EPA 353.2	Analysis Description:	353.2 Nitrate + Nitrite, preserved
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2596513 Matrix: Water
 Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	08/09/23 13:41	

LABORATORY CONTROL SAMPLE: 2596514

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2596515 2596516

Parameter	Units	40266132001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	3.5	2.5	2.5	6.0	6.0	99	99	90-110	0	20	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-313	Lab ID: 40265991001	Collected: 07/31/23 10:00	Received: 08/01/23 09:00	Matrix: Water
PWS:	Site ID:	Sample Type:		

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.273 ± 0.628 (1.14) C:NA T:88%	pCi/L	08/22/23 13:00	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.621 ± 0.451 (0.886) C:78% T:89%	pCi/L	08/21/23 16:42	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.894 ± 1.08 (2.03)	pCi/L	08/23/23 11:43	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-314	Lab ID: 40265991002	Collected: 07/31/23 10:30	Received: 08/01/23 09:00	Matrix: Water
PWS:	Site ID:	Sample Type:		

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	-0.0704 ± 0.321 (0.758) C:NA T:85%	pCi/L	08/22/23 13:00	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.359 ± 0.390 (0.816) C:81% T:87%	pCi/L	08/21/23 16:42	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.359 ± 0.711 (1.57)	pCi/L	08/23/23 11:43	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Sample: MW-315 **Lab ID: 40265991003** Collected: 07/31/23 11:10 Received: 08/01/23 09:00 Matrix: Water
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.334 ± 0.535 (0.926) C:NA T:94%	pCi/L	08/22/23 13:00	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	1.02 ± 0.513 (0.898) C:72% T:85%	pCi/L	08/21/23 16:42	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.35 ± 1.05 (1.82)	pCi/L	08/23/23 11:43	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: FIELD BLANK Lab ID: 40265991004 Collected: 07/31/23 11:00 Received: 08/01/23 09:00 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.335 ± 0.574 (1.01) C:NA T:84%	pCi/L	08/22/23 13:00	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.510 ± 0.499 (1.03) C:74% T:79%	pCi/L	08/21/23 16:42	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.845 ± 1.07 (2.04)	pCi/L	08/23/23 11:43	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch: 606959

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2952337

Matrix: Water

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.218 ± 0.339 (0.587) C:NA T:87%	pCi/L	08/22/23 12:46	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

QC Batch: 606960

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

METHOD BLANK: 2952341

Matrix: Water

Associated Lab Samples: 40265991001, 40265991002, 40265991003, 40265991004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0807 ± 0.374 (0.853) C:78% T:78%	pCi/L	08/21/23 16:38	

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QUALIFIERS

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

WORKORDER QUALIFIERS

WO: 40265991

[1] Revised Report: The client has provided new groundwater elevation data.

ANALYTE QUALIFIERS

1q Due to the sample matrix, DI water was added to this sample on a one to one basis and the sample was stirred before analysis.

B Analyte was detected in the associated method blank.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40265991001	MW-313	EPA 3010A	451468	EPA 6010D	451530
40265991001	MW-313	EPA 3010A	451596	EPA 6010D	451768
40265991002	MW-314	EPA 3010A	451468	EPA 6010D	451530
40265991002	MW-314	EPA 3010A	451596	EPA 6010D	451768
40265991003	MW-315	EPA 3010A	451468	EPA 6010D	451530
40265991003	MW-315	EPA 3010A	451596	EPA 6010D	451768
40265991004	FIELD BLANK	EPA 3010A	451468	EPA 6010D	451530
40265991004	FIELD BLANK	EPA 3010A	451596	EPA 6010D	451768
40265991001	MW-313	EPA 3010A	451360	EPA 6020B	451438
40265991002	MW-314	EPA 3010A	451360	EPA 6020B	451438
40265991003	MW-315	EPA 3010A	451360	EPA 6020B	451438
40265991004	FIELD BLANK	EPA 3010A	451360	EPA 6020B	451438
40265991001	MW-313	EPA 7470	451363	EPA 7470	451414
40265991002	MW-314	EPA 7470	451363	EPA 7470	451414
40265991003	MW-315	EPA 7470	451363	EPA 7470	451414
40265991004	FIELD BLANK	EPA 7470	451363	EPA 7470	451414
40265991001	MW-313				
40265991002	MW-314				
40265991003	MW-315				
40265991001	MW-313	EPA 903.1	606959		
40265991002	MW-314	EPA 903.1	606959		
40265991003	MW-315	EPA 903.1	606959		
40265991004	FIELD BLANK	EPA 903.1	606959		
40265991001	MW-313	EPA 904.0	606960		
40265991002	MW-314	EPA 904.0	606960		
40265991003	MW-315	EPA 904.0	606960		
40265991004	FIELD BLANK	EPA 904.0	606960		
40265991001	MW-313	Total Radium Calculation	610583		
40265991002	MW-314	Total Radium Calculation	610583		
40265991003	MW-315	Total Radium Calculation	610583		
40265991004	FIELD BLANK	Total Radium Calculation	610583		
40265991001	MW-313	SM 2540C	451326		
40265991002	MW-314	SM 2540C	451326		
40265991003	MW-315	SM 2540C	451326		
40265991004	FIELD BLANK	SM 2540C	451326		
40265991001	MW-313	EPA 9040	451276		
40265991002	MW-314	EPA 9040	451276		
40265991003	MW-315	EPA 9040	451276		
40265991004	FIELD BLANK	EPA 9040	451276		
40265991001	MW-313	EPA 300.0	451751		
40265991002	MW-314	EPA 300.0	451751		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25222157 ALLIANT COLUMBIA

Pace Project No.: 40265991

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40265991003	MW-315	EPA 300.0	451751		
40265991004	FIELD BLANK	EPA 300.0	451751		
40265991001	MW-313	EPA 310.2	451867		
40265991002	MW-314	EPA 310.2	451867		
40265991003	MW-315	EPA 310.2	451867		
40265991004	FIELD BLANK	EPA 310.2	451867		
40265991001	MW-313	EPA 353.2	451915		
40265991002	MW-314	EPA 353.2	451915		
40265991003	MW-315	EPA 353.2	451915		
40265991004	FIELD BLANK	EPA 353.2	451915		

REPORT OF LABORATORY ANALYSIS

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Company: **SCSEngineers**
 Address: **Madison, WI**
 Report To: **Meghan Brodzett**
 Copy To:

Billing Information:
25222157
 Email To: **mbrodzett@scsengineers.com**
 Site Collection Info/Address:

ALL SHADED AREAS are for LAB USE ONLY

Customer Project Name/Number:
 State: County/City: Time Zone Collected:
 / [] PT [] MT [] CT [] ET

Phone: **414-897-4253** Site/Facility ID #: Compliance Monitoring?
 Email: **eschaefer@scsengineers.com** [] Yes [] No
 Collected By (print): **Ethan Schaefer** Purchase Order #: DW PWS ID #:
 Quote #: DW Location Code:
 Collected By (signature): *[Signature]* Turnaround Date Required: Immediately Packed on Ice:
 [] Yes [] No
 Sample Disposal: Rush: [] Same Day [] Next Day Field Filtered (if applicable):
 [] Dispose as appropriate [] Return [] 2 Day [] 3 Day [] 4 Day [] 5 Day [] Yes [] No
 [] Archive: [] Hold: (Expedite Charges Apply) Analysis:

Container Preservative Type **
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW-313	GW	G	7/31	1000				6
MW-314	GW	G	7/31	1030				6
MW-315	GW	G	7/31	1110				6
Field Blank (had 10+1)		G	7/31	1100				6

Analyses

Parameter	Result
TDS, Chloride, Fluoride, Sulfate	X
PH	X
alkalinity	X
Radium 226	X
Radium 228	X
Metals, Hardness	X
Nitrate + Nitrite	X

Lab Profile/Line:
 Lab Sample Receipt Checklist:
 Custody Seals Present/Intact Y N NA
 Custody Signatures Present Y N NA
 Collector Signature Present Y N NA
 Bottles Intact Y N NA
 Correct Bottles Y N NA
 Sufficient Volume Y N NA
 Samples Received on Ice Y N NA
 VOA - Headspace Acceptable Y N NA
 USDA Regulated Soils Y N NA
 Samples in Holding Time Y N NA
 Residual Chlorine Present Y N NA
 Cl Strips
 Sample pH Acceptable Y N NA
 pH Strips:
 Sulfide Present Y N NA
 Lead Acetate Strips:
 LAB USE ONLY:
 Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:
 Type of Ice Used: Wet Blue Dry None
 Packing Material Used:
 Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLD(S) PRESENT (<72 hours): Y N N/A
 Lab Tracking #: **2891252**
 Samples received via: **08/01/2023**
 FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#:
 Cooler 1 Temp Upon Receipt: °C
 Cooler 1 Therm Corr. Factor: °C
 Cooler 1 Corrected Temp: °C
 Comments:

