# 2024 Annual Groundwater Monitoring and Corrective Action Report

Secondary Ash Pond
Columbia Energy Center
Pardeeville, Wisconsin

Prepared for:

Alliant Energy

Wisconsin Power and Light Company
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SCS ENGINEERS

25225067.20 | August 1, 2025

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# OVERVIEW OF CURRENT STATUS

Columbia Energy Center, Secondary Ash Pond
2024 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) units. 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; | Assessment |
| **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; | Assessment |
| **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 | SSIs initially determined on July 15, 2019, based on April 2019 monitoring results. In 2024, SSIs for semi-annual events for compliance wells at the waste boundary included the following; see **Tables 5** for complete results.<br><br><u>April 2024</u><br>Boron: MW-306, MW-307, MW-308<br>Calcium: MW-307, MW-308<br>Chloride: MW-306, MW-307<br>Sulfate: MW-306,MW-307<br>TDS: MW-306, MW-307, MW-308<br><br><u>October 2024</u><br>Boron: MW-306, MW-307, MW-308<br>Calcium: MW-306<br>Chloride: MW-306, MW-307<br>Sulfate: MW-306, MW-307<br>TDS: MW-306, MW-307 |

| Category | Rule Requirement | Site Status |
|---|---|---|
| | (B) Provide the date when the assessment monitoring program was initiated for the CCR unit. | January 13, 2020 |
| **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: | |
| | (A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase; | None |
| | (B) Provide the date when the assessment of corrective measures was initiated for the CCR unit; | Not applicable – No SSLs above GPSs |
| | (C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and | Not applicable – ACM not required |
| | (D) Provide the date when the assessment of corrective measures was completed for the CCR unit. | Not applicable – ACM not required |
| **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 – Selection of remedy not required |
| **Corrective Action** | (vi) Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period. | Not applicable – Selection of remedy not required |

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# 1.0 INTRODUCTION

This 2024 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 CFR 257.50-107]. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.100 and 40 CFR 257.90(e) for inactive CCR surface impoundments. The applicable sections of the Rule are provided below in *italic*s, followed by applicable information relative to the 2024 Annual Groundwater Monitoring and Corrective Action Report for the CCR unit.

This report covers the period of groundwater monitoring from January 1, 2024, through December 31, 2024.

The groundwater monitoring system for the Secondary Ash Pond at the Columbia Energy Center (COL) monitors a single inactive CCR unit:

- COL Secondary Ash Pond (inactive surface impoundment)

The system is designed to detect monitored constituents at the waste boundary of the COL Secondary Ash Pond as required by 40 CFR 257.91(d). The groundwater monitoring system consists of two background wells and three downgradient monitoring wells (**Table 1**, **Figure 1**, and **Figure 2**).

Removal of CCR material from the inactive pond was completed in 2022. Secondary Ash Pond closure activities were completed in February 2023, and certification of closure of the Secondary Pond is pending evaluation of future monitoring data.

Other CCR units at the COL facility include the Primary Ash Pond and Dry Ash Disposal Facility Modules 1-3, Modules 4-6, and Modules 10-13. Annual groundwater monitoring and corrective action reports for these CCR units are submitted separately on January 31 of each year in accordance with 40 CFR 257.90(e).

# 2.0 BACKGROUND

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

- 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 the uppermost aquifer unit as defined under 40 CFR 257.53 at the COL Secondary Ash Pond. 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 COL (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, 1978). During drilling of CCR wells MW-301, MW-306, MW-307, and MW-308, the unconsolidated materials were identified as consisting primarily of silty sand and sand. The boring log for previously installed monitoring well MW-84A also shows silty sand and sand as the primary unconsolidated materials at these locations. The boring logs for the Secondary Ash Pond CCR monitoring wells are provided in Appendix C. All CCR monitoring wells are screened within the unconsolidated sand unit. The groundwater monitoring network and sample summary are provided in Table 1 and Table 2, respectively.

The groundwater flow pattern in April 2024 is shown on Figure 3; the groundwater flow pattern in August 2024 is shown on Figure 4; and the groundwater flow pattern during the October 2024 sampling event is shown on Figure 5. The groundwater elevation data for the CCR monitoring wells and state monitoring program wells are provided in Table 3. Horizontal gradients and flow velocities for representative flow paths are provided in Table 4.

The historical groundwater flow in the vicinity of the ash ponds was radially away from the ponds; therefore, the compliance wells are located on the east side of the former Secondary Pond location. In 2024, overall groundwater flow in the vicinity of the Secondary Pond is northwest toward the Wisconsin River; however, the current flow direction is locally variable in the immediate area of the Secondary Pond, as shown on the water table maps.

In 2022, dewatering wells were installed around the Secondary Pond, and groundwater was pumped to lower the water table below the pond to facilitate CCR removal and pond closure. Pumped groundwater was discharged to the Primary Ash Pond. In 2023, groundwater was pumped from dewatering wells installed around the Primary Ash Pond to lower the water table below the pond to facilitate CCR removal and pond closure. The pumped groundwater was discharged to the large cooling pond south of the generating station. The groundwater dewatering system ceased operation as of September 11, 2023.

## 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 compliance monitoring wells. The background wells include MW-84A and MW-301. The background wells are shared with other CCR units at COL. The downgradient wells include MW-306, MW-307, and MW-308. The CCR Rule wells are installed in the surficial sand aquifer. Well depths range from approximately 26.4 to 37 feet, measured from the top of the well casing.

# 3.0 §257.100(E)(5) GROUNDWATER MONITORING AND CORRECTIVE ACTION FOR INACTIVE CCR SURFACE IMPOUNDMENTS

*The owner or operator of the inactive CCR surface impoundment must: (i) No later than April 17, 2020, comply with groundwater monitoring requirements set forth in §§ 257.90(b) and 257.94(b); and (ii) No later than August 1, 2020, prepare the initial groundwater monitoring and corrective action report as set forth in §257.90(e).*

This report is submitted to fulfill the annual reporting requirement.

# 4.0 §257.90(E) ANNUAL REPORT REQUIREMENTS

***Annual groundwater monitoring and corrective action report.*** *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:*

## 4.1 §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 location of the site is provided on **Figure 1**. A map showing the inactive COL Secondary Ash Pond and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided on **Figure 2**. Monitoring wells associated with monitoring programs are also shown on **Figure 2**.

## 4.2 §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;*

No new monitoring wells were installed, and no wells were decommissioned as part of the groundwater monitoring program for the CCR unit in 2024.

## 4.3 §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;*

The semi-annual sampling occurred in April and October 2024. 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 assessment monitoring program is included in **Table 2**.

Closure activities for the Secondary Pond were implemented in 2022, including removal of CCR material from the inactive pond. Closure activities of the Secondary Pond were completed prior to the February 2023 sampling event. Certification of closure for the Secondary Pond is pending evaluation of future groundwater quality data.

The sampling results for Appendix III and Appendix IV parameters in 2024 are summarized in **Tables 5A** and **5B.** Field parameter results for the 2024 sampling events are provided in **Table 6**. The analytical laboratory reports for 2024 are provided in **Appendix C**. Historical results for each monitoring well are summarized in **Appendix D**.

## 4.4 §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);*

There was no monitoring program transition in 2024.

Assessment monitoring for the COL Secondary Ash Pond was initiated in January 2020 in response to statistically significant increases (SSIs) in detection monitoring constituents identified at downgradient wells. SSIs were identified for boron, chloride, and sulfate at one or more wells based on the April 2019 detection monitoring event. Wisconsin Power and Light Company (WPL) collected the first round of assessment monitoring samples in December 2019 and established an assessment monitoring program on January 13, 2020, in accordance with §257.95(b).

The initial evaluation of assessment groundwater monitoring performed at COL Secondary Ash Pond included the December 2019, February 2020, and April 2020 results and was completed in July 2020.

In accordance with the Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities (U.S. EPA, 2009), the comparison of assessment monitoring results to the Groundwater Protection Standards (GPS) was based on the lower confidence limit (LCL) for the arithmetic mean. The LCL evaluation was completed for cobalt, which is the only Appendix IV parameter that has been detected at a concentration exceeding the GPS in at least one sample result since assessment monitoring was initiated. The LCLs were calculated with Sanitas™ using historical concentrations measured since assessment monitoring began in April 2018. LCL evaluations for data collected in October 2023 and April 2024 are provided in **Appendix E**.

Cobalt was the only Appendix IV parameter that was detected in at least one sample at a concentration exceeding the GPS in 2024. No other individual results in 2024 exceeded the GPS values. Cobalt exceeded the GPS at MW-307 in October 2024.

Statistical evaluation of the cobalt results, including LCL evaluations and trend analysis, determined that cobalt was not an SSL above the GPS. Statistical evaluations completed for each sampling event in 2024 are included in **Appendix E**. The approach and findings for each event were as follows:

- **April 2024** – An LCL evaluation was completed for cobalt, which was the only Appendix IV parameter that had been detected at a concentration exceeding the GPS in at least one sample result since assessment monitoring was initiated. The LCLs were calculated with Sanitas™ using historical concentrations measured since assessment monitoring was

initiated for each well. Due to the shift in cobalt concentrations in 2023, the LCLs were also calculated using only the last eight monitoring events. The LCL calculations are provided in **Appendix E1**. For both the analysis with the complete assessment monitoring data set and the analysis of the last eight events, the LCLs for cobalt were below the GPS at all wells.

Due to the observed increasing concentrations, cobalt concentrations were also evaluated for an SSL based on a Mann-Kendall trend analysis and 98 percent confidence band, as calculated using the Mann-Kendall/Sen's Slope analysis in Sanitas. Analysis of the complete assessment monitoring data set indicated there was no statistically significant trend. Trend analysis of cobalt concentrations for the last eight events also indicated no significant trend. Based on the statistical analyses, cobalt was not at an SSL above the GPS. The trend analyses are included in **Appendix E1**.

- **October 2024** – An LCL evaluation was completed for cobalt, which was the only Appendix IV parameter that had been detected at a concentration exceeding the GPS in at least one sample result since assessment monitoring was initiated. The LCLs were calculated with Sanitas™ using historical concentrations measured since assessment monitoring was initiated for each well. Due to the shift in cobalt concentrations in 2023, the LCLs were also calculated using only the last eight monitoring events. The LCL calculations are provided in **Appendix E2**. For both the analysis with the complete assessment monitoring data set and the analysis with only the last eight events, the LCLs were below the GPS at the three compliance wells.

  Due to the observed increase in concentrations, cobalt concentrations were also evaluated for an SSL based on a Mann-Kendall trend analysis and 98 percent confidence band, as calculated using the Mann-Kendall/Sen's Slope analysis in Sanitas. Analysis of the complete assessment monitoring data set indicated that a statistically significant increasing trend was present, but the lower limit of the confidence band was below the GPS. Trend analysis of cobalt concentrations for the last eight events did not indicate a significant trend. The trend analyses are included in **Appendix E2**.

Based on the results of the assessment monitoring conducted in 2024, WPL will continue assessment monitoring in accordance with 40 CFR 257.95(f).

For comparison of the assessment monitoring results to background concentrations, upper prediction limits (UPLs) for detection and assessment monitoring parameters were calculated based on a 1-of-2 resampling approach. In January 2021, the UPLs for Appendix III and Appendix IV parameters were updated to include background monitoring well data collected through October 2020. The UPL update analysis was provided in the 2020 Annual Groundwater Monitoring and Corrective Action Report. As shown in **Tables 5A** and **5B**, concentrations of several Appendix III and Appendix IV parameters continue to be detected at levels that represent SSIs above background. Based on these results, the Secondary Ash Pond will continue in the assessment monitoring program.

## 4.5 §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 2024 Annual Groundwater Monitoring and Corrective Action Report for the CCR unit.

### 4.5.1 §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. The groundwater monitoring and corrective action program is currently in assessment monitoring after transitioning from detection monitoring in January 2020.

Summary of Key Actions Completed.

- Two semi-annual groundwater sampling and analysis events (April and October 2024).
- Statistical evaluation and determination of SSLs for the April and October 2024 monitoring events.
- Preparation of 2023 Annual Groundwater Monitoring and Corrective Action Report (August 2024).

Description of Any Problems Encountered. No problems were encountered during semi-annual sampling events or supplemental sampling events.

Discussion of Actions to Resolve the Problems. Not applicable.

Projection of Key Activities for the Upcoming Year (2025).

- Semi-annual groundwater sampling and analysis events (April/October).
- Statistical evaluation and determination of any SSLs exceeding the GPS for the monitoring events.
- If one or more Appendix IV constituents is detected at an SSL above the GPS, then within 30 days WPL will prepare a notification in accordance with §257.95(g), and within 90 days complete an alternative source demonstration or initiate an assessment of corrective measures (§257.95(g)(3)). WPL will also characterize the release pursuant to §257.95(g)(1) and provide notice pursuant to §257.95(g)(2).

- Preparation of 2024 Annual Groundwater Monitoring and Corrective Action Report (August 2025).

### 4.5.2 §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. The COL Secondary Ash Pond is no longer in detection monitoring.

### 4.5.3 §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. The COL Secondary Ash Pond is no longer in detection monitoring.

### 4.5.4 §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 been initiated, and no alternative assessment monitoring frequency has been proposed at this time.

### 4.5.5 §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).*

The 2024 assessment monitoring results, background UPLs, and GPSs established for the site are provided in Tables 5A and 5B. The laboratory reports are provided in Appendix C. Historical monitoring results are summarized in Appendix D.

### 4.5.6 §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. No alternative source demonstration for assessment monitoring was completed in 2024.

### 4.5.7 §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.

## 4.6 §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.

# 5.0 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.

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

**Table 1. Groundwater Monitoring Well Network**
**Columbia Energy Center Secondary Ash Pond / SCS Engineers Project #25224067.00**

| Monitoring Well | Location in Monitoring Network | Role in Monitoring Network |
|---|---|---|
| MW-84A | Upgradient | Background |
| MW-301 | Upgradient | Background |
| MW-306 | Downgradient | Compliance |
| MW-307 | Downgradient | Compliance |
| MW-308 | Downgradient | Compliance |

Last revision by: BLJ Date: 4/2/2025
Checked by: NLB Date: 4/2/2025

**Table 2. CCR Rule Groundwater Samples Summary**
**Columbia Energy Center Secondary Pond / SCS Engineers Project #25225067.00**

| Sample Dates | Compliance Wells | | | Background Wells | |
|---|---|---|---|---|---|
| | MW-306 | MW-307 | MW-308 | MW-84A | MW-301 |
| 4/16-17/2024 | A | A | A | A | A |
| 10/1 & 18/2024 | A | A | A | A | A |
| Total Samples | 2 | 2 | 2 | 2 | 2 |

Abbreviations:
A = Assessment Monitoring Program
A-S = Supplemental Assessment Monitoring Event
-- = Not Sampled

| | | | |
|---|---|---|---|
| Created by: | RM | Date: | 9/19/2022 |
| Last revision by: | BLJ | Date: | 4/2/2025 |
| Checked by: | NLB | Date: | 4/2/2025 |

**Table 3. Groundwater Elevation - State Monitoring Program and CCR Well Network**
**Columbia Dry Ash and Ash Pond Disposal Facilities / SCS Engineers Project #25225067.20**

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Measurement Date** | | | | | | | | | | | | | | | | | | | |
| Dry Ash Facility (Facility ID #03025) | 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 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 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 | 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 | 784.34 | 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 | NM | NM | NM |
| | 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 | NM | NM | NM |
| | March 27-28, 2023 | aband | aband | NM | 784.52 | NM | 785.23 | NM | NM | NM | 786.21 | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| | 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 | NM | NM | NM |
| | 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 |
| | April 15-17, 2024 | aband | aband | dry | 783.02 | 782.94 | 784.14 | 784.11 | 782.95 | 783.41 | 784.90 | 784.84 | 784.54 | 784.61 | 784.57 | 785.19 | 784.75 | 783.88 | 783.87 | 783.59 |
| | April 19, 2024 | aband | aband | 785.47 | 783.06 | 783.02 | 784.28 | 784.30 | 783.05 | dry | 785.05 | 785.01 | 784.67 | 784.74 | 784.62 | 785.63 | 785.16 | 783.95 | 783.95 | 783.68 |
| | July 29, 2024 | aband | aband | NM | NM | NM | 787.29 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| | August 15, 2024 | aband | aband | 789.12 | 788.77 | 787.94 | 787.62 | 787.56 | 788.05 | 788.44 | 788.17 | 788.07 | 788.31 | 788.66 | 788.40 | 789.03 | 788.58 | 788.39 | 788.35 | 788.31 |
| | October 1-3, 2024 | aband | aband | 788.25 | 787.33 | 786.64 | 786.79 | 786.75 | 786.60 | 788.86 | 787.14 | 787.06 | 787.14 | 787.81 | 787.52 | 788.33 | 787.86 | 787.00 | 786.97 | 786.90 |
| | November 5, 2024 | aband | aband | NM | 785.98 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM |

**Table 3. Groundwater Elevation - State Monitoring Program and CCR Well Network**
**Columbia Dry Ash and Ash Pond Disposal Facilities / SCS Engineers Project #25225067.20**

| | Well Number | M-3 | M-4R | MW-39A | MW-39B | MW-48A | MW-48B | MW-57 | MW-59 | MW-216R | MW-217 | MW-220RR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Measurement Date** | | | | | | | | | | | |
| Ash Pond Facility (Facility ID #02325) | 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 | NM | 783.39 | 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 |
| | October 7-8 &17, 2020 | 781.42 | 787.74 | 784.74 | 784.64 | 785.03 | 784.96 | 782.83 | 785.43 | 785.10 | 783.06 | 783.49 |
| | April 12, 2021 | 782.30 | 786.34 | 783.66 | 783.65 | 784.13 | 784.08 | 782.79 | 784.08 | 783.97 | 783.15 | 783.49 |
| | October 11-12, 14, 2021 | 781.03 | 786.33 | 782.94 | 782.85 | 783.09 | 783.03 | 781.94 | 783.11 | 783.04 | 782.15 | 782.66 |
| | April 11-13, 2022 | 783.95 | 788.26 | 783.37 | 783.34 | 783.10 | 783.10 | NM | 782.99 | 783.40 | 783.93 | 783.83 |
| | June 3, 2022 | NM | NM | NM | NM | NM | NM | 782.13 | NM | NM | NM | NM |
| | October 25, 26, 28, 2022 | 780.41 | 783.85 | 780.76 | 780.66 | 779.57 | 779.55 | 779.23 | 778.98 | 778.61 | 780.33 | 781.49 |
| | March 27-28, 2023 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| | April 24-27, 2023 | 785.18 | 782.59 | 785.38 | 785.19 | 784.55 | 784.51 | NM | 784.83 | 784.46 | 783.78 | 785.30 |
| | May 16, 2023 | 782.79 | 781.64 | 784.70 | 784.58 | 784.60 | 784.49 | 782.80 | 784.68 | 783.94 | 782.07 | 784.03 |
| | October 9-11, 2023 | 779.65 | 780.54 | 781.50 | 781.30 | 781.94 | 781.69 | 780.26 | 781.95 | 781.21 | 779.89 | 780.43 |
| | April 15-17, 2024 | 781.73 | 781.38 | 782.58 | 782.51 | 782.42 | 782.35 | 781.82 | 782.23 | 782.17 | 781.47 | 783.40 |
| | April 19, 2024 | NM | dry | 782.78 | 782.80 | 782.57 | 782.56 | NM | 782.35 | 782.29 | 781.65 | 783.48 |
| | August 15, 2024 | 781.49 | 784.27 | 786.74 | 786.56 | 787.47 | 787.31 | 783.56 | 787.87 | 786.90 | 783.38 | 783.95 |
| | October 1-3, 2024 | 779.13 | 783.42 | 785.25 | 785.12 | 785.99 | 785.86 | 782.99 | 785.86 | 785.19 | 782.26 | 783.50 |
| | October 4, 2024 | NM | 783.57 | NM | NM | NM | NM | NM | NM | NM | NM | NM |

## Table 3. Groundwater Elevation - State Monitoring Program and CCR Well Network
## Columbia Dry Ash and Ash Pond Disposal Facilities / SCS Engineers Project #25225067.20

| | Well Number | MW-301 | MW-302 | MW-303 | MW-304 | MW-304R | 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 | MW-317 | MW-318 | MW-319 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Measurement Date** | | | | | | | | | | | | | | | | | | | | | | | | |
| | December 21-22, 2015 | 785.56 | 784.78 | 784.11 | 786.13 | NI | 788.96 | 787.58 | 783.77 | 783.50 | 785.31 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | April 4-5, 2016 | 786.78 | 785.81 | 785.48 | 788.08 | NI | 789.61 | 789.09 | 785.29 | 785.63 | 786.37 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | July 7-8, 2016 | 786.31 | 786.28 | 784.60 | 787.36 | NI | 789.26 | 787.43 | 785.19 | 785.05 | 785.89 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | July 28, 2016 | NM | NM | 784.35 | NM | NI | NM | NM | NM | 784.86 | 785.61 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 11-13, 2016 | 787.64 | 787.76 | 786.18 | 788.18 | NI | 789.78 | 787.88 | 787.36 | 786.45 | 787.22 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | December 29, 2016 | 787.37 | 787.05 | NM | NM | NI | NM | NM | 785.66 | 785.72 | 786.63 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | January 25-26, 2017 | 787.27 | 786.89 | 785.28 | 789.34 | NI | 789.36 | 789.64 | 785.88 | 785.98 | 786.70 | 785.50 | 785.36 | 785.73 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | April 10 & 11, 2017 | 787.89 | 787.55 | 786.00 | 788.22 | NI | 789.57 | 787.95 | 786.39 | 786.30 | 787.16 | 786.22 | 785.64 | 786.51 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | June 6, 2017 | 788.25 | 788.37 | 786.49 | 788.58 | NI | 789.79 | 787.83 | 787.27 | 786.66 | 787.63 | 786.85 | 786.07 | 786.46 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | August 7-9, 2017 | 787.34 | 787.55 | 785.42 | 789.52 | NI | 789.30 | 788.54 | 786.11 | 785.81 | 786.68 | 785.69 | 785.19 | 785.37 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 23-24, 2017 | 785.89 | 785.94 | 783.92 | 788.97 | NI | 788.14 | 788.00 | 784.13 | 784.50 | 785.32 | 783.97 | 784.79 | 784.17 | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI | NI |
| | February 21, 2018 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 783.19 | 783.05 | 783.02 | NI | NI | NI | NI | NI | NI | NI | NI |
| | March 23, 2018 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 783.10 | 783.10 | 783.00 | NI | NI | NI | NI | NI | NI | NI | NI |
| | April 23-25, 2018 | 785.29 | 784.37 | 783.27 | 789.69 | NI | 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 | NI | NI | NI |
| | May 24, 2018 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | 785.79 | 785.09 | NM | 785.45 | 785.97 | 786.11 | NI | NI | NI | NI | NI | NI | NI | NI |
| | June 23, 2018 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 786.03 | 786.64 | 786.47 | NI | NI | NI | NI | NI | NI | NI | NI |
| | July 23, 2018 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 786.27 | 786.35 | 786.55 | NI | NI | NI | NI | NI | NI | NI | NI |
| | August 7, 2018 | 787.06 | NM | 785.20 | 788.25 | NI | 788.56 | 787.63 | NM | NM | 786.55 | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | August 22, 2018 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 785.54 | 785.40 | 785.46 | NI | NI | NI | NI | NI | NI | NI | NI |
| | September 21, 2018 | NM | 788.37 | 786.50 | NM | NI | NM | NM | 787.90 | 787.01 | NM | NM | NM | NM | 787.08 | 787.24 | 787.66 | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 22-24, 2018 | 788.98 | 789.16 | 787.51 | 789.05 | NI | 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 | NI | NI | NI |
| | April 1-4, 2019 | 787.04 | 787.56 | 786.52 | 789.72 | NI | 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 | NI | NI | NI |
| | June 12, 2019 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | 787.25 | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | June 19, 2019 | NM | NM | 786.81 | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 7-9, 2019 | 788.47 | 788.31 | 787.02 | 790.41 | NI | 790.36 | 790.65 | NM | NM | NM | 787.47 | 786.99 | 787.18 | 787.26 | 787.94 | 787.64 | NI | NI | NI | NI | NI | NI | NI | NI |
| | December 13, 2019 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | 787.03 | 785.68 | 786.43 | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | December 23, 2019 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | 775.22 | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | January 17, 2020 | NM | NM | 785.58 | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | February 3, 2020 | 787.24 | NM | NM | NM | NI | NM | NM | NM | NM | 786.50 | 785.77 | 785.57 | 786.48 | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | May 27-29, 2020 | 787.77 | 787.29 | 785.56 | 789.30 | NI | 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 | NI | NI | NI |
| | June 30, 2020 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 786.18 | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | August 6, 2020 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 785.93 | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 7-8, 2020 | 786.53 | 786.74 | 785.16 | 788.52 | NI | 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 | NI | NI | NI |
| | December 11, 2020 | NM | NM | NM | NM | NI | 788.19 | NM | NM | NM | NM | NM | NM | NM | 785.26 | 785.26 | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | February 25, 2021 | NM | NM | 784.27 | NM | NI | 788.36 | NM | NM | 784.75 | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| CCR Rule Wells (cont.) | April 12, 2021 | 786.50 | 785.77 | 784.07 | 787.99 | NI | 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 | NI | NI | NI |
| | June 11, 2021 | NM | NM | NM | NM | NI | NM | NM | 784.19 | 784.66 | NM | NM | NM | NM | 784.20 | 784.05 | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | July 20, 2021 | NM | NM | 783.64 | NM | NI | 788.39 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 11-12, 14, 2021 | 785.28 | 785.09 | 783.09 | 787.78 | NI | 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 | NI | NI | NI |
| | December 21, 2021 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 782.93 | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | February 24, 2022 | NM | NM | 782.34 | NM | NI | 786.49 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | April 11-13, 2022 | 785.44 | 784.42 | 783.40 | 788.20 | NI | 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 | NI | NI | NI |
| | July 27, 2022 | NM | NM | 783.07 | NM | NI | 787.03 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | October 25-27, 2022 | 784.91 | 784.62 | 778.94 | 781.79 | NI | 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 | NI | NI | NI |
| | November 30, 2022 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 781.62 | 781.14 | 781.15 | NI | NI | NI | NI | NI | NI | NI | NI |
| | December 2, 2022 | 785.12 | 784.48 | NM | 783.97 | NI | NM | NM | 781.91 | 783.71 | 784.76 | 778.52 | 779.54 | NM | NM | NM | NM | NI | NI | NI | NI | NI | NI | NI | NI |
| | January 12-13, 2023 | 785.20 | 784.55 | NM | NM | NI | NM | NM | 782.75 | 784.10 | 784.88 | NM | NM | NM | 782.57 | 782.45 | 782.32 | NI | NI | NI | NI | NI | NI | NI | NI |
| | January 20, 2023 | NM | NM | NM | 788.08 | NI | NM | NM | NM | NM | NM | 782.15 | 782.11 | 784.98 | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI | NI |
| | January 24, 2023 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 783.73 | 783.36 | 783.63 | 783.77 | NI | NI | NI | NI |
| | February 20-23, 2023 | 785.56 | 784.98 | NM | NM | NI | 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 | NI | NI | NI |
| | March 27-28, 2023 | 786.83 | 785.87 | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 783.84 | 783.98 | 784.43 | NM | 784.12 | 784.41 | 784.57 | NI | NI | NI | NI |
| | April 24-27, 2023 | 787.57 | 786.87 | 784.38 | 784.03 | NI | 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 | NI | NI | NI |
| | May 5, 2023 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 785.55 | NM | NM | NM | 780.49 | NI | NI | NI |
| | May 16, 2023 | 787.43 | 787.07 | 783.88 | 784.12 | NI | 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 | NI | NI | NI |
| | May 30-31, 2023 | 787.04 | 786.89 | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 784.90 | 784.69 | 784.97 | NM | 785.24 | 785.55 | 785.77 | NM | NI | NI | NI |
| | June 29-30, 2023 | 786.32 | 786.39 | NM | NM | NI | NM | NM | 784.32 | 785.04 | 785.92 | NM | NM | NM | 784.12 | 783.84 | 783.97 | NM | 784.67 | 784.95 | 785.17 | NM | NI | NI | NI |
| | July 31, 2023 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 783.96 | 784.26 | 784.49 | NM | NI | NI | NI |
| | August 31, 2023 | NM | 785.30 | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | 782.47 | NM | NM | 783.55 | 783.83 | 783.97 | NM | NI | NI | NI |
| | October 9-11, 2023 | 784.67 | 784.65 | 781.21 | 780.09 | NI | 779.93 | 780.54 | 782.57 | 783.55 | 784.39 | NM | NM | 783.09 | 782.58 | 782.32 | 782.22 | 783.69 | 783.10 | 783.33 | 783.59 | 780.30 | NI | NI | NI |
| | November 9, 2023 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | 782.76 | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI |
| | November 20, 2023 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | 781.97 | 781.45 | 782.85 | NM | NM | NM | NM | NM | NM | NM | NM | NI | NI | NI |
| | December 27, 2023 | NM | NM | NM | NM | NI | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 783.18 | 783.36 | NM | NI | NI | NI |
| | April 15-17, 2024 | 785.27 | 784.49 | 782.16 | aband | 782.17 | 780.80 | 781.38 | 783.02 | 784.14 | 784.90 | 782.40 | 782.24 | 784.51 | 782.79 | 782.68 | 782.64 | 783.59 | 783.16 | 783.42 | 783.53 | 782.09 | 783.12 | 783.05 | 785.27 |
| | April 19, 2024 | 785.51 | 784.55 | 782.26 | aband | 782.23 | dry | dry | 783.06 | 784.28 | 785.05 | NM | 782.64 | 784.69 | 782.90 | 782.82 | 782.74 | 783.68 | 783.30 | 783.49 | 783.62 | 782.15 | NM | NM | NM |
| | May 20, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 784.25 | NM | NM | NM | NM |
| | June 4, 2024 | NM | NM | NM | aband | NM | 783.03 | 783.66 | NM | NM | NM | NM | NM | NM | 784.27 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| | June 27, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 785.87 | 785.97 | 787.20 |
| | July 31, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 787.95 | 788.83 | 789.56 |
| | August 8, 2024 | NM | NM | 787.17 | aband | 786.34 | 783.77 | 784.45 | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | 786.24 | NM | NM | NM |
| | August 15, 2024 | 788.75 | 789.53 | 786.93 | aband | 786.03 | 783.75 | 784.27 | 788.77 | 787.62 | 788.17 | 787.66 | 787.24 | 788.39 | 787.90 | 787.93 | 788.37 | 788.31 | aband | aband | aband | 785.99 | 787.87 | 788.63 | 789.68 |
| | August 30, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | aband | aband | aband | NM | 787.28 | 787.78 | 789.17 |
| | October 1-3, 2024 | 787.92 | 788.35 | 785.30 | aband | 784.91 | 782.80 | 783.42 | 787.33 | 786.79 | 787.14 | 786.04 | 785.94 | 786.88 | 786.46 | 786.35 | 786.40 | 786.90 | aband | aband | aband | 784.80 | 786.41 | 786.71 | 788.22 |
| | October 18, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | 785.50 | 785.08 | 786.34 | NM | NM | NM | NM | aband | aband | aband | NM | NM | NM | NM |
| | October 31, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | aband | aband | aband | NM | 785.73 | 785.92 | 787.88 |
| | November 5, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | 785.66 | 785.45 | NM | NM | aband | aband | aband | NM | NM | NM | NM |
| | December 9, 2024 | NM | NM | NM | aband | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | NM | aband | aband | aband | NM | 785.50 | 785.64 | 787.41 |

**Table 3. Groundwater Elevation - State Monitoring Program and CCR Well Network**
**Columbia Dry Ash and Ash Pond Disposal Facilities / SCS Engineers Project #25225067.20**

Notes:
NM = not measured
NI = not installed
aband = abandoned

Created by: MDB Date: 5/6/2013
Last revision by: NLB Date: 7/18/2025
Checked by: MDB Date: 7/18/2025

(1) The depth to water at MW-84A was not measured prior to purging for sampling during the October 3-5, 2017 sampling event. The level was allowed to return to static and was measured on October 10, 2017.
(2) MW-303 was extended in 2022 due to regrading. Prior to October 2022, the TOC elevation was 811.52'. For events in October 2022 and later, the TOC elevation is 815.72'.

**Table 4. Horizontal Gradients and Flow Velocity**
**Columbia Energy Center - Secondary Pond**
**SCS Engineers Project #25225067.00**
**January - December 2024**

| Sampling Dates | h1 (ft) | h2 (ft) | Δl (ft) | Δh/Δl (ft/ft) | V (ft/d) |
|---|---|---|---|---|---|
| | South to East | | | | |
| April 15-17, 2024 | 784.00 | 782.00 | 452 | 0.004 | 0.11 |
| | South to East | | | | |
| August 15, 2024 | 788.00 | 786.00 | 372 | 0.005 | 0.13 |
| | South to West | | | | |
| October 1-3, 2024 | 786.00 | 785.00 | 401 | 0.002 | 0.06 |

| Wells | K Values (cm/sec) | K Values (ft/d) |
|---|---|---|
| MW-306 | 4.36E-03 | 12.4 |
| MW-307 | 1.74E-03 | 4.9 |
| MW-308 | 7.03E-04 | 2.0 |
| Geometric Mean | 1.75E-03 | 5.0 |

| Assumed Porosity, n |
|---|
| 0.20 |

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

Notes:

1. The lithology of the screened interval for MW-306, MW-307 and MW-308 is primarily silty sand, fine to medium grained sand. The estimated effective porosity is from groundwater flow model, "Applications of the Columbia County, Wisconsin, groundwater-flow model, M.B. Gotkowitz, Wisconsin Geological and Natural History Survey, Open File Report 2021-06."

2. Flow paths for horizontal groundwater velocity calculation shown on Figures 3, 4 and 5.

Last revision by: NLB Date: 7/10/2025
Checked by: RM Date: 7/10/2025

**Table 5A. Groundwater Analytical Results Summary - April 2024**
**Columbia Energy Center - Secondary Pond / SCS Engineers Project #25224067.00**

| Parameter Name | UPL Method | UPL | | Background Wells | | Compliance Wells | | |
|---|---|---|---|---|---|---|---|---|
| | | | | MW-84A | MW-301 | MW-306 | MW-307 | MW-308 |
| | | | | 4/17/2024 | 4/17/2024 | 4/16/2024 | 4/16/2024 | 4/16/2024 |
| Groundwater Elevation, ft amsl | | | | 784.90 | 785.27 | 782.40 | 782.24 | 784.51 |
| **Appendix III** | | | | | | | | |
| Boron, µg/L | P | 35 | | 11.9 | 24.9 | 110 | 255 | 446 |
| Calcium, µg/L | NP | 129,000 | | 73,700 | 102,000 | 123,000 | 129,000 | 141,000 |
| Chloride, mg/L | P | 6.02 | | 3.2 | 1.6 J | 20.4 | 37.8 | 4.6 M0 |
| Fluoride, mg/L | DQ | DQ | | 0.12 J | <0.095 | <0.095 | <0.095 | 0.10 J,M0 |
| Field pH, Std. Units | P | 7.76 | | 7.68 | 7.06 | 7.00 | 6.83 | 6.94 |
| Sulfate, mg/L | P | 30.8 | | 1.4 J | 11.5 | 104.0 | 311 | 13.80 M0 |
| Total Dissolved Solids, mg/L | NP | 514 | | 322 | 458 | 556 | 704 | 570 |
| **Appendix IV** | | **UPL** | **GPS** | | | | | |
| Antimony, µg/L | NP | 0.4 | 6 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Arsenic, µg/L | P | 0.507 | 10 | 0.29 J | <0.28 | <0.28 | 1.3 | 2.6 |
| Barium, µg/L | P | 16.9 | 2000 | 14.4 | 8.1 | 20.8 | 24.1 | 83.6 |
| Beryllium, µg/L | NP | 0.37 | 4 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| Cadmium, µg/L | NP | 0.32 | 5 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Chromium, µg/L | P | 2.36 | 100 | 2.1 J | <1.0 | 2.9 J | 1.2 J | 1.0 J |
| Cobalt, µg/L | NP | 0.38 | 6 | <0.12 | <0.12 | <0.12 | 3.6 | 0.60 J |
| Fluoride, mg/L | DQ | DQ | 4 | 0.12 J | <0.095 | <0.095 | <0.095 | 0.10 J,M0 |
| Lead, µg/L | NP | 0.90 | 15 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 |
| Lithium, µg/L | P | 0.827 | 40 | 0.67 J | 0.63 J | 15.2 | 0.33 J | <0.22 |
| Mercury, µg/L | DQ | DQ | 2 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 |
| Molybdenum, µg/L | NP | 0.44 | 100 | <0.44 | <0.44 | 8.1 | 0.61 J | 2.0 |
| Selenium, µg/L | NP | 0.71 | 50 | <0.32 | <0.32 | 1.4 | <0.32 | <0.32 |
| Thallium, µg/L | NP | 0.48 | 2 | <0.14 | <0.14 | <0.14 | <0.14 | <0.14 |
| Radium 226/228 Combined, pCi/L | P | 1.76 | 5 | 0.290 | 1.04 | 0.962 | 1.390 | 0.918 |

Blue shaded cell indicates the compliance well result exceeds the UPL and the LOQ.

Yellow shaded cell indicates the compliance well result exceed the GPS.

Abbreviations:
UPL = Upper Prediction Limit
mg/L = milligrams per liter
GPS = Groundwater Protection Standard
µg/L = micrograms per liter

DQ = Double Quantification Rule (not detected in background)
P = Parametric UPL with 1-of-2 retesting
NP = Nonparametric UPL with 1-of-2- retesting

Lab Notes:
J = Estimated concentration at or above the LOD and below the LOQ.
M0 = Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

Notes:
1. An individual result above the UPL or GPS does not constitute an SSI above background or statistically significant level above the GPS. See the accompanying letter text for identification of statistically significant results.
2. GPS is the United States Environmental Protection Agency (U.S. EPA) Maximum Contamination Level (MCLs), if established; otherwise, the values from 40 CFR 257.95(h)(2).
3. Interwell UPLs calculated based on results from background wells MW-84 and MW-301.
4. For compliance wells, only results confirmed above the LOQ are evaluated as potential Statistically Significant Increases above background.

Last revision by: BR Date: 5/17/2024
Checked by: JM Date: 5/24/2024
Proj Mgr QA/QC: TK Date: 8/9/2024

**Table 5B. Groundwater Analytical Results Summary - October 2024**
**Columbia Energy Center - Secondary Pond / SCS Engineers Project #25224067.00**

| Parameter Name | UPL Method | UPL | | Background Wells | | Compliance Wells | | |
|---|---|---|---|---|---|---|---|---|
| | | | | MW-84A | MW-301 | MW-306 | MW-307 | MW-308 |
| | | | | 10/2/2024 | 10/2/2024 | 10/18/2024 | 10/18/2024 | 10/18/2024 |
| Groundwater Elevation, ft amsl | | | | 787.14 | 787.92 | 785.50 | 785.08 | 786.34 |
| **Appendix III** | | | | | | | | |
| Boron, µg/L | P | 35 | | 10.3 | 22.1 | 114 | 256 | 556 |
| Calcium, µg/L | NP | 129,000 | | 73,300 | 97,000 P6 | 161,000 P6 | 117,000 | 124,000 |
| Chloride, mg/L | P | 6.02 | | 3.3 | 1.5 J | 32.9 | 35.3 | 8.5 J, D3 |
| Fluoride, mg/L | DQ | DQ | | <0.095 | 0.13 J | <0.095 | <0.48 D3 | <0.48 D3 |
| Field pH, Std. Units | P | 7.76 | | 7.36 | 6.85 | 7.13 | 6.66 | 7.29 |
| Sulfate, mg/L | P | 30.8 | | 1.8 J | 10.4 | 173 | 141 | 3.1 J, D3 |
| Total Dissolved Solids, mg/L | NP | 514 | | 318 | 410 | 742 | 604 | 496 |
| **Appendix IV** | | **UPL** | **GPS** | | | | | |
| Antimony, µg/L | NP | 0.4 | 6 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Arsenic, µg/L | P | 0.507 | 10 | <0.28 | <0.28 | <0.28 | 2.6 | 4.4 |
| Barium, µg/L | P | 16.9 | 2000 | 13.6 | 10.6 | 20.5 | 27.1 | 55.1 |
| Beryllium, µg/L | NP | 0.37 | 4 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| Cadmium, µg/L | NP | 0.32 | 5 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Chromium, µg/L | P | 2.36 | 100 | 1.7 J | <1.0 | 2.1 J | <1.0 | <1.0 |
| Cobalt, µg/L | NP | 0.38 | 6 | <0.12 | <0.12 | <0.12 | 18.1 | 0.19 J |
| Fluoride, mg/L | DQ | DQ | 4 | <0.095 | 0.13 J | <0.095 | <0.48 D3 | <0.48 D3 |
| Lead, µg/L | NP | 0.90 | 15 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 |
| Lithium, µg/L | P | 0.827 | 40 | 0.57 J | 0.80 J | 4.2 | <0.22 | <0.22 |
| Mercury, µg/L | DQ | DQ | 2 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 |
| Molybdenum, µg/L | NP | 0.44 | 100 | <0.44 | <0.44 | 4.0 | 0.46 J | 0.94 J |
| Selenium, µg/L | NP | 0.71 | 50 | <0.32 | 0.39 J | 0.72 J | <0.32 | <0.32 |
| Thallium, µg/L | NP | 0.48 | 2 | <0.14 | 0.15 J | 0.18 J | 0.18 J | <0.14 |
| Radium 226/228 Combined, pCi/L | P | 1.76 | 5 | 0.668 | 0.83 | 0.911 | 0.702 | 0.619 |

Blue shaded cell indicates the compliance well result exceeds the UPL and the LOQ.

Yellow shaded cell indicates the compliance well result exceeds the GPS.

Abbreviations:
UPL = Upper Prediction Limit
mg/L = milligrams per liter
GPS = Groundwater Protection Standard
µg/L = micrograms per liter
pCi/L = picocuries per liter
Std. Units = Standard Units

DQ = Double Quantification Rule (not detected in background)
P = Parametric UPL with 1-of-2 retesting
NP = Nonparametric UPL with 1-of-2- retesting

Lab Notes:
D3 = Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
J = Estimated concentration at or above the LOD and below the LOQ.
P6 = Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

Notes:
1. An individual result above the UPL or GPS does not constitute an SSI above background or statistically significant level above the GPS. See the accompanying letter text for identification of statistically significant results.
2. GPS is the United States Environmental Protection Agency (U.S. EPA) Maximum Contamination Level (MCLs), if established; otherwise, the values from 40 CFR 257.95(h)(2).
3. Interwell UPLs calculated based on results from background wells MW-84 and MW-301.
4. For compliance wells, only results confirmed above the LOQ are evaluated as potential Statistically Significant Increases above background.

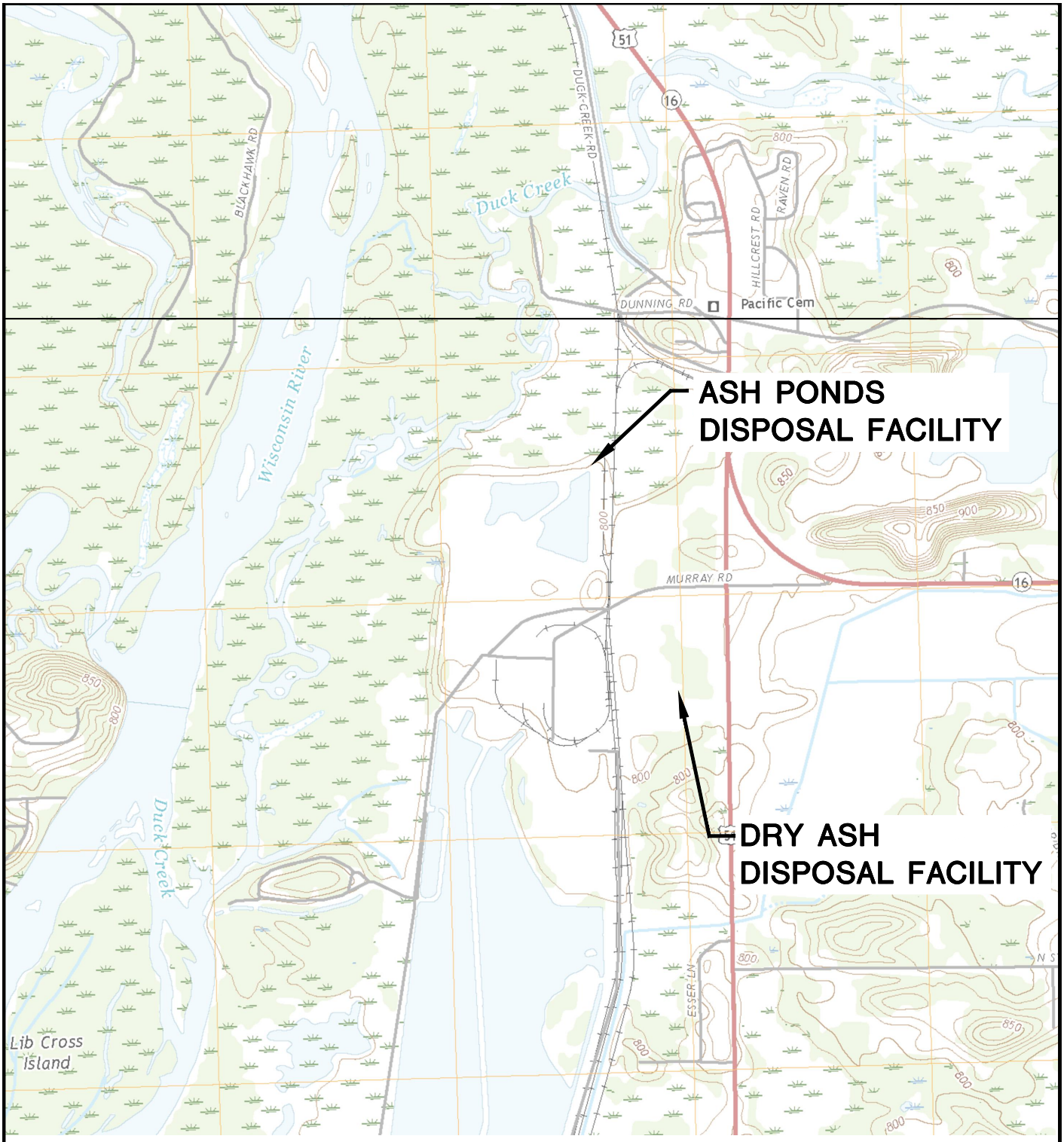
Created by: NDK Date: 12/2/2022
Last revision by: RM Date: 12/3/2024
Checked by: BLR Date: 12/5/2024

**Table 6. 2024 Groundwater Field Data**
**Columbia Energy Center - Secondary Ash Pond / SCS Engineers Project #25224067.00**

| 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 | 4/17/2024 | 784.90 | 11.0 | 7.68 | 7.82 | 588.1 | 0 | 0.00 |
| | 10/2/2024 | 787.14 | 12.4 | 7.36 | 8.73 | 502.7 | 65.1 | 2.55 |
| MW-301 | 4/17/2024 | 785.27 | 8.6 | 7.06 | 2.53 | 781 | 17.9 | 0.00 |
| | 10/2/2024 | 787.92 | 11.7 | 6.85 | 2.77 | 602.4 | 68.1 | 1.84 |
| MW-306 | 4/16/2024 | 782.40 | 10.5 | 7.00 | 6.98 | 850 | 42.7 | 0.04 |
| | 10/18/2024 | 785.50 | 14.2 | 7.13 | 4.70 | 1055 | 49.9 | 0.58 |
| MW-307 | 4/16/2024 | 782.24 | 11.6 | 6.83 | 2.58 | 997 | -28.3 | 0.1 |
| | 10/18/2024 | 785.08 | 14.9 | 6.66 | 1.45 | 898 | -155.2 | 1.66 |
| MW-308 | 4/16/2024 | 784.51 | 13.9 | 6.94 | 0.12 | 980 | -116.8 | 0.57 |
| | 10/18/2024 | 786.34 | 15.7 | 7.29 | 0.07 | 854 | -172.1 | 1.81 |

Last revision by: BLJ Date: 3/31/2025
Checked by: NLB Date: 4/2/2025

# Figures

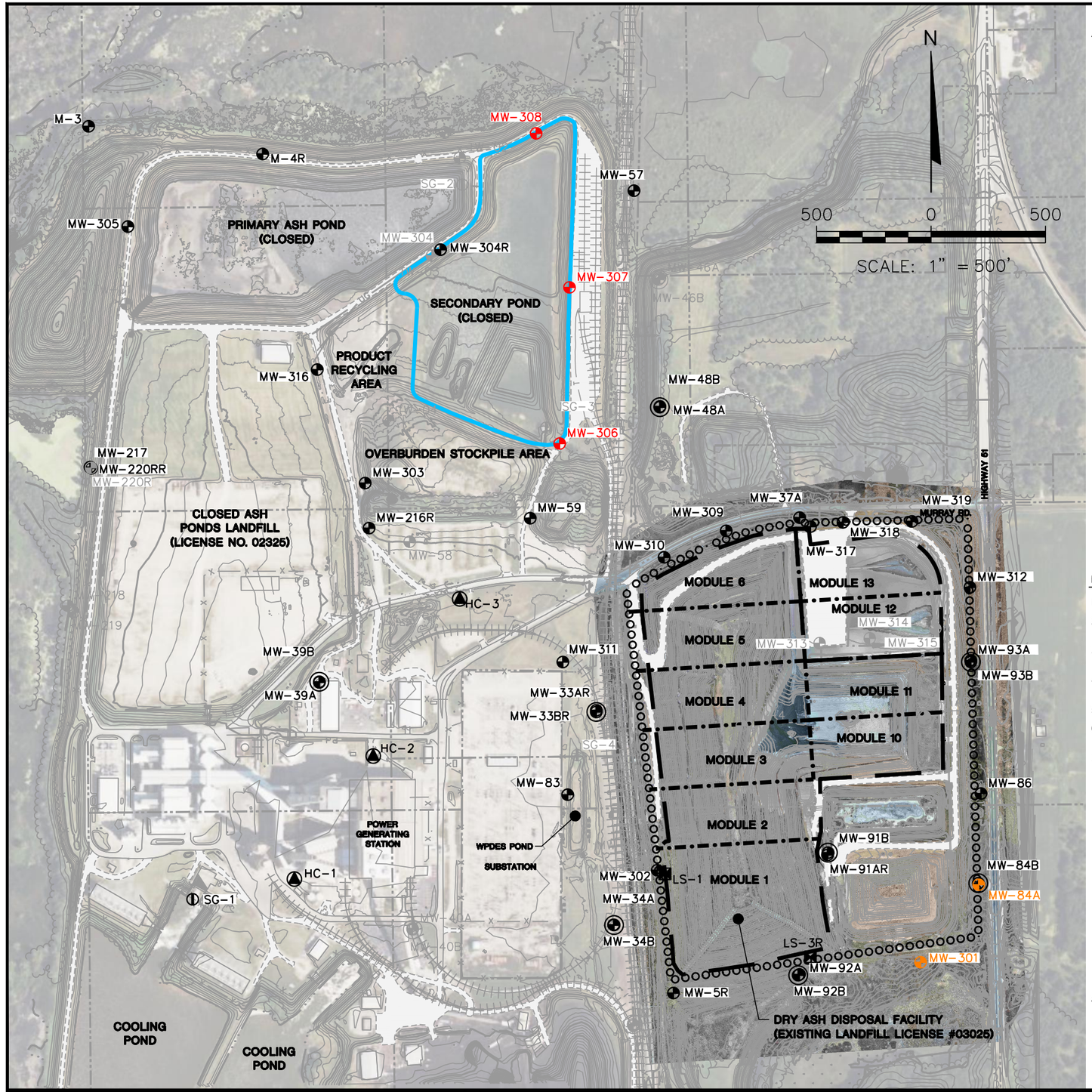



N

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


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

I:\25219067.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:38:21 PM




LEGEND

- MAJOR TOPOGRAPHIC CONTOUR (10-FOOT INTERVAL)
- MINOR TOPOGRAPHIC CONTOUR (2-FOOT INTERVAL)
- RAILROAD TRACKS
- EXISTING FENCELINE
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- LINER/PHASE MODULE LIMITS
- DRY ASH DISPOSAL FACILITY LIMITS
- APPROXIMATE PROPERTY LINE
- APPROXIMATE LIMITS OF ASH DISPOSAL
- CCR UNIT
- WATER SUPPLY WELL
- STAFF GAUGE
- WATER TABLE WELL
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GUAGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR MONITORING WELL
- SECONDARY ASH POND CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL

NOTES:

1. MONITORING WELL AND OTHER SAMPLE LOCATIONS ARE APPROXIMATE.
2. BACKGROUND AERIAL IMAGE IS A COMPOSITE OF AN AERIAL PHOTOGRAPH IMPORTED FROM BING MAPS USING AUTOCAD GEOLOCATION MAP TOOL AND DRONE PHOTO BY SCS ENGINEERS DATED JANUARY 20th, 2025.
3. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014. PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREED SURVEYING, LLC. AND DECEMBER 2023 DRONE SURVEYS BY AMES.
4. PROPERTY LINE INFORMATION IS APPROXIMATE AND WAS OBTAINED FROM THE WISCONSIN STATEWIDE PARCEL MAP INITIAIVE-DATA BY COUNTY, COLUMBIA COUNTY, WISCONSIN.
5. COORDINATE SYSTEM IS NAD83 WISCONSIN STATE PLANE, SOUTH ZONE, US SURVEY FEET.
6. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREEK SURVEYING, LLC, DECEMBER 2023 DRONE SURVEY BY AMES, AND JANUARY 20TH 2025 DRONE SURVEY BY SCS ENGINEERS.
7. MONITORING WELL INSTALLATION SUMMARY:
   - 7.1. MONITORING WELLS MW-301, MW-302, MW-303, MW-304 AND MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
   - 7.2. MONITORING WELLS MW-306, MW-307 AND MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
   - 7.3. MONITORING WELLS MW-309, MW-310 AND MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
   - 7.4. MONITORING WELLS MW-93A, MW-93B AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 23-28, 2022, AND WERE SURVEYED ON APRIL 21, 2022, BY SCS ENGINEERS.
   - 7.5. MONITORING WELLS MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023, AND WAS SURVEYED BY SCS ENGINEERS ON MAY 31, 2023.
   - 7.6. MONITORING WELLS MW-317, MW-318 AND MW-319 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 9-11, 2024, AND WERE SURVEYED ON APRIL 19, 2024, AND RE-SURVEYED ON SEPTEMBER 15, 2024.
   - 7.7. MONITORING WELLS MW-313, MW-314 AND MW-315 WERE ABANDONED BY HORIZON CONSTRUCTION & EXPLORATION ON MAY 22, 2024.
   - 7.8. MW-304 WAS ABANDONED AND MW-304R WAS INSTALLED ON MARCH 18, 2024, BY HORIZON CONSTRUCTION OF FREDONIA, WI. MONITORING WELL MW-304R WAS SURVEYED BY SCS ENGINEERS ON APRIL 25, 2024.
   - 7.9. MONITORING WELL LOCATIONS AND ELEVATIONS FOR VARIOUS WELLS INSTALLED PRIOR TO 2019 WERE SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
8. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASE ON JANUARY 2013 DRAWINGS BY TRC.

| | | | |
|---|---|---|---|
| PROJECT NO. | 25225067.20 | DRAWN BY: | SB |
| DRAWN: | 06/16/2025 | CHECKED BY: | NLB (07/10/2025) |
| REVISED: | 07/10/2025 | APPROVED BY: | TK (07/10/2025) |

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

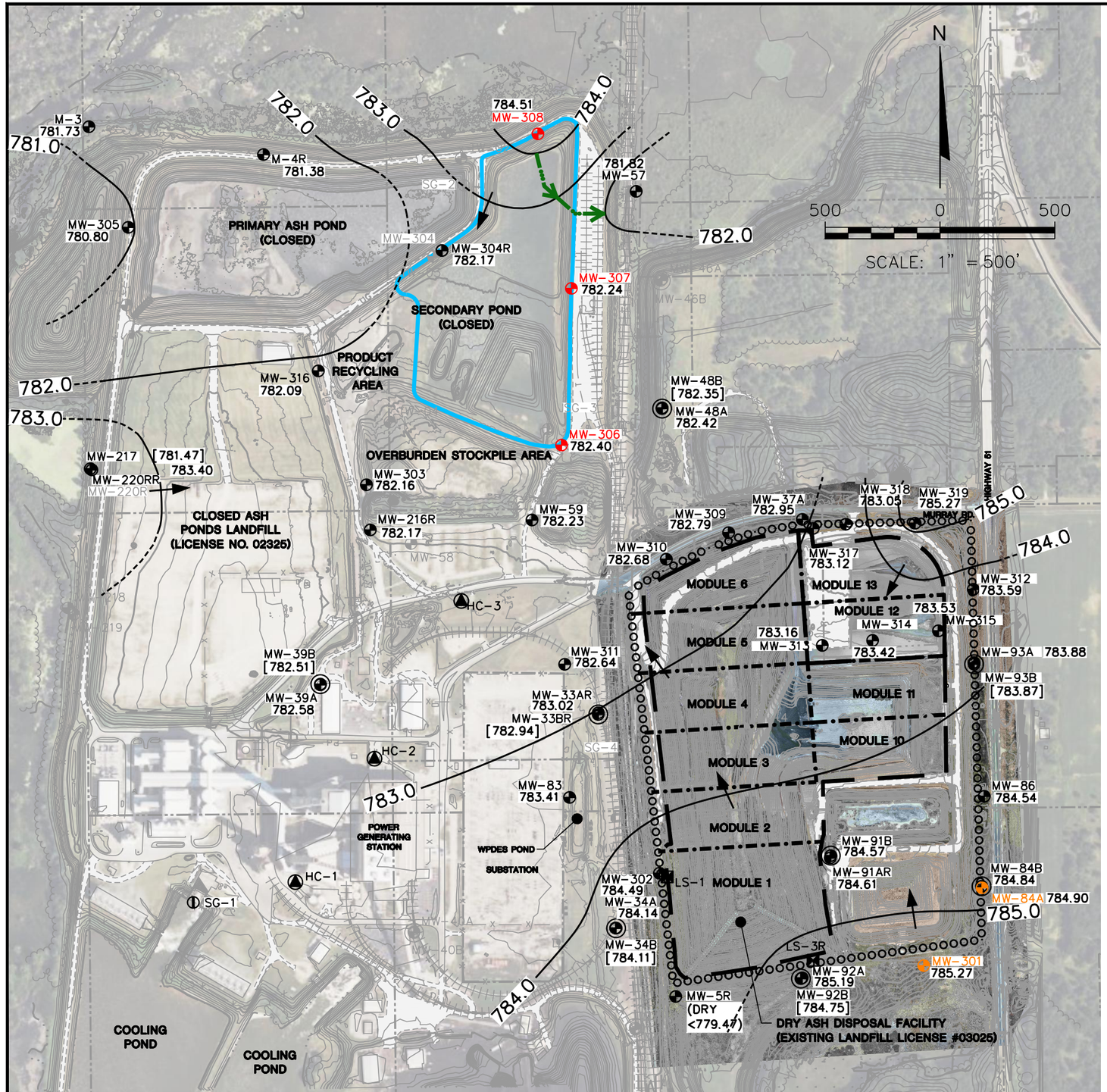
CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

SITE PLAN AND MONITORING WELL LOCATIONS
COLUMBIA DRY ASH DISPOSAL FACILITY
SECONDARY POND

FIGURE 2

I:\25225067.20\Drawings\2024 Annual CCR Report\02_Col Site Plan Figure.dwg, 7/10/2025 12:29:47 PM




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
- LINER PHASE/MODULE LIMITS
- CCR UNIT
- APPROXIMATE PROPERTY LINE
- WATER SUPPLY WELL
- STAFF GAUGE
- WATER TABLE WELL
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR MONITORING WELL
- SECONDARY ASH POND CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- 783.88 — WATER TABLE ELEVATION
- [781.47] — POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
- (DRY) — SURFACE WATER ELEVATION (NOT CONTOURED)
- WATER TABLE CONTOUR (1-FOOT CONTOUR INTERVAL) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4)

NOTES:

1. WATER LEVELS WERE MEASURED ON APRIL 15-17, 2024.
2. WELL INSTALLATION AND SURVEY INFORMATION, SEE SITE PLAN FIGURE 2 NOTES.
3. STATE MONITORING WELLS: M-3, M-4R, MW-5R, MW-33BR, MW-34B, MW-37A, MW-39A, MW-39B, MW-48A, MW-48B, MW-57, MW-59, MW-83, MW-84B, MW-91AR, MW-91B, MW-92A, MW-92B, MW-93A, MW-93B, MW-86, MW-216R, MW-217, MW-220RR, MW-312,
4. CCR BACKGROUND MONITORING WELLS: MW-301 & MW-84A.
5. CCR MONITORING WELLS: MW-33AR, MW-34A, MW-302, MW-302A, MW-303, MW-304R, MW-305, MW-306, MW-307, MW-308, MW-309, MW-310 AND MW-311, MW-312, MW-313, MW-314, MW-315, MW-316, MW-317, MW-318 AND MW-319.
6. SURFACE WATER MONITORING POINTS: STAFF GAUGE SG-1
7. OTHER MONITORING POINTS: SUPPLY WELLS HC-1, HC-2 AND HC-3, LYSIMETERS L-1 LS-3R
8. THERE WERE NO DRY MONITORING WELLS OR LEACHATE HEADWELLS IN APRIL, 2024.
9. VERTICAL DATUM IS REFERENCED TO THE USGS MEAN SEA LEVEL (MSL).
10. BACKGROUND AERIAL IMAGE IS A COMPOSITE OF AN AERIAL PHOTOGRAPH IMPORTED FROM BING MAPS USING AUTOCAD GEOLOCATION MAP TOOL AND DRONE PHOTO BY SCS ENGINEERS DATED JANUARY 20th, 2025.

| | | | |
|---|---|---|---|
| PROJECT NO. | 25225067.20 | DRAWN BY: | SB |
| DRAWN: | 06/16/2025 | CHECKED BY: | NLB (07/10/2025) |
| REVISED: | 07/10/2025 | APPROVED BY: | TK (07/10/2025) |

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

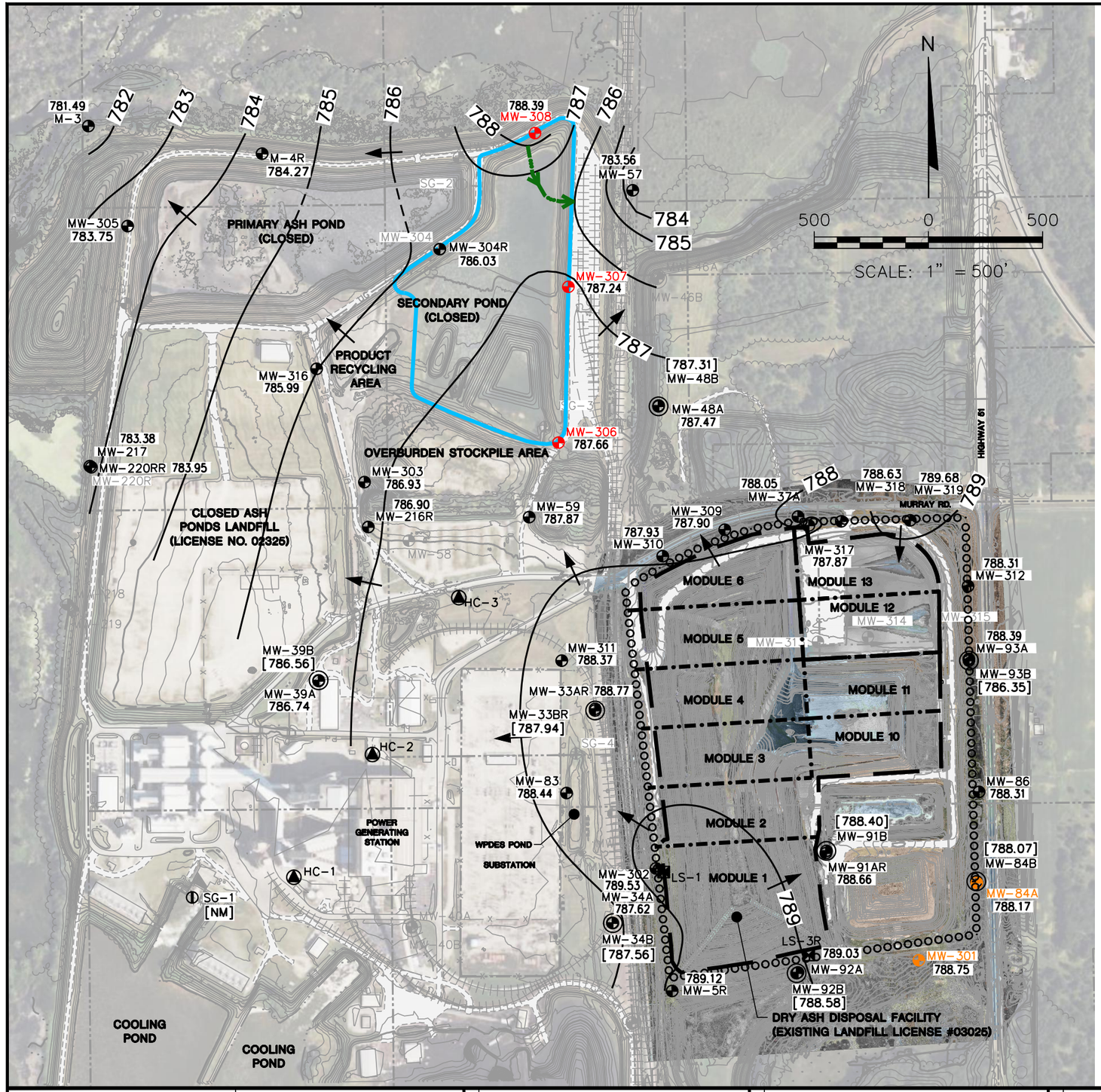
CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