Relinquished by/Company: (Signature) *[Signature]* Date/Time: **7/31/23 1345**
 Relinquished by/Company: (Signature) **CS LOGISTICS** Date/Time: **08/01/2023 09:00**
 Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) **Mathew Sambhael Pace** Date/Time: **08/01/2023**

MTJL LAB USE ONLY
 Table #:
 Acctnum:
 Template:
 Prelogin:
 PM:
 PB:
 Non Conformance(s): YES / NO
 Page 32 of 34
 of: **1**

Effective Date: 8/16/2022

Client Name: SCS Engineers

Sample Preservation Receipt Form

Project # 40265991

All containers needing preservation have been checked and noted below:

Yes No N/A

Initial when completed: MVA Date/Time:

Lab Lot# of pH paper: 1002723

Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass						Plastic						Vials					Jars				General		VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)								
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU								SP5T	ZPLC	GN 1	GN 2				
001								<u>2</u>																		<u>2</u>												2.5 / 5
002								<u>2</u>																		<u>2</u>												2.5 / 5
003								<u>2</u>																		<u>2</u>												2.5 / 5
004								<u>2</u>																		<u>2</u>												2.5 / 5
005																																						2.5 / 5
006																																						2.5 / 5
007																																						2.5 / 5
008																																						2.5 / 5
009																																						2.5 / 5
010																																						2.5 / 5
011																																						2.5 / 5
012																																						2.5 / 5
013																																						2.5 / 5
014																																						2.5 / 5
015																																						2.5 / 5
016																																						2.5 / 5
017																																						2.5 / 5
018																																						2.5 / 5
019																																						2.5 / 5
020																																						2.5 / 5

MVA
08/10/2023

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ - Headspace in VOA Vials (>6mm) : Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	<u>1 liter clear plastic HNO3</u>
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Client Name: SCS Engineers

Project #:

WO#: **40265991**



Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____

Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR-105 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr: 0.5 /Corr: 0.5

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
 Date: 08/01/2023 /Initials: MJD
 Labeled By Initials: NR

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:	For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> , Pace IR, Non-Pace		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample log in



September 26, 2023

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067 COLUMBIA BASELINE MOD
Pace Project No.: 40267530

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on September 01, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Greensburg

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

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Matt Bizjack, Alliant Energy
Natalie Burriss, SCS ENGINEERS
Sherren Clark, SCS Engineers
Jenny Coughlin, Alliant Energy
Tom Karwoski, SCS ENGINEERS
Ryan Matzuk, SCS Engineers
Jeff Maxted, ALLIANT ENERGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

ANABISO/IEC 17025:2017 Rad Cert#: L24170

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 2950

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA010

Louisiana DEQ/TNI Certification #: 04086

Maine Certification #: 2023021

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572023-03

New Hampshire/TNI Certification #: 297622

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-015

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN02867

Texas/TNI Certification #: T104704188-22-18

Utah/TNI Certification #: PA014572223-14

USDA Soil Permit #: 525-23-67-77263

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-21-8

Virginia VELAP Certification ID: 11873

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-21-00008

Federal Fish & Wildlife Permit #: 51774A

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SAMPLE SUMMARY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40267530001	MW-313	Water	08/31/23 11:05	09/01/23 08:40
40267530002	MW-314	Water	08/31/23 10:05	09/01/23 08:40
40267530003	MW-315	Water	08/31/23 11:10	09/01/23 08:40
40267530004	FIELD BLANK	Water	08/31/23 11:30	09/01/23 08:40

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SAMPLE ANALYTE COUNT

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40267530001	MW-313	EPA 6010D	SIS	5	PASI-G
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	YER	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	MAR1	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2320B	TMK	1	PASI-G
		SM 2540C	EXM	1	PASI-G
		SM 4500-H+B	HML	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 353.2	MT	1	PASI-G
		40267530002	MW-314	EPA 6010D	SIS
EPA 6020B	KXS			14	PASI-G
EPA 7470	YER			1	PASI-G
	LB			7	PASI-G
EPA 903.1	MAR1			1	PASI-PA
EPA 904.0	JJS1			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2320B	TMK			1	PASI-G
SM 2540C	EXM			1	PASI-G
SM 4500-H+B	HML			1	PASI-G
EPA 300.0	HMB			3	PASI-G
EPA 353.2	MT			1	PASI-G
40267530003	MW-315			EPA 6010D	SIS
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	YER	1	PASI-G
			LB	7	PASI-G
		EPA 903.1	MAR1	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2320B	TMK	1	PASI-G
		SM 2540C	EXM	1	PASI-G
		SM 4500-H+B	HML	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 353.2	MT	1	PASI-G
		40267530004	FIELD BLANK	EPA 6010D	SIS

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	KXS	14	PASI-G
		EPA 7470	YER	1	PASI-G
		EPA 903.1	MAR1	1	PASI-PA
		EPA 904.0	JJS1	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2320B	TMK	1	PASI-G
		SM 2540C	EXM	1	PASI-G
		SM 4500-H+B	HML	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 353.2	MT	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-313 **Lab ID: 40267530001** Collected: 08/31/23 11:05 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	09/08/23 06:23	09/08/23 14:56	7440-50-8	
Manganese	28.7	ug/L	5.0	1.5	1	09/08/23 06:23	09/08/23 14:56	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	09/08/23 06:23	09/08/23 14:56	7440-22-4	
Total Hardness by 2340B	372	mg/L	5.4	1.0	1	09/08/23 06:23	09/08/23 14:56		
Zinc	<11.6	ug/L	40.0	11.6	1	09/08/23 06:23	09/08/23 14:56	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:03	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	09/06/23 05:41	09/07/23 20:03	7440-38-2	
Barium	36.7	ug/L	2.3	0.70	1	09/06/23 05:41	09/07/23 20:03	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	09/06/23 05:41	09/07/23 20:03	7440-41-7	
Boron	62.3	ug/L	10.0	3.0	1	09/06/23 05:41	09/07/23 20:03	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:03	7440-43-9	
Calcium	68600	ug/L	254	76.2	1	09/06/23 05:41	09/07/23 20:03	7440-70-2	
Chromium	1.3J	ug/L	3.4	1.0	1	09/06/23 05:41	09/07/23 20:03	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	09/06/23 05:41	09/07/23 20:03	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	09/06/23 05:41	09/07/23 20:03	7439-92-1	
Lithium	0.75J	ug/L	1.0	0.22	1	09/06/23 05:41	09/07/23 20:03	7439-93-2	B
Molybdenum	0.63J	ug/L	1.5	0.44	1	09/06/23 05:41	09/07/23 20:03	7439-98-7	
Selenium	0.74J	ug/L	1.1	0.32	1	09/06/23 05:41	09/07/23 20:03	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	09/06/23 05:41	09/07/23 20:03	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	09/05/23 10:10	09/06/23 06:06	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.25	Std. Units			1		08/31/23 11:05		
Field Specific Conductance	657.8	umhos/cm			1		08/31/23 11:05		
Oxygen, Dissolved	9.50	mg/L			1		08/31/23 11:05	7782-44-7	
REDOX	151.5	mV			1		08/31/23 11:05		
Turbidity	0.00	NTU			1		08/31/23 11:05		
Static Water Level	783.55	feet			1		08/31/23 11:05		
Temperature, Water (C)	11.2	deg C			1		08/31/23 11:05		
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	278	mg/L	10.0	5.0	1		09/06/23 00:45		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	354	mg/L	20.0	8.7	1		09/06/23 10:29		

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-313 Lab ID: 40267530001 Collected: 08/31/23 11:05 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	8.3	Std. Units	0.10	0.010	1		09/01/23 18:46		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	34.3	mg/L	2.0	0.43	1		09/08/23 17:21	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		09/08/23 17:21	16984-48-8	
Sulfate	12.7	mg/L	2.0	0.44	1		09/08/23 17:21	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	6.5	mg/L	0.25	0.059	1		09/11/23 12:53		

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-314 Lab ID: 40267530002 Collected: 08/31/23 10:05 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	09/08/23 06:23	09/08/23 15:00	7440-50-8	
Manganese	13.2	ug/L	5.0	1.5	1	09/08/23 06:23	09/08/23 15:00	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	09/08/23 06:23	09/08/23 15:00	7440-22-4	
Total Hardness by 2340B	533	mg/L	5.4	1.0	1	09/08/23 06:23	09/08/23 15:00		
Zinc	<11.6	ug/L	40.0	11.6	1	09/08/23 06:23	09/08/23 15:00	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:10	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	09/06/23 05:41	09/07/23 20:10	7440-38-2	
Barium	33.2	ug/L	2.3	0.70	1	09/06/23 05:41	09/07/23 20:10	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	09/06/23 05:41	09/07/23 20:10	7440-41-7	
Boron	13.0	ug/L	10.0	3.0	1	09/06/23 05:41	09/07/23 20:10	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:10	7440-43-9	
Calcium	109000	ug/L	254	76.2	1	09/06/23 05:41	09/07/23 20:10	7440-70-2	
Chromium	1.1J	ug/L	3.4	1.0	1	09/06/23 05:41	09/07/23 20:10	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	09/06/23 05:41	09/07/23 20:10	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	09/06/23 05:41	09/07/23 20:10	7439-92-1	
Lithium	0.66J	ug/L	1.0	0.22	1	09/06/23 05:41	09/07/23 20:10	7439-93-2	B
Molybdenum	0.77J	ug/L	1.5	0.44	1	09/06/23 05:41	09/07/23 20:10	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	09/06/23 05:41	09/07/23 20:10	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	09/06/23 05:41	09/07/23 20:10	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	09/05/23 10:10	09/06/23 06:08	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	7.12	Std. Units			1		08/31/23 10:05		
Field Specific Conductance	839	umhos/cm			1		08/31/23 10:05		
Oxygen, Dissolved	9.39	mg/L			1		08/31/23 10:05	7782-44-7	
REDOX	294.6	mV			1		08/31/23 10:05		
Turbidity	1.19	NTU			1		08/31/23 10:05		
Static Water Level	783.83	feet			1		08/31/23 10:05		
Temperature, Water (C)	11.3	deg C			1		08/31/23 10:05		
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	468	mg/L	10.0	5.0	1		09/06/23 00:53		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	464	mg/L	20.0	8.7	1		09/06/23 10:29		

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-314 Lab ID: 40267530002 Collected: 08/31/23 10:05 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	8.6	Std. Units	0.10	0.010	1		09/01/23 19:00		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.1	mg/L	2.0	0.43	1		09/08/23 18:48	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		09/08/23 18:48	16984-48-8	
Sulfate	4.0	mg/L	2.0	0.44	1		09/08/23 18:48	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	8.1	mg/L	0.25	0.059	1		09/11/23 12:53		

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-315 Lab ID: 40267530003 Collected: 08/31/23 11:10 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	09/08/23 06:23	09/08/23 15:02	7440-50-8	
Manganese	37.8	ug/L	5.0	1.5	1	09/08/23 06:23	09/08/23 15:02	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	09/08/23 06:23	09/08/23 15:02	7440-22-4	
Total Hardness by 2340B	594	mg/L	5.4	1.0	1	09/08/23 06:23	09/08/23 15:02		
Zinc	<11.6	ug/L	40.0	11.6	1	09/08/23 06:23	09/08/23 15:02	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:18	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	09/06/23 05:41	09/07/23 20:18	7440-38-2	
Barium	48.5	ug/L	2.3	0.70	1	09/06/23 05:41	09/07/23 20:18	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	09/06/23 05:41	09/07/23 20:18	7440-41-7	
Boron	12.6	ug/L	10.0	3.0	1	09/06/23 05:41	09/07/23 20:18	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:18	7440-43-9	
Calcium	125000	ug/L	254	76.2	1	09/06/23 05:41	09/07/23 20:18	7440-70-2	
Chromium	1.6J	ug/L	3.4	1.0	1	09/06/23 05:41	09/07/23 20:18	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	09/06/23 05:41	09/07/23 20:18	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	09/06/23 05:41	09/07/23 20:18	7439-92-1	
Lithium	0.90J	ug/L	1.0	0.22	1	09/06/23 05:41	09/07/23 20:18	7439-93-2	B
Molybdenum	<0.44	ug/L	1.5	0.44	1	09/06/23 05:41	09/07/23 20:18	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	09/06/23 05:41	09/07/23 20:18	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	09/06/23 05:41	09/07/23 20:18	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	09/05/23 10:10	09/06/23 06:10	7439-97-6	
Field Data									
Analytical Method:									
Pace Analytical Services - Green Bay									
Field pH	6.91	Std. Units			1		08/31/23 11:10		
Field Specific Conductance	926	umhos/cm			1		08/31/23 11:10		
Oxygen, Dissolved	4.62	mg/L			1		08/31/23 11:10	7782-44-7	
REDOX	279.3	mV			1		08/31/23 11:10		
Turbidity	2.38	NTU			1		08/31/23 11:10		
Static Water Level	783.97	feet			1		08/31/23 11:10		
Temperature, Water (C)	11.4	deg C			1		08/31/23 11:10		
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	565	mg/L	10.0	5.0	1		09/06/23 01:03		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	526	mg/L	20.0	8.7	1		09/06/23 10:29		

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-315 Lab ID: 40267530003 Collected: 08/31/23 11:10 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	8.5	Std. Units	0.10	0.010	1		09/01/23 19:14		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	3.1	mg/L	2.0	0.43	1		09/08/23 19:02	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		09/08/23 19:02	16984-48-8	
Sulfate	4.3	mg/L	2.0	0.44	1		09/08/23 19:02	14808-79-8	
353.2 Nitrogen, NO2/NO3 pres.									
Analytical Method: EPA 353.2									
Pace Analytical Services - Green Bay									
Nitrogen, NO2 plus NO3	0.17J	mg/L	0.25	0.059	1		09/11/23 12:54		

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: **FIELD BLANK** Lab ID: **40267530004** Collected: 08/31/23 11:30 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Copper	<3.4	ug/L	10.0	3.4	1	09/08/23 06:23	09/08/23 15:08	7440-50-8	
Manganese	<1.5	ug/L	5.0	1.5	1	09/08/23 06:23	09/08/23 15:08	7439-96-5	
Silver	<3.2	ug/L	10.0	3.2	1	09/08/23 06:23	09/08/23 15:08	7440-22-4	
Total Hardness by 2340B	<1.0	mg/L	5.4	1.0	1	09/08/23 06:23	09/08/23 15:08		
Zinc	<11.6	ug/L	40.0	11.6	1	09/08/23 06:23	09/08/23 15:08	7440-66-6	
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Green Bay									
Antimony	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:25	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	09/06/23 05:41	09/07/23 20:25	7440-38-2	
Barium	<0.70	ug/L	2.3	0.70	1	09/06/23 05:41	09/07/23 20:25	7440-39-3	
Beryllium	<0.25	ug/L	1.0	0.25	1	09/06/23 05:41	09/07/23 20:25	7440-41-7	
Boron	<3.0	ug/L	10.0	3.0	1	09/06/23 05:41	09/07/23 20:25	7440-42-8	
Cadmium	<0.15	ug/L	1.0	0.15	1	09/06/23 05:41	09/07/23 20:25	7440-43-9	
Calcium	106J	ug/L	254	76.2	1	09/06/23 05:41	09/07/23 20:25	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	09/06/23 05:41	09/07/23 20:25	7440-47-3	
Cobalt	<0.12	ug/L	1.0	0.12	1	09/06/23 05:41	09/07/23 20:25	7440-48-4	
Lead	<0.24	ug/L	1.0	0.24	1	09/06/23 05:41	09/07/23 20:25	7439-92-1	
Lithium	<0.22	ug/L	1.0	0.22	1	09/06/23 05:41	09/07/23 20:25	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	09/06/23 05:41	09/07/23 20:25	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	09/06/23 05:41	09/07/23 20:25	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	09/06/23 05:41	09/07/23 20:25	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Pace Analytical Services - Green Bay									
Mercury	<0.066	ug/L	0.20	0.066	1	09/05/23 10:10	09/06/23 06:12	7439-97-6	
2320B Alkalinity									
Analytical Method: SM 2320B									
Pace Analytical Services - Green Bay									
Alkalinity, Total as CaCO3	<5.0	mg/L	10.0	5.0	1		09/06/23 01:15		
2540C Total Dissolved Solids									
Analytical Method: SM 2540C									
Pace Analytical Services - Green Bay									
Total Dissolved Solids	14.0J	mg/L	20.0	8.7	1		09/06/23 10:29		
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+B									
Pace Analytical Services - Green Bay									
pH at 25 Degrees C	5.7	Std. Units	0.10	0.010	1		09/01/23 19:22		H6
300.0 IC Anions									
Analytical Method: EPA 300.0									
Pace Analytical Services - Green Bay									
Chloride	<0.43	mg/L	2.0	0.43	1		09/08/23 19:16	16887-00-6	
Fluoride	<0.095	mg/L	0.32	0.095	1		09/08/23 19:16	16984-48-8	
Sulfate	<0.44	mg/L	2.0	0.44	1		09/08/23 19:16	14808-79-8	