# WATER TABLE CONTOUR MAP
APRIL 2024
SECONDARY POND

FIGURE 3

I:\25225067.20\Drawings\2024 Annual CCR Report\03_COL April 2024 WTBL.dwg, 7/10/2025 12:33:04 PM




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
- LINER PHASE/MODULE LIMITS
- CCR UNIT
- APPROXIMATE PROPERTY LINE
- WATER SUPPLY WELL
- STAFF GAUGE
- WATER TABLE WELL
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR MONITORING WELL
- SECONDARY ASH POND CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- 788.75 — WATER TABLE ELEVATION
- [781.47] — POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
- [NM] — NOT MEASURED
- WATER TABLE CONTOUR (1-FOOT CONTOUR INTERVAL) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4)

NOTES:

1. WATER LEVELS WERE MEASURED ON AUGUST 15, 2024.
2. WELL INSTALLATION AND SURVEY INFORMATION, SEE SITE PLAN FIGURE 2 NOTES.
3. STATE MONITORING WELLS: M-3, M-4R, MW-5R, MW-33BR, MW-34B, MW-37A, MW-39A, MW-39B, MW-48A, MW-48B, MW-57, MW-59, MW-83, MW-84B, MW-91AR, MW-91B, MW-92A, MW-92B, MW-93A, MW-93B, MW-86, MW-216R, MW-217, MW-220RR, MW-312,
4. CCR BACKGROUND MONITORING WELLS: MW-301 & MW-84A.
5. CCR MONITORING WELLS: MW-33AR, MW-34A, MW-302, MW-302A, MW-303, MW-304R, MW-305, MW-306, MW-307, MW-308, MW-309, MW-310 AND MW-311, MW-312, MW-313, MW-314, MW-315, MW-316, MW-317, MW-318 AND MW-319.
6. SURFACE WATER MONITORING POINTS: STAFF GAUGE SG-1
7. OTHER MONITORING POINTS: SUPPLY WELLS HC-1, HC-2 AND HC-3, LYSIMETERS L-1 LS-3R
8. THERE WERE NO DRY MONITORING WELLS OR LEACHATE HEADWELLS IN AUGUST, 2024.
9. VERTICAL DATUM IS REFERENCED TO THE USGS MEAN SEA LEVEL (MSL).
10. BACKGROUND AERIAL IMAGE IS A COMPOSITE OF AN AERIAL PHOTOGRAPH IMPORTED FROM BING MAPS USING AUTOCAD GEOLOCATION MAP TOOL AND DRONE PHOTO BY SCS ENGINEERS DATED JANUARY 20th, 2025.

| | | | |
|---|---|---|---|
| PROJECT NO. | 25225067.20 | DRAWN BY: | SB |
| DRAWN: | 06/16/2025 | CHECKED BY: | NLB (07/10/2025) |
| REVISED: | 07/10/2025 | APPROVED BY: | TK (07/10/2025) |

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

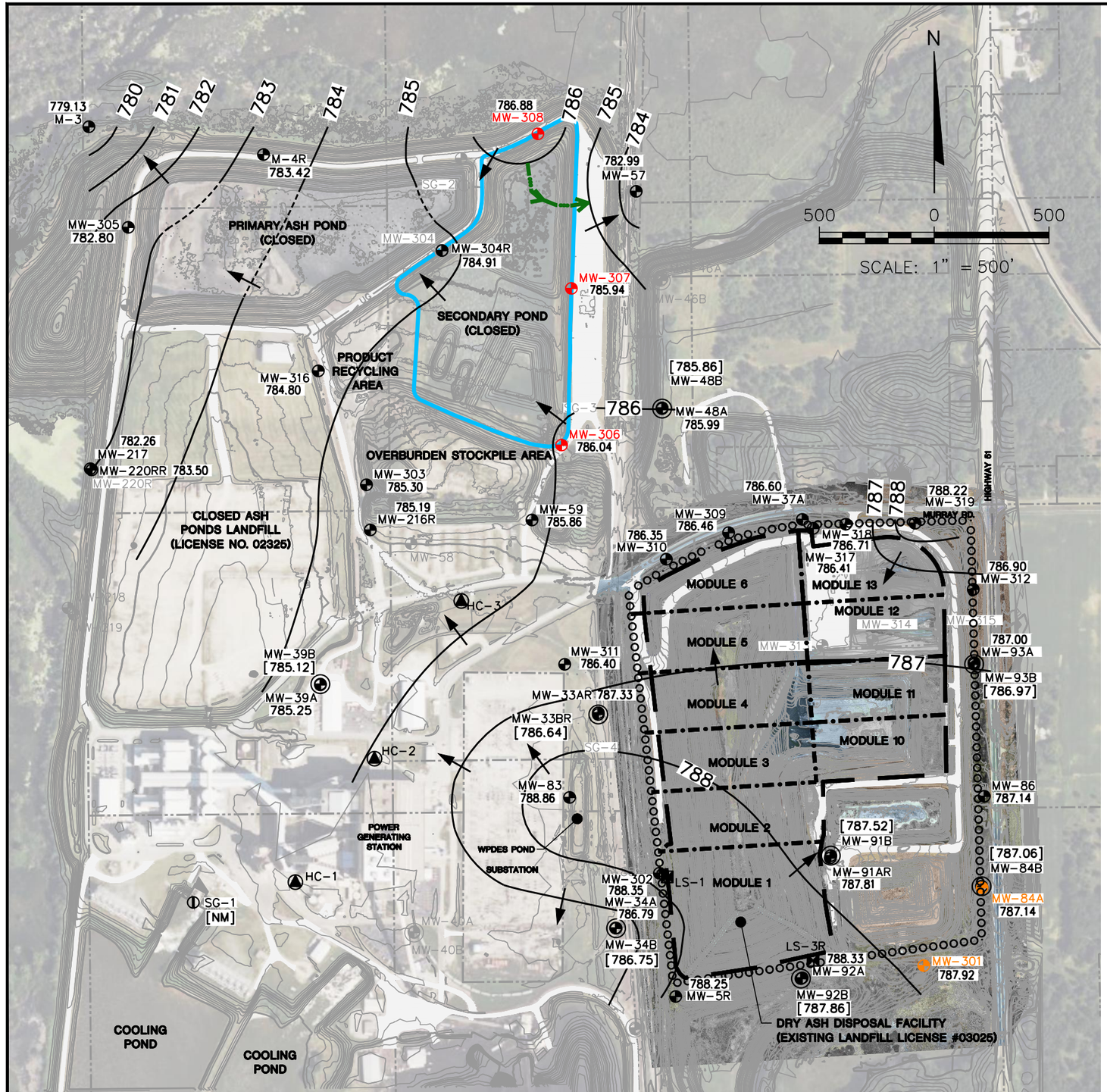
CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

# WATER TABLE CONTOUR MAP
AUGUST 2024
SECONDARY POND

FIGURE 4

I:\25225067.20\Drawings\2024 Annual CCR Report\04_COL August 2024 WTBL.dwg, 7/10/2025 12:34:45 PM




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
- LINER PHASE/MODULE LIMITS
- CCR UNIT
- APPROXIMATE PROPERTY LINE
- WATER SUPPLY WELL
- STAFF GAUGE
- WATER TABLE WELL
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR MONITORING WELL
- SECONDARY ASH POND CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- 788.75 — WATER TABLE ELEVATION
- [781.47] — POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
- [NM] — NOT MEASURED
- WATER TABLE CONTOUR (1-FOOT CONTOUR INTERVAL) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- FLOW PATH FOR VELOCITY CALCULATION (SEE TABLE 4)

NOTES:

1. WATER LEVELS WERE MEASURED ON OCTOBER 01-03, 2024.
2. WELL INSTALLATION AND SURVEY INFORMATION, SEE SITE PLAN FIGURE 2 NOTES.
3. STATE MONITORING WELLS: M-3, M-4R, MW-5R, MW-33BR, MW-34B, MW-37A, MW-39A, MW-39B, MW-48A, MW-48B, MW-57, MW-59, MW-83, MW-84B, MW-91AR, MW-91B, MW-92A, MW-92B, MW-93A, MW-93B, MW-86, MW-216R, MW-217, MW-220RR, MW-312,
4. CCR BACKGROUND MONITORING WELLS: MW-301 & MW-84A.
5. CCR MONITORING WELLS: MW-33AR, MW-34A, MW-302, MW-302A, MW-303, MW-304R, MW-305, MW-306, MW-307, MW-308, MW-309, MW-310 AND MW-311, MW-312, MW-313, MW-314, MW-315, MW-316, MW-317, MW-318 AND MW-319.
6. SURFACE WATER MONITORING POINTS: STAFF GAUGE SG-1
7. OTHER MONITORING POINTS: SUPPLY WELLS HC-1, HC-2 AND HC-3, LYSIMETERS L-1 LS-3R
8. THERE WERE NO DRY MONITORING WELLS OR LEACHATE HEADWELLS IN OCTOBER, 2024.
9. VERTICAL DATUM IS REFERENCED TO THE USGS MEAN SEA LEVEL (MSL).
10. BACKGROUND AERIAL IMAGE IS A COMPOSITE OF AN AERIAL PHOTOGRAPH IMPORTED FROM BING MAPS USING AUTOCAD GEOLOCATION MAP TOOL AND DRONE PHOTO BY SCS ENGINEERS DATED JANUARY 20th, 2025.

| | | | |
|---|---|---|---|
| PROJECT NO. | 25225067.20 | DRAWN BY: | SB |
| DRAWN: | 06/16/2025 | CHECKED BY: | NLB (07/10/2025) |
| REVISED: | 07/10/2025 | APPROVED BY: | TK (07/10/2025) |

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY
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W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

# WATER TABLE CONTOUR MAP
OCTOBER 2024
SECONDARY POND

FIGURE 5

I:\25225067.20\Drawings\2024 Annual CCR Report\05_COL October 2024 WTBL.dwg, 7/10/2025 12:38:32 PM

# Appendix A

# Summary of Regional Hydrogeologic Stratigraphy

**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 | • Unconsolidated clay, silt, sand, gravel, cobbles, boulders, and organic matter |
| Ordovician (460 to 490 million years old) | Sandstone Aquifer | 0 to 800+ | Galena<br>Decorah<br>Platteville<br>St. Peter<br>Prairie du Chien | • Dolomite and shaley dolomite<br>• Sandstone |
| Cambrian (490 to 500 million years old) | | | Trempeleau<br>Franconia<br>Galesville<br>Eau Claire<br>Mt. Simon | • Sandstone |
| Precambrian (more than 1 billion years old) | Used for domestic supply in some areas | -- | Precambrian | • 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.

I:\25215053\Reports\Report 3 - Columbia\Tables\Table_2_Regional_Hydrogeologic_Stratigraphy.doc

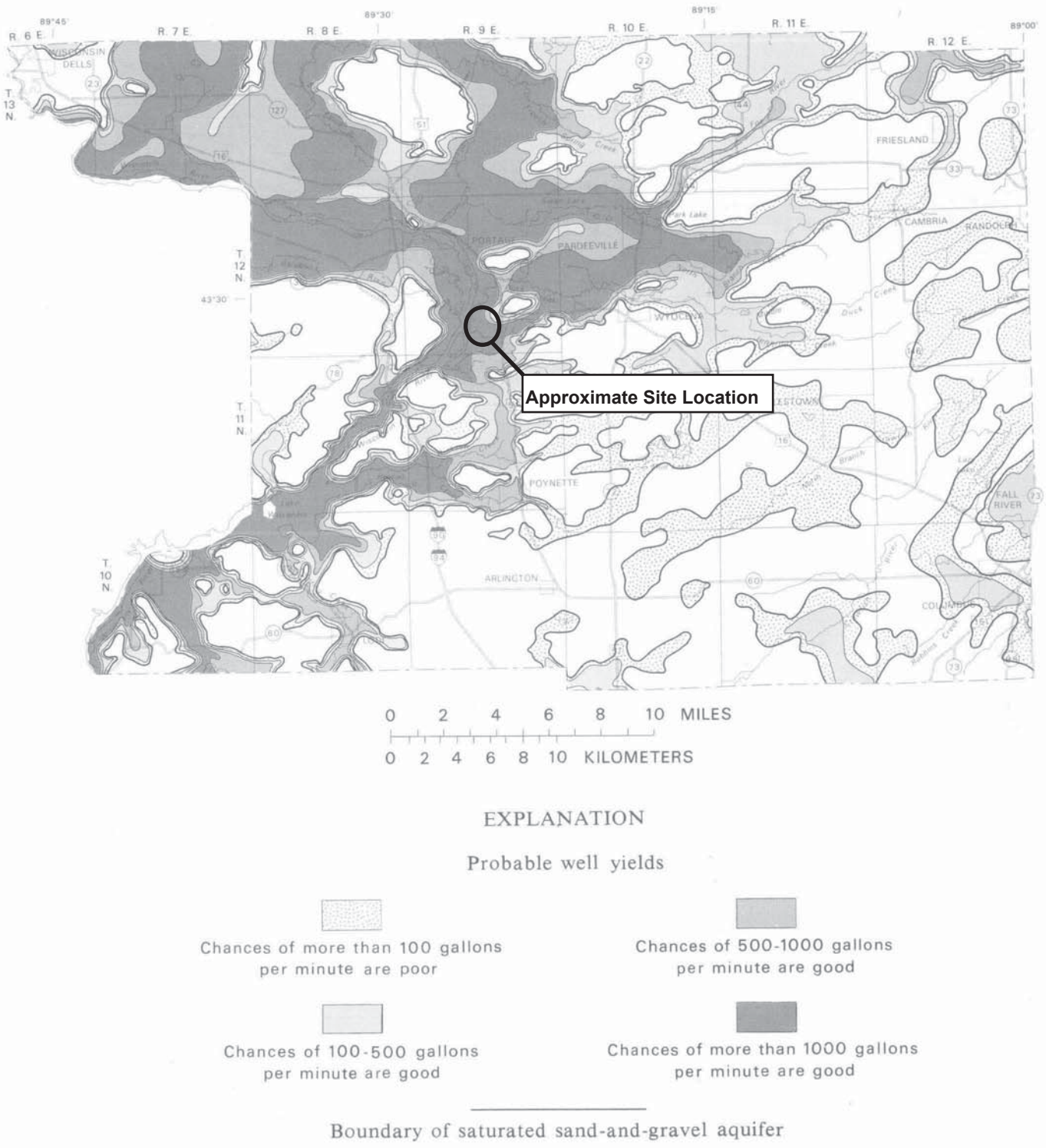
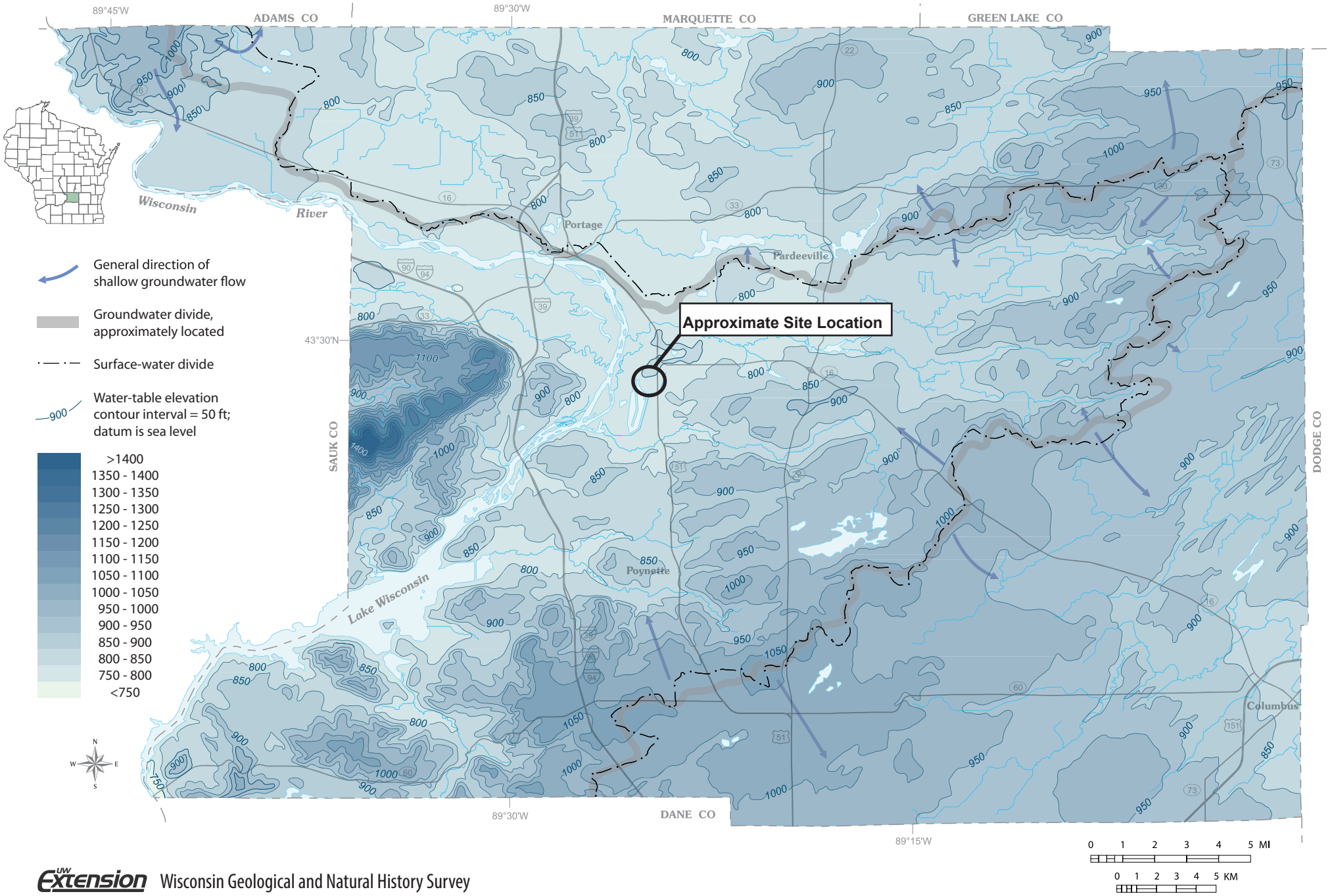



**Figure 9. Probably well yields from the sand-and-gravel aquifer.**



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

# **Generalized water-table elevation** in Columbia County, Wisconsin




Wisconsin Geological and Natural History Survey

09/02/2025 Classification: Internal FOIA 2574469

Source: Selkwood, Stephen R., Wisconsin Geologic and Natural History Survey, Water Table Elevation, Groundwater Resources of Columbia County Wisconsin,

# Appendix B

# Boring Logs and Well Construction Documentation

WARZYN ENGINEERING INC

# LOG OF TEST BORING

Project Wisconsin Power & Light

Location Columbia Generating Station

Boring No. MW-84A
Surface Elevation 813.4
Job No. C 7134
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 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Recovery | | | Moisture | | | | | | | | |
| No. | Type | ↓ | ↓ | N | Depth | | $q_u$ | W | LL | PL | D |
| | | | | | | 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

Start 10/5/83 Complete 10/5/83
Crew Chief JVS Rig B-40
Drilling Method ED 0-37'

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

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



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| WPL-Columbia SCS#: 25215135.00 | | MW-301 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Kevin Durst<br>Badger State Drilling | 11/11/2015 | 11/11/2015 | hollow stem auger |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| VY701 | | | Feet | 803.69 Feet | 8.5 in. |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 541562.2 N, 2025001.0 E S/C/N
1/4 of 1/4 of Section 27, T 12 N, R 9 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| | Columbia | 11 | 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: Pocket Penetration (tsf) | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S1 | 21 | 7 6<br>9 10 | 1–2 | SILTY SAND, yellowish brown (10YR 5/6), fine to medium grained. | | | | | | M | | | | |
| S2 | 20 | 6 7<br>9 10 | 3–4 | Same as above except, 10YR 5/4 (top section), 10YR 3/6 (bottom section), trace gravel. | | | | | | M | | | | |
| S3 | 22 | 7 6<br>9 6 | 5–7 | Same as above except, 10YR 3/4 (bottom), 10YR 5/4 (top), trace little roots and sticks, trace gravel. | SM | | | | | M | | | | |
| S4 | 21 | 4 5<br>6 5 | 8–10 | Same as above except, 10YR (top), 10YR 4/6 (bottom), trace clay at bottom. | | | | | | M | | | | |
| S5 | 18 | 2 2<br>4 5 | 11–12 | Same as above except, fine to coarse grained sand, little gravel, trace clay in top half, 10YR 3/6. | | | | | | M | | | | |
| S6 | 20 | 2 3<br>3 3 | 13–15 | Same as above except, 10YR 6/8. | | | | | | M | | | | |

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 53711
Tel: (608) 224-2830
Fax:

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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number MW-301 Use only as an attachment to Form 4400-122. Page 2 of 2

| 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: Pocket Penetration (tsf) | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 16 | SILTY SAND, yellowish brown (10YR 5/6), fine to medium grained. | | | | | | | | | | |
| S7 | 20 | 5 4<br>4 3 | 17 | | | | | | | M | | | | |
| | | | 18 | | | | | | | | | | | |
| | | | 19 | | | | | | | | | | | |
| S8 | 20 | 2 4<br>4 5 | 20 | | | | | | | W | | | | |
| | | | 21 | | | | | | | | | | | |
| | | | | | SM | | | | | | | | | |
| S9 | 23 | 4 4<br>3 6 | 22 | | | | | | | W | | | | |
| | | | 23 | | | | | | | | | | | |
| | | | 24 | Same as above except, 10YR 6/4. | | | | | | | | | | |
| S10 | 21 | 3 2<br>4 10 | 25 | | | | | | | W | | | | |
| | | | 26 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | | | | | | | | | | | |
| | | | | End of boring at 28 ft bgs. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

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



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| WPL- Columbia SCS#: 25216146.00 | | MW-306 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Kevin Duerst<br>Badger State Drilling | 11/14/2016 | 11/14/2016 | hollow stem auger |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| VY812 | | MW-306 | Feet | 805.30 Feet | 8.5 in. |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 543,829 N, 2,123,424 E S/C/N
SE 1/4 of NW 1/4 of Section 27, T 12 N, R 9 E
Lat ° ' "
Long ° ' "
Local Grid Location Feet ☐ N ☐ S Feet ☐ E ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| | Columbia | 11 | Portage |

| Sample Number and Type | Sample Length Att. & Recovered (in) | 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: Standard Penetration | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | TOPSOIL. | | | | | | | | | | |
| | | | 1 | SILTY SAND, yellowish brown (10YR 5/4), medium grained. | | | | | | | | | | |
| S1 | 23 | 8 13<br>11 11 | 4 | | | | | | | M | | | | |
| S2 | 16 | 7 5<br>5 5 | 7 | | SM | | | | | M | | | | |
| S3 | 16 | 2 4<br>8 14 | 9 | | | | | | | M | | | | |
| S4 | 16 | 7 10<br>7 10 | 12 | | | | | | | M | | | | |
| S5 | 23 | 9 22<br>31 39 | 14 | POORLY GRADED SAND, light yellowish brown (10YR 6/4), medium grained, dense. | SP | | | | | M | | | | |
| | | | 15 | | | | | | | | | | | |

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 53711
Tel: (608) 224-2830
Fax:

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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number MW-306 Use only as an attachment to Form 4400-122. Page 2 of 2

| 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: Standard Penetration | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 16 | | SP | | | | | | | | | |
| S6 | 22 | 17 29 40 42 | 17 | | | | | | | M | | | | |
| | | | | SILTY SAND, yellowish brown (10YR 5/4), fine to medium grained. | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| S7 | 24 | 26 41 47 44 | 19 | | | | | | | M | | | | |
| | | | 20 | | | | | | | | | | | wl= 20 ft bgs. |
| | | | 21 | | | | | | | | | | | |
| S8 | 20 | 11 25 37 46 | 22 | | SM | | | | | W | | | | |
| | | | 23 | | | | | | | | | | | |
| S9 | 24 | 8 19 31 44 | 24 | | | | | | | W | | | | |
| | | | 25 | | | | | | | | | | | |
| | | | 26 | | | | | | | | | | | |
| | | | 27 | | | | | | | | | | | |
| | | | 28 | End of boring at 28 ft bgs. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

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



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| WPL- Columbia SCS#: 25216146.00 | | MW-307 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Kevin Duerst<br>Badger State Drilling | 11/14/2016 | 11/15/2016 | hollow stem auger |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| VY813 | | MW-307 | Feet | 804.53 Feet | 8.5 in. |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 544,511 N, 2,123,467 E S/C/N
SE 1/4 of NW 1/4 of Section 27, T 12 N, R 9 E
Lat ° ' "
Long ° ' "
Local Grid Location Feet ☐ N ☐ S Feet ☐ E ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| | Columbia | 11 | Portage |

| Sample Number and Type | Sample Length Att. & Recovered (in) | 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: Standard Penetration | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0 | TOPSOIL. | | | | | | | | | | |
| S1 | 23 | 5 5<br>7 14 | 1–4 | SILTY SAND, yellowish brown (10YR 5/4), medium grained. | | | | | | M | | | | |
| S2 | 22 | 11 22<br>24 38 | 5–7 | Same as above except, pale brown (10YR 6/3). | SM | | | | | M | | | | |
| S3 | 22 | 7 25<br>33 40 | 8–9 | | | | | | | M | | | | rock in spoon. |
| S4 | 22 | 14 18<br>22 26 | 10–12 | | | | | | | M | | | | |
| S5 | 24 | 12 18<br>19 22 | 13–14 | | | | | | | M | | | | |
| | | | 15 | | | | | | | | | | | |

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

| Signature | Firm | Tel: (608) 224-2830 |
|---|---|---|
| | SCS Engineers<br>2830 Dairy Drive Madison, WI 53711 | Fax: |

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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

**SOIL BORING LOG INFORMATION SUPPLEMENT**
Form 4400-122A

Boring Number MW-307 Use only as an attachment to Form 4400-122. Page 2 of 2

| Sample Number and Type | Sample Length Att. & Recovered (in) | 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: Standard Penetration | Soil Properties: Moisture Content | Soil Properties: Liquid Limit | Soil Properties: Plasticity Index | Soil Properties: P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S6 | 23 | 12 16<br>16 19 | 16<br>17 | | | | | | | M | | | | |
| | | | 18 | Same as above except, brown (10YR 4/3). | | | | | | | | | | |
| S7 | 24 | 6 8<br>8 6 | 19<br>20 | | | | | | | M | | | | wl=19.5 ft bgs. |
| S8 | 20 | 3 4<br>4 4 | 21<br>22 | | SM | | | | | W | | | | |
| | | | 23 | Same as above except, brown (10YR 5/3). | | | | | | | | | | |
| S9 | 24 | 2 2<br>6 8 | 24<br>25 | | | | | | | W | | | | |
| S10 | 24 | 2 3<br>3 7 | 26<br>27 | | | | | | | W | | | | |
| | | | | End of boring at 27.5 ft bgs. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

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



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| WPL- Columbia SCS#: 25216146.00 | | MW-308 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| Kevin Duerst<br>Badger State Drilling | 11/15/2016 | 11/15/2016 | hollow stem auger |

| WI Unique Well No. | DNR Well ID No. | Common Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| VY814 | | MW-308 | Feet | 804.54 Feet | 8.5 in. |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☒
State Plane 545,184 N, 2,123,321 E S/C/N
NE 1/4 of NW 1/4 of Section 27, T 12 N, R 9 E
Lat ° ' "
Long ° ' "
Local Grid Location Feet ☐ N ☐ S Feet ☐ E ☐ W

| Facility ID | County | County Code | Civil Town/City/ or Village |
|---|---|---|---|
| | Columbia | 11 | 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: Standard Penetration | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | POORLY GRADED GRAVEL. | GP | | | | | | | | | |
| | | | 1 | SILTY SAND, brown (10YR 5/3), medium grained. | | | | | | | | | | |
| S1 | 23 | 5 17<br>23 25 | 4 | | | | | | | M | | | | |
| S2 | 23 | 10 21<br>17 19 | 7 | | | | | | | M | | | | |
| | | | 8 | | SM | | | | | | | | | |
| S3 | 24 | 10 15<br>18 26 | 9 | | | | | | | M | | | | |
| S4 | 24 | 11 23<br>19 23 | 12 | | | | | | | M | | | | |
| | | | 13 | Same as above except, brown (10YR 4/3). | | | | | | | | | | |
| S5 | 19 | 9 12<br>16 16 | 14 | | | | | | | M | | | | |
| | | | 15 | | | | | | | | | | | |

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 53711
Tel: (608) 224-2830
Fax:

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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

# SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number MW-308 Use only as an attachment to Form 4400-122. 

| 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: Standard Penetration | Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S6 | 24 | 9 12<br>11 9 | 16–17 | SITLY SAND, brown (10YR 5/3), medium grained. | | | | | | M | | | | |
| S7 | 22 | 9 11<br>10 11 | 18–20 | Same as above except, very dark grayish brown (10YR 3/2). | SM | | | | | M | | | | |
| S8 | 22 | 4 10<br>11 7 | 21–22 | | | | | | | W | | | | wl=21.25 ft bgs. |
| S9A<br>S9B | 23 | 4 3<br>4 7 | 23–25 | Same as above except, brown (10YR 5/3).<br>PEAT, black (10YR 2/1), dense. | PT | | | | | W | | | | Fibrous roots |
| S10A<br>S10B | 24 | 5 6<br>9 15 | 26–27 | SILT, dark gray (10YR 4/1).<br>SILTY SAND, grayish brown (10YR 5/2). | ML<br>SM | | | | | W | | | | |
| S11 | 18 | 5 10<br>9 9 | 28–29 | | | | | | | W | | | | |
| | | | | End of boring at 29 ft bgs. | | | | | | | | | | |

# WELL DETAIL INFORMATION SHEET

JOB NO. C 7134

BORING NO. MW-84A

DATE 10/5/83

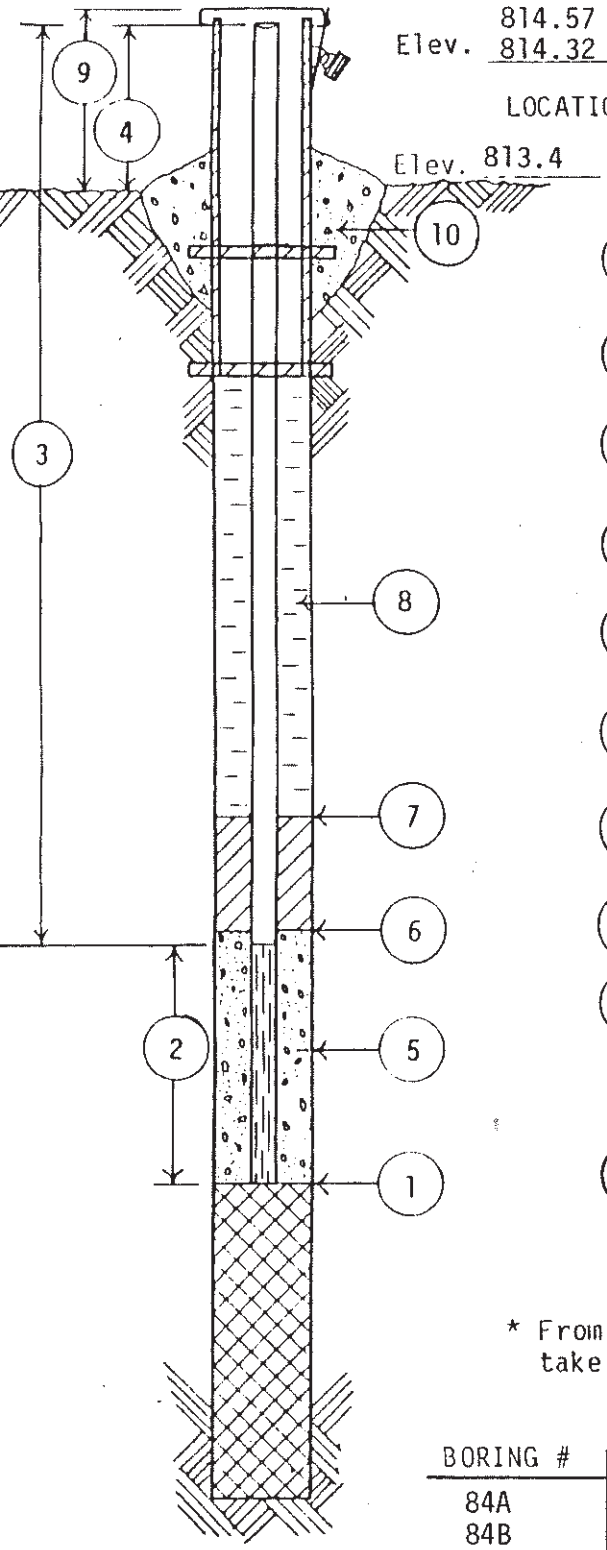
Elev. 814.57 Steel
814.32 PVC

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" | |

WARZYN ENGINEERING INC.