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ANALYTICAL RESULTS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: FIELD BLANK **Lab ID: 40267530004** Collected: 08/31/23 11:30 Received: 09/01/23 08:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Green Bay								
Nitrogen, NO2 plus NO3	<0.059	mg/L	0.25	0.059	1		09/13/23 13:36		

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch: 453902	Analysis Method: EPA 7470
QC Batch Method: EPA 7470	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2607249 Matrix: Water
 Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.066	0.20	09/06/23 05:52	

LABORATORY CONTROL SAMPLE: 2607250

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2607251 2607252

Parameter	Units	2607251		2607252		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40267459002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Mercury	ug/L	<0.066	5	5	4.9	5.0	99	100	85-115	1	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	454253	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3010A	Analysis Description:	6010D MET
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2608593 Matrix: Water

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Copper	ug/L	<3.4	10.0	09/11/23 14:04	
Manganese	ug/L	<1.5	5.0	09/11/23 14:04	
Silver	ug/L	<3.2	10.0	09/11/23 14:04	
Total Hardness by 2340B	mg/L	<1.0	5.4	09/11/23 14:04	
Zinc	ug/L	<11.6	40.0	09/11/23 14:04	

LABORATORY CONTROL SAMPLE: 2608594

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	257	103	80-120	
Manganese	ug/L	250	256	103	80-120	
Silver	ug/L	125	126	101	80-120	
Total Hardness by 2340B	mg/L		71.4			
Zinc	ug/L	250	250	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2608595 2608596

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40267683017 Result	Spike Conc.	Spike Conc.	Conc.								
Copper	ug/L	28.7	250	250	294	289	106	104	75-125	2	20		
Manganese	ug/L	618	250	250	896	880	111	105	75-125	2	20		
Silver	ug/L	<3.2	125	125	132	130	105	104	75-125	1	20		
Total Hardness by 2340B	mg/L	1090000			1180	1160				1	20		
Zinc	ug/L	307	250	250	567	560	104	101	75-125	1	20		

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD
 Pace Project No.: 40267530

QC Batch: 454008 Analysis Method: EPA 6020B
 QC Batch Method: EPA 3010A Analysis Description: 6020B MET
 Laboratory: Pace Analytical Services - Green Bay
 Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2607482 Matrix: Water
 Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	09/07/23 16:44	
Arsenic	ug/L	<0.28	1.0	09/07/23 16:44	
Barium	ug/L	<0.70	2.3	09/07/23 16:44	
Beryllium	ug/L	<0.25	1.0	09/07/23 16:44	
Boron	ug/L	<3.0	10.0	09/07/23 16:44	
Cadmium	ug/L	<0.15	1.0	09/07/23 16:44	
Calcium	ug/L	<76.2	254	09/07/23 16:44	
Chromium	ug/L	<1.0	3.4	09/07/23 16:44	
Cobalt	ug/L	<0.12	1.0	09/07/23 16:44	
Lead	ug/L	<0.24	1.0	09/07/23 16:44	
Lithium	ug/L	0.30J	1.0	09/07/23 16:44	
Molybdenum	ug/L	<0.44	1.5	09/07/23 16:44	
Selenium	ug/L	<0.32	1.1	09/07/23 16:44	
Thallium	ug/L	<0.14	1.0	09/07/23 16:44	

LABORATORY CONTROL SAMPLE: 2607483

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	250	259	103	80-120	
Arsenic	ug/L	250	258	103	80-120	
Barium	ug/L	250	256	103	80-120	
Beryllium	ug/L	250	254	102	80-120	
Boron	ug/L	250	227	91	80-120	
Cadmium	ug/L	250	262	105	80-120	
Calcium	ug/L	10000	9840	98	80-120	
Chromium	ug/L	250	244	98	80-120	
Cobalt	ug/L	250	258	103	80-120	
Lead	ug/L	250	264	106	80-120	
Lithium	ug/L	250	252	101	80-120	
Molybdenum	ug/L	250	257	103	80-120	
Selenium	ug/L	250	273	109	80-120	
Thallium	ug/L	250	258	103	80-120	

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Parameter	Units	40267500001		2607484		2607485		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Antimony	ug/L	0.00016J mg/L	250	250	262	253	105	101	75-125	4	20			
Arsenic	ug/L	0.00030J mg/L	250	250	254	249	102	100	75-125	2	20			
Barium	ug/L	0.051 mg/L	250	250	303	290	101	96	75-125	4	20			
Beryllium	ug/L	<0.00025 mg/L	250	250	241	231	96	92	75-125	4	20			
Boron	ug/L	0.043 mg/L	250	250	257	245	86	81	75-125	5	20			
Cadmium	ug/L	<0.00015 mg/L	250	250	256	250	102	100	75-125	2	20			
Calcium	ug/L	74.4 mg/L	10000	10000	86000	83100	117	87	75-125	4	20			
Chromium	ug/L	<0.0010 mg/L	250	250	239	230	95	92	75-125	4	20			
Cobalt	ug/L	<0.00012 mg/L	250	250	247	238	99	95	75-125	4	20			
Lead	ug/L	<0.00024 mg/L	250	250	259	249	104	99	75-125	4	20			
Lithium	ug/L	0.0036 mg/L	250	250	248	238	98	94	75-125	4	20			
Molybdenum	ug/L	0.0013J mg/L	250	250	255	246	101	98	75-125	3	20			
Selenium	ug/L	0.00070J mg/L	250	250	267	263	106	105	75-125	1	20			
Thallium	ug/L	0.00016J mg/L	250	250	258	247	103	99	75-125	4	20			

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	453997	Analysis Method:	SM 2320B
QC Batch Method:	SM 2320B	Analysis Description:	2320B Alkalinity
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2607457 Matrix: Water
 Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<5.0	10.0	09/05/23 21:34	

LABORATORY CONTROL SAMPLE: 2607458

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	200	207	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2607459 2607460

Parameter	Units	2607459		2607460		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO3	mg/L	279	200	436	417	79	69	80-120	5	20	M0

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	454034	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2607558 Matrix: Water
 Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	09/06/23 10:28	

LABORATORY CONTROL SAMPLE: 2607559

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	550	544	99	80-120	

SAMPLE DUPLICATE: 2607560

Parameter	Units	40267565001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	690	690	0	10	

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch: 453849

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

SAMPLE DUPLICATE: 2606996

Parameter	Units	40267512001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.4	8.4	0	5	H6

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	454286	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2608806 Matrix: Water
 Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.43	2.0	09/08/23 12:19	
Fluoride	mg/L	<0.095	0.32	09/08/23 12:19	
Sulfate	mg/L	<0.44	2.0	09/08/23 12:19	

LABORATORY CONTROL SAMPLE: 2608807

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.1	106	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	21.2	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2608808 2608809

Parameter	Units	40267697001		MSD		MSD		% Rec		Max		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	Limits	RPD	RPD	
Chloride	mg/L	185	200	200	404	413	109	114	90-110	2	15	M0
Fluoride	mg/L	<0.95	20	20	21.0	21.7	102	106	90-110	4	15	
Sulfate	mg/L	140	200	200	357	367	109	114	90-110	3	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2608810 2608811

Parameter	Units	40267530001		MSD		MSD		% Rec		Max		Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	Limits	RPD	RPD	
Chloride	mg/L	34.3	20	20	54.3	54.6	100	102	90-110	1	15	
Fluoride	mg/L	<0.095	2	2	2.1	2.1	107	107	90-110	0	15	
Sulfate	mg/L	12.7	20	20	34.5	34.7	109	110	90-110	1	15	

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	454133	Analysis Method:	EPA 353.2
QC Batch Method:	EPA 353.2	Analysis Description:	353.2 Nitrate + Nitrite, preserved
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530001, 40267530002, 40267530003

METHOD BLANK: 2608060 Matrix: Water

Associated Lab Samples: 40267530001, 40267530002, 40267530003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	09/11/23 12:36	

LABORATORY CONTROL SAMPLE: 2608061

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2608062 2608063

Parameter	Units	2608062		2608063		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, NO2 plus NO3	mg/L	1.7	2.5	4.2	4.2	101	104	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2608064 2608065