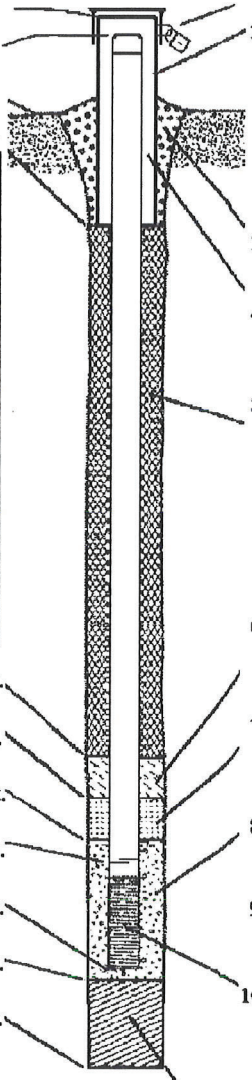
SCS # 25215135

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. ☐N. ☐S. ____ ft. ☐E. ☐W. | Well Name: MW-301 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No.: VY701 / DNR Well ID No.: ____ |
| Facility ID: ____ | St. Plane 541562.2 ft. N, 2125001 ft. E. S/C/N | Date Well Installed: 11/11/2015 (m m d d y y y y) |
| Type of Well: Well Code 11 / MW | Section Location of Waste/Source: SW 1/4 of SE 1/4 of Sec. 27, T. 12 N, R. 9 ☒E ☐W | Well Installed By: Name (first, last) and Firm: Kevin Duerst; Badger State Drilling |
| Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number: ____ |



A. Protective pipe, top elevation 807.16 ft. MSL
B. Well casing, top elevation 806.89 ft. MSL
C. Land surface elevation 803.69 ft. MSL
D. Surface seal, bottom 791.69 ft. MSL or 12 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 ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe ____

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

E. Bentonite seal, top 803.69 ft. MSL or 0 ft.
F. Fine sand, top 791.69 ft. MSL or 12 ft.
G. Filter pack, top 789.69 ft. MSL or 14 ft.
H. Screen joint, top 787.69 ft. MSL or 16 ft.
I. Well bottom 777.69 ft. MSL or 26 ft.
J. Filter pack, bottom 776.69 ft. MSL or 27 ft.
K. Borehole, bottom 775.69 ft. MSL or 28 ft.
L. Borehole, diameter 8.5 in.
M. O.D. well casing 2.4 in.
N. I.D. well casing 2.0 in.

1. Cap and lock? ☐ Yes ☒ No
2. Protective cover pipe:
a. Inside diameter: 6 in.
b. Length: 5 ft.
c. Material: Steel ☒ 04 / Other ☐ ____
d. Additional protection? ☒ Yes ☐ No
If yes, describe: bumper posts
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ ____
4. Material between well casing and protective pipe: Bentonite ☒ 30 / Other ☐ ____
Bentonite to grade, sand above
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ____ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☑ 32
c. 4 ft3 Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley Inc. #7 ☐
b. Volume added 0.5 $ft^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5 ☐
b. Volume added 2 $ft^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ____
10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ ____
b. Manufacturer Johnson
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): Native — None ☐ 14 / Other ☒ ____

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.

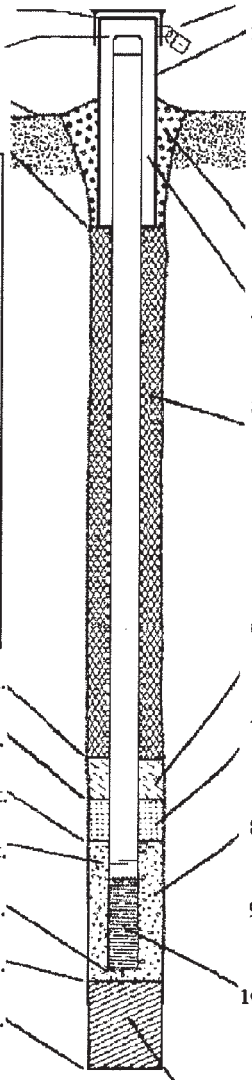
SCS # 25216146.00

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. ☐N. ☐S. ____ ft. ☐E. ☐W. | Well Name: MW-306 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No.: VY812 / DNR Well ID No. |
| Facility ID | St. Plane 543828.99 ft. N, 2123423.65 ft. E. S/C/N | Date Well Installed: 11 / 14 / 2016 (m m d d y y y y) |
| Type of Well: Well Code 11 / MW | Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 27, T. 12 N, R. 9 ☒E ☐W | Well Installed By: Name (first, last) and Firm: Kevin Duerst / Badger State Drilling |
| Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☒ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number |



A. Protective pipe, top elevation 807.88 ft. MSL
B. Well casing, top elevation 807.66 ft. MSL
C. Land surface elevation 805.30 ft. MSL
D. Surface seal, bottom 804.8 ft. MSL or 0.5 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 ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

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

E. Bentonite seal, top 804.8 ft. MSL or 0.5 ft.
F. Fine sand, top 791.3 ft. MSL or 14 ft.
G. Filter pack, top 790.3 ft. MSL or 15 ft.
H. Screen joint, top 788.3 ft. MSL or 17 ft.
I. Well bottom 778.3 ft. MSL or 27 ft.
J. Filter pack, bottom 778.3 ft. MSL or 27 ft.
K. Borehole, bottom 777.3 ft. MSL or 28 ft.
L. Borehole, diameter 8.5 in.
M. O.D. well casing 2.4 in.
N. I.D. well casing 2.0 in.

1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 6 in.
b. Length: 5 ft.
c. Material: Steel ☒ 04 / Other ☐ ____
d. Additional protection? ☒ Yes ☐ No
If yes, describe: bumper posts
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ ____
4. Material between well casing and protective pipe: Bentonite ☒ 30 / Other ☐ ____
Bentonite to grade, sand above
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ____ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley Inc. #7 ☐
b. Volume added 0.5 $ft^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5 ☐
b. Volume added 3 $ft^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ____
10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ ____
b. Manufacturer Johnson
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☐ 14 / Other ☒ ____
RW Sidley #5

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

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.

SCS # 25216146.00

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. ☐N ☐S ___ ft. ☐E ☐W | Well Name: MW-307 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or | Wis. Unique Well No.: VY813 / DNR Well ID No.: |
| Facility ID | St. Plane 544510.95 ft. N, 2123466.6 ft. E. S/C/N | Date Well Installed: 11 / 15 / 2016 (m m d d y y y y) |
| Type of Well: Well Code 11 / MW | Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 27, T. 12 N, R. 9 ☒E ☐W | Well Installed By: Name (first, last) and Firm: Kevin Duerst / Badger State Drilling |
| Distance from Waste/Source ___ ft. / Enf. Stds. Apply ☒ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number: |

A. Protective pipe, top elevation 807.16 ft. MSL
B. Well casing, top elevation 806.96 ft. MSL
C. Land surface elevation 804.53 ft. MSL
D. Surface seal, bottom 804.03 ft. MSL or 0.5 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

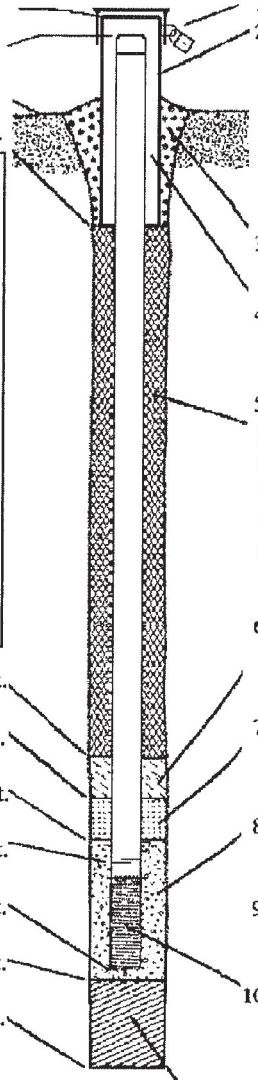
14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ___

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe ___

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

E. Bentonite seal, top 804.03 ft. MSL or 0.5 ft.
F. Fine sand, top 791.03 ft. MSL or 13.5 ft.
G. Filter pack, top 790.03 ft. MSL or 14.5 ft.
H. Screen joint, top 788.03 ft. MSL or 16.5 ft.
I. Well bottom 778.03 ft. MSL or 26.5 ft.
J. Filter pack, bottom 777.03 ft. MSL or 27.5 ft.
K. Borehole, bottom 777.03 ft. MSL or 27.5 ft.
L. Borehole, diameter 8.5 in.
M. O.D. well casing 2.4 in.
N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 6 in.
b. Length: 5 ft.
c. Material: Steel ☒ 04 / Other ☐ ___
d. Additional protection? ☒ Yes ☐ No
If yes, describe: bumper posts
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ ___
4. Material between well casing and protective pipe: Bentonite ☒ 30 / Other ☐ ___
Bentonite to grade, sand above
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ___ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ___ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ___ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ___ $Ft^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ___ Other ☐ ___
7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley Inc. #7 ☐
b. Volume added 0.5 $ft^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5 ☐
b. Volume added 3.5 $ft^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ___
10. Screen material: PVC ___
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ ___
b. Manufacturer Johnson
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☐ 14 / Other ☒ ___
RW Sidley #5

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

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.

SCS # 25216146.00

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. ☐ N. ☐ S. ___ ft. ☐ E. ☐ W. | Well Name: MW-308 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or | Wis. Unique Well No.: VY814 / DNR Well ID No.: ___ |
| Facility ID: ___ | St. Plane 545183.88 ft. N, 2123320.76 ft. E. S/C/N | Date Well Installed: 11 / 15 / 2016 (m m d d y y y y) |
| Type of Well: Well Code 11 / MW | Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 27, T. 12 N, R. 9 ☒ E ☐ W | Well Installed By: Name (first, last) and Firm: Kevin Duerst / Badger State Drilling |
| Distance from Waste/Source ___ ft. / Enf. Stds. Apply ☒ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number: ___ |

A. Protective pipe, top elevation 807.10 ft. MSL
B. Well casing, top elevation 806.92 ft. MSL
C. Land surface elevation 804.54 ft. MSL
D. Surface seal, bottom 804.04 ft. MSL or 0.5 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

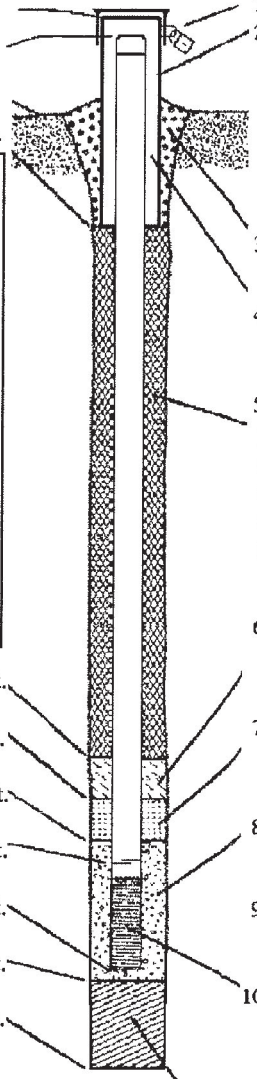
14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ___

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe ___

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

E. Bentonite seal, top 804.04 ft. MSL or 0.5 ft.
F. Fine sand, top 789.54 ft. MSL or 15.0 ft.
G. Filter pack, top 788.54 ft. MSL or 16.0 ft.
H. Screen joint, top 786.54 ft. MSL or 18.0 ft.
I. Well bottom 776.54 ft. MSL or 28.0 ft.
J. Filter pack, bottom 775.54 ft. MSL or 29.0 ft.
K. Borehole, bottom 775.54 ft. MSL or 29.0 ft.
L. Borehole, diameter 8.5 in.
M. O.D. well casing 2.4 in.
N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 6 in.
b. Length: 5 ft.
c. Material: Steel ☒ 04 / Other ☐ ___
d. Additional protection? ☒ Yes ☐ No
If yes, describe: bumper posts
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ ___
4. Material between well casing and protective pipe: Bentonite ☒ 30 / Other ☐ ___
Bentonite to grade, sand above
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ___ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ___ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ___ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ___ Ft$^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ___ Other ☐ ___
7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley Inc. #7 ☐
b. Volume added 0.5 ft$^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5 ☐
b. Volume added 3 ft$^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ___
10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ ___
b. Manufacturer Johnson
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☐ 14 / Other ☒ ___
RW Sidley #5

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

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.

# Appendix C

# Laboratory Reports

# C1 April 2024 Assessment Monitoring

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

June 13, 2024

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on April 19, 2024. 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

Report revised to include radium data for MW-84A which was missing on the original report dated May 17, 2024.

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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## CERTIFICATIONS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**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

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE SUMMARY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **40277089001** | **MW-301** | Water | 04/17/24 15:20 | 04/19/24 08:05 |
| **40277089002** | **MW-84A** | Water | 04/17/24 13:50 | 04/19/24 08:05 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE ANALYTE COUNT

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **40277089001** | **MW-301** | EPA 6020B | TXW | 15 | PASI-G |
| | | EPA 7470 | RZA | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | LL1 | 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 | LMB | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40277089002** | **MW-84A** | EPA 6020B | TXW | 15 | PASI-G |
| | | EPA 7470 | RZA | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | LL1 | 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 | LMB | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |

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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**Sample: MW-301** **Lab ID: 40277089001** Collected: 04/17/24 15:20 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-38-2 | |
| Barium | **8.1** | ug/L | 2.3 | 0.70 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-41-7 | |
| Boron | **24.9** | ug/L | 10.0 | 3.0 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-43-9 | |
| Calcium | **102000** | ug/L | 254 | 76.2 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-70-2 | |
| Chromium | **<1.0** | ug/L | 3.4 | 1.0 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7439-92-1 | |
| Lithium | **0.63J** | ug/L | 1.0 | 0.22 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | 7440-28-0 | |
| Total Hardness by 2340B | **455** | mg/L | 1.7 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:14 | | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 04/30/24 15:10 | 05/01/24 09:48 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **7.06** | Std. Units | | | 1 | | 04/17/24 15:20 | | |
| Field Specific Conductance | **781.0** | umhos/cm | | | 1 | | 04/17/24 15:20 | | |
| Oxygen, Dissolved | **2.53** | mg/L | | | 1 | | 04/17/24 15:20 | 7782-44-7 | |
| REDOX | **17.90** | mV | | | 1 | | 04/17/24 15:20 | | |
| Turbidity | **0.00** | NTU | | | 1 | | 04/17/24 15:20 | | |
| Static Water Level | **785.27** | feet | | | 1 | | 04/17/24 15:20 | | |
| Temperature, Water (C) | **8.6** | deg C | | | 1 | | 04/17/24 15:20 | | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Alkalinity, Total as CaCO3 | **446** | mg/L | 10.0 | 5.0 | 1 | | 04/23/24 11:46 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **458** | mg/L | 20.0 | 8.7 | 1 | | 04/23/24 14:49 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **7.9** | Std. Units | 0.10 | 0.010 | 1 | | 04/22/24 18:03 | | H6 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**Sample: MW-301** **Lab ID: 40277089001** Collected: 04/17/24 15:20 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **1.6J** | mg/L | 2.0 | 0.59 | 1 | | 05/02/24 21:12 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 05/02/24 21:12 | 16984-48-8 | |
| Sulfate | **11.5** | mg/L | 2.0 | 0.44 | 1 | | 05/02/24 21:12 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**Sample: MW-84A** **Lab ID: 40277089002** Collected: 04/17/24 13:50 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-36-0 | |
| Arsenic | **0.29J** | ug/L | 1.0 | 0.28 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-38-2 | |
| Barium | **14.4** | ug/L | 2.3 | 0.70 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-41-7 | |
| Boron | **11.9** | ug/L | 10.0 | 3.0 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-43-9 | |
| Calcium | **73700** | ug/L | 254 | 76.2 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-70-2 | |
| Chromium | **2.1J** | ug/L | 3.4 | 1.0 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7439-92-1 | |
| Lithium | **0.67J** | ug/L | 1.0 | 0.22 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | 7440-28-0 | |
| Total Hardness by 2340B | **337** | mg/L | 1.7 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:19 | | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 04/30/24 15:10 | 05/01/24 09:51 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **7.68** | Std. Units | | | 1 | | 04/17/24 13:50 | | |
| Field Specific Conductance | **588.1** | umhos/cm | | | 1 | | 04/17/24 13:50 | | |
| Oxygen, Dissolved | **7.82** | mg/L | | | 1 | | 04/17/24 13:50 | 7782-44-7 | |
| REDOX | **0.00** | mV | | | 1 | | 04/17/24 13:50 | | |
| Turbidity | **0.00** | NTU | | | 1 | | 04/17/24 13:50 | | |
| Static Water Level | **784.90** | feet | | | 1 | | 04/17/24 13:50 | | |
| Temperature, Water (C) | **11.0** | deg C | | | 1 | | 04/17/24 13:50 | | |
| **2320B Alkalinity** | Analytical Method: SM 2320B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Alkalinity, Total as CaCO3 | **335** | mg/L | 10.0 | 5.0 | 1 | | 04/23/24 11:57 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **322** | mg/L | 20.0 | 8.7 | 1 | | 04/23/24 14:49 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **8.2** | Std. Units | 0.10 | 0.010 | 1 | | 04/22/24 18:04 | | H6 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**Sample: MW-84A** **Lab ID: 40277089002** Collected: 04/17/24 13:50 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **3.2** | mg/L | 2.0 | 0.59 | 1 | | 05/02/24 21:26 | 16887-00-6 | |
| Fluoride | **0.12J** | mg/L | 0.32 | 0.095 | 1 | | 05/02/24 21:26 | 16984-48-8 | |
| Sulfate | **1.4J** | mg/L | 2.0 | 0.44 | 1 | | 05/02/24 21:26 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 473092
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 2709401 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | <0.066 | 0.20 | 05/01/24 09:18 | |

LABORATORY CONTROL SAMPLE: 2709402

| 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: 2709403 2709404

| Parameter | Units | 40277334002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | <0.000066 mg/L | 5 | 5 | 4.9 | 5.0 | 98 | 100 | 85-115 | 2 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 472389
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 2705531 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | ug/L | <0.15 | 1.0 | 04/29/24 01:38 | |
| Arsenic | ug/L | <0.28 | 1.0 | 04/29/24 01:38 | |
| Barium | ug/L | <0.70 | 2.3 | 04/29/24 01:38 | |
| Beryllium | ug/L | <0.25 | 1.0 | 04/29/24 01:38 | |
| Boron | ug/L | <3.0 | 10.0 | 04/29/24 01:38 | |
| Cadmium | ug/L | <0.15 | 1.0 | 04/29/24 01:38 | |
| Calcium | ug/L | <76.2 | 254 | 04/29/24 01:38 | |
| Chromium | ug/L | <1.0 | 3.4 | 04/29/24 01:38 | |
| Cobalt | ug/L | <0.12 | 1.0 | 04/29/24 01:38 | |
| Lead | ug/L | <0.24 | 1.0 | 04/29/24 01:38 | |
| Lithium | ug/L | <0.22 | 1.0 | 04/29/24 01:38 | |
| Molybdenum | ug/L | <0.44 | 1.5 | 04/29/24 01:38 | |
| Selenium | ug/L | <0.32 | 1.1 | 04/29/24 01:38 | |
| Thallium | ug/L | <0.14 | 1.0 | 04/29/24 01:38 | |
| Total Hardness by 2340B | mg/L | <0.32 | 1.7 | 04/29/24 01:38 | |

LABORATORY CONTROL SAMPLE: 2705532

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | ug/L | 250 | 255 | 102 | 80-120 | |
| Arsenic | ug/L | 250 | 257 | 103 | 80-120 | |
| Barium | ug/L | 250 | 247 | 99 | 80-120 | |
| Beryllium | ug/L | 250 | 255 | 102 | 80-120 | |
| Boron | ug/L | 250 | 239 | 95 | 80-120 | |
| Cadmium | ug/L | 250 | 259 | 104 | 80-120 | |
| Calcium | ug/L | 10000 | 9820 | 98 | 80-120 | |
| Chromium | ug/L | 250 | 250 | 100 | 80-120 | |
| Cobalt | ug/L | 250 | 254 | 102 | 80-120 | |
| Lead | ug/L | 250 | 248 | 99 | 80-120 | |
| Lithium | ug/L | 250 | 248 | 99 | 80-120 | |
| Molybdenum | ug/L | 250 | 253 | 101 | 80-120 | |
| Selenium | ug/L | 250 | 267 | 107 | 80-120 | |
| Thallium | ug/L | 250 | 238 | 95 | 80-120 | |
| Total Hardness by 2340B | mg/L | | 65.6 | | | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2705533 2705534

| Parameter | Units | 40276984004 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | <0.30 | 250 | 250 | 255 | 259 | 102 | 103 | 75-125 | 1 | 20 | |
| Arsenic | ug/L | 6.9 | 250 | 250 | 266 | 268 | 104 | 105 | 75-125 | 1 | 20 | |
| Barium | ug/L | 293 | 250 | 250 | 598 | 603 | 122 | 124 | 75-125 | 1 | 20 | |
| Beryllium | ug/L | 1.3J | 250 | 250 | 255 | 258 | 101 | 103 | 75-125 | 1 | 20 | |
| Boron | ug/L | 4780 | 250 | 250 | 4890 | 4930 | 44 | 63 | 75-125 | 1 | 20 | P6 |
| Cadmium | ug/L | <0.30 | 250 | 250 | 255 | 258 | 102 | 103 | 75-125 | 1 | 20 | |
| Calcium | ug/L | 278000 | 10000 | 10000 | 282000 | 286000 | 32 | 75 | 75-125 | 2 | 20 | P6 |
| Chromium | ug/L | 42.5 | 250 | 250 | 294 | 301 | 101 | 103 | 75-125 | 2 | 20 | |
| Cobalt | ug/L | 13.7 | 250 | 250 | 250 | 256 | 95 | 97 | 75-125 | 2 | 20 | |
| Lead | ug/L | 12.0 | 250 | 250 | 268 | 275 | 102 | 105 | 75-125 | 3 | 20 | |
| Lithium | ug/L | 82.8 | 250 | 250 | 336 | 340 | 101 | 103 | 75-125 | 1 | 20 | |
| Molybdenum | ug/L | 2630 | 250 | 250 | 2840 | 2860 | 82 | 91 | 75-125 | 1 | 20 | |
| Selenium | ug/L | 0.95J | 250 | 250 | 270 | 267 | 108 | 107 | 75-125 | 1 | 20 | |
| Thallium | ug/L | 0.32J | 250 | 250 | 255 | 262 | 102 | 105 | 75-125 | 3 | 20 | |
| Total Hardness by 2340B | mg/L | 1180 | | | 1220 | 1240 | | | | 2 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 472417
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 2705612 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <5.0 | 10.0 | 04/23/24 09:58 | |

LABORATORY CONTROL SAMPLE: 2705613

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 200 | 198 | 99 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2705614 2705615

| Parameter | Units | 40276976001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 44.9 | 200 | 200 | 219 | 219 | 87 | 87 | 80-120 | 0 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 472469
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 2706042 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <8.7 | 20.0 | 04/23/24 14:46 | |

LABORATORY CONTROL SAMPLE: 2706043

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 616 | 572 | 93 | 80-120 | |

SAMPLE DUPLICATE: 2706044

| Parameter | Units | 40277009001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 618 | 610 | 1 | 10 | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 472280
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277089001, 40277089002

SAMPLE DUPLICATE: 2705157

| Parameter | Units | 40276865001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 8.0 | 8.0 | 0 | 5 | H6 |

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## REPORT OF LABORATORY ANALYSIS

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# QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 473315
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 2710784 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chloride | mg/L | <0.59 | 2.0 | 05/02/24 19:03 | |
| Fluoride | mg/L | <0.095 | 0.32 | 05/02/24 19:03 | |
| Sulfate | mg/L | <0.44 | 2.0 | 05/02/24 19:03 | |

LABORATORY CONTROL SAMPLE: 2710785

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 20 | 21.8 | 109 | 90-110 | |
| Fluoride | mg/L | 2 | 2.2 | 108 | 90-110 | |
| Sulfate | mg/L | 20 | 21.8 | 109 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2710786 2710787

| Parameter | Units | 40277088001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 565 | 1000 | 1000 | 1660 | 1670 | 110 | 110 | 90-110 | 1 | 15 | |
| Fluoride | mg/L | <4.8 | 100 | 100 | 95.0 | 95.8 | 95 | 96 | 90-110 | 1 | 15 | |
| Sulfate | mg/L | 1130 | 1000 | 1000 | 2300 | 2210 | 117 | 108 | 90-110 | 4 | 15 | M0 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2710788 2710789

| Parameter | Units | 40277096003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 4.6 | 20 | 20 | 26.1 | 27.2 | 107 | 113 | 90-110 | 4 | 15 | M0 |
| Fluoride | mg/L | 0.10J | 2 | 2 | 2.3 | 2.4 | 109 | 115 | 90-110 | 5 | 15 | M0 |
| Sulfate | mg/L | 13.8 | 20 | 20 | 36.0 | 36.6 | 111 | 114 | 90-110 | 2 | 15 | M0 |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**Sample: MW-301** **Lab ID: 40277089001** Collected: 04/17/24 15:20 Received: 04/19/24 08:05 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 | **0.252 ± 0.392 (1.00) C:NA T:87%** | pCi/L | 05/10/24 13:49 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.787 ± 0.488 (1.00) C:83% T:84%** | pCi/L | 05/02/24 15:58 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **1.04 ± 0.880 (2.00)** | pCi/L | 05/16/24 15:10 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

**Sample: MW-84A** **Lab ID: 40277089002** Collected: 04/17/24 13:50 Received: 04/19/24 08:05 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 | **-0.295 ± 0.450 (1.00) C:NA T:90%** | pCi/L | 05/10/24 13:49 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.290 ± 0.399 (1.00) C:77% T:84%** | pCi/L | 05/02/24 15:58 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.290 ± 0.849 (2.00)** | pCi/L | 05/16/24 15:10 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 664159
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 3233909 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | 0.760 ± 0.454 (0.835) C:85% T:72% | pCi/L | 05/02/24 15:55 | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

QC Batch: 664158
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40277089001, 40277089002

METHOD BLANK: 3233908 Matrix: Water
Associated Lab Samples: 40277089001, 40277089002

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.000 ± 0.246 (0.551) C:NA T:85% | pCi/L | 05/10/24 13:23 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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# QUALIFIERS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40277089

## 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 - The reported result is an estimated value.
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 - Analyte was not detected and is reported as less than the LOD or as defined by the customer.
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 BACKGROU
Pace Project No.: 40277089

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **40277089001** | **MW-301** | EPA 3010A | 472389 | EPA 6020B | 472486 |
| **40277089002** | **MW-84A** | EPA 3010A | 472389 | EPA 6020B | 472486 |
| **40277089001** | **MW-301** | EPA 7470 | 473092 | EPA 7470 | 473217 |
| **40277089002** | **MW-84A** | EPA 7470 | 473092 | EPA 7470 | 473217 |
| **40277089001** | **MW-301** | | | | |
| **40277089002** | **MW-84A** | | | | |
| **40277089001** | **MW-301** | EPA 903.1 | 664158 | | |
| **40277089002** | **MW-84A** | EPA 903.1 | 664158 | | |
| **40277089001** | **MW-301** | EPA 904.0 | 664159 | | |
| **40277089002** | **MW-84A** | EPA 904.0 | 664159 | | |
| **40277089001** | **MW-301** | Total Radium Calculation | 669305 | | |
| **40277089002** | **MW-84A** | Total Radium Calculation | 669305 | | |
| **40277089001** | **MW-301** | SM 2320B | 472417 | | |
| **40277089002** | **MW-84A** | SM 2320B | 472417 | | |
| **40277089001** | **MW-301** | SM 2540C | 472469 | | |
| **40277089002** | **MW-84A** | SM 2540C | 472469 | | |
| **40277089001** | **MW-301** | SM 4500-H+B | 472280 | | |
| **40277089002** | **MW-84A** | SM 4500-H+B | 472280 | | |
| **40277089001** | **MW-301** | EPA 300.0 | 473315 | | |
| **40277089002** | **MW-84A** | EPA 300.0 | 473315 | | |

Sampler on 4 coolers 40277089



Pace

# 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/hubfs/pas-standard-terms.pdf.

Page : 1 Of 1

| Section A Required Client Information: | Section B Required Project Information: | Section C 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: mblodgett@scsengineers.com | Purchase Order #: | Pace Quote: | |
| Phone: 608-216-7362 Fax: | Project Name: 25223067 Columbia CCR Background | 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 CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED START DATE | COLLECTED START TIME | COLLECTED END DATE | COLLECTED END TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | H2SO4 | HNO3 | HCl | NaOH | Na2S2O3 | Methanol | Other | Analyses Test Y/N | Radium 226 | Radium 228 | Metals | TDS and pH | Chloride, Fluoride, Sulfate | Hardness | Alkalinity | Residual Chlorine (Y/N) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MATRIX CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS | | | | | | | | | | | | | | | | | Y/N | N | N | N | N | N | N | N | | |
| 1 | MW-301 | WT | | 4/17 | 1520 | | | | | | | | | | | | | | X | X | X | X | X | X | X | | CU1 |
| 2 | MW-84A | WT | | 4/17 | 1350 | | | | | | | | | | | | | | X | X | X | X | X | X | X | | CU2 |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| Full List Metals = B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li Hg, Mo, Se, Tl ALL SAMPLES UNFILTERED | Bridget Russell | 4/18 | 1120 | | | | | | | |
| | CS Logistics | 4/19/24 | 0805 | [signature] | 4/19/24 | 0805 | 12.1 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Bridget Russell

SIGNATURE of SAMPLER: [signature] DATE Signed: 4/18/2024

Client Name: SCS

## Sample Preservation Receipt Form

Project # 402770089

All containers needing preservation have been checked and noted below: ☑Yes ☐No ☐N/A

Lab Lot# of pH paper: 100134 Lab Std #ID of preservation (if pH adjusted):

Initial when completed: mlk 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 | JGFU | JG9U | WGFU | WPFU | SP5T | ZPLC | GN 1 | GN 2 | | | | | | | |
| 001 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |
| 002 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | X | | 2.5 / 5 |
| 003 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | X | | 2.5 / 5 |
| 004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 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 |

mlk 4/19/24

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 |
| BG1U | 1 liter clear glass |
| AG1H | 1 liter amber glass HCL |
| AG4S | 125 mL amber glass H2SO4 |
| AG5U | 100 mL amber glass unpres |
| AG2S | 500 mL amber glass H2SO4 |
| BG3U | 250 mL clear glass unpres |

| | |
|---|---|
| BP1U | 1 liter plastic unpres |
| BP3U | 250 mL plastic unpres |
| BP3B | 250 mL plastic NaOH |
| BP3N | 250 mL plastic HNO3 |
| BP3S | 250 mL plastic H2SO4 |
| BP2Z | 500 mL plastic NaOH + Zn |

| | |
|---|---|
| VG9C | 40 mL clear ascorbic w/ HCl |
| DG9T | 40 mL amber Na Thio |
| VG9U | 40 mL clear vial unpres |
| VG9H | 40 mL clear vial HCL |
| VG9M | 40 mL clear vial MeOH |
| VG9D | 40 mL clear vial DI |

| | |
|---|---|
| JGFU | 4 oz amber jar unpres |
| JG9U | 9 oz amber jar unpres |
| WGFU | 4 oz clear jar unpres |
| WPFU | 4 oz plastic jar unpres |
| SP5T | 120 mL plastic Na Thiosulfate |
| ZPLC | ziploc bag |
| GN 1 | 1L Poly HNO3 |
| GN 2 | |

Page 1 of 2

Qualtrax ID: 41307

# Sample Condition Upon Receipt Form (SCUR)

**Client Name:** SCS

Project #:

WO# : 40277089

40277089

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: 1,2,1 /Corr: 1,2,1

Temp Blank Present: yes ☐ no Biological Tissue Is Frozen: ☐ yes ☐ no

Person examining contents:
Date: 4/9/24 /Initials: MH

Labeled By Initials: PV

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

**Client Notification/ Resolution:**
Person Contacted: Date/Time:
If checked, see attached form for additional comments ☐
Comments/ Resolution:

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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

June 06, 2024

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on April 19, 2024. 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

Report revised to correct the Groundwater Elevation for MW-307. This replaces the report generated on May 14, 2024.