Parameter	Units	2608064		2608065		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrogen, NO2 plus NO3	mg/L	0.17J	2.5	2.7	2.8	100	103	90-110	3	20	

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QUALITY CONTROL DATA

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	454584	Analysis Method:	EPA 353.2
QC Batch Method:	EPA 353.2	Analysis Description:	353.2 Nitrate + Nitrite, preserved
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40267530004

METHOD BLANK: 2610754 Matrix: Water

Associated Lab Samples: 40267530004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	<0.059	0.25	09/13/23 13:20	

LABORATORY CONTROL SAMPLE: 2610755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2610756 2610757

Parameter	Units	40267812020		2610756		2610757		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Nitrogen, NO2 plus NO3	mg/L	<0.059	2.5	2.5	2.7	2.7	106	107	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2610758 2610759

Parameter	Units	40267812022		2610758		2610759		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Nitrogen, NO2 plus NO3	mg/L	<0.059	2.5	2.5	2.7	2.6	106	104	90-110	2	20	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-313	Lab ID: 40267530001	Collected: 08/31/23 11:05	Received: 09/01/23 08:40	Matrix: Water
PWS:	Site ID:	Sample Type:		

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.199 ± 0.390 (0.934) C:NA T:92%	pCi/L	09/18/23 12:28	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.217 ± 0.351 (0.761) C:81% T:85%	pCi/L	09/19/23 14:41	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.217 ± 0.741 (1.70)	pCi/L	09/22/23 13:11	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Sample: MW-314	Lab ID: 40267530002	Collected: 08/31/23 10:05	Received: 09/01/23 08:40	Matrix: Water
PWS:	Site ID:	Sample Type:		

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.0586 ± 0.414 (0.826) C:NA T:97%	pCi/L	09/18/23 12:28	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.312 ± 0.452 (0.973) C:75% T:79%	pCi/L	09/19/23 14:41	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.371 ± 0.866 (1.80)	pCi/L	09/22/23 13:11	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.405 ± 0.546 (0.918) C:NA T:99%	pCi/L	09/18/23 12:28	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.110 ± 0.316 (0.707) C:85% T:100%	pCi/L	09/19/23 14:41	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.515 ± 0.862 (1.63)	pCi/L	09/22/23 13:11	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: FIELD BLANK Lab ID: 40267530004 Collected: 08/31/23 11:30 Received: 09/01/23 08:40 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	0.567 ± 0.569 (0.888) C:NA T:91%	pCi/L	09/18/23 12:28	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	0.442 ± 0.415 (0.854) C:85% T:86%	pCi/L	09/19/23 14:42	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.01 ± 0.984 (1.74)	pCi/L	09/22/23 13:11	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch: 613999

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK: 2989142

Matrix: Water

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.489 ± 0.367 (0.716) C:81% T:86%	pCi/L	09/19/23 14:39	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

QC Batch:	613997	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

METHOD BLANK:	2989141	Matrix:	Water
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Associated Lab Samples: 40267530001, 40267530002, 40267530003, 40267530004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0492 ± 0.255 (0.591) C:NA T:97%	pCi/L	09/18/23 12:14	

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QUALIFIERS

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

H6 Analysis initiated outside of the 15 minute EPA required holding time.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40267530001	MW-313	EPA 3010A	454253	EPA 6010D	454316
40267530002	MW-314	EPA 3010A	454253	EPA 6010D	454316
40267530003	MW-315	EPA 3010A	454253	EPA 6010D	454316
40267530004	FIELD BLANK	EPA 3010A	454253	EPA 6010D	454316
40267530001	MW-313	EPA 3010A	454008	EPA 6020B	454074
40267530002	MW-314	EPA 3010A	454008	EPA 6020B	454074
40267530003	MW-315	EPA 3010A	454008	EPA 6020B	454074
40267530004	FIELD BLANK	EPA 3010A	454008	EPA 6020B	454074
40267530001	MW-313	EPA 7470	453902	EPA 7470	453963
40267530002	MW-314	EPA 7470	453902	EPA 7470	453963
40267530003	MW-315	EPA 7470	453902	EPA 7470	453963
40267530004	FIELD BLANK	EPA 7470	453902	EPA 7470	453963
40267530001	MW-313				
40267530002	MW-314				
40267530003	MW-315				
40267530001	MW-313	EPA 903.1	613997		
40267530002	MW-314	EPA 903.1	613997		
40267530003	MW-315	EPA 903.1	613997		
40267530004	FIELD BLANK	EPA 903.1	613997		
40267530001	MW-313	EPA 904.0	613999		
40267530002	MW-314	EPA 904.0	613999		
40267530003	MW-315	EPA 904.0	613999		
40267530004	FIELD BLANK	EPA 904.0	613999		
40267530001	MW-313	Total Radium Calculation	617496		
40267530002	MW-314	Total Radium Calculation	617496		
40267530003	MW-315	Total Radium Calculation	617496		
40267530004	FIELD BLANK	Total Radium Calculation	617496		
40267530001	MW-313	SM 2320B	453997		
40267530002	MW-314	SM 2320B	453997		
40267530003	MW-315	SM 2320B	453997		
40267530004	FIELD BLANK	SM 2320B	453997		
40267530001	MW-313	SM 2540C	454034		
40267530002	MW-314	SM 2540C	454034		
40267530003	MW-315	SM 2540C	454034		
40267530004	FIELD BLANK	SM 2540C	454034		
40267530001	MW-313	SM 4500-H+B	453849		
40267530002	MW-314	SM 4500-H+B	453849		
40267530003	MW-315	SM 4500-H+B	453849		
40267530004	FIELD BLANK	SM 4500-H+B	453849		
40267530001	MW-313	EPA 300.0	454286		
40267530002	MW-314	EPA 300.0	454286		
40267530003	MW-315	EPA 300.0	454286		
40267530004	FIELD BLANK	EPA 300.0	454286		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 COLUMBIA BASELINE MOD

Pace Project No.: 40267530

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40267530001	MW-313	EPA 353.2	454133		
40267530002	MW-314	EPA 353.2	454133		
40267530003	MW-315	EPA 353.2	454133		
40267530004	FIELD BLANK	EPA 353.2	454584		

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>.

402 67530

Section A		Section B		Section C		Page : 1 Of 1	
Required Client Information:				Required Project Information:		Invoice Information:	
Company SCS ENGINEERS		Report To Meghan Blodgett		Attention			
Address 2830 Dairy Drive		Copy To		Company Name			
Madison, WI 53718				Address		Regulatory Agency	
Email mbloggett@scsengineers.com		Purchase Order #		Pace Quote			
Phone 608-216-7362 Fax		Project Name 25223067 Columbia Baseline Mods 10-11		Pace Project Manager dan.milewsky@pacelabs.com		State / Location	
Requested Due Date		Project # 25223067		Pace Profile #:		WI	

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE	COLLECTED	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)			
											Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol	Other	Analyses Test	Radium 226		Radium 228	Metals	TDS and pH
1	MW-313	WT			8/31	1105			12.6	2	X	X	X	X	X	X	X	X	X	X	X	X	X	001
2	MW-314	WT			8/31	1005			11.3	6	X	X	X	X	X	X	X	X	X	X	X	X	X	002
3	MW-315	WT			8/31	1110	1147	67	11.4	6	X	X	X	X	X	X	X	X	X	X	X	X	X	003
4	FIELD BLANK - MOD 10-11	WT			8/31	1130					X	X	X	X	X	X	X	X	X	X	X	X	X	004
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Full List Metals = B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Li, Hg, Mn, Mo, Se, Ag, Ti, Zn (ALL SAMPLES UNFILTERED)	<i>Colin Blodgett</i>	8/31	1430							
	CS Logistics	9/1/23	0840	E. Jay Pace	9/1/23	0840	1.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <i>Colin Blodgett</i>						
SIGNATURE of SAMPLER: <i>Colin Blodgett</i>						

Client Name: SCS Engineers

Sample Preservation Receipt Form

Project # 40267530

All containers needing preservation have been checked and noted below. Yes No N/A

Lab Lot# of pH paper 10D2723

Lab Std #ID of preservation (if pH adjusted):

Initial when completed: EL

Date/Time:

Pace Lab #	Glass						Plastic						Vials					Jars				General		VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)	
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JG9U	JG9U	WGFU	WPFU								SP5T
001								2	1	1													2			X			X		2.5 / 5
002								2	1	1													2			X			X		2.5 / 5
003								2	1	1													2			X			X		2.5 / 5
004								2	1	1													2			X			X		2.5 / 5
005																															2.5 / 5
006																															2.5 / 5
007																															2.5 / 5
008																															2.5 / 5
009																															2.5 / 5
010																															2.5 / 5
011																															2.5 / 5
012																															2.5 / 5
013																															2.5 / 5
014																															2.5 / 5
015																															2.5 / 5
016																															2.5 / 5
017																															2.5 / 5
018																															2.5 / 5
019																															2.5 / 5
020																															2.5 / 5

EL
9/1/23

Exceptions to preservation check. VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	1 liter plastic HNO3
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: SCS Engineers

WO#: **40267530**

Courier: CS Logistics Fed Ex Speedee UPS Waltco
 Client Pace Other: _____



Tracking #: _____

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

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used SR - 138 Type of Ice: Wet Blue Dry None Meltwater Only

Cooler Temperature Uncorr: 1.0 /Corr: 1.0

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Temp should be above freezing to 6°C.

Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:

Date: 9/1/23 /Initials: EL

Labeled By Initials: JE

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- DI VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Correct Type: <u>Pace Green Bay</u> , Pace IR, <u>Non-Pace</u>		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		


Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample log in

Page 2 of 2



Appendix D

Historical Monitoring Results

Single Location

Name: WPL - Columbia

Location ID: MW-84A		Number of Sampling Dates: 25																								
Parameter Name	Units	12/22/2015	4/5/2016	7/8/2016	7/28/2016	10/13/2016	12/29/2016	1/25/2017	4/11/2017	6/6/2017	8/8/2017	10/24/2017	4/25/2018	8/8/2018	10/24/2018	4/3/2019	10/9/2019	2/3/2020	5/29/2020	10/8/2020	4/14/2021	10/14/2021	4/13/2022	10/27/2022	4/27/2023	10/11/2023
Boron	ug/L	11.9	14	14.7	--	11.1	14.7	16.1	12.9	14.8	22.9	13.8	25	12.8	10.1	13.6	12	15.7	10	9.7	14.3	11.1	10.5	12.2	10.3	14
Calcium	ug/L	74000	72200	67600	--	74000	76000	70800	73200	76100	74900	77500	76600	76000	74000	80100	73500	72700	77600	69200	69100	75300	75100	78400	68600	65100
Chloride	mg/L	4.9	4.7	5.1	--	4.3	4.7	4.6	4.9	5.5	5.5	5.1	4.8	4.9	4.2	3.6	3.9	3.7	3.7	4.3	4.4	3.5	5.2	3.4	3	3.1
Fluoride	mg/L	<0.2	<0.2	<0.2	--	<0.1	<0.1	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
Field pH	Std. Units	7.6	7.61	7.45	7.34	7.91	7.25	6.99	7.8	7.28	7.23	7.68	7.45	7.38	7.24	7.03	7.23	7.51	7.34	7.49	7.34	7.42	7.34	7.31	7.01	7.51
Sulfate	mg/L	4.9	4.3	3.7	--	2.6	2.7	3	2.8	2.7	2	2.2	2.8	1.9	1.6	1.4	1.3	<2.2	1.5	1.3	1.4	1.3	1.4	1.1	1.3	1.4
Total Dissolved Solids	mg/L	316	322	316	--	324	316	328	342	344	342	314	328	372	330	318	310	316	340	320	328	326	334	302	326	324
Antimony	ug/L	<0.073	0.084	0.1	--	<0.073	<0.073	<0.073	<0.073	<0.15	<0.15	--	<0.15	<0.15	<0.15	<0.15	<0.15	--	<0.15	<0.15	0.55	<0.15	<0.15	<0.15	<0.15	<0.15
Arsenic	ug/L	0.15	0.29	0.14	--	0.35	0.19	0.35	<0.099	<0.28	0.28	--	<0.28	<0.28	0.33	<0.28	0.46	0.38	0.34	0.49	0.91	0.41	0.31	0.72	<0.28	<0.28
Barium	ug/L	15.3	12.7	12.2	--	14.2	18.4	13.8	14.1	13.4	14	--	14.6	13.7	14.5	14.7	13.2	14	13.9	12.6	13.4	12.9	13.5	13.7	12.6	12.7
Beryllium	ug/L	<0.13	<0.13	<0.13	--	<0.13	<0.13	<0.13	<0.13	<0.18	<0.18	--	<0.18	<0.18	<0.18	<0.18	<0.25	--	<0.25	<0.25	0.47	<0.25	<0.25	<0.25	<0.25	<0.25
Cadmium	ug/L	<0.089	<0.089	<0.089	--	<0.089	<0.089	<0.089	<0.089	<0.081	<0.081	--	<0.081	--	<0.15	<0.15	<0.15	--	<0.15	<0.15	0.53	<0.15	<0.15	<0.15	<0.15	<0.15
Chromium	ug/L	2.5	1.9	1.8	--	2	2	1.9	2.4	2	1.6	--	2.4	1.5	1.6	1.8	1.6	1.6	1.7	1.6	2.6	1.9	2.2	2.2	1.7	1.6
Cobalt	ug/L	0.095	<0.036	0.053	--	<0.036	<0.036	<0.036	<0.036	<0.085	<0.085	--	<0.085	<0.085	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	0.52	0.12	<0.12	<0.12	<0.12	<0.12
Lead	ug/L	0.16	<0.04	0.39	--	0.049	0.11	<0.04	0.041	<0.2	<0.2	--	<0.2	--	<0.24	<0.24	<0.24	--	<0.24	<0.24	0.55	<0.24	<0.24	<0.24	<0.24	<0.24
Lithium	ug/L	0.72	0.44	0.5	--	0.56	0.56	0.56	0.55	0.46	0.58	--	0.5	0.4	0.49	0.56	0.52	0.58	0.4	0.39	1	0.28	0.36	0.41	0.71	0.54
Mercury	ug/L	<0.1	<0.1	<0.13	--	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<0.13	--	<0.084	<0.084	<0.084	--	<0.084	<0.066	<0.066	<0.093	<0.066	<0.066	<0.066	<0.066
Molybdenum	ug/L	<0.07	<0.07	0.073	--	0.12	<0.07	<0.07	<0.07	<0.44	<0.44	--	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	0.62	<0.44	<0.44	<0.44	<0.44	<0.44
Selenium	ug/L	<0.21	<0.21	<0.21	--	<0.21	<0.21	<0.21	<0.21	<0.32	<0.32	--	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	0.48	<0.32	<0.32	<0.32	<0.32	<0.32
Thallium	ug/L	<0.14	<0.14	<0.14	--	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	--	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.66	0.19	<0.14	<0.14	<0.14	<0.14
Total Radium	pCi/L	0.593	0.0809	--	1.37	0.825	0.404	1.39	0.0929	0.676	0.509	--	0.526	0.529	0.62	0.681	0.247	0.1	0.395	0.39	0.285	0.243	0.611	0.673	0.326	0.844
Radium-226	pCi/L	0.156	-0.088	--	-0.058	0.132	0.168	0.624	0.0768	0.27	0.242	--	0.155	-0.203	0.313	0.199	0.247	0.1	0.368	0	-0.289	0	0.254	0.267	0	0.292
Radium-228	pCi/L	0.437	0.0809	--	1.37	0.693	0.236	0.766	0.0161	0.406	0.267	--	0.371	0.529	0.307	0.482	-0.024	-0.153	0.0273	0.39	0.285	0.243	0.357	0.406	0.326	0.552
Field Specific Conductance	umhos/cm	599	427	574.8	579.3	1002	578.2	489	948	535.3	557.2	491	581.7	617.1	609	637.2	614.1	618.4	613.7	610.1	610.9	598.9	600.2	585.2	556.6	599.9
Oxygen, Dissolved	mg/L	9.7	9.37	3.78	5.11	9.61	8.94	6.48	9.28	9.46	7.5	9.3	3.94	8.84	10.01	9.49	11.36	8.43	9.81	9.39	9.8	9.25	9.33	8.31	9.37	8.44
Field Oxidation Potential	mV	154	165.1	139.9	138.3	82.7	87	192.9	102	123.6	204.7	210	53.3	142.7	71.5	103.4	181.7	121.5	135	153.2	95.6	89.7	200.6	39.9	103.4	91.2
Groundwater Elevation	feet	785.31	786.3	785.89	785.61	787.22	786.63	786.7	787.16	787.63	786.68	785.32	785.88	786.55	788.32	787.35	787.79	786.5	787.02	786.1	785.84	784.96	785.02	784.57	786.97	784.39
Temperature	deg C	10.4	10.2	11.3	11	11.5	10.8	10.9	10.6	11.3	11.2	11.1	10.2	12	11.6	10.2	11.8	10.3	10.6	11.9	10.2	12.5	9.9	11.7	10.7	12.3
Turbidity	NTU	--	0.86	2.75	0.17	0.3	0.25	0.33	0.04	0.56	0.08	2.93	0.81	0.71	3.79	1.9	2.41	1.23	2.15	0	2.45	3.41	0	0	0.72	0.03
pH at 25 Degrees C	Std. Units	7.5	7.4	7.4	--	7.3	7.4	7.3	7.7	7.6	7.4	7.6	7.6	7.4	7.5	7.4	7.5	7.4	7.6	7.6	7.6	7.8	7.6	7.4	7.6	7.6