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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# CERTIFICATIONS

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**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

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE SUMMARY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **40277096001** | **MW-306** | Water | 04/16/24 12:50 | 04/19/24 08:05 |
| **40277096002** | **MW-307** | Water | 04/16/24 11:30 | 04/19/24 08:05 |
| **40277096003** | **MW-308** | Water | 04/16/24 14:00 | 04/19/24 08:05 |
| **40277096004** | **FIELD BLANK-SCPOND** | Water | 04/16/24 14:50 | 04/19/24 08:05 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE ANALYTE COUNT

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **40277096001** | **MW-306** | EPA 6020B | TXW | 14 | PASI-G |
| | | EPA 7470 | RZA | 1 | PASI-G |
| | | | LB | 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 | TXW | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40277096002** | **MW-307** | EPA 6020B | TXW | 14 | PASI-G |
| | | EPA 7470 | RZA | 1 | PASI-G |
| | | | LB | 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 | TXW | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40277096003** | **MW-308** | EPA 6020B | TXW | 14 | PASI-G |
| | | EPA 7470 | RZA | 1 | PASI-G |
| | | | LB | 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 | TXW | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40277096004** | **FIELD BLANK-SCPOND** | EPA 6020B | TXW | 14 | PASI-G |
| | | EPA 7470 | RZA | 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 | TXW | 1 | PASI-G |
| | | SM 4500-H+B | HML | 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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40277096001** | **MW-306** | | | | | |
| EPA 6020B | Barium | 20.8 | ug/L | 2.3 | 04/29/24 03:25 | |
| EPA 6020B | Boron | 110 | ug/L | 10.0 | 04/29/24 03:25 | |
| EPA 6020B | Calcium | 123000 | ug/L | 254 | 04/29/24 03:25 | |
| EPA 6020B | Chromium | 2.9J | ug/L | 3.4 | 04/29/24 03:25 | |
| EPA 6020B | Lithium | 15.2 | ug/L | 1.0 | 04/29/24 03:25 | |
| EPA 6020B | Molybdenum | 8.1 | ug/L | 1.5 | 04/29/24 03:25 | |
| EPA 6020B | Selenium | 1.4 | ug/L | 1.1 | 04/29/24 03:25 | |
| | Field pH | 7.00 | Std. Units | | 04/16/24 12:50 | |
| | Field Specific Conductance | 850.0 | umhos/cm | | 04/16/24 12:50 | |
| | Oxygen, Dissolved | 6.98 | mg/L | | 04/16/24 12:50 | |
| | REDOX | 42.70 | mV | | 04/16/24 12:50 | |
| | Turbidity | 0.04 | NTU | | 04/16/24 12:50 | |
| | Static Water Level | 782.40 | feet | | 04/16/24 12:50 | |
| | Temperature, Water (C) | 10.5 | deg C | | 04/16/24 12:50 | |
| EPA 903.1 | Radium-226 | 0.585 ± 0.589 (1.00) C:NA T:90% | pCi/L | | 05/10/24 14:45 | |
| EPA 904.0 | Radium-228 | 0.377 ± 0.387 (1.00) C:78% T:77% | pCi/L | | 05/02/24 14:21 | |
| Total Radium Calculation | Total Radium | 0.962 ± 0.976 (2.00) | pCi/L | | 05/13/24 10:36 | |
| SM 2540C | Total Dissolved Solids | 556 | mg/L | 20.0 | 04/22/24 15:43 | |
| SM 4500-H+B | pH at 25 Degrees C | 8.2 | Std. Units | 0.10 | 04/22/24 18:08 | H6 |
| EPA 300.0 | Chloride | 20.4 | mg/L | 2.0 | 05/03/24 01:31 | |
| EPA 300.0 | Sulfate | 104 | mg/L | 10.0 | 05/03/24 13:58 | |
| **40277096002** | **MW-307** | | | | | |
| EPA 6020B | Arsenic | 1.3 | ug/L | 1.0 | 04/29/24 03:30 | |
| EPA 6020B | Barium | 24.1 | ug/L | 2.3 | 04/29/24 03:30 | |
| EPA 6020B | Boron | 255 | ug/L | 10.0 | 04/29/24 03:30 | |
| EPA 6020B | Calcium | 129000 | ug/L | 254 | 04/29/24 03:30 | |
| EPA 6020B | Chromium | 1.2J | ug/L | 3.4 | 04/29/24 03:30 | |
| EPA 6020B | Cobalt | 3.6 | ug/L | 1.0 | 04/29/24 03:30 | |
| EPA 6020B | Lithium | 0.33J | ug/L | 1.0 | 04/29/24 03:30 | |
| EPA 6020B | Molybdenum | 0.61J | ug/L | 1.5 | 04/29/24 03:30 | |
| | Field pH | 6.83 | Std. Units | | 04/16/24 11:30 | |
| | Field Specific Conductance | 997.0 | umhos/cm | | 04/16/24 11:30 | |
| | Oxygen, Dissolved | 2.58 | mg/L | | 04/16/24 11:30 | |
| | REDOX | -28.30 | mV | | 04/16/24 11:30 | |
| | Turbidity | 0.10 | NTU | | 04/16/24 11:30 | |
| | Static Water Level | 782.24 | feet | | 04/16/24 11:30 | |
| | Temperature, Water (C) | 11.6 | deg C | | 04/16/24 11:30 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40277096002** | **MW-307** | | | | | |
| EPA 903.1 | Radium-226 | 0.446 ± 0.575 (1.00) C:NA T:83% | pCi/L | | 05/10/24 14:45 | |
| EPA 904.0 | Radium-228 | 0.948 ± 0.469 (1.00) C:75% T:79% | pCi/L | | 05/02/24 14:21 | |
| Total Radium Calculation | Total Radium | 1.39 ± 1.04 (2.00) | pCi/L | | 05/13/24 10:36 | |
| SM 2540C | Total Dissolved Solids | 704 | mg/L | 20.0 | 04/22/24 17:43 | |
| SM 4500-H+B | pH at 25 Degrees C | 8.0 | Std. Units | 0.10 | 04/22/24 18:10 | H6 |
| EPA 300.0 | Chloride | 37.8 | mg/L | 2.0 | 05/03/24 01:45 | |
| EPA 300.0 | Sulfate | 311 | mg/L | 20.0 | 05/03/24 14:12 | |
| **40277096003** | **MW-308** | | | | | |
| EPA 6020B | Arsenic | 2.6 | ug/L | 1.0 | 04/29/24 03:46 | |
| EPA 6020B | Barium | 83.6 | ug/L | 2.3 | 04/29/24 03:46 | |
| EPA 6020B | Boron | 446 | ug/L | 10.0 | 04/29/24 03:46 | |
| EPA 6020B | Calcium | 141000 | ug/L | 254 | 04/29/24 03:46 | |
| EPA 6020B | Chromium | 1.0J | ug/L | 3.4 | 04/29/24 03:46 | |
| EPA 6020B | Cobalt | 0.60J | ug/L | 1.0 | 04/29/24 03:46 | |
| EPA 6020B | Molybdenum | 2.0 | ug/L | 1.5 | 04/29/24 03:46 | |
| | Field pH | 6.94 | Std. Units | | 04/16/24 14:00 | |
| | Field Specific Conductance | 980.0 | umhos/cm | | 04/16/24 14:00 | |
| | Oxygen, Dissolved | 0.12 | mg/L | | 04/16/24 14:00 | |
| | REDOX | -116.80 | mV | | 04/16/24 14:00 | |
| | Turbidity | 0.57 | NTU | | 04/16/24 14:00 | |
| | Static Water Level | 784.51 | feet | | 04/16/24 14:00 | |
| | Temperature, Water (C) | 13.9 | deg C | | 04/16/24 14:00 | |
| EPA 903.1 | Radium-226 | 0.132 ± 0.709 (1.00) C:NA T:84% | pCi/L | | 05/10/24 14:45 | |
| EPA 904.0 | Radium-228 | 0.786 ± 0.515 (1.00) C:76% T:62% | pCi/L | | 05/02/24 14:21 | |
| Total Radium Calculation | Total Radium | 0.918 ± 1.22 (2.00) | pCi/L | | 05/13/24 10:36 | |
| SM 2540C | Total Dissolved Solids | 570 | mg/L | 20.0 | 04/22/24 17:43 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.9 | Std. Units | 0.10 | 04/22/24 18:10 | H6 |
| EPA 300.0 | Chloride | 4.6 | mg/L | 2.0 | 05/03/24 01:59 | M0 |
| EPA 300.0 | Fluoride | 0.10J | mg/L | 0.32 | 05/03/24 01:59 | M0 |
| EPA 300.0 | Sulfate | 13.8 | mg/L | 2.0 | 05/03/24 01:59 | M0 |
| **40277096004** | **FIELD BLANK-SCPOND** | | | | | |
| EPA 6020B | Barium | 1.8J | ug/L | 2.3 | 04/29/24 03:51 | |
| EPA 6020B | Calcium | 175J | ug/L | 254 | 04/29/24 10:28 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40277096004** | **FIELD BLANK-SCPOND** | | | | | |
| EPA 903.1 | Radium-226 | -0.0724 ± 0.512 (1.00) C:NA T:88% | pCi/L | | 05/10/24 14:59 | |
| EPA 904.0 | Radium-228 | 0.337 ± 0.375 (1.00) C:76% T:79% | pCi/L | | 05/02/24 14:21 | |
| Total Radium Calculation | Total Radium | 0.337 ± 0.887 (2.00) | pCi/L | | 05/13/24 10:36 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.0 | Std. Units | 0.10 | 04/22/24 18:21 | H6 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: MW-306** **Lab ID: 40277096001** Collected: 04/16/24 12:50 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-38-2 | |
| Barium | **20.8** | ug/L | 2.3 | 0.70 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-41-7 | |
| Boron | **110** | ug/L | 10.0 | 3.0 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-43-9 | |
| Calcium | **123000** | ug/L | 254 | 76.2 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-70-2 | |
| Chromium | **2.9J** | ug/L | 3.4 | 1.0 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7439-92-1 | |
| Lithium | **15.2** | ug/L | 1.0 | 0.22 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7439-93-2 | |
| Molybdenum | **8.1** | ug/L | 1.5 | 0.44 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7439-98-7 | |
| Selenium | **1.4** | ug/L | 1.1 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 04/23/24 07:07 | 04/29/24 03:25 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 04/30/24 15:10 | 05/01/24 09:55 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **7.00** | Std. Units | | | 1 | | 04/16/24 12:50 | | |
| Field Specific Conductance | **850.0** | umhos/cm | | | 1 | | 04/16/24 12:50 | | |
| Oxygen, Dissolved | **6.98** | mg/L | | | 1 | | 04/16/24 12:50 | 7782-44-7 | |
| REDOX | **42.70** | mV | | | 1 | | 04/16/24 12:50 | | |
| Turbidity | **0.04** | NTU | | | 1 | | 04/16/24 12:50 | | |
| Static Water Level | **782.40** | feet | | | 1 | | 04/16/24 12:50 | | |
| Temperature, Water (C) | **10.5** | deg C | | | 1 | | 04/16/24 12:50 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **556** | mg/L | 20.0 | 8.7 | 1 | | 04/22/24 15:43 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **8.2** | Std. Units | 0.10 | 0.010 | 1 | | 04/22/24 18:08 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **20.4** | mg/L | 2.0 | 0.59 | 1 | | 05/03/24 01:31 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 05/03/24 01:31 | 16984-48-8 | |
| Sulfate | **104** | mg/L | 10.0 | 2.2 | 5 | | 05/03/24 13:58 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

# ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: MW-307** **Lab ID: 40277096002** Collected: 04/16/24 11:30 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-36-0 | |
| Arsenic | **1.3** | ug/L | 1.0 | 0.28 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-38-2 | |
| Barium | **24.1** | ug/L | 2.3 | 0.70 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-41-7 | |
| Boron | **255** | ug/L | 10.0 | 3.0 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-43-9 | |
| Calcium | **129000** | ug/L | 254 | 76.2 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-70-2 | |
| Chromium | **1.2J** | ug/L | 3.4 | 1.0 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-47-3 | |
| Cobalt | **3.6** | ug/L | 1.0 | 0.12 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7439-92-1 | |
| Lithium | **0.33J** | ug/L | 1.0 | 0.22 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7439-93-2 | |
| Molybdenum | **0.61J** | ug/L | 1.5 | 0.44 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 04/23/24 07:07 | 04/29/24 03:30 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 04/30/24 15:10 | 05/01/24 09:58 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **6.83** | Std. Units | | | 1 | | 04/16/24 11:30 | | |
| Field Specific Conductance | **997.0** | umhos/cm | | | 1 | | 04/16/24 11:30 | | |
| Oxygen, Dissolved | **2.58** | mg/L | | | 1 | | 04/16/24 11:30 | 7782-44-7 | |
| REDOX | **-28.30** | mV | | | 1 | | 04/16/24 11:30 | | |
| Turbidity | **0.10** | NTU | | | 1 | | 04/16/24 11:30 | | |
| Static Water Level | **782.24** | feet | | | 1 | | 04/16/24 11:30 | | |
| Temperature, Water (C) | **11.6** | deg C | | | 1 | | 04/16/24 11:30 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **704** | mg/L | 20.0 | 8.7 | 1 | | 04/22/24 17:43 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **8.0** | Std. Units | 0.10 | 0.010 | 1 | | 04/22/24 18:10 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **37.8** | mg/L | 2.0 | 0.59 | 1 | | 05/03/24 01:45 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 05/03/24 01:45 | 16984-48-8 | |
| Sulfate | **311** | mg/L | 20.0 | 4.4 | 10 | | 05/03/24 14:12 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: MW-308** **Lab ID: 40277096003** Collected: 04/16/24 14:00 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-36-0 | |
| Arsenic | **2.6** | ug/L | 1.0 | 0.28 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-38-2 | |
| Barium | **83.6** | ug/L | 2.3 | 0.70 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-41-7 | |
| Boron | **446** | ug/L | 10.0 | 3.0 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-43-9 | |
| Calcium | **141000** | ug/L | 254 | 76.2 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-70-2 | |
| Chromium | **1.0J** | ug/L | 3.4 | 1.0 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-47-3 | |
| Cobalt | **0.60J** | ug/L | 1.0 | 0.12 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7439-92-1 | |
| Lithium | **<0.22** | ug/L | 1.0 | 0.22 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7439-93-2 | |
| Molybdenum | **2.0** | ug/L | 1.5 | 0.44 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 04/23/24 07:07 | 04/29/24 03:46 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 04/30/24 15:10 | 05/01/24 10:00 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **6.94** | Std. Units | | | 1 | | 04/16/24 14:00 | | |
| Field Specific Conductance | **980.0** | umhos/cm | | | 1 | | 04/16/24 14:00 | | |
| Oxygen, Dissolved | **0.12** | mg/L | | | 1 | | 04/16/24 14:00 | 7782-44-7 | |
| REDOX | **-116.80** | mV | | | 1 | | 04/16/24 14:00 | | |
| Turbidity | **0.57** | NTU | | | 1 | | 04/16/24 14:00 | | |
| Static Water Level | **784.51** | feet | | | 1 | | 04/16/24 14:00 | | |
| Temperature, Water (C) | **13.9** | deg C | | | 1 | | 04/16/24 14:00 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **570** | mg/L | 20.0 | 8.7 | 1 | | 04/22/24 17:43 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **7.9** | Std. Units | 0.10 | 0.010 | 1 | | 04/22/24 18:10 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **4.6** | mg/L | 2.0 | 0.59 | 1 | | 05/03/24 01:59 | 16887-00-6 | M0 |
| Fluoride | **0.10J** | mg/L | 0.32 | 0.095 | 1 | | 05/03/24 01:59 | 16984-48-8 | M0 |
| Sulfate | **13.8** | mg/L | 2.0 | 0.44 | 1 | | 05/03/24 01:59 | 14808-79-8 | M0 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: FIELD BLANK-SCPOND** **Lab ID: 40277096004** Collected: 04/16/24 14:50 Received: 04/19/24 08:05 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-38-2 | |
| Barium | **1.8J** | ug/L | 2.3 | 0.70 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-41-7 | |
| Boron | **<3.0** | ug/L | 10.0 | 3.0 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-43-9 | |
| Calcium | **175J** | ug/L | 254 | 76.2 | 1 | 04/23/24 07:07 | 04/29/24 10:28 | 7440-70-2 | |
| Chromium | **<1.0** | ug/L | 3.4 | 1.0 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7439-92-1 | |
| Lithium | **<0.22** | ug/L | 1.0 | 0.22 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 04/23/24 07:07 | 04/29/24 03:51 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 04/30/24 15:10 | 05/01/24 10:02 | 7439-97-6 | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **<8.7** | mg/L | 20.0 | 8.7 | 1 | | 04/22/24 17:43 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **7.0** | Std. Units | 0.10 | 0.010 | 1 | | 04/22/24 18:21 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **<0.59** | mg/L | 2.0 | 0.59 | 1 | | 05/02/24 16:20 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 05/02/24 16:20 | 16984-48-8 | |
| Sulfate | **<0.44** | mg/L | 2.0 | 0.44 | 1 | | 05/02/24 16:20 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 473092 | Analysis Method: EPA 7470
QC Batch Method: EPA 7470 | Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

METHOD BLANK: 2709401 Matrix: Water
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | <0.066 | 0.20 | 05/01/24 09:18 | |

LABORATORY CONTROL SAMPLE: 2709402

| 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: 2709403 2709404

| Parameter | Units | 40277334002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ug/L | <0.000066 mg/L | 5 | 5 | 4.9 | 5.0 | 98 | 100 | 85-115 | 2 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 472389
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

METHOD BLANK: 2705531 Matrix: Water
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | ug/L | <0.15 | 1.0 | 04/29/24 01:38 | |
| Arsenic | ug/L | <0.28 | 1.0 | 04/29/24 01:38 | |
| Barium | ug/L | <0.70 | 2.3 | 04/29/24 01:38 | |
| Beryllium | ug/L | <0.25 | 1.0 | 04/29/24 01:38 | |
| Boron | ug/L | <3.0 | 10.0 | 04/29/24 01:38 | |
| Cadmium | ug/L | <0.15 | 1.0 | 04/29/24 01:38 | |
| Calcium | ug/L | <76.2 | 254 | 04/29/24 01:38 | |
| Chromium | ug/L | <1.0 | 3.4 | 04/29/24 01:38 | |
| Cobalt | ug/L | <0.12 | 1.0 | 04/29/24 01:38 | |
| Lead | ug/L | <0.24 | 1.0 | 04/29/24 01:38 | |
| Lithium | ug/L | <0.22 | 1.0 | 04/29/24 01:38 | |
| Molybdenum | ug/L | <0.44 | 1.5 | 04/29/24 01:38 | |
| Selenium | ug/L | <0.32 | 1.1 | 04/29/24 01:38 | |
| Thallium | ug/L | <0.14 | 1.0 | 04/29/24 01:38 | |

LABORATORY CONTROL SAMPLE: 2705532

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | ug/L | 250 | 255 | 102 | 80-120 | |
| Arsenic | ug/L | 250 | 257 | 103 | 80-120 | |
| Barium | ug/L | 250 | 247 | 99 | 80-120 | |
| Beryllium | ug/L | 250 | 255 | 102 | 80-120 | |
| Boron | ug/L | 250 | 239 | 95 | 80-120 | |
| Cadmium | ug/L | 250 | 259 | 104 | 80-120 | |
| Calcium | ug/L | 10000 | 9820 | 98 | 80-120 | |
| Chromium | ug/L | 250 | 250 | 100 | 80-120 | |
| Cobalt | ug/L | 250 | 254 | 102 | 80-120 | |
| Lead | ug/L | 250 | 248 | 99 | 80-120 | |
| Lithium | ug/L | 250 | 248 | 99 | 80-120 | |
| Molybdenum | ug/L | 250 | 253 | 101 | 80-120 | |
| Selenium | ug/L | 250 | 267 | 107 | 80-120 | |
| Thallium | ug/L | 250 | 238 | 95 | 80-120 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2705533 2705534

| Parameter | Units | 40276984004 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | <0.30 | 250 | 250 | 255 | 259 | 102 | 103 | 75-125 | 1 | 20 | |
| Arsenic | ug/L | 6.9 | 250 | 250 | 266 | 268 | 104 | 105 | 75-125 | 1 | 20 | |
| Barium | ug/L | 293 | 250 | 250 | 598 | 603 | 122 | 124 | 75-125 | 1 | 20 | |
| Beryllium | ug/L | 1.3J | 250 | 250 | 255 | 258 | 101 | 103 | 75-125 | 1 | 20 | |
| Boron | ug/L | 4780 | 250 | 250 | 4890 | 4930 | 44 | 63 | 75-125 | 1 | 20 | P6 |
| Cadmium | ug/L | <0.30 | 250 | 250 | 255 | 258 | 102 | 103 | 75-125 | 1 | 20 | |
| Calcium | ug/L | 278000 | 10000 | 10000 | 282000 | 286000 | 32 | 75 | 75-125 | 2 | 20 | P6 |
| Chromium | ug/L | 42.5 | 250 | 250 | 294 | 301 | 101 | 103 | 75-125 | 2 | 20 | |
| Cobalt | ug/L | 13.7 | 250 | 250 | 250 | 256 | 95 | 97 | 75-125 | 2 | 20 | |
| Lead | ug/L | 12.0 | 250 | 250 | 268 | 275 | 102 | 105 | 75-125 | 3 | 20 | |
| Lithium | ug/L | 82.8 | 250 | 250 | 336 | 340 | 101 | 103 | 75-125 | 1 | 20 | |
| Molybdenum | ug/L | 2630 | 250 | 250 | 2840 | 2860 | 82 | 91 | 75-125 | 1 | 20 | |
| Selenium | ug/L | 0.95J | 250 | 250 | 270 | 267 | 108 | 107 | 75-125 | 1 | 20 | |
| Thallium | ug/L | 0.32J | 250 | 250 | 255 | 262 | 102 | 105 | 75-125 | 3 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 472346
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096001

METHOD BLANK: 2705404 Matrix: Water
Associated Lab Samples: 40277096001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <8.7 | 20.0 | 04/22/24 15:38 | |

LABORATORY CONTROL SAMPLE: 2705405

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 616 | 560 | 91 | 80-120 | |

SAMPLE DUPLICATE: 2705406

| Parameter | Units | 40277010005 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 636 | 638 | 0 | 10 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 472362
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096002, 40277096003, 40277096004

METHOD BLANK: 2705451 Matrix: Water
Associated Lab Samples: 40277096002, 40277096003, 40277096004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <8.7 | 20.0 | 04/22/24 17:38 | |

LABORATORY CONTROL SAMPLE: 2705452

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 616 | 540 | 88 | 80-120 | |

SAMPLE DUPLICATE: 2705453

| Parameter | Units | 40277010013 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 942 | 952 | 1 | 10 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 472280
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

SAMPLE DUPLICATE: 2705157

| Parameter | Units | 40276865001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 8.0 | 8.0 | 0 | 5 | H6 |

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## REPORT OF LABORATORY ANALYSIS

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(920)469-2436

# QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 473315
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096001, 40277096002, 40277096003

METHOD BLANK: 2710784 Matrix: Water
Associated Lab Samples: 40277096001, 40277096002, 40277096003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chloride | mg/L | <0.59 | 2.0 | 05/02/24 19:03 | |
| Fluoride | mg/L | <0.095 | 0.32 | 05/02/24 19:03 | |
| Sulfate | mg/L | <0.44 | 2.0 | 05/02/24 19:03 | |

LABORATORY CONTROL SAMPLE: 2710785

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 20 | 21.8 | 109 | 90-110 | |
| Fluoride | mg/L | 2 | 2.2 | 108 | 90-110 | |
| Sulfate | mg/L | 20 | 21.8 | 109 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2710786 2710787

| Parameter | Units | 40277088001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 565 | 1000 | 1000 | 1660 | 1670 | 110 | 110 | 90-110 | 1 | 15 | |
| Fluoride | mg/L | <4.8 | 100 | 100 | 95.0 | 95.8 | 95 | 96 | 90-110 | 1 | 15 | |
| Sulfate | mg/L | 1130 | 1000 | 1000 | 2300 | 2210 | 117 | 108 | 90-110 | 4 | 15 | M0 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2710788 2710789

| Parameter | Units | 40277096003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 4.6 | 20 | 20 | 26.1 | 27.2 | 107 | 113 | 90-110 | 4 | 15 | M0 |
| Fluoride | mg/L | 0.10J | 2 | 2 | 2.3 | 2.4 | 109 | 115 | 90-110 | 5 | 15 | M0 |
| Sulfate | mg/L | 13.8 | 20 | 20 | 36.0 | 36.6 | 111 | 114 | 90-110 | 2 | 15 | M0 |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 473404
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40277096004

METHOD BLANK: 2711214 Matrix: Water
Associated Lab Samples: 40277096004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chloride | mg/L | <0.59 | 2.0 | 05/02/24 11:19 | |
| Fluoride | mg/L | <0.095 | 0.32 | 05/02/24 11:19 | |
| Sulfate | mg/L | <0.44 | 2.0 | 05/02/24 11:19 | |

LABORATORY CONTROL SAMPLE: 2711215

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 20 | 19.2 | 96 | 90-110 | |
| Fluoride | mg/L | 2 | 1.9 | 94 | 90-110 | |
| Sulfate | mg/L | 20 | 19.2 | 96 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2711216 2711217

| Parameter | Units | 40277084017 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 96.8 | 100 | 100 | 210 | 208 | 113 | 111 | 90-110 | 1 | 15 | M0 |
| Fluoride | mg/L | <0.48 | 10 | 10 | 11.1 | 11.3 | 111 | 113 | 90-110 | 1 | 15 | M0 |
| Sulfate | mg/L | 114 | 100 | 100 | 223 | 226 | 109 | 112 | 90-110 | 1 | 15 | M0 |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: MW-306** **Lab ID: 40277096001** Collected: 04/16/24 12:50 Received: 04/19/24 08:05 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 | **0.585 ± 0.589 (1.00) C:NA T:90%** | pCi/L | 05/10/24 14:45 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.377 ± 0.387 (1.00) C:78% T:77%** | pCi/L | 05/02/24 14:21 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.962 ± 0.976 (2.00)** | pCi/L | 05/13/24 10:36 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: MW-307** **Lab ID: 40277096002** Collected: 04/16/24 11:30 Received: 04/19/24 08:05 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 | **0.446 ± 0.575 (1.00) C:NA T:83%** | pCi/L | 05/10/24 14:45 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.948 ± 0.469 (1.00) C:75% T:79%** | pCi/L | 05/02/24 14:21 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **1.39 ± 1.04 (2.00)** | pCi/L | 05/13/24 10:36 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: MW-308** **Lab ID: 40277096003** Collected: 04/16/24 14:00 Received: 04/19/24 08:05 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 | **0.132 ± 0.709 (1.00) C:NA T:84%** | pCi/L | 05/10/24 14:45 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.786 ± 0.515 (1.00) C:76% T:62%** | pCi/L | 05/02/24 14:21 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.918 ± 1.22 (2.00)** | pCi/L | 05/13/24 10:36 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

**Sample: FIELD BLANK-SCPOND** **Lab ID: 40277096004** Collected: 04/16/24 14:50 Received: 04/19/24 08:05 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 | **-0.0724 ± 0.512 (1.00) C:NA T:88%** | pCi/L | 05/10/24 14:59 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.337 ± 0.375 (1.00) C:76% T:79%** | pCi/L | 05/02/24 14:21 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.337 ± 0.887 (2.00)** | pCi/L | 05/13/24 10:36 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 664275
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

METHOD BLANK: 3234241 Matrix: Water
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.0891 ± 0.204 (0.328) C:NA T:91% | pCi/L | 05/10/24 14:45 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

QC Batch: 664276
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

METHOD BLANK: 3234242 Matrix: Water
Associated Lab Samples: 40277096001, 40277096002, 40277096003, 40277096004

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | 0.368 ± 0.341 (0.689) C:80% T:81% | pCi/L | 05/02/24 14:20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

# QUALIFIERS

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

## 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 - The reported result is an estimated value.
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 - Analyte was not detected and is reported as less than the LOD or as defined by the customer.
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. |

**Pace Analytical Services, LLC**
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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 COLUMBIA CCR SECONDAR
Pace Project No.: 40277096

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **40277096001** | **MW-306** | EPA 3010A | 472389 | EPA 6020B | 472486 |
| **40277096002** | **MW-307** | EPA 3010A | 472389 | EPA 6020B | 472486 |
| **40277096003** | **MW-308** | EPA 3010A | 472389 | EPA 6020B | 472486 |
| **40277096004** | **FIELD BLANK-SCPOND** | EPA 3010A | 472389 | EPA 6020B | 472486 |
| **40277096001** | **MW-306** | EPA 7470 | 473092 | EPA 7470 | 473217 |
| **40277096002** | **MW-307** | EPA 7470 | 473092 | EPA 7470 | 473217 |
| **40277096003** | **MW-308** | EPA 7470 | 473092 | EPA 7470 | 473217 |
| **40277096004** | **FIELD BLANK-SCPOND** | EPA 7470 | 473092 | EPA 7470 | 473217 |
| **40277096001** | **MW-306** | | | | |
| **40277096002** | **MW-307** | | | | |
| **40277096003** | **MW-308** | | | | |
| **40277096001** | **MW-306** | EPA 903.1 | 664275 | | |
| **40277096002** | **MW-307** | EPA 903.1 | 664275 | | |
| **40277096003** | **MW-308** | EPA 903.1 | 664275 | | |
| **40277096004** | **FIELD BLANK-SCPOND** | EPA 903.1 | 664275 | | |
| **40277096001** | **MW-306** | EPA 904.0 | 664276 | | |
| **40277096002** | **MW-307** | EPA 904.0 | 664276 | | |
| **40277096003** | **MW-308** | EPA 904.0 | 664276 | | |
| **40277096004** | **FIELD BLANK-SCPOND** | EPA 904.0 | 664276 | | |
| **40277096001** | **MW-306** | Total Radium Calculation | 668245 | | |
| **40277096002** | **MW-307** | Total Radium Calculation | 668245 | | |
| **40277096003** | **MW-308** | Total Radium Calculation | 668245 | | |
| **40277096004** | **FIELD BLANK-SCPOND** | Total Radium Calculation | 668245 | | |
| **40277096001** | **MW-306** | SM 2540C | 472346 | | |
| **40277096002** | **MW-307** | SM 2540C | 472362 | | |
| **40277096003** | **MW-308** | SM 2540C | 472362 | | |
| **40277096004** | **FIELD BLANK-SCPOND** | SM 2540C | 472362 | | |
| **40277096001** | **MW-306** | SM 4500-H+B | 472280 | | |
| **40277096002** | **MW-307** | SM 4500-H+B | 472280 | | |
| **40277096003** | **MW-308** | SM 4500-H+B | 472280 | | |
| **40277096004** | **FIELD BLANK-SCPOND** | SM 4500-H+B | 472280 | | |
| **40277096001** | **MW-306** | EPA 300.0 | 473315 | | |
| **40277096002** | **MW-307** | EPA 300.0 | 473315 | | |
| **40277096003** | **MW-308** | EPA 300.0 | 473315 | | |
| **40277096004** | **FIELD BLANK-SCPOND** | EPA 300.0 | 473404 | | |

Samples in 4 coolers 40277096

Pace

# 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/hubfs/pas-standard-terms.pdf.

Page : 1 Of 1

| Section A Required Client Information: | | Section B Required Project Information: | | Section C Invoice Information: | |
|---|---|---|---|---|---|
| Company | SCS ENGINEERS | Report To | Meghan Blodgett | Attention | |
| Address | 2830 Dairy Drive | Copy To | | Company Name | |
| Madison, WI 53718 | | | | Address | |
| Email | mblodgett@scsengineers.com | Purchase Order # | | Pace Quote | |
| Phone | 608-216-7362 Fax | Project Name | 25223067 Columbia CCR Secondary Pond | Pace Project Manager | dan.milewsky@pacelabs.com, |
| Requested Due Date | | Project # | 25223067 | Pace Profile #: | |

| Regulatory Agency | |
|---|---|
| State / Location | WI |

| ITEM # | SAMPLE ID<br>One Character per box.<br>(A-Z, 0-9 / , -)<br>Sample Ids must be unique | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED START DATE | COLLECTED START TIME | COLLECTED END DATE | COLLECTED END TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | H2SO4 | HNO3 | HCl | NaOH | Na2S2O3 | Methanol | Other | Requested Analysis Filtered (Y/N) Y/N | Analyses Test: Metals | chloride,fluoride,sulfate | TDS and pH | Radium 226 | Radium 228 | Residual Chlorine (Y/N) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-306 | WT | | 4/16 | 1250 | | | | | | | | | | | | | N | X | X | X | X | X | | C001 |
| 2 | MW-307 | WT | | 4/16 | 1130 | | | | | | | | | | | | | N | X | X | X | X | X | | C002 |
| 3 | MW-308 | WT | | 4/16 | 1400 | | | | | | | | | | | | | N | X | X | X | X | X | | C003 |
| 4 | FIELD BLANK-SCPOND | WT | | 4/16 | 1450 | | | | | | | | | | | | | N | X | X | X | X | X | | C004 |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | |

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL SAMPLES UNFILTERED<br>Metals=Sb,As,Ba,Be,B,Ca,Cd,Cr,Co,Pb,Li,Hg,Mo,Se,Tl | | 4/18 | 1120 | | | | | | | |
| | CS Logistics | 4/19/24 | 0805 | | 4/19/24 | 0805 | 1,2,1 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |

| SAMPLER NAME AND SIGNATURE | | | | |
|---|---|---|---|---|
| PRINT Name of SAMPLER: | Bridget Russell | | | |
| SIGNATURE of SAMPLER: | | DATE Signed: | 4/18/2024 | |

| TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|
| | | | |

Client Name: SCS

## Sample Preservation Receipt Form

Project # 40277096

All containers needing preservation have been checked and noted below: ☒Yes ☐No ☐N/A

Lab Lot# of pH paper: 100134 Lab Std #ID of preservation (if pH adjusted):

Initial when completed: mlk 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 | JGFU | JG9U | WGFU | WPFU | SP5T | ZPLC | GN 1 | GN 2 | | | | | | | |
| 001 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | X | | | 2.5 / 5 |
| 002 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | X | | | 2.5 / 5 |
| 003 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | X | | | 2.5 / 5 |
| 004 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | 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 | | | | | | | | | mlk 4/19/24 | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |
| 016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |
| 017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |
| 018 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |
| 019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |
| 020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 / 5 |

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 |
| BG1U | 1 liter clear glass |
| AG1H | 1 liter amber glass HCL |
| AG4S | 125 mL amber glass H2SO4 |
| AG5U | 100 mL amber glass unpres |
| AG2S | 500 mL amber glass H2SO4 |
| BG3U | 250 mL clear glass unpres |

| | |
|---|---|
| BP1U | 1 liter plastic unpres |
| BP3U | 250 mL plastic unpres |
| BP3B | 250 mL plastic NaOH |
| BP3N | 250 mL plastic HNO3 |
| BP3S | 250 mL plastic H2SO4 |
| BP2Z | 500 mL plastic NaOH + Zn |

| | |
|---|---|
| VG9C | 40 mL clear ascorbic w/ HCl |
| DG9T | 40 mL amber Na Thio |
| VG9U | 40 mL clear vial unpres |
| VG9H | 40 mL clear vial HCL |
| VG9M | 40 mL clear vial MeOH |
| VG9D | 40 mL clear vial DI |

| | |
|---|---|
| JGFU | 4 oz amber jar unpres |
| JG9U | 9 oz amber jar unpres |
| WGFU | 4 oz clear jar unpres |
| WPFU | 4 oz plastic jar unpres |
| SP5T | 120 mL plastic Na Thiosulfate |
| ZPLC | ziploc bag |
| GN 1 | 1Lpoly HNO3 |
| GN 2 | |

# Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40277096

40277096

**Client Name:** SCS

**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: 1,2,1,1 /Corr: 1,2,1,1

**Temp Blank Present:** ☑ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Person examining contents:
Date: 4/14/24 /Initials: MH

Labeled By Initials:

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: | ☑Yes ☐No ☐N/A | 1. |
| Chain of Custody Filled Out: | ☑Yes ☐No ☐N/A | 2. |
| Chain of Custody Relinquished: | ☑Yes ☐No ☐N/A | 3. |
| Sampler Name & Signature on COC: | ☑Yes ☐No ☐N/A | 4. |
| Samples Arrived within Hold Time: | ☑Yes ☐No | 5. |
| - DI VOA Samples frozen upon receipt | ☐Yes ☐No | Date/Time: |
| **Short Hold Time Analysis (<72hr):** | ☐Yes ☑No | 6. |
| **Rush Turn Around Time Requested:** | ☐Yes ☑No | 7. |
| Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A | | 8. |
| Correct Containers Used: | ☑Yes ☐No | 9. |
| Correct Type: Pace Green Bay, Pace IR, Non-Pace | | |
| Containers Intact: | ☑Yes ☐No | 10. |
| Filtered volume received for Dissolved tests | ☐Yes ☐No ☑N/A | 11. |
| Sample Labels match COC: | ☐Yes ☐No ☐N/A | 12. |
| -Includes date/time/ID/Analysis Matrix: W | | 004-1-1L poly HNO3 has time of 1645 mH 4/14/24 |
| Trip Blank Present: | ☐Yes ☐No ☑N/A | 13. |
| Trip Blank Custody Seals Present | ☐Yes ☐No ☑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**

Page 2 of 2

# C2 October 2024 Assessment Monitoring

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

October 31, 2024

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2024. 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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# CERTIFICATIONS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**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

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE SUMMARY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **40285191001** | **MW-301** | Water | 10/02/24 12:40 | 10/04/24 08:35 |
| **40285191002** | **MW-84A** | Water | 10/02/24 11:50 | 10/04/24 08:35 |
| **40285191003** | **MW-84A DUP** | Water | 10/02/24 11:55 | 10/04/24 08:35 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE ANALYTE COUNT

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **40285191001** | **MW-301** | EPA 6020B | KXS | 15 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | REH1 | 1 | PASI-PA |
| | | EPA 904.0 | ZPC | 1 | PASI-PA |
| | | Total Radium Calculation | LAL | 1 | PASI-PA |
| | | SM 2540C | LMB | 1 | PASI-G |
| | | EPA 9040 | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| | | EPA 310.2 | MT | 1 | PASI-G |
| **40285191002** | **MW-84A** | EPA 6020B | KXS | 15 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | REH1 | 1 | PASI-PA |
| | | EPA 904.0 | ZPC | 1 | PASI-PA |
| | | Total Radium Calculation | LAL | 1 | PASI-PA |
| | | SM 2540C | LMB | 1 | PASI-G |
| | | EPA 9040 | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| | | EPA 310.2 | MT | 1 | PASI-G |
| **40285191003** | **MW-84A DUP** | EPA 6020B | KXS | 15 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |

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

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-301** **Lab ID: 40285191001** Collected: 10/02/24 12:40 Received: 10/04/24 08:35 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-38-2 | |
| Barium | **10.6** | ug/L | 2.3 | 0.70 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-41-7 | |
| Boron | **22.1** | ug/L | 10.0 | 3.0 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-43-9 | |
| Calcium | **97000** | ug/L | 2540 | 762 | 10 | 10/06/24 09:18 | 10/08/24 17:11 | 7440-70-2 | P6 |
| Chromium | **<1.0** | ug/L | 3.4 | 1.0 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7439-92-1 | |
| Lithium | **0.80J** | ug/L | 1.0 | 0.22 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7439-98-7 | |
| Selenium | **0.39J** | ug/L | 1.1 | 0.32 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7782-49-2 | |
| Thallium | **0.15J** | ug/L | 1.0 | 0.14 | 1 | 10/06/24 09:18 | 10/08/24 17:28 | 7440-28-0 | |
| Total Hardness by 2340B | **434** | mg/L | 17.0 | 3.2 | 10 | 10/06/24 09:18 | 10/08/24 17:11 | | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/08/24 06:34 | 10/10/24 08:47 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **6.85** | Std. Units | | | 1 | | 10/02/24 12:40 | | |
| Field Specific Conductance | **602.4** | umhos/cm | | | 1 | | 10/02/24 12:40 | | |
| Oxygen, Dissolved | **2.77** | mg/L | | | 1 | | 10/02/24 12:40 | 7782-44-7 | |
| REDOX | **68.1** | mV | | | 1 | | 10/02/24 12:40 | | |
| Turbidity | **1.84** | NTU | | | 1 | | 10/02/24 12:40 | | |
| Static Water Level | **787.92** | feet | | | 1 | | 10/02/24 12:40 | | |
| Temperature, Water (C) | **11.7** | deg C | | | 1 | | 10/02/24 12:40 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **410** | mg/L | 20.0 | 8.7 | 1 | | 10/08/24 18:00 | | |
| **9040 pH** | Analytical Method: EPA 9040<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **8.2** | Std. Units | 0.10 | 0.010 | 1 | | 10/16/24 17:23 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **1.5J** | mg/L | 2.0 | 0.59 | 1 | | 10/18/24 00:28 | 16887-00-6 | |
| Fluoride | **0.13J** | mg/L | 0.32 | 0.095 | 1 | | 10/18/24 00:28 | 16984-48-8 | |
| Sulfate | **10.4** | mg/L | 2.0 | 0.44 | 1 | | 10/18/24 00:28 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-301** **Lab ID: 40285191001** Collected: 10/02/24 12:40 Received: 10/04/24 08:35 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **310.2 Alkalinity** | Analytical Method: EPA 310.2<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Alkalinity, Total as CaCO3 | **433** | mg/L | 25.0 | 7.4 | 1 | | 10/08/24 09:33 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-84A** **Lab ID: 40285191002** Collected: 10/02/24 11:50 Received: 10/04/24 08:35 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-38-2 | |
| Barium | **13.6** | ug/L | 2.3 | 0.70 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-41-7 | |
| Boron | **10.3** | ug/L | 10.0 | 3.0 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-43-9 | |
| Calcium | **73300** | ug/L | 254 | 76.2 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-70-2 | |
| Chromium | **1.7J** | ug/L | 3.4 | 1.0 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7439-92-1 | |
| Lithium | **0.57J** | ug/L | 1.0 | 0.22 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | 7440-28-0 | |
| Total Hardness by 2340B | **341** | mg/L | 1.7 | 0.32 | 1 | 10/06/24 09:18 | 10/08/24 18:02 | | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/08/24 06:34 | 10/10/24 08:49 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **7.36** | Std. Units | | | 1 | | 10/02/24 11:50 | | |
| Field Specific Conductance | **502.7** | umhos/cm | | | 1 | | 10/02/24 11:50 | | |
| Oxygen, Dissolved | **8.73** | mg/L | | | 1 | | 10/02/24 11:50 | 7782-44-7 | |
| REDOX | **65.1** | mV | | | 1 | | 10/02/24 11:50 | | |
| Turbidity | **2.55** | NTU | | | 1 | | 10/02/24 11:50 | | |
| Static Water Level | **787.14** | feet | | | 1 | | 10/02/24 11:50 | | |
| Temperature, Water (C) | **12.4** | deg C | | | 1 | | 10/02/24 11:50 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **318** | mg/L | 20.0 | 8.7 | 1 | | 10/08/24 18:01 | | |
| **9040 pH** | Analytical Method: EPA 9040<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **8.4** | Std. Units | 0.10 | 0.010 | 1 | | 10/16/24 17:26 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **3.3** | mg/L | 2.0 | 0.59 | 1 | | 10/18/24 00:39 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 10/18/24 00:39 | 16984-48-8 | |
| Sulfate | **1.8J** | mg/L | 2.0 | 0.44 | 1 | | 10/18/24 00:39 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-84A** **Lab ID: 40285191002** Collected: 10/02/24 11:50 Received: 10/04/24 08:35 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **310.2 Alkalinity** | Analytical Method: EPA 310.2<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Alkalinity, Total as CaCO3 | **350** | mg/L | 25.0 | 7.4 | 1 | | 10/08/24 09:34 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-84A DUP** **Lab ID: 40285191003** Collected: 10/02/24 11:55 Received: 10/04/24 08:35 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-38-2 | |
| Barium | **13.7** | ug/L | 2.3 | 0.70 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-41-7 | |
| Boron | **10.4** | ug/L | 10.0 | 3.0 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-43-9 | |
| Calcium | **72500** | ug/L | 254 | 76.2 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-70-2 | |
| Chromium | **1.8J** | ug/L | 3.4 | 1.0 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7439-92-1 | |
| Lithium | **0.48J** | ug/L | 1.0 | 0.22 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | 7440-28-0 | |
| Total Hardness by 2340B | **339** | mg/L | 1.7 | 0.32 | 1 | 10/06/24 09:18 | 10/08/24 18:10 | | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/08/24 06:34 | 10/10/24 09:02 | 7439-97-6 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 486508 | Analysis Method: EPA 7470
QC Batch Method: EPA 7470 | Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40285191001, 40285191002, 40285191003

METHOD BLANK: 2786308 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002, 40285191003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | <0.066 | 0.20 | 10/10/24 08:28 | |

LABORATORY CONTROL SAMPLE: 2786309

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | ug/L | 5 | 5.0 | 101 | 85-115 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2786310 2786311

| Parameter | Units | 40285189001 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 | 5.0 | 4.9 | 101 | 98 | 85-115 | 3 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 486340
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40285191001, 40285191002, 40285191003

METHOD BLANK: 2785746 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002, 40285191003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | ug/L | <0.15 | 1.0 | 10/08/24 17:03 | |
| Arsenic | ug/L | <0.28 | 1.0 | 10/08/24 17:03 | |
| Barium | ug/L | <0.70 | 2.3 | 10/08/24 17:03 | |
| Beryllium | ug/L | <0.25 | 1.0 | 10/08/24 17:03 | |
| Boron | ug/L | <3.0 | 10.0 | 10/08/24 17:03 | |
| Cadmium | ug/L | <0.15 | 1.0 | 10/08/24 17:03 | |
| Calcium | ug/L | <76.2 | 254 | 10/08/24 17:03 | |
| Chromium | ug/L | <1.0 | 3.4 | 10/08/24 17:03 | |
| Cobalt | ug/L | <0.12 | 1.0 | 10/08/24 17:03 | |
| Lead | ug/L | <0.24 | 1.0 | 10/08/24 17:03 | |
| Lithium | ug/L | <0.22 | 1.0 | 10/08/24 17:03 | |
| Molybdenum | ug/L | <0.44 | 1.5 | 10/08/24 17:03 | |
| Selenium | ug/L | <0.32 | 1.1 | 10/08/24 17:03 | |
| Thallium | ug/L | <0.14 | 1.0 | 10/08/24 17:03 | |
| Total Hardness by 2340B | mg/L | <0.32 | 1.7 | 10/08/24 17:03 | |

LABORATORY CONTROL SAMPLE: 2785747

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | ug/L | 250 | 249 | 100 | 80-120 | |
| Arsenic | ug/L | 250 | 251 | 100 | 80-120 | |
| Barium | ug/L | 250 | 248 | 99 | 80-120 | |
| Beryllium | ug/L | 250 | 247 | 99 | 80-120 | |
| Boron | ug/L | 250 | 217 | 87 | 80-120 | |
| Cadmium | ug/L | 250 | 251 | 100 | 80-120 | |
| Calcium | ug/L | 10000 | 9820 | 98 | 80-120 | |
| Chromium | ug/L | 250 | 238 | 95 | 80-120 | |
| Cobalt | ug/L | 250 | 246 | 99 | 80-120 | |
| Lead | ug/L | 250 | 251 | 101 | 80-120 | |
| Lithium | ug/L | 250 | 245 | 98 | 80-120 | |
| Molybdenum | ug/L | 250 | 245 | 98 | 80-120 | |
| Selenium | ug/L | 250 | 251 | 100 | 80-120 | |
| Thallium | ug/L | 250 | 250 | 100 | 80-120 | |
| Total Hardness by 2340B | mg/L | | 65.9 | | | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2785748 2785749

| Parameter | Units | 40285191001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | <0.15 | 250 | 250 | 254 | 255 | 102 | 102 | 75-125 | 0 | 20 | |
| Arsenic | ug/L | <0.28 | 250 | 250 | 256 | 257 | 102 | 103 | 75-125 | 0 | 20 | |
| Barium | ug/L | 10.6 | 250 | 250 | 265 | 265 | 102 | 102 | 75-125 | 0 | 20 | |
| Beryllium | ug/L | <0.25 | 250 | 250 | 254 | 253 | 102 | 101 | 75-125 | 1 | 20 | |
| Boron | ug/L | 22.1 | 250 | 250 | 246 | 241 | 89 | 88 | 75-125 | 2 | 20 | |
| Cadmium | ug/L | <0.15 | 250 | 250 | 255 | 255 | 102 | 102 | 75-125 | 0 | 20 | |
| Calcium | ug/L | 97000 | 10000 | 10000 | 115000 | 113000 | 182 | 162 | 75-125 | 2 | 20 | P6 |
| Chromium | ug/L | <1.0 | 250 | 250 | 241 | 242 | 96 | 97 | 75-125 | 0 | 20 | |
| Cobalt | ug/L | <0.12 | 250 | 250 | 248 | 247 | 99 | 99 | 75-125 | 0 | 20 | |
| Lead | ug/L | <0.24 | 250 | 250 | 252 | 251 | 101 | 100 | 75-125 | 1 | 20 | |
| Lithium | ug/L | 0.80J | 250 | 250 | 253 | 252 | 101 | 100 | 75-125 | 0 | 20 | |
| Molybdenum | ug/L | <0.44 | 250 | 250 | 257 | 255 | 103 | 102 | 75-125 | 1 | 20 | |
| Selenium | ug/L | 0.39J | 250 | 250 | 253 | 253 | 101 | 101 | 75-125 | 0 | 20 | |
| Thallium | ug/L | 0.15J | 250 | 250 | 245 | 245 | 98 | 98 | 75-125 | 0 | 20 | |
| Total Hardness by 2340B | mg/L | 434 | | | 534 | 522 | | | | 2 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 486616
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40285191001, 40285191002

METHOD BLANK: 2786836 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <8.7 | 20.0 | 10/08/24 17:59 | |

LABORATORY CONTROL SAMPLE: 2786837

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 582 | 506 | 87 | 80-120 | |

SAMPLE DUPLICATE: 2786842

| Parameter | Units | 40285126001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 498 | 472 | 5 | 10 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 487364
QC Batch Method: EPA 9040
Analysis Method: EPA 9040
Analysis Description: 9040 pH
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40285191001, 40285191002

SAMPLE DUPLICATE: 2790786

| Parameter | Units | 40285189001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 8.5 | 8.5 | 0 | 20 | H6 |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 487482
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40285191001, 40285191002

METHOD BLANK: 2791543 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chloride | mg/L | <0.59 | 2.0 | 10/17/24 19:11 | |
| Fluoride | mg/L | <0.095 | 0.32 | 10/17/24 19:11 | |
| Sulfate | mg/L | <0.44 | 2.0 | 10/17/24 19:11 | |

LABORATORY CONTROL SAMPLE: 2791544

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 20 | 20.7 | 103 | 90-110 | |
| Fluoride | mg/L | 2 | 2.0 | 99 | 90-110 | |
| Sulfate | mg/L | 20 | 20.5 | 102 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2791545 2791546

| Parameter | Units | 40285153002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 280 | 400 | 400 | 723 | 724 | 111 | 111 | 90-110 | 0 | 15 | M0 |
| Fluoride | mg/L | <1.9 | 40 | 40 | 42.3 | 42.7 | 101 | 102 | 90-110 | 1 | 15 | |
| Sulfate | mg/L | 213 | 400 | 400 | 645 | 647 | 108 | 109 | 90-110 | 0 | 15 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2791547 2791548

| Parameter | Units | 40285193002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 52.7 | 400 | 400 | 487 | 476 | 109 | 106 | 90-110 | 2 | 15 | |
| Fluoride | mg/L | <0.095 | 2 | 2 | 1.7 | 1.7 | 86 | 87 | 90-110 | 1 | 15 | M0 |
| Sulfate | mg/L | 224 | 400 | 400 | 676 | 662 | 113 | 109 | 90-110 | 2 | 15 | M0 |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 486447
QC Batch Method: EPA 310.2
Analysis Method: EPA 310.2
Analysis Description: 310.2 Alkalinity
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40285191001, 40285191002

METHOD BLANK: 2786090 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | <7.4 | 25.0 | 10/08/24 09:12 | |

LABORATORY CONTROL SAMPLE: 2786091

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 100 | 101 | 101 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2786092 2786093

| Parameter | Units | 40285195001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 367 | 100 | 100 | 467 | 472 | 100 | 105 | 90-110 | 1 | 20 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2786094 2786095

| Parameter | Units | 40285280009 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity, Total as CaCO3 | mg/L | 466 | 200 | 200 | 648 | 643 | 91 | 88 | 90-110 | 1 | 20 | M0 |

**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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-301** **Lab ID: 40285191001** Collected: 10/02/24 12:40 Received: 10/04/24 08:35 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 | **0.102 ± 0.661 (1.00) C:NA T:93%** | pCi/L | 10/21/24 14:11 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.731 ± 0.340 (1.00) C:81% T:91%** | pCi/L | 10/22/24 12:01 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.833 ± 1.00 (2.00)** | pCi/L | 10/28/24 16:04 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

**Sample: MW-84A** **Lab ID: 40285191002** Collected: 10/02/24 11:50 Received: 10/04/24 08:35 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 ± 0.507 (1.00) C:NA T:89%** | pCi/L | 10/21/24 14:23 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.668 ± 0.345 (1.00) C:86% T:87%** | pCi/L | 10/22/24 12:01 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.668 ± 0.852 (2.00)** | pCi/L | 10/28/24 16:04 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 701602
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40285191001, 40285191002

METHOD BLANK: 3417130 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.243 ± 0.253 (0.376) C:NA T:91% | pCi/L | 10/21/24 13:59 | |

**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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

QC Batch: 701603
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40285191001, 40285191002

METHOD BLANK: 3417131 Matrix: Water
Associated Lab Samples: 40285191001, 40285191002

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | 0.553 ± 0.364 (0.691) C:85% T:85% | pCi/L | 10/22/24 11:58 | |

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

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALIFIERS

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

## 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 - The reported result is an estimated value.
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 - Analyte was not detected and is reported as less than the LOD or as defined by the customer.
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. |

**Pace Analytical Services, LLC**
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Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25223067 COLUMBIA CCR BACKGROU
Pace Project No.: 40285191

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **40285191001** | **MW-301** | EPA 3010A | 486340 | EPA 6020B | 486463 |
| **40285191002** | **MW-84A** | EPA 3010A | 486340 | EPA 6020B | 486463 |
| **40285191003** | **MW-84A DUP** | EPA 3010A | 486340 | EPA 6020B | 486463 |
| **40285191001** | **MW-301** | EPA 7470 | 486508 | EPA 7470 | 486537 |
| **40285191002** | **MW-84A** | EPA 7470 | 486508 | EPA 7470 | 486537 |
| **40285191003** | **MW-84A DUP** | EPA 7470 | 486508 | EPA 7470 | 486537 |
| **40285191001** | **MW-301** | | | | |
| **40285191002** | **MW-84A** | | | | |
| **40285191001** | **MW-301** | EPA 903.1 | 701602 | | |
| **40285191002** | **MW-84A** | EPA 903.1 | 701602 | | |
| **40285191001** | **MW-301** | EPA 904.0 | 701603 | | |
| **40285191002** | **MW-84A** | EPA 904.0 | 701603 | | |
| **40285191001** | **MW-301** | Total Radium Calculation | 705774 | | |
| **40285191002** | **MW-84A** | Total Radium Calculation | 705774 | | |
| **40285191001** | **MW-301** | SM 2540C | 486616 | | |
| **40285191002** | **MW-84A** | SM 2540C | 486616 | | |
| **40285191001** | **MW-301** | EPA 9040 | 487364 | | |
| **40285191002** | **MW-84A** | EPA 9040 | 487364 | | |
| **40285191001** | **MW-301** | EPA 300.0 | 487482 | | |
| **40285191002** | **MW-84A** | EPA 300.0 | 487482 | | |
| **40285191001** | **MW-301** | EPA 310.2 | 486447 | | |
| **40285191002** | **MW-84A** | EPA 310.2 | 486447 | | |

40295191

# 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/hubfs/pas-standard-terms.pdf.



| Section A Required Client Information: | Section B Required Project Information: | Section C Invoice Information: |
|---|---|---|
| Company: SCS ENGINEERS | Report To: Meghan Blodgett | Attention: |
| Address: 2830 Dairy Drive | Copy To: | Company Name: |
| Madison, WI 53718 | | Address: |
| Email: mblodgett@scsengineers.com | Purchase Order #: | Pace Quote: |
| Phone: 608-216-7362 Fax: | Project Name: 25223067 Columbia CCR Background | Pace Project Manager: dan.milewsky@pacelabs.com, |
| Requested Due Date: | Project #: 25223067 | Pace Profile #: |

| Regulatory Agency | |
|---|---|
| State / Location | WI |

| ITEM # | SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique) | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED START DATE | COLLECTED START TIME | COLLECTED END DATE | COLLECTED END TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | H2SO4 | HNO3 | HCl | NaOH | Na2S2O3 | Methanol | Other | Requested Analysis Filtered (Y/N) | Analyses Test | Residual Chlorine (Y/N) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MATRIX CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS | | | | | | | | | | | | | | | | | Y/N | | | |
| | | | | | | | | | | | | | | | | | | | Metals | | |
| | | | | | | | | | | | | | | | | | | | TDS and pH | | |
| | | | | | | | | | | | | | | | | | | | Chloride,Fluoride,Sulfate | | |
| | | | | | | | | | | | | | | | | | | | Hardness | | |
| | | | | | | | | | | | | | | | | | | | Alkalinity | | |
| 1 | MW-301 | WT | | 10/2 | 1240 | | | | | | | | | | | | | N | X X X X X | | 001 |
| 2 | MW-84A | WT | | 10/2 | 1150 | | | | | | | | | | | | | N | X X X X X | | 002 |
| 3 | Field Dup #1 (MW-84A) | | | 10/2 | 1155 | | | | | | | | | | | | | N | X X X | | 003 |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| Full List Metals = B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li Hg, Mo, Se, Tl ALL SAMPLES UNFILTERED | | 10/3/24 | 1500 | | | | | | | |
| | CS Logistics | 10/4/24 | 0835 | [illegible] | 10/4/24 | 0835 | 0.5 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |

| SAMPLER NAME AND SIGNATURE | | |
|---|---|---|
| PRINT Name of SAMPLER: | Ethan Schaefer | |
| SIGNATURE of SAMPLER: | | 10/3/24 |

Samples spread across multiple coolers

# Sample Preservation Receipt Form

Client Name: SCS  Project # 40285191

All containers needing preservation have been checked and noted below: ☑Yes ☐No ☐N/A  Initial when completed: GF  Date/ Time:

Lab Lot# of pH paper: 10D3733  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 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | X | | 2.5 / 5 |
| 002 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 2 | | | | | X | | 2.5 / 5 |
| 003 | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | X | | 2.5 / 5 |
| 004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 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 |

10/4/22 GF

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 #:

WO# : 40285191

40285191

**Client Name:** SCS

**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 - 141 **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: 10/4/24 /Initials: GF

**Labeled By Initials:** mh

| | | |
|---|---|---|
| Chain of Custody Present: | ☑Yes ☐No ☐N/A | 1. |
| Chain of Custody Filled Out: | ☐Yes ☑No ☐N/A | 2. preserve 10/4/24 GF |
| Chain of Custody Relinquished: | ☑Yes ☐No ☐N/A | 3. |
| Sampler Name & Signature on COC: | ☑Yes ☐No ☐N/A | 4. |
| Samples Arrived within Hold Time: | ☑Yes ☐No | 5. |
| - DI VOA Samples frozen upon receipt | ☐Yes ☐No | Date/Time: |
| **Short Hold Time Analysis (<72hr):** | ☐Yes ☑No | 6. |
| **Rush Turn Around Time Requested:** | ☐Yes ☑No | 7. |
| Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A | | 8. |
| Correct Containers Used: | ☑Yes ☐No | 9. |
| Correct Type: Pace Green Bay, Pace IR, Non-Pace | | |
| Containers Intact: | ☑Yes ☐No | 10. |
| Filtered volume received for Dissolved tests | ☐Yes ☐No ☑N/A | 11. |
| Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W | ☑Yes ☐No ☐N/A | 12. |
| Trip Blank Present: | ☐Yes ☐No ☑N/A | 13. |
| Trip Blank Custody Seals Present | ☐Yes ☐No ☑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**

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

November 11, 2024

Meghan Blodgett
SCS ENGINEERS
2830 Dairy Drive
Madison, WI 53718

RE: Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on October 19, 2024. 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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## CERTIFICATIONS

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**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

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE SUMMARY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **40286090001** | **MW-306** | Water | 10/18/24 13:05 | 10/19/24 08:50 |
| **40286090002** | **MW-307** | Water | 10/18/24 11:45 | 10/19/24 08:50 |
| **40286090003** | **MW-308** | Water | 10/18/24 14:00 | 10/19/24 08:50 |
| **40286090004** | **FIELD BLANK-SCPOND** | Water | 10/18/24 12:00 | 10/19/24 08:50 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SAMPLE ANALYTE COUNT