Single Location

Name: WPL - Columbia

Location ID: MW-301		Number of Sampling Dates: 24																							
Parameter Name	Units	12/22/2015	4/5/2016	7/8/2016	10/13/2016	12/29/2016	1/25/2017	4/11/2017	6/6/2017	8/8/2017	10/23/2017	4/25/2018	8/8/2018	10/24/2018	4/2/2019	10/9/2019	2/3/2020	5/29/2020	10/8/2020	4/14/2021	10/14/2021	4/13/2022	10/27/2022	4/27/2023	10/11/2023
Boron	ug/L	26.5	25.2	23.6	30.6	32.8	32.6	28.8	21.3	30.6	34.3	24.3	22.8	27.8	26.9	35.9	27.9	21.3	28.8	22.2	31.4	28.7	37.5	20.1	36.2
Calcium	ug/L	126000	115000	108000	118000	129000	124000	120000	111000	108000	87200	112000	105000	101000	126000	114000	113000	112000	93000	117000	67800	97300	62800	120000	52300
Chloride	mg/L	3.7	4	3.5	2.2	2	1.5	2	3.5	5.5	4	2.3	5.2	3.2	0.79	1.7	1.3	2	3.4	1.5	2.7	1.9	2.3	1.5	2.1
Fluoride	mg/L	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
Field pH	Std. Units	6.85	7.01	6.87	7.28	6.63	7.1	7.11	6.7	6.75	7.37	6.76	6.91	6.79	6.62	6.67	6.89	6.73	6.95	6.66	7.01	6.6	6.8	6.65	7.06
Sulfate	mg/L	9.3	15.3	15	13.9	12.3	6.5	10.3	17.1	31.6	27.5	8.6	21.6	19.2	4.4	8.4	7.2	11.5	25.1	8.5	17.4	12.7	11.6	12.3	11.8
Total Dissolved Solids	mg/L	478	486	464	490	444	514	502	458	462	362	464	502	424	462	418	462	452	412	472	334	422	282	526	300
Antimony	ug/L	0.15	0.094	0.13	<0.073	0.4	<0.073	<0.073	<0.15	<0.15	--	<0.15	0.36	<0.15	0.32	<0.15	--	<0.15	0.33	<0.15	<0.15	0.31	<0.15	<0.15	<0.15
Arsenic	ug/L	0.26	0.26	0.19	0.24	0.4	0.13	0.18	<0.28	<0.28	--	<0.28	0.45	<0.28	0.4	0.42	<0.28	0.33	0.62	<0.28	0.35	0.47	0.3	<0.28	<0.28
Barium	ug/L	20.2	11.1	11.6	15.6	15	13.5	13.2	11.3	11.8	--	9.3	10.2	11.5	11.8	10	10.9	9.8	9.4	8.9	7.7	7.8	7.5	9.8	7.3
Beryllium	ug/L	<0.13	<0.13	<0.13	<0.13	0.19	<0.13	<0.13	<0.18	<0.18	--	<0.18	0.37	<0.18	0.28	<0.25	--	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Cadmium	ug/L	<0.089	<0.089	<0.089	<0.089	0.32	<0.089	<0.089	<0.081	<0.081	--	<0.081	--	<0.15	0.21	<0.15	--	<0.15	0.19	<0.15	<0.15	0.3	<0.15	<0.15	<0.15
Chromium	ug/L	2.1	0.58	0.59	<0.39	0.7	0.53	0.7	2.3	<1	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	ug/L	1.4	0.25	0.22	0.041	0.38	0.071	0.064	0.13	0.12	--	<0.085	0.28	<0.12	0.35	<0.12	0.17	<0.12	0.29	<0.12	0.34	0.32	0.52	<0.12	0.13
Lead	ug/L	0.9	0.077	0.48	<0.04	0.34	<0.04	<0.04	<0.2	<0.2	--	<0.2	--	<0.24	0.3	<0.24	--	<0.24	0.25	<0.24	<0.24	3.1	<0.24	<0.24	<0.24
Lithium	ug/L	1.3	0.58	0.69	0.6	0.87	0.67	0.68	0.62	0.6	--	0.55	0.85	0.52	0.9	0.61	0.67	0.47	0.46	0.58	0.46	0.56	0.37	0.62	0.43
Mercury	ug/L	<0.1	<0.1	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<0.13	--	<0.084	<0.084	<0.084	--	<0.084	<0.066	<0.066	<0.093	<0.066	<0.066	<0.066	<0.066
Molybdenum	ug/L	0.35	0.15	0.14	0.12	0.38	<0.07	<0.07	<0.44	<0.44	--	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Selenium	ug/L	0.3	0.21	0.39	<0.21	0.26	<0.21	<0.21	<0.32	<0.32	--	<0.32	0.71	<0.32	0.49	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
Thallium	ug/L	<0.14	<0.14	<0.14	<0.14	0.48	<0.14	<0.14	<0.14	<0.14	--	<0.14	0.3	<0.14	0.48	<0.14	<0.14	<0.14	0.3	<0.14	0.17	0.32	<0.14	<0.14	<0.14
Total Radium	pCi/L	1.31	1.11	0.89	0.631	1.01	2.42	1.35	1.3	1.74	--	0.882	0.0351	0.652	0.552	0.701	0.502	0.193	0.38	1.16	0.172	0.179	0.00292	0.417	0.611
Radium-226	pCi/L	0.655	0.294	0.404	-0.067	0.108	1.46	0.513	0.287	1.09	--	0.122	-0.06	0.247	0	0.252	0.136	0	0.0511	0.418	0.172	0	-0.169	0	-0.0576
Radium-228	pCi/L	0.651	0.82	0.486	0.631	0.905	0.964	0.833	1.01	0.647	--	0.76	0.0351	0.405	0.552	0.449	0.366	0.193	0.329	0.739	-0.0327	0.179	0.00292	0.417	0.611
Field Specific Conductance	umhos/cm	897	573	796	1464	859	1018	1354	698.4	691.7	561	774	799	767	883	801	868	797	760	857	597.2	747	507.5	857	536
Oxygen, Dissolved	mg/L	1.7	2.71	1.47	1.99	1.34	1.24	1.44	1.81	1.43	1.1	2.35	2.14	2.49	2.2	1.67	1.07	2	1.22	3.9	0.25	2.47	0.1	6.5	0.16
Field Oxidation Potential	mV	135	123.7	133.9	100.8	95.8	226.1	100.9	115.1	187.4	204	74.3	126.5	77.9	152.1	173	132.3	118.7	183.9	102.9	57.8	207.5	80.9	95.3	23.8
Groundwater Elevation	feet	785.56	768.12	786.31	787.64	787.37	787.27	787.89	788.25	787.34	785.89	785.29	787.06	788.98	787.04	788.47	787.24	787.77	786.53	786.5	785.28	785.44	784.91	787.57	784.67
Temperature	deg C	9.7	7.7	10	11.2	10.1	8.8	7.7	8.9	10.2	11.1	7.4	10.6	11.1	7.5	11.3	8.5	8.1	11	7.4	11.1	7.1	10.8	8	10.7
Turbidity	NTU	--	1.52	3.89	0.59	0.74	0.42	0.1	0.22	0.18	1.52	1.12	0.46	3.3	2.02	2.12	1.41	0	0	2.41	3.21	0	0	0	0.34
pH at 25 Degrees C	Std. Units	7	7	6.8	6.8	6.9	6.9	7.1	7	7	7.3	7	7	7.1	6.8	7	6.8	7	7.2	6.9	7.3	7	7.1	6.9	7.2