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **40286090001** | **MW-306** | EPA 6020B | KXS | 14 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | CLM | 1 | PASI-PA |
| | | EPA 904.0 | VAL | 1 | PASI-PA |
| | | Total Radium Calculation | JAL | 1 | PASI-PA |
| | | SM 2540C | LMB | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40286090002** | **MW-307** | EPA 6020B | KXS | 14 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | CLM | 1 | PASI-PA |
| | | EPA 904.0 | VAL | 1 | PASI-PA |
| | | Total Radium Calculation | JAL | 1 | PASI-PA |
| | | SM 2540C | LMB | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40286090003** | **MW-308** | EPA 6020B | KXS | 14 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |
| | | | LB | 7 | PASI-G |
| | | EPA 903.1 | CLM | 1 | PASI-PA |
| | | EPA 904.0 | VAL | 1 | PASI-PA |
| | | Total Radium Calculation | JAL | 1 | PASI-PA |
| | | SM 2540C | LMB | 1 | PASI-G |
| | | SM 4500-H+B | HML | 1 | PASI-G |
| | | EPA 300.0 | HMB | 3 | PASI-G |
| **40286090004** | **FIELD BLANK-SCPOND** | EPA 6020B | KXS | 14 | PASI-G |
| | | EPA 7470 | AJT | 1 | PASI-G |
| | | EPA 903.1 | CLM | 1 | PASI-PA |
| | | EPA 904.0 | VAL | 1 | PASI-PA |
| | | Total Radium Calculation | JAL | 1 | PASI-PA |
| | | SM 2540C | LMB | 1 | PASI-G |
| | | SM 4500-H+B | HML | 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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40286090001** | **MW-306** | | | | | |
| EPA 6020B | Barium | 20.5 | ug/L | 2.3 | 10/24/24 21:07 | |
| EPA 6020B | Boron | 114 | ug/L | 10.0 | 10/24/24 21:07 | |
| EPA 6020B | Calcium | 161000 | ug/L | 5080 | 10/24/24 20:50 | P6 |
| EPA 6020B | Chromium | 2.1J | ug/L | 3.4 | 10/24/24 21:07 | |
| EPA 6020B | Lithium | 4.2 | ug/L | 1.0 | 10/24/24 21:07 | |
| EPA 6020B | Molybdenum | 4.0 | ug/L | 1.5 | 10/24/24 21:07 | |
| EPA 6020B | Selenium | 0.72J | ug/L | 1.1 | 10/24/24 21:07 | |
| EPA 6020B | Thallium | 0.18J | ug/L | 1.0 | 10/24/24 21:07 | |
| | Field pH | 7.13 | Std. Units | | 10/18/24 13:05 | |
| | Field Specific Conductance | 1055 | umhos/cm | | 10/18/24 13:05 | |
| | Oxygen, Dissolved | 4.70 | mg/L | | 10/18/24 13:05 | |
| | REDOX | 49.9 | mV | | 10/18/24 13:05 | |
| | Turbidity | 0.58 | NTU | | 10/18/24 13:05 | |
| | Static Water Level | 785.50 | feet | | 10/18/24 13:05 | |
| | Temperature, Water (C) | 14.2 | deg C | | 10/18/24 13:05 | |
| EPA 903.1 | Radium-226 | 0.518 ± 0.650 (1.00) C:NA T:90% | pCi/L | | 11/08/24 14:08 | |
| EPA 904.0 | Radium-228 | 0.393 ± 0.454 (1.00) C:81% T:83% | pCi/L | | 11/06/24 14:55 | |
| Total Radium Calculation | Total Radium | 0.911 ± 1.10 (2.00) | pCi/L | | 11/11/24 14:35 | |
| SM 2540C | Total Dissolved Solids | 742 | mg/L | 20.0 | 10/24/24 10:59 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.9 | Std. Units | 0.10 | 10/28/24 19:47 | H6 |
| EPA 300.0 | Chloride | 32.9 | mg/L | 2.0 | 11/02/24 13:57 | |
| EPA 300.0 | Sulfate | 173 | mg/L | 20.0 | 11/04/24 09:50 | |
| **40286090002** | **MW-307** | | | | | |
| EPA 6020B | Arsenic | 2.6 | ug/L | 1.0 | 10/24/24 21:40 | |
| EPA 6020B | Barium | 27.1 | ug/L | 2.3 | 10/24/24 21:40 | |
| EPA 6020B | Boron | 256 | ug/L | 10.0 | 10/24/24 21:40 | |
| EPA 6020B | Calcium | 117000 | ug/L | 254 | 10/24/24 21:40 | |
| EPA 6020B | Cobalt | 18.1 | ug/L | 1.0 | 10/24/24 21:40 | |
| EPA 6020B | Molybdenum | 0.46J | ug/L | 1.5 | 10/24/24 21:40 | |
| EPA 6020B | Thallium | 0.18J | ug/L | 1.0 | 10/24/24 21:40 | |
| | Field pH | 6.66 | Std. Units | | 10/18/24 11:45 | |
| | Field Specific Conductance | 898 | umhos/cm | | 10/18/24 11:45 | |
| | Oxygen, Dissolved | 1.45 | mg/L | | 10/18/24 11:45 | |
| | REDOX | -155.2 | mV | | 10/18/24 11:45 | |
| | Turbidity | 1.66 | NTU | | 10/18/24 11:45 | |
| | Static Water Level | 785.08 | feet | | 10/18/24 11:45 | |
| | Temperature, Water (C) | 14.9 | deg C | | 10/18/24 11:45 | |
| EPA 903.1 | Radium-226 | -0.0549 ± 0.579 (1.00) C:NA T:86% | pCi/L | | 11/08/24 14:08 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## SUMMARY OF DETECTION

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40286090002** | **MW-307** | | | | | |
| EPA 904.0 | Radium-228 | 0.702 ± 0.501 (1.00) C:81% T:86% | pCi/L | | 11/06/24 14:55 | |
| Total Radium Calculation | Total Radium | 0.702 ± 1.08 (2.00) | pCi/L | | 11/11/24 14:35 | |
| SM 2540C | Total Dissolved Solids | 604 | mg/L | 20.0 | 10/24/24 10:59 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.2 | Std. Units | 0.10 | 10/28/24 19:48 | H6 |
| EPA 300.0 | Chloride | 35.3 | mg/L | 10.0 | 11/02/24 14:41 | |
| EPA 300.0 | Sulfate | 141 | mg/L | 10.0 | 11/02/24 14:41 | |
| **40286090003** | **MW-308** | | | | | |
| EPA 6020B | Arsenic | 4.4 | ug/L | 1.0 | 10/24/24 21:49 | |
| EPA 6020B | Barium | 55.1 | ug/L | 2.3 | 10/24/24 21:49 | |
| EPA 6020B | Boron | 556 | ug/L | 10.0 | 10/24/24 21:49 | |
| EPA 6020B | Calcium | 124000 | ug/L | 254 | 10/24/24 21:49 | |
| EPA 6020B | Cobalt | 0.19J | ug/L | 1.0 | 10/24/24 21:49 | |
| EPA 6020B | Molybdenum | 0.94J | ug/L | 1.5 | 10/24/24 21:49 | |
| | Field pH | 7.29 | Std. Units | | 10/18/24 14:00 | |
| | Field Specific Conductance | 854 | umhos/cm | | 10/18/24 14:00 | |
| | Oxygen, Dissolved | 0.07 | mg/L | | 10/18/24 14:00 | |
| | REDOX | -172.1 | mV | | 10/18/24 14:00 | |
| | Turbidity | 1.81 | NTU | | 10/18/24 14:00 | |
| | Static Water Level | 786.34 | feet | | 10/18/24 14:00 | |
| | Temperature, Water (C) | 15.7 | deg C | | 10/18/24 14:00 | |
| EPA 903.1 | Radium-226 | 0.160 ± 0.406 (1.00) C:NA T:96% | pCi/L | | 11/08/24 14:20 | |
| EPA 904.0 | Radium-228 | 0.459 ± 0.379 (1.00) C:83% T:90% | pCi/L | | 11/06/24 14:51 | |
| Total Radium Calculation | Total Radium | 0.619 ± 0.785 (2.00) | pCi/L | | 11/11/24 14:35 | |
| SM 2540C | Total Dissolved Solids | 496 | mg/L | 20.0 | 10/24/24 11:00 | |
| SM 4500-H+B | pH at 25 Degrees C | 7.8 | Std. Units | 0.10 | 10/28/24 19:50 | H6 |
| EPA 300.0 | Chloride | 8.5J | mg/L | 10.0 | 11/02/24 14:52 | D3 |
| EPA 300.0 | Sulfate | 3.1J | mg/L | 10.0 | 11/02/24 14:52 | D3 |
| **40286090004** | **FIELD BLANK-SCPOND** | | | | | |
| EPA 6020B | Boron | 9.1J | ug/L | 10.0 | 10/24/24 21:53 | |
| EPA 6020B | Calcium | 133J | ug/L | 254 | 10/24/24 21:53 | |
| EPA 903.1 | Radium-226 | 0.742 ± 0.717 (1.00) C:NA T:92% | pCi/L | | 11/08/24 14:20 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## SUMMARY OF DETECTION

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **40286090004** | **FIELD BLANK-SCPOND** | | | | | |
| EPA 904.0 | Radium-228 | 0.754 ± 0.428 (1.00) C:85% T:89% | pCi/L | | 11/06/24 14:51 | |
| Total Radium Calculation | Total Radium | 1.50 ± 1.15 (2.00) | pCi/L | | 11/11/24 14:35 | |
| SM 4500-H+B | pH at 25 Degrees C | 6.7 | Std. Units | 0.10 | 10/28/24 19:58 | H6 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# ANALYTICAL RESULTS

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: MW-306** **Lab ID: 40286090001** Collected: 10/18/24 13:05 Received: 10/19/24 08:50 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-38-2 | |
| Barium | **20.5** | ug/L | 2.3 | 0.70 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-41-7 | |
| Boron | **114** | ug/L | 10.0 | 3.0 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-43-9 | |
| Calcium | **161000** | ug/L | 5080 | 1520 | 20 | 10/22/24 10:02 | 10/24/24 20:50 | 7440-70-2 | P6 |
| Chromium | **2.1J** | ug/L | 3.4 | 1.0 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7439-92-1 | |
| Lithium | **4.2** | ug/L | 1.0 | 0.22 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7439-93-2 | |
| Molybdenum | **4.0** | ug/L | 1.5 | 0.44 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7439-98-7 | |
| Selenium | **0.72J** | ug/L | 1.1 | 0.32 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7782-49-2 | |
| Thallium | **0.18J** | ug/L | 1.0 | 0.14 | 1 | 10/22/24 10:02 | 10/24/24 21:07 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/23/24 13:00 | 10/25/24 05:02 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **7.13** | Std. Units | | | 1 | | 10/18/24 13:05 | | |
| Field Specific Conductance | **1055** | umhos/cm | | | 1 | | 10/18/24 13:05 | | |
| Oxygen, Dissolved | **4.70** | mg/L | | | 1 | | 10/18/24 13:05 | 7782-44-7 | |
| REDOX | **49.9** | mV | | | 1 | | 10/18/24 13:05 | | |
| Turbidity | **0.58** | NTU | | | 1 | | 10/18/24 13:05 | | |
| Static Water Level | **785.50** | feet | | | 1 | | 10/18/24 13:05 | | |
| Temperature, Water (C) | **14.2** | deg C | | | 1 | | 10/18/24 13:05 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **742** | mg/L | 20.0 | 8.7 | 1 | | 10/24/24 10:59 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **7.9** | Std. Units | 0.10 | 0.010 | 1 | | 10/28/24 19:47 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **32.9** | mg/L | 2.0 | 0.59 | 1 | | 11/02/24 13:57 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 11/02/24 13:57 | 16984-48-8 | |
| Sulfate | **173** | mg/L | 20.0 | 4.4 | 10 | | 11/04/24 09:50 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# ANALYTICAL RESULTS

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: MW-307** **Lab ID: 40286090002** Collected: 10/18/24 11:45 Received: 10/19/24 08:50 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-36-0 | |
| Arsenic | **2.6** | ug/L | 1.0 | 0.28 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-38-2 | |
| Barium | **27.1** | ug/L | 2.3 | 0.70 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-41-7 | |
| Boron | **256** | ug/L | 10.0 | 3.0 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-43-9 | |
| Calcium | **117000** | ug/L | 254 | 76.2 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-70-2 | |
| Chromium | **<1.0** | ug/L | 3.4 | 1.0 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-47-3 | |
| Cobalt | **18.1** | ug/L | 1.0 | 0.12 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7439-92-1 | |
| Lithium | **<0.22** | ug/L | 1.0 | 0.22 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7439-93-2 | |
| Molybdenum | **0.46J** | ug/L | 1.5 | 0.44 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7782-49-2 | |
| Thallium | **0.18J** | ug/L | 1.0 | 0.14 | 1 | 10/22/24 10:02 | 10/24/24 21:40 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/23/24 13:00 | 10/25/24 04:55 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **6.66** | Std. Units | | | 1 | | 10/18/24 11:45 | | |
| Field Specific Conductance | **898** | umhos/cm | | | 1 | | 10/18/24 11:45 | | |
| Oxygen, Dissolved | **1.45** | mg/L | | | 1 | | 10/18/24 11:45 | 7782-44-7 | |
| REDOX | **-155.2** | mV | | | 1 | | 10/18/24 11:45 | | |
| Turbidity | **1.66** | NTU | | | 1 | | 10/18/24 11:45 | | |
| Static Water Level | **785.08** | feet | | | 1 | | 10/18/24 11:45 | | |
| Temperature, Water (C) | **14.9** | deg C | | | 1 | | 10/18/24 11:45 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **604** | mg/L | 20.0 | 8.7 | 1 | | 10/24/24 10:59 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **7.2** | Std. Units | 0.10 | 0.010 | 1 | | 10/28/24 19:48 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **35.3** | mg/L | 10.0 | 3.0 | 5 | | 11/02/24 14:41 | 16887-00-6 | |
| Fluoride | **<0.48** | mg/L | 1.6 | 0.48 | 5 | | 11/02/24 14:41 | 16984-48-8 | D3 |
| Sulfate | **141** | mg/L | 10.0 | 2.2 | 5 | | 11/02/24 14:41 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: MW-308** **Lab ID: 40286090003** Collected: 10/18/24 14:00 Received: 10/19/24 08:50 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-36-0 | |
| Arsenic | **4.4** | ug/L | 1.0 | 0.28 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-38-2 | |
| Barium | **55.1** | ug/L | 2.3 | 0.70 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-41-7 | |
| Boron | **556** | ug/L | 10.0 | 3.0 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-43-9 | |
| Calcium | **124000** | ug/L | 254 | 76.2 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-70-2 | |
| Chromium | **<1.0** | ug/L | 3.4 | 1.0 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-47-3 | |
| Cobalt | **0.19J** | ug/L | 1.0 | 0.12 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7439-92-1 | |
| Lithium | **<0.22** | ug/L | 1.0 | 0.22 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7439-93-2 | |
| Molybdenum | **0.94J** | ug/L | 1.5 | 0.44 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 10/22/24 10:02 | 10/24/24 21:49 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/23/24 13:00 | 10/25/24 05:05 | 7439-97-6 | |
| **Field Data** | Analytical Method:<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Field pH | **7.29** | Std. Units | | | 1 | | 10/18/24 14:00 | | |
| Field Specific Conductance | **854** | umhos/cm | | | 1 | | 10/18/24 14:00 | | |
| Oxygen, Dissolved | **0.07** | mg/L | | | 1 | | 10/18/24 14:00 | 7782-44-7 | |
| REDOX | **-172.1** | mV | | | 1 | | 10/18/24 14:00 | | |
| Turbidity | **1.81** | NTU | | | 1 | | 10/18/24 14:00 | | |
| Static Water Level | **786.34** | feet | | | 1 | | 10/18/24 14:00 | | |
| Temperature, Water (C) | **15.7** | deg C | | | 1 | | 10/18/24 14:00 | | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **496** | mg/L | 20.0 | 8.7 | 1 | | 10/24/24 11:00 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **7.8** | Std. Units | 0.10 | 0.010 | 1 | | 10/28/24 19:50 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **8.5J** | mg/L | 10.0 | 3.0 | 5 | | 11/02/24 14:52 | 16887-00-6 | D3 |
| Fluoride | **<0.48** | mg/L | 1.6 | 0.48 | 5 | | 11/02/24 14:52 | 16984-48-8 | D3 |
| Sulfate | **3.1J** | mg/L | 10.0 | 2.2 | 5 | | 11/02/24 14:52 | 14808-79-8 | D3 |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: FIELD BLANK-SCPOND** **Lab ID: 40286090004** Collected: 10/18/24 12:00 Received: 10/19/24 08:50 Matrix: Water

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **6020B MET ICPMS** | Analytical Method: EPA 6020B Preparation Method: EPA 3010A<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Antimony | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-36-0 | |
| Arsenic | **<0.28** | ug/L | 1.0 | 0.28 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-38-2 | |
| Barium | **<0.70** | ug/L | 2.3 | 0.70 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-39-3 | |
| Beryllium | **<0.25** | ug/L | 1.0 | 0.25 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-41-7 | |
| Boron | **9.1J** | ug/L | 10.0 | 3.0 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-42-8 | |
| Cadmium | **<0.15** | ug/L | 1.0 | 0.15 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-43-9 | |
| Calcium | **133J** | ug/L | 254 | 76.2 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-70-2 | |
| Chromium | **<1.0** | ug/L | 3.4 | 1.0 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-47-3 | |
| Cobalt | **<0.12** | ug/L | 1.0 | 0.12 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-48-4 | |
| Lead | **<0.24** | ug/L | 1.0 | 0.24 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7439-92-1 | |
| Lithium | **<0.22** | ug/L | 1.0 | 0.22 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7439-93-2 | |
| Molybdenum | **<0.44** | ug/L | 1.5 | 0.44 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7439-98-7 | |
| Selenium | **<0.32** | ug/L | 1.1 | 0.32 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7782-49-2 | |
| Thallium | **<0.14** | ug/L | 1.0 | 0.14 | 1 | 10/22/24 10:02 | 10/24/24 21:53 | 7440-28-0 | |
| **7470 Mercury** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Mercury | **<0.066** | ug/L | 0.20 | 0.066 | 1 | 10/23/24 13:00 | 10/25/24 05:07 | 7439-97-6 | |
| **2540C Total Dissolved Solids** | Analytical Method: SM 2540C<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Total Dissolved Solids | **<8.7** | mg/L | 20.0 | 8.7 | 1 | | 10/24/24 11:00 | | |
| **4500H+ pH, Electrometric** | Analytical Method: SM 4500-H+B<br>Pace Analytical Services - Green Bay | | | | | | | | |
| pH at 25 Degrees C | **6.7** | Std. Units | 0.10 | 0.010 | 1 | | 10/28/24 19:58 | | H6 |
| **300.0 IC Anions** | Analytical Method: EPA 300.0<br>Pace Analytical Services - Green Bay | | | | | | | | |
| Chloride | **<0.59** | mg/L | 2.0 | 0.59 | 1 | | 11/02/24 15:02 | 16887-00-6 | |
| Fluoride | **<0.095** | mg/L | 0.32 | 0.095 | 1 | | 11/02/24 15:02 | 16984-48-8 | |
| Sulfate | **<0.44** | mg/L | 2.0 | 0.44 | 1 | | 11/02/24 15:02 | 14808-79-8 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 488074 | Analysis Method: EPA 7470
QC Batch Method: EPA 7470 | Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

METHOD BLANK: 2795121 Matrix: Water
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | ug/L | <0.066 | 0.20 | 10/25/24 04:51 | |

LABORATORY CONTROL SAMPLE: 2795122

| 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: 2795123 2795124

| Parameter | Units | 40286090002 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 | 5.0 | 4.9 | 100 | 97 | 85-115 | 3 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 487906
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

METHOD BLANK: 2794324 Matrix: Water
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | ug/L | <0.15 | 1.0 | 10/24/24 20:42 | |
| Arsenic | ug/L | <0.28 | 1.0 | 10/24/24 20:42 | |
| Barium | ug/L | <0.70 | 2.3 | 10/24/24 20:42 | |
| Beryllium | ug/L | <0.25 | 1.0 | 10/24/24 20:42 | |
| Boron | ug/L | <3.0 | 10.0 | 10/24/24 20:42 | |
| Cadmium | ug/L | <0.15 | 1.0 | 10/24/24 20:42 | |
| Calcium | ug/L | <76.2 | 254 | 10/24/24 20:42 | |
| Chromium | ug/L | <1.0 | 3.4 | 10/24/24 20:42 | |
| Cobalt | ug/L | <0.12 | 1.0 | 10/24/24 20:42 | |
| Lead | ug/L | <0.24 | 1.0 | 10/24/24 20:42 | |
| Lithium | ug/L | <0.22 | 1.0 | 10/24/24 20:42 | |
| Molybdenum | ug/L | <0.44 | 1.5 | 10/24/24 20:42 | |
| Selenium | ug/L | <0.32 | 1.1 | 10/24/24 20:42 | |
| Thallium | ug/L | <0.14 | 1.0 | 10/24/24 20:42 | |

LABORATORY CONTROL SAMPLE: 2794325

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | ug/L | 250 | 241 | 96 | 80-120 | |
| Arsenic | ug/L | 250 | 249 | 100 | 80-120 | |
| Barium | ug/L | 250 | 244 | 98 | 80-120 | |
| Beryllium | ug/L | 250 | 241 | 96 | 80-120 | |
| Boron | ug/L | 250 | 218 | 87 | 80-120 | |
| Cadmium | ug/L | 250 | 249 | 100 | 80-120 | |
| Calcium | ug/L | 10000 | 9720 | 97 | 80-120 | |
| Chromium | ug/L | 250 | 244 | 98 | 80-120 | |
| Cobalt | ug/L | 250 | 247 | 99 | 80-120 | |
| Lead | ug/L | 250 | 244 | 98 | 80-120 | |
| Lithium | ug/L | 250 | 236 | 94 | 80-120 | |
| Molybdenum | ug/L | 250 | 242 | 97 | 80-120 | |
| Selenium | ug/L | 250 | 256 | 102 | 80-120 | |
| Thallium | ug/L | 250 | 241 | 97 | 80-120 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2794326 2794327

| Parameter | Units | 40286090001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | <0.15 | 250 | 250 | 252 | 250 | 101 | 100 | 75-125 | 1 | 20 | |
| Arsenic | ug/L | <0.28 | 250 | 250 | 260 | 258 | 104 | 103 | 75-125 | 1 | 20 | |
| Barium | ug/L | 20.5 | 250 | 250 | 270 | 273 | 100 | 101 | 75-125 | 1 | 20 | |
| Beryllium | ug/L | <0.25 | 250 | 250 | 252 | 252 | 101 | 101 | 75-125 | 0 | 20 | |
| Boron | ug/L | 114 | 250 | 250 | 335 | 336 | 88 | 89 | 75-125 | 0 | 20 | |
| Cadmium | ug/L | <0.15 | 250 | 250 | 253 | 254 | 101 | 102 | 75-125 | 0 | 20 | |
| Calcium | ug/L | 161000 | 10000 | 10000 | 173000 | 180000 | 125 | 188 | 75-125 | 4 | 20 | P6 |
| Chromium | ug/L | 2.1J | 250 | 250 | 251 | 252 | 99 | 100 | 75-125 | 1 | 20 | |
| Cobalt | ug/L | <0.12 | 250 | 250 | 246 | 248 | 98 | 99 | 75-125 | 1 | 20 | |
| Lead | ug/L | <0.24 | 250 | 250 | 249 | 250 | 100 | 100 | 75-125 | 0 | 20 | |
| Lithium | ug/L | 4.2 | 250 | 250 | 252 | 254 | 99 | 100 | 75-125 | 1 | 20 | |
| Molybdenum | ug/L | 4.0 | 250 | 250 | 256 | 254 | 101 | 100 | 75-125 | 1 | 20 | |
| Selenium | ug/L | 0.72J | 250 | 250 | 265 | 262 | 106 | 105 | 75-125 | 1 | 20 | |
| Thallium | ug/L | 0.18J | 250 | 250 | 250 | 249 | 100 | 100 | 75-125 | 0 | 20 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## QUALITY CONTROL DATA

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 488234
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

METHOD BLANK: 2795943 Matrix: Water
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | <8.7 | 20.0 | 10/24/24 10:57 | |

LABORATORY CONTROL SAMPLE: 2795944

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 582 | 578 | 99 | 80-120 | |

SAMPLE DUPLICATE: 2795945

| Parameter | Units | 40286145001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Total Dissolved Solids | mg/L | 392 | 406 | 4 | 10 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 488584
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

SAMPLE DUPLICATE: 2797844

| Parameter | Units | 40285755001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 8.2 | 8.2 | 0 | 5 | H6 |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
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(920)469-2436

# QUALITY CONTROL DATA

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 489060
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

METHOD BLANK: 2800492 Matrix: Water
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Chloride | mg/L | <0.59 | 2.0 | 11/02/24 09:51 | |
| Fluoride | mg/L | <0.095 | 0.32 | 11/02/24 09:51 | |
| Sulfate | mg/L | <0.44 | 2.0 | 11/02/24 09:51 | |

LABORATORY CONTROL SAMPLE: 2800493

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Chloride | mg/L | 20 | 19.6 | 98 | 90-110 | |
| Fluoride | mg/L | 2 | 1.9 | 95 | 90-110 | |
| Sulfate | mg/L | 20 | 19.8 | 99 | 90-110 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2800494 2800495

| Parameter | Units | 40285907001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 6860 | 10000 | 10000 | 23100 | 18600 | 163 | 118 | 90-110 | 22 | 15 | M0,R1 |
| Sulfate | mg/L | <222 | 10000 | 10000 | 15700 | 11500 | 157 | 115 | 90-110 | 31 | 15 | M0,R1 |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2800496 2800497

| Parameter | Units | 40286421015 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | mg/L | 17.4 | 20 | 20 | 39.6 | 39.9 | 111 | 112 | 90-110 | 1 | 15 | M0 |
| Fluoride | mg/L | 0.25J | 2 | 2 | 2.2 | 2.3 | 100 | 101 | 90-110 | 1 | 15 | |
| Sulfate | mg/L | 2.8 | 20 | 20 | 24.3 | 24.6 | 108 | 109 | 90-110 | 1 | 15 | |

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## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: MW-306** **Lab ID: 40286090001** Collected: 10/18/24 13:05 Received: 10/19/24 08:50 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 | **0.518 ± 0.650 (1.00) C:NA T:90%** | pCi/L | 11/08/24 14:08 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.393 ± 0.454 (1.00) C:81% T:83%** | pCi/L | 11/06/24 14:55 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.911 ± 1.10 (2.00)** | pCi/L | 11/11/24 14:35 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: MW-307** **Lab ID: 40286090002** Collected: 10/18/24 11:45 Received: 10/19/24 08:50 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 | **-0.0549 ± 0.579 (1.00) C:NA T:86%** | pCi/L | 11/08/24 14:08 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.702 ± 0.501 (1.00) C:81% T:86%** | pCi/L | 11/06/24 14:55 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.702 ± 1.08 (2.00)** | pCi/L | 11/11/24 14:35 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: MW-308** **Lab ID: 40286090003** Collected: 10/18/24 14:00 Received: 10/19/24 08:50 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 | **0.160 ± 0.406 (1.00) C:NA T:96%** | pCi/L | 11/08/24 14:20 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.459 ± 0.379 (1.00) C:83% T:90%** | pCi/L | 11/06/24 14:51 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **0.619 ± 0.785 (2.00)** | pCi/L | 11/11/24 14:35 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
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(920)469-2436

## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

**Sample: FIELD BLANK-SCPOND** **Lab ID: 40286090004** Collected: 10/18/24 12:00 Received: 10/19/24 08:50 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 | **0.742 ± 0.717 (1.00) C:NA T:92%** | pCi/L | 11/08/24 14:20 | 13982-63-3 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Radium-228 | EPA 904.0 | **0.754 ± 0.428 (1.00) C:85% T:89%** | pCi/L | 11/06/24 14:51 | 15262-20-1 | |
| | Pace Analytical Services - Greensburg | | | | | |
| Total Radium | Total Radium Calculation | **1.50 ± 1.15 (2.00)** | pCi/L | 11/11/24 14:35 | 7440-14-4 | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 704732
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

METHOD BLANK: 3431465 Matrix: Water
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.339 ± 0.269 (0.350) C:NA T:93% | pCi/L | 11/08/24 13:54 | |

**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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL - RADIOCHEMISTRY

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

QC Batch: 704733
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

METHOD BLANK: 3431466 Matrix: Water
Associated Lab Samples: 40286090001, 40286090002, 40286090003, 40286090004

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | 0.252 ± 0.339 (0.724) C:79% T:85% | pCi/L | 11/06/24 14:53 | |

**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

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALIFIERS

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

## 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 - The reported result is an estimated value.
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 - Analyte was not detected and is reported as less than the LOD or as defined by the customer.
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

| | |
|---|---|
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference. |
| 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. |
| R1 | RPD value was outside control limits. |

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25224067 COLUMBIA CCR SECOND P
Pace Project No.: 40286090

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **40286090001** | **MW-306** | EPA 3010A | 487906 | EPA 6020B | 488064 |
| **40286090002** | **MW-307** | EPA 3010A | 487906 | EPA 6020B | 488064 |
| **40286090003** | **MW-308** | EPA 3010A | 487906 | EPA 6020B | 488064 |
| **40286090004** | **FIELD BLANK-SCPOND** | EPA 3010A | 487906 | EPA 6020B | 488064 |
| **40286090001** | **MW-306** | EPA 7470 | 488074 | EPA 7470 | 488141 |
| **40286090002** | **MW-307** | EPA 7470 | 488074 | EPA 7470 | 488141 |
| **40286090003** | **MW-308** | EPA 7470 | 488074 | EPA 7470 | 488141 |
| **40286090004** | **FIELD BLANK-SCPOND** | EPA 7470 | 488074 | EPA 7470 | 488141 |
| **40286090001** | **MW-306** | | | | |
| **40286090002** | **MW-307** | | | | |
| **40286090003** | **MW-308** | | | | |
| **40286090001** | **MW-306** | EPA 903.1 | 704732 | | |
| **40286090002** | **MW-307** | EPA 903.1 | 704732 | | |
| **40286090003** | **MW-308** | EPA 903.1 | 704732 | | |
| **40286090004** | **FIELD BLANK-SCPOND** | EPA 903.1 | 704732 | | |
| **40286090001** | **MW-306** | EPA 904.0 | 704733 | | |
| **40286090002** | **MW-307** | EPA 904.0 | 704733 | | |
| **40286090003** | **MW-308** | EPA 904.0 | 704733 | | |
| **40286090004** | **FIELD BLANK-SCPOND** | EPA 904.0 | 704733 | | |
| **40286090001** | **MW-306** | Total Radium Calculation | 708635 | | |
| **40286090002** | **MW-307** | Total Radium Calculation | 708635 | | |
| **40286090003** | **MW-308** | Total Radium Calculation | 708635 | | |
| **40286090004** | **FIELD BLANK-SCPOND** | Total Radium Calculation | 708635 | | |
| **40286090001** | **MW-306** | SM 2540C | 488234 | | |
| **40286090002** | **MW-307** | SM 2540C | 488234 | | |
| **40286090003** | **MW-308** | SM 2540C | 488234 | | |
| **40286090004** | **FIELD BLANK-SCPOND** | SM 2540C | 488234 | | |
| **40286090001** | **MW-306** | SM 4500-H+B | 488584 | | |
| **40286090002** | **MW-307** | SM 4500-H+B | 488584 | | |
| **40286090003** | **MW-308** | SM 4500-H+B | 488584 | | |
| **40286090004** | **FIELD BLANK-SCPOND** | SM 4500-H+B | 488584 | | |
| **40286090001** | **MW-306** | EPA 300.0 | 489060 | | |
| **40286090002** | **MW-307** | EPA 300.0 | 489060 | | |
| **40286090003** | **MW-308** | EPA 300.0 | 489060 | | |
| **40286090004** | **FIELD BLANK-SCPOND** | EPA 300.0 | 489060 | | |

40286090

# 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/hubfs/pas-standard-terms.pdf.

Page : 1 Of 1

| Section A Required Client Information: | Section B Required Project Information: | Section C 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: mblodgett@scsengineers.com | Purchase Order #: | Pace Quote: | |
| Phone: 608-216-7362 Fax: | Project Name: 25224067 Columbia CCR Secondary Pond | Pace Project Manager: dan.milewsky@pacelabs.com, | State / Location |
| Requested Due Date: | Project #: 25224067 | Pace Profile #: | WI |

| ITEM # | SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique) | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED START DATE | COLLECTED START TIME | COLLECTED END DATE | COLLECTED END TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | H2SO4 | HNO3 | HCl | NaOH | Na2S2O3 | Methanol | Other | Analyses Test Y/N | Metals | chloride,fluoride,sulfate | TDS and pH | Radium 226 + 228 | Residual Chlorine (Y/N) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Requested Analysis Filtered (Y/N) | | | | | | | | | | | | | | | | | Y/N | N | N | N | N | | |
| 1 | MW-306 | WT | | 10/18 | 1305 | | | | 5 | 2 | | 3 | | | | | | | X | X | X | X | | 001 |
| 2 | MW-307 | WT | | 10/18 | 1145 | | | | 5 | 2 | | 3 | | | | | | | X | X | X | X | | 002 |
| 3 | MW-308 | WT | | 10/18 | 1400 | | | | 5 | 2 | | 3 | | | | | | | X | X | X | X | | 003 |
| 4 | FIELD BLANK-SCPOND | WT | | 10/18 | 1200 | | | | 4 | 2 | | 2 | | | | | | | X | X | X | X | | 004 |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | |

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL SAMPLES UNFILTERED Metals=Sb,As,Ba,Be,B,Ca,Cd,Cr,Co,Pb,Li,Hg,Mo,Se,Tl | Bri Salome/SCS | 10/18 | 1600 | | | | | | | |
| | CS Logistics | 10/19/24 | 08:50 | Kes Stamb-Pace | 10/19/24 | 08:50 | 3.0 | Y | Y | Y |
| | | | | | | | | | | |
| | | | | | | | | | | |

| SAMPLER NAME AND SIGNATURE | | | |
|---|---|---|---|
| PRINT Name of SAMPLER: Bri Salome | | TEMP in C | Received on Ice (Y/N) |
| SIGNATURE of SAMPLER: | DATE Signed: 10/18/24 | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |

# Sample Preservation Receipt Form

Client Name: SCS Engineers  Project # 402606910

All containers needing preservation have been checked and noted below: ☑Yes ☐No ☐N/A  Initial when completed: KKS  Date/ Time:

Lab Lot# of pH paper: 10037333  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 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | X | | | | 2.5 / 5 |
| 002 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | X | | | | 2.5 / 5 |
| 003 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | X | | | | 2.5 / 5 |
| 004 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | 10119/24 | | KKS | | | | | 2.5 / 5 |

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 | |

Page 1 of 2

# Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40286090

40286090

**Client Name:** SCS Engineers

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

**Tracking #:** N/A

**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 - 123 **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: 10/21/24 Initials: KKS