Single Location

Name: WPL - Columbia

Location ID: MW-313										
Number of Sampling Dates: 8										
Parameter Name	Units	1/24/2023	2/23/2023	3/27/2023	4/26/2023	5/30/2023	6/29/2023	7/31/2023	8/31/2023	
Boron	ug/L	25.1	46.6	67.1	108	191	189	97.1	62.3	
Calcium	ug/L	66800	62900	63300	63900	69100	71900	70000	68600	
Chloride	mg/L	1.4	<0.43	1.3	2.3	10	22.8	27	34.3	
Fluoride	mg/L	<0.095	<0.095	<0.095	<0.095	0.61	0.19	<0.095	<0.095	
Field pH	Std. Units	7.43	7.35	7.4	7.06	7.55	7.41	7.4	7.25	
Sulfate	mg/L	5.7	7.1	8.7	11	16.5	19.9	15.4	12.7	
Total Dissolved Solids	mg/L	298	278	320	318	334	408	354	354	
Antimony	ug/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Arsenic	ug/L	<0.28	0.35	<0.28	<0.28	<0.28	<0.28	0.34	<0.28	
Barium	ug/L	70.5	55.9	47.3	44.3	47.8	47	38.9	36.7	
Beryllium	ug/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
Cadmium	ug/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Chromium	ug/L	5.2	<1	<1	1.2	1.2	1.4	1.3	1.3	
Cobalt	ug/L	0.4	0.16	<0.12	<0.12	<0.12	<0.12	0.18	<0.12	
Lead	ug/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	
Lithium	ug/L	0.75	0.46	0.46	0.67	0.68	1	0.82	0.75	
Mercury	ug/L	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	
Molybdenum	ug/L	4.3	2	1.4	1.3	1.5	1.3	1.1	0.63	
Selenium	ug/L	0.41	0.55	0.49	0.58	0.59	0.65	0.64	0.74	
Thallium	ug/L	<0.14	<0.14	<0.14	<0.14	0.21	<0.14	<0.14	<0.14	
Total Radium	pCi/L	0.345	0.346	0	0.677	0.0341	0.35	0.894	0.217	
Radium-226	pCi/L	-0.326	-0.13	-0.562	0.294	-0.257	-0.132	0.273	-0.199	
Radium-228	pCi/L	0.345	0.346	-0.00854	0.383	0.0341	0.35	0.621	0.217	
Field Specific Conductance	umhos/cm	509.5	557.9	490.5	552.6	520.9	632	622.8	657.8	
Oxygen, Dissolved	mg/L	4.08	5.51	7.03	7.96	7.38	7.17	8.16	9.5	
Field Oxidation Potential	mV	82.6	56.9	51.5	103.2	177	249.4	240	151.5	
Groundwater Elevation	feet	783.36	783.59	784.12	785.21	785.24	784.67	783.96	783.55	
Temperature	deg C	9.4	10	10	10.1	10.4	11.2	10.9	11.2	
Turbidity	NTU	0	1.25	0	1.02	2.52	0	0	0	
pH at 25 Degrees C	Std. Units	7.5	7.4	7.5	7.6	7.5	7.6	7.5	8.3	

Single Location

Name: WPL - Columbia

Location ID: MW-314										
Number of Sampling Dates: 8										
Parameter Name	Units	1/24/2023	2/23/2023	3/27/2023	4/26/2023	5/30/2023	6/29/2023	7/31/2023	8/31/2023	
Boron	ug/L	14.2	13	15.2	15.5	16.9	15.4	12.4	13	
Calcium	ug/L	95000	96200	99300	92400	102000	103000	109000	109000	
Chloride	mg/L	1.8	2.2	2.6	3.2	2.3	2.4	3	3.1	
Fluoride	mg/L	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	0.62	<0.095	
Field pH	Std. Units	7.23	7.23	7.25	7.21	7.34	7.2	7.45	7.12	
Sulfate	mg/L	4.2	4.2	5	4.6	3.4	3.2	3.9	4	
Total Dissolved Solids	mg/L	380	396	412	418	444	470	464	464	
Antimony	ug/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Arsenic	ug/L	<0.28	0.41	<0.28	<0.28	<0.28	<0.28	0.32	<0.28	
Barium	ug/L	48.7	43.4	43.3	42.7	46	41.3	34.9	33.2	
Beryllium	ug/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
Cadmium	ug/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Chromium	ug/L	<1	1	<1	1.1	<1	<1	1.1	1.1	
Cobalt	ug/L	0.31	0.22	<0.12	<0.12	<0.12	0.14	<0.12	<0.12	
Lead	ug/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	
Lithium	ug/L	0.33	0.58	0.69	0.4	0.34	0.94	0.71	0.66	
Mercury	ug/L	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	
Molybdenum	ug/L	1.7	1.4	1.5	1.5	1.7	1.3	0.87	0.77	
Selenium	ug/L	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	
Thallium	ug/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	
Total Radium	pCi/L	0.436	0.247	0.666	0	0.162	0.422	0.359	0.371	
Radium-226	pCi/L	0.436	0.233	-0.164	-0.186	-0.0795	0.0476	-0.0704	0.0586	
Radium-228	pCi/L	-0.00229	0.0135	0.666	-0.0181	0.162	0.374	0.359	0.312	
Field Specific Conductance	umhos/cm	654.9	804	667.3	735	674.5	807	862	839	
Oxygen, Dissolved	mg/L	6.21	5.8	5.51	6.15	6.46	6.53	7.65	9.39	
Field Oxidation Potential	mV	78	125.3	45.6	121.6	167.5	254	158.3	294.6	
Groundwater Elevation	feet	783.63	783.82	784.41	785.43	785.55	784.95	784.26	783.83	
Temperature	deg C	10.3	9.9	10	10	10.4	11	11	11.3	
Turbidity	NTU	7.3	2.62	0	1.8	1.21	0	0.7	1.19	
pH at 25 Degrees C	Std. Units	7.5	7.4	7.2	7.4	7.3	7.3	7.2	8.6	

Single Location

Name: WPL - Columbia

Location ID: MW-315										
Number of Sampling Dates: 8										
Parameter Name	Units	1/24/2023	2/23/2023	3/27/2023	4/26/2023	5/30/2023	6/29/2023	7/31/2023	8/31/2023	
Boron	ug/L	11.7	9.3	11.9	12	13.6	13.3	12.3	12.6	
Calcium	ug/L	107000	100000	106000	101000	108000	110000	121000	125000	
Chloride	mg/L	4.9	5.6	6	5.3	3.9	3.3	3.2	3.1	
Fluoride	mg/L	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	
Field pH	Std. Units	7.13	7.16	7.21	7.18	7.34	7.13	6.97	6.91	
Sulfate	mg/L	9.2	8.7	10.7	10.1	8.8	7	5.2	4.3	
Total Dissolved Solids	mg/L	436	448	480	452	456	482	486	526	
Antimony	ug/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Arsenic	ug/L	<0.28	0.49	0.45	0.39	0.37	0.38	<0.28	<0.28	
Barium	ug/L	57.5	46.4	36.6	31.7	47.7	52.7	50.4	48.5	
Beryllium	ug/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
Cadmium	ug/L	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Chromium	ug/L	1.2	1.7	1.8	1.9	1.7	1.6	1.4	1.6	
Cobalt	ug/L	0.24	0.12	0.13	<0.12	0.22	0.21	<0.12	<0.12	
Lead	ug/L	<0.24	<0.24	<0.24	<0.24	<0.24	0.32	<0.24	<0.24	
Lithium	ug/L	0.62	0.73	0.85	0.8	0.45	1.2	0.75	0.9	
Mercury	ug/L	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	
Molybdenum	ug/L	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	
Selenium	ug/L	0.4	0.52	0.41	<0.32	0.36	0.58	<0.32	<0.32	
Thallium	ug/L	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	
Total Radium	pCi/L	0.351	0.373	0.385	0.257	0.666	0.464	1.35	0.515	
Radium-226	pCi/L	-0.0798	0.149	-0.173	-0.174	-0.0827	-0.117	0.334	0.405	
Radium-228	pCi/L	0.351	0.224	0.385	0.257	0.666	0.464	1.02	0.11	
Field Specific Conductance	umhos/cm	748	892	711	776	716	834	876	926	
Oxygen, Dissolved	mg/L	7.65	7.28	7.83	8.46	7.02	5.4	4.17	4.62	
Field Oxidation Potential	mV	38.4	118.2	45.8	123.4	116	230.7	233.3	279.3	
Groundwater Elevation	feet	783.77	783.96	784.57	785.59	785.77	785.17	784.49	783.97	
Temperature	deg C	10.5	10	10.1	10.3	10.8	11	11.1	11.4	
Turbidity	NTU	6.43	2.7	0	2.66	2.83	0	0	2.38	
pH at 25 Degrees C	Std. Units	7.4	7.3	7.4	7.3	7.3	7.1	7	8.5	