Labeled By Initials: KN

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

# Appendix D

# Historical Monitoring Results

# Single Location
## Name: WPL - Columbia

Location ID: MW-84A
Number of Sampling Dates: 27

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| Calcium | ug/L | 74000 | 72200 | 67600 | -- | 74000 | 76000 | 70800 | 73200 | 76100 | 74900 | 77500 | 76600 | 76000 | 74000 | 80100 | 73500 | 72700 |
| 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 |
| 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 | -- |
| 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 |
| 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 |
| Total Dissolved Solids | mg/L | 316 | 322 | 316 | -- | 324 | 316 | 328 | 342 | 344 | 342 | 314 | 328 | 372 | 330 | 318 | 310 | 316 |
| 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 | -- |
| 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 |
| 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 |
| 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 | -- |
| 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 | -- |
| 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 |
| 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 |
| 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 | -- |
| 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 |
| 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 | -- |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |

# Single Location

## Name: WPL - Columbia

Location ID: MW-84A

Number of Sampling Dates: 27

| Parameter Name | Units | 5/29/2020 | 10/8/2020 | 4/14/2021 | 10/14/2021 | 4/13/2022 | 10/27/2022 | 4/27/2023 | 10/11/2023 | 4/17/2024 | 10/2/2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 10 | 9.7 | 14.3 | 11.1 | 10.5 | 12.2 | 10.3 | 14 | 11.9 | 10.3 |
| Calcium | ug/L | 77600 | 69200 | 69100 | 75300 | 75100 | 78400 | 68600 | 65100 | 73700 | 73300 |
| Chloride | mg/L | 3.7 | 4.3 | 4.4 | 3.5 | 5.2 | 3.4 | 3 | 3.1 | 3.2 | 3.3 |
| Fluoride | mg/L | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | 0.12 | <0.095 |
| Field pH | Std. Units | 7.34 | 7.49 | 7.34 | 7.42 | 7.34 | 7.31 | 7.01 | 7.51 | 7.68 | 7.36 |
| Sulfate | mg/L | 1.5 | 1.3 | 1.4 | 1.3 | 1.4 | 1.1 | 1.3 | 1.4 | 1.4 | 1.8 |
| Total Dissolved Solids | mg/L | 340 | 320 | 328 | 326 | 334 | 302 | 326 | 324 | 322 | 318 |
| Antimony | ug/L | <0.15 | <0.15 | 0.55 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | 0.34 | 0.49 | 0.91 | 0.41 | 0.31 | 0.72 | <0.28 | <0.28 | 0.29 | <0.28 |
| Barium | ug/L | 13.9 | 12.6 | 13.4 | 12.9 | 13.5 | 13.7 | 12.6 | 12.7 | 14.4 | 13.6 |
| Beryllium | ug/L | <0.25 | <0.25 | 0.47 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| Cadmium | ug/L | <0.15 | <0.15 | 0.53 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Chromium | ug/L | 1.7 | 1.6 | 2.6 | 1.9 | 2.2 | 2.2 | 1.7 | 1.6 | 2.1 | 1.7 |
| Cobalt | ug/L | <0.12 | <0.12 | 0.52 | 0.12 | <0.12 | <0.12 | <0.12 | <0.12 | <0.12 | <0.12 |
| Lead | ug/L | <0.24 | <0.24 | 0.55 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 |
| Lithium | ug/L | 0.4 | 0.39 | 1 | 0.28 | 0.36 | 0.41 | 0.71 | 0.54 | 0.67 | 0.57 |
| Mercury | ug/L | <0.084 | <0.066 | <0.066 | <0.093 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | <0.44 | <0.44 | 0.62 | <0.44 | <0.44 | <0.44 | <0.44 | <0.44 | <0.44 | <0.44 |
| Selenium | ug/L | <0.32 | <0.32 | 0.48 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 |
| Thallium | ug/L | <0.14 | <0.14 | 0.66 | 0.19 | <0.14 | <0.14 | <0.14 | <0.14 | <0.14 | <0.14 |
| Total Radium | pCi/L | 0.395 | 0.39 | 0.285 | 0.243 | 0.611 | 0.673 | 0.326 | 0.844 | -- | 0.668 |
| Radium-226 | pCi/L | 0.368 | 0 | -0.289 | 0 | 0.254 | 0.267 | 0 | 0.292 | -- | 0 |
| Radium-228 | pCi/L | 0.0273 | 0.39 | 0.285 | 0.243 | 0.357 | 0.406 | 0.326 | 0.552 | -- | 0.668 |
| Field Specific Conductance | umhos/cm | 613.7 | 610.1 | 610.9 | 598.9 | 600.2 | 585.2 | 556.6 | 599.9 | 588.1 | 502.7 |
| Oxygen, Dissolved | mg/L | 9.81 | 9.39 | 9.8 | 9.25 | 9.33 | 8.31 | 9.37 | 8.44 | 7.82 | 8.73 |
| Field Oxidation Potential | mV | 135 | 153.2 | 95.6 | 89.7 | 200.6 | 39.9 | 103.4 | 91.2 | 0 | 65.1 |
| Groundwater Elevation | feet | 787.02 | 786.1 | 785.84 | 784.96 | 785.02 | 784.57 | 786.97 | 784.39 | 784.9 | 787.14 |
| Temperature | deg C | 10.6 | 11.9 | 10.2 | 12.5 | 9.9 | 11.7 | 10.7 | 12.3 | 11 | 12.4 |
| Turbidity | NTU | 2.15 | 0 | 2.45 | 3.41 | 0 | 0 | 0.72 | 0.03 | 0 | 2.55 |
| pH at 25 Degrees C | Std. Units | 7.6 | 7.6 | 7.6 | 7.8 | 7.6 | 7.4 | 7.6 | 7.6 | 8.2 | 8.4 |

# Single Location

## Name: WPL - Columbia

Location ID: MW-301
Number of Sampling Dates: 26

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| Calcium | ug/L | 126000 | 115000 | 108000 | 118000 | 129000 | 124000 | 120000 | 111000 | 108000 | 87200 | 112000 | 105000 | 101000 | 126000 | 114000 | 113000 | 112000 |
| 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 |
| 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 |
| 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 |
| 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 |
| Total Dissolved Solids | mg/L | 478 | 486 | 464 | 490 | 444 | 514 | 502 | 458 | 462 | 362 | 464 | 502 | 424 | 462 | 418 | 462 | 452 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| Field Specific Conductance | umhos/cm | 897 | 573 | 796 | 1464 | 859 | 1018 | 1354 | 698.4 | 691.7 | 561 | 774 | 799 | 767 | 883 | 801 | 868 | 797 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |

# Single Location

## Name: WPL - Columbia

Location ID: MW-301
Number of Sampling Dates: 26

| Parameter Name | Units | 10/8/2020 | 4/14/2021 | 10/14/2021 | 4/13/2022 | 10/27/2022 | 4/27/2023 | 10/11/2023 | 4/17/2024 | 10/2/2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 28.8 | 22.2 | 31.4 | 28.7 | 37.5 | 20.1 | 36.2 | 24.9 | 22.1 |
| Calcium | ug/L | 93000 | 117000 | 67800 | 97300 | 62800 | 120000 | 52300 | 102000 | 97000 |
| Chloride | mg/L | 3.4 | 1.5 | 2.7 | 1.9 | 2.3 | 1.5 | 2.1 | 1.6 | 1.5 |
| Fluoride | mg/L | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | <0.095 | 0.13 |
| Field pH | Std. Units | 6.95 | 6.66 | 7.01 | 6.6 | 6.8 | 6.65 | 7.06 | 7.06 | 6.85 |
| Sulfate | mg/L | 25.1 | 8.5 | 17.4 | 12.7 | 11.6 | 12.3 | 11.8 | 11.5 | 10.4 |
| Total Dissolved Solids | mg/L | 412 | 472 | 334 | 422 | 282 | 526 | 300 | 458 | 410 |
| Antimony | ug/L | 0.33 | <0.15 | <0.15 | 0.31 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | 0.62 | <0.28 | 0.35 | 0.47 | 0.3 | <0.28 | <0.28 | <0.28 | <0.28 |
| Barium | ug/L | 9.4 | 8.9 | 7.7 | 7.8 | 7.5 | 9.8 | 7.3 | 8.1 | 10.6 |
| Beryllium | ug/L | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| Cadmium | ug/L | 0.19 | <0.15 | <0.15 | 0.3 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Chromium | ug/L | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Cobalt | ug/L | 0.29 | <0.12 | 0.34 | 0.32 | 0.52 | <0.12 | 0.13 | <0.12 | <0.12 |
| Lead | ug/L | 0.25 | <0.24 | <0.24 | 3.1 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 |
| Lithium | ug/L | 0.46 | 0.58 | 0.46 | 0.56 | 0.37 | 0.62 | 0.43 | 0.63 | 0.8 |
| Mercury | ug/L | <0.066 | <0.066 | <0.093 | <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 | <0.44 |
| Selenium | ug/L | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | 0.39 |
| Thallium | ug/L | 0.3 | <0.14 | 0.17 | 0.32 | <0.14 | <0.14 | <0.14 | <0.14 | 0.15 |
| Total Radium | pCi/L | 0.38 | 1.16 | 0.172 | 0.179 | 0.00292 | 0.417 | 0.611 | 1.04 | 0.833 |
| Radium-226 | pCi/L | 0.0511 | 0.418 | 0.172 | 0 | -0.169 | 0 | -0.0576 | 0.252 | 0.102 |
| Radium-228 | pCi/L | 0.329 | 0.739 | -0.0327 | 0.179 | 0.00292 | 0.417 | 0.611 | 0.787 | 0.731 |
| Field Specific Conductance | umhos/cm | 760 | 857 | 597.2 | 747 | 507.5 | 857 | 536 | 781 | 602.4 |
| Oxygen, Dissolved | mg/L | 1.22 | 3.9 | 0.25 | 2.47 | 0.1 | 6.5 | 0.16 | 2.53 | 2.77 |
| Field Oxidation Potential | mV | 183.9 | 102.9 | 57.8 | 207.5 | 80.9 | 95.3 | 23.8 | 17.9 | 68.1 |
| Groundwater Elevation | feet | 786.53 | 786.5 | 785.28 | 785.44 | 784.91 | 787.57 | 784.67 | 785.27 | 787.92 |
| Temperature | deg C | 11 | 7.4 | 11.1 | 7.1 | 10.8 | 8 | 10.7 | 8.6 | 11.7 |
| Turbidity | NTU | 0 | 2.41 | 3.21 | 0 | 0 | 0 | 0.34 | 0 | 1.84 |
| pH at 25 Degrees C | Std. Units | 7.2 | 6.9 | 7.3 | 7 | 7.1 | 6.9 | 7.2 | 7.9 | 8.2 |

# Single Location
## Name: WPL - Columbia

Location ID: MW-306
Number of Sampling Dates: 24

| Parameter Name | Units | 1/26/2017 | 4/10/2017 | 6/5/2017 | 8/8/2017 | 10/23/2017 | 5/24/2018 | 10/24/2018 | 4/1/2019 | 10/8/2019 | 12/13/2019 | 2/3/2020 | 5/28/2020 | 10/7/2020 | 4/12/2021 | 10/12/2021 | 4/12/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 138 | 128 | 129 | 136 | 145 | 92 | 166 | 119 | 134 | 121 | 120 | 108 | 108 | 101 | 114 | 114 |
| Calcium | ug/L | 81200 | 83500 | 85200 | 84800 | 90700 | 78400 | 86700 | 87300 | 92800 | 83800 | 81900 | 84600 | 77900 | 80400 | 77000 | 77600 |
| Chloride | mg/L | 1.7 | 1.1 | 2.3 | 1.7 | 1 | 1.8 | 1.3 | 1.7 | 0.64 | 0.76 | 0.88 | 0.76 | 0.63 | 0.71 | 0.98 | 0.82 |
| Fluoride | mg/L | 0.15 | <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 |
| Field pH | Std. Units | 8.98 | 7.56 | 7.22 | 6.96 | 7.7 | 7.25 | 7.09 | 7.31 | 7.28 | 7.29 | 7.08 | 6.97 | 7.25 | 7.22 | 7.4 | 7.06 |
| Sulfate | mg/L | 8.2 | 6.8 | 10.1 | 7.3 | 8.7 | 6.3 | 14.4 | 9.2 | 7.8 | 7.6 | 7.2 | 6.9 | 8.4 | 7.2 | 8.5 | 9.4 |
| Total Dissolved Solids | mg/L | 310 | 326 | 324 | 338 | 310 | 314 | 322 | 310 | 328 | 326 | 310 | 306 | 322 | 310 | 282 | 318 |
| Antimony | ug/L | 0.074 | 0.21 | <0.15 | <0.15 | 0.17 | <0.15 | <0.15 | -- | -- | <0.15 | -- | <0.15 | -- | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | 0.14 | 0.25 | <0.28 | <0.28 | 0.29 | <0.28 | <0.28 | -- | -- | <0.28 | <0.28 | <0.28 | <0.28 | <0.28 | <0.28 | <0.28 |
| Barium | ug/L | 19.2 | 14.9 | 8.2 | 11.8 | 16.1 | 11.3 | 8.5 | -- | -- | 9 | 10.2 | 9.7 | 10.5 | 11 | 11.5 | 10.4 |
| Beryllium | ug/L | <0.13 | 0.14 | <0.18 | <0.18 | <0.18 | <0.18 | <0.18 | -- | -- | <0.25 | -- | <0.25 | -- | <0.25 | <0.25 | <0.25 |
| Cadmium | ug/L | <0.089 | 0.11 | <0.081 | <0.081 | <0.081 | <0.081 | <0.15 | -- | -- | <0.15 | -- | <0.15 | -- | <0.15 | <0.15 | <0.15 |
| Chromium | ug/L | 1.6 | 2.2 | 1.8 | 2 | 2.9 | 2.2 | 1.7 | -- | -- | 4.1 | 2.1 | 2.1 | 2 | 2.7 | 2.8 | 3.4 |
| Cobalt | ug/L | 0.054 | 0.15 | <0.085 | <0.085 | 0.2 | <0.085 | <0.12 | -- | -- | <0.12 | <0.12 | <0.12 | <0.12 | <0.12 | <0.12 | <0.12 |
| Lead | ug/L | <0.04 | 0.15 | <0.2 | <0.2 | <0.2 | <0.2 | 0.26 | -- | -- | <0.24 | -- | <0.24 | -- | <0.24 | <0.24 | <0.24 |
| Lithium | ug/L | 13.9 | 6.8 | 1.6 | 5.7 | 8.6 | 3.8 | 0.51 | -- | -- | 2.2 | 3.1 | 2.7 | 4.4 | 7.2 | 9.2 | 7.8 |
| Mercury | ug/L | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.084 | -- | -- | <0.084 | -- | <0.084 | -- | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | 11.4 | 8.4 | 5 | 6.7 | 9.6 | 7.2 | 4 | -- | -- | 5.8 | 6.1 | 6.5 | 7.1 | 8.3 | 9.7 | 8.7 |
| Selenium | ug/L | 0.52 | 0.77 | 0.48 | 0.58 | 0.84 | 0.58 | 0.59 | -- | -- | 0.54 | 0.81 | 0.85 | 0.69 | 0.87 | 1 | 0.7 |
| Thallium | ug/L | <0.14 | 0.28 | <0.14 | <0.14 | <0.14 | <0.14 | <0.14 | -- | -- | 0.17 | <0.14 | <0.14 | -- | <0.14 | <0.14 | <0.14 |
| Total Radium | pCi/L | 0.653 | 0.886 | 1.4 | 0.435 | 0.502 | 0.5 | 0.291 | -- | -- | 0.323 | 0.759 | 0.49 | 0.721 | 0.18 | 0.784 | 0.45 |
| Radium-226 | pCi/L | -0.148 | 0.567 | 0.329 | 0.0606 | 0.271 | 0.31 | 0.291 | -- | -- | 0 | -0.0492 | 0.182 | 0.304 | 0.13 | 0.399 | 0.0716 |
| Radium-228 | pCi/L | 0.653 | 0.319 | 1.07 | 0.374 | 0.231 | 0.19 | -0.378 | -- | -- | 0.323 | 0.759 | 0.308 | 0.417 | 0.0499 | 0.385 | 0.378 |
| Field Specific Conductance | umhos/cm | 531.8 | 899 | 495.7 | 524.4 | 477 | 583 | 598 | 592.3 | 583 | 662 | 588 | 572.1 | 565.4 | 552.4 | 543.1 | 548.1 |
| Oxygen, Dissolved | mg/L | 5.91 | 7.81 | 9.6 | 6.27 | 5 | 8.91 | 8.02 | 8.46 | 9.8 | 8.34 | 8.26 | 9.08 | 7.71 | 8.91 | 7.97 | 8.62 |
| Field Oxidation Potential | mV | -16.1 | 97.6 | 84.3 | 196.2 | 234 | 92.8 | 40.3 | 150 | 109.1 | 56 | 226.5 | 227.7 | 103.8 | 116.7 | 90.9 | 201.9 |
| Groundwater Elevation | feet | 785.5 | 786.22 | 786.85 | 785.69 | 783.97 | 785.79 | 787.66 | 786.72 | 787.47 | 787.03 | 785.77 | 785.77 | 785.39 | 784.32 | 782.93 | 783.11 |
| Temperature | deg C | 10.1 | 9.8 | 10 | 12.1 | 13.4 | 9.6 | 13.5 | 9.1 | 13.1 | 11.6 | 9.9 | 10.2 | 13.1 | 9.7 | 12.7 | 8.6 |
| Turbidity | NTU | 0.41 | 0.34 | 0.55 | 0.34 | 32.64 | 3.96 | 4.89 | 1.61 | 1.27 | 0 | 0.65 | 0.32 | 1.29 | 5.52 | 0.51 | 0.42 |
| pH at 25 Degrees C | Std. Units | 7.5 | 7.4 | 7.4 | 7.3 | 7.4 | 7.4 | 7.5 | 7.4 | 7.3 | 7.3 | 7.4 | 7.6 | 7.6 | 7.5 | 7.7 | 7.4 |

# Single Location

## Name: WPL - Columbia

Location ID: MW-306
Number of Sampling Dates: 24

| Parameter Name | Units | 10/26/2022 | 1/20/2023 | 2/20/2023 | 4/24/2023 | 10/10/2023 | 11/20/2023 | 4/16/2024 | 10/18/2024 |
|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | -- | 107 | 113 | 102 | 106 | 108 | 110 | 114 |
| Calcium | ug/L | -- | 90400 | 94500 | 106000 | 110000 | 118000 | 123000 | 161000 |
| Chloride | mg/L | -- | 12.4 | 22 | 40.6 | 21.7 | 21.2 | 20.4 | 32.9 |
| Fluoride | mg/L | -- | 0.27 | <0.095 | <0.095 | <0.48 | <0.095 | <0.095 | <0.095 |
| Field pH | Std. Units | -- | 7.63 | 7.12 | 7.1 | 7.09 | 7.42 | 7 | 7.13 |
| Sulfate | mg/L | -- | 6.2 | 7.7 | 10.3 | 103 | 123 | 104 | 173 |
| Total Dissolved Solids | mg/L | -- | 350 | 370 | 448 | 566 | 538 | 556 | 742 |
| Antimony | ug/L | -- | <0.15 | 0.19 | 0.16 | 0.22 | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | -- | <0.28 | 0.37 | <0.28 | 0.42 | <0.28 | <0.28 | <0.28 |
| Barium | ug/L | -- | 17.1 | 14 | 14.9 | 18.3 | 20.2 | 20.8 | 20.5 |
| Beryllium | ug/L | -- | <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 |
| Chromium | ug/L | -- | 3.3 | 3 | 2.1 | 2.3 | 2.5 | 2.9 | 2.1 |
| Cobalt | ug/L | -- | 0.49 | 0.14 | <0.12 | 0.17 | <0.12 | <0.12 | <0.12 |
| Lead | ug/L | -- | 0.68 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 |
| Lithium | ug/L | -- | 12.3 | 12.7 | 8.9 | 13.9 | 15.2 | 15.2 | 4.2 |
| Mercury | ug/L | -- | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | -- | 9.3 | 8.3 | 6.6 | 7.4 | 8.5 | 8.1 | 4 |
| Selenium | ug/L | -- | 1.4 | 1.4 | 1.1 | 1.4 | 1.1 | 1.4 | 0.72 |
| Thallium | ug/L | -- | 0.16 | 0.21 | <0.14 | 0.15 | 0.43 | <0.14 | 0.18 |
| Total Radium | pCi/L | -- | 0.721 | 0.156 | 0.341 | 0.336 | 0.467 | 0.962 | 0.911 |
| Radium-226 | pCi/L | -- | 0.441 | -0.31 | -0.0639 | 0.336 | 0.109 | 0.585 | 0.518 |
| Radium-228 | pCi/L | -- | 0.28 | 0.156 | 0.341 | -0.157 | 0.358 | 0.377 | 0.393 |
| Field Specific Conductance | umhos/cm | -- | 634 | 578 | 706.2 | 832 | 765 | 850 | 1055 |
| Oxygen, Dissolved | mg/L | -- | 8.27 | 8.03 | 7.76 | 6.72 | 8.69 | 6.98 | 4.7 |
| Field Oxidation Potential | mV | -- | 114.9 | 111.9 | 71.6 | 116.3 | 209.1 | 42.7 | 49.9 |
| Groundwater Elevation | feet | 778.32 | 782.15 | 783.04 | 784.82 | -- | 781.97 | 782.4 | 785.5 |
| Temperature | deg C | -- | 7 | 9.6 | 8.8 | 13 | 12.1 | 10.5 | 14.2 |
| Turbidity | NTU | -- | 58.36 | 4.82 | 4.51 | 4.14 | 0 | 0.04 | 0.58 |
| pH at 25 Degrees C | Std. Units | -- | 7.6 | -- | 7.5 | 7.4 | 7.3 | 8.2 | 7.9 |

# Single Location
## Name: WPL - Columbia

Location ID: MW-307
Number of Sampling Dates: 24

| Parameter Name | Units | 1/26/2017 | 4/10/2017 | 6/5/2017 | 8/8/2017 | 10/23/2017 | 5/24/2018 | 10/24/2018 | 4/1/2019 | 10/7/2019 | 12/13/2019 | 2/3/2020 | 5/27/2020 | 10/8/2020 | 4/12/2021 | 10/12/2021 | 4/12/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 319 | 175 | 178 | 373 | 434 | 313 | 338 | 154 | 242 | 281 | 246 | 231 | 307 | 201 | 327 | 318 |
| Calcium | ug/L | 70300 | 68300 | 70600 | 72500 | 83700 | 107000 | 17400 | 76500 | 75800 | 78700 | 72600 | 77800 | 67800 | 61900 | 74600 | 103000 |
| Chloride | mg/L | 8.7 | 4.1 | 5.4 | 8.3 | 12.9 | 52.8 | 19.3 | 13.8 | 9.3 | 16 | 13.8 | 12.9 | 12.1 | 7 | 9.8 | 10.2 |
| Fluoride | mg/L | <0.5 | <0.1 | <0.1 | <0.1 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.48 | -- | <0.095 | <0.48 | <0.48 | <0.48 | <0.48 |
| Field pH | Std. Units | 6.89 | 7.52 | 7.26 | 6.9 | 7.75 | 6.83 | 6.94 | 7.14 | 7.24 | 7.18 | 7.19 | 7.07 | 7.28 | 7.32 | 7.11 | 6.85 |
| Sulfate | mg/L | 14.2 | 33.1 | 32.6 | 6.7 | 10.7 | 115 | 47.7 | 38.2 | 27.8 | 15.5 | 15.3 | 13.2 | 10.3 | 16.9 | 92.9 | 141 |
| Total Dissolved Solids | mg/L | 318 | 324 | 324 | 350 | 362 | 576 | 398 | 350 | 336 | 354 | 340 | 356 | 334 | 312 | 388 | 528 |
| Antimony | ug/L | <0.073 | 0.29 | <0.15 | <0.15 | <0.15 | 0.39 | <0.15 | -- | -- | <0.15 | -- | <0.15 | -- | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | 2 | 0.73 | 0.42 | 1.5 | 3 | 0.7 | <0.28 | -- | -- | 1.1 | 1.7 | 0.76 | 2.7 | 2 | 1.8 | 2.7 |
| Barium | ug/L | 10.7 | 9.3 | 7.8 | 13.7 | 15.1 | 13.6 | 4.8 | -- | -- | 15.9 | 13.5 | 13.7 | 13.8 | 7.8 | 13.1 | 19 |
| Beryllium | ug/L | <0.13 | <0.13 | <0.18 | <0.18 | <0.18 | <0.18 | <0.18 | -- | -- | <0.25 | -- | <0.25 | -- | <0.25 | <0.25 | <0.25 |
| Cadmium | ug/L | <0.089 | 0.27 | <0.081 | <0.081 | <0.081 | <0.081 | 0.21 | -- | -- | <0.15 | -- | <0.15 | -- | <0.15 | <0.15 | <0.15 |
| Chromium | ug/L | <0.39 | 1.6 | <1 | <1 | <1 | <1 | <1 | -- | -- | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Cobalt | ug/L | 0.33 | 0.58 | 0.19 | 0.6 | 0.43 | 2.7 | 0.45 | -- | -- | 0.46 | 1 | 0.55 | 0.61 | 0.26 | 0.68 | 1 |
| Lead | ug/L | <0.04 | 0.41 | <0.2 | 0.21 | <0.2 | <0.2 | 0.33 | -- | -- | <0.24 | -- | <0.24 | -- | <0.24 | <0.24 | <0.24 |
| Lithium | ug/L | <0.11 | 0.3 | <0.14 | 0.21 | <0.14 | 0.2 | 0.5 | -- | -- | 0.24 | 0.53 | <0.22 | <0.22 | <0.22 | <0.22 | <0.22 |
| Mercury | ug/L | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.084 | -- | -- | <0.084 | -- | <0.084 | -- | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | 1 | 0.8 | 0.44 | 0.74 | 1.5 | 0.94 | <0.44 | -- | -- | 0.72 | 1.2 | 0.7 | 0.64 | 0.83 | 0.91 | 0.61 |
| Selenium | ug/L | <0.21 | 0.4 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | -- | -- | <0.32 | 0.78 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 |
| Thallium | ug/L | <0.14 | 0.37 | <0.14 | <0.14 | <0.14 | <0.14 | <0.14 | -- | -- | 0.21 | 0.65 | <0.14 | -- | <0.14 | <0.14 | <0.14 |
| Total Radium | pCi/L | 0.864 | 1.39 | 2.26 | 0.676 | 0.742 | 0.505 | 0.416 | -- | -- | 0.188 | 0.706 | 0.309 | 0.636 | 0.241 | 0.842 | 0.35 |
| Radium-226 | pCi/L | -0.523 | 0.233 | 0.914 | 0.309 | 0.511 | 0.309 | 0.251 | -- | -- | -0.0613 | -0.228 | 0.203 | 0.108 | -0.179 | 0.154 | 0.0634 |
| Radium-228 | pCi/L | 0.864 | 1.16 | 1.35 | 0.367 | 0.231 | 0.196 | 0.165 | -- | -- | 0.188 | 0.706 | 0.106 | 0.528 | 0.241 | 0.688 | 0.287 |
| Field Specific Conductance | umhos/cm | 570.2 | 898 | 503.9 | 589.9 | 591 | 915 | 731 | 662.5 | 618.2 | 752 | 638.3 | 615.2 | 644 | 575.7 | 709 | 832 |
| Oxygen, Dissolved | mg/L | 0.23 | 0.28 | 0.19 | 0.14 | 0.3 | 0.2 | 0.07 | 0.12 | 0.11 | 0.33 | 0.07 | 0.13 | 0.03 | 0.17 | -- | 2.59 |
| Field Oxidation Potential | mV | -119.6 | -19.6 | -12.9 | -51.1 | 101 | -34 | -68.2 | -0.8 | -98.7 | -102.7 | -80.5 | -26.3 | -141.8 | -120.4 | -85 | -80.5 |
| Groundwater Elevation | feet | 785.36 | 785.64 | 786.07 | 785.19 | 784.79 | 785.09 | 786.57 | 786.71 | 786.99 | 785.68 | 785.57 | 785.35 | 784.71 | 784.21 | 782.44 | 783.32 |
| Temperature | deg C | 10.1 | 9.2 | 10.5 | 15 | 14.5 | 9.5 | 14.6 | 8.2 | 14.3 | 12 | 10 | 10.8 | 14 | 9.4 | 14.2 | 9.7 |
| Turbidity | NTU | 1.9 | 1.28 | 1.85 | 1.78 | 3.87 | 6.64 | 6.07 | 2.27 | 1.83 | 0 | 1.32 | 0.74 | 0 | 2.83 | 2.18 | 1.86 |
| pH at 25 Degrees C | Std. Units | 7.5 | 7.6 | 7.4 | 7.3 | 7.4 | 7 | 7.4 | 7.3 | 7.5 | 7.2 | 7.2 | 7.5 | 7.3 | 7.2 | 7.4 | 7 |

# Single Location

## Name: WPL - Columbia

Location ID: MW-307
Number of Sampling Dates: 24

| Parameter Name | Units | 10/26/2022 | 1/20/2023 | 2/20/2023 | 4/25/2023 | 10/10/2023 | 11/20/2023 | 4/16/2024 | 10/18/2024 |
|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | -- | 232 | 226 | 202 | 252 | 307 | 255 | 256 |
| Calcium | ug/L | -- | 127000 | 123000 | 72200 | 96000 | 109000 | 129000 | 117000 |
| Chloride | mg/L | -- | 51.3 | 57.6 | 32.8 | 35.8 | 42.6 | 37.8 | 35.3 |
| Fluoride | mg/L | -- | <0.095 | <0.095 | <0.48 | <0.48 | <0.48 | <0.095 | <0.48 |
| Field pH | Std. Units | -- | 7.4 | 6.76 | 6.69 | 6.82 | 7.08 | 6.83 | 6.66 |
| Sulfate | mg/L | -- | 208 | 127 | 47.5 | 77.6 | 103 | 311 | 141 |
| Total Dissolved Solids | mg/L | -- | 630 | 588 | 364 | 506 | 518 | 704 | 604 |
| Antimony | ug/L | -- | <0.15 | 0.19 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | -- | 3.5 | 1.8 | 1.3 | 2.1 | 2.4 | 1.3 | 2.6 |
| Barium | ug/L | -- | 39 | 19.4 | 11.8 | 17.5 | 22.2 | 24.1 | 27.1 |
| Beryllium | ug/L | -- | <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 |
| Chromium | ug/L | -- | 2.8 | <1 | <1 | <1 | <1 | 1.2 | <1 |
| Cobalt | ug/L | -- | 8.7 | 20.2 | 16 | 5.7 | 4.8 | 3.6 | 18.1 |
| Lead | ug/L | -- | 1.6 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 | <0.24 |
| Lithium | ug/L | -- | 1.3 | 0.82 | <0.22 | 0.49 | <0.22 | 0.33 | <0.22 |
| Mercury | ug/L | -- | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | -- | 0.62 | 0.6 | <0.44 | <0.44 | 0.49 | 0.61 | 0.46 |
| Selenium | ug/L | -- | 0.4 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 |
| Thallium | ug/L | -- | <0.14 | 0.22 | <0.14 | <0.14 | 0.42 | <0.14 | 0.18 |
| Total Radium | pCi/L | -- | 0.356 | 0.791 | 0.608 | 0.552 | 0.501 | 1.39 | 0.702 |
| Radium-226 | pCi/L | -- | -0.179 | 0.228 | -0.12 | 0.0985 | -0.241 | 0.446 | -0.0549 |
| Radium-228 | pCi/L | -- | 0.356 | 0.563 | 0.608 | 0.453 | 0.501 | 0.948 | 0.702 |
| Field Specific Conductance | umhos/cm | -- | 739 | 853 | 449 | 837 | 791 | 997 | 898 |
| Oxygen, Dissolved | mg/L | -- | 5.44 | 0.13 | 0.19 | 0.27 | 0.25 | 2.58 | 1.45 |
| Field Oxidation Potential | mV | -- | 39.5 | -32.3 | -69.2 | -93.1 | 17.9 | -28.3 | -155.2 |
| Groundwater Elevation | feet | 777.89 | 782.11 | 782.91 | 784.25 | -- | 781.45 | 782.24 | 785.08 |
| Temperature | deg C | -- | 6.7 | 9.5 | 8 | 14.4 | 12.3 | 11.6 | 14.9 |
| Turbidity | NTU | -- | 242.4 | 0.5 | 1.01 | 0.86 | 0 | 0.1 | 1.66 |
| pH at 25 Degrees C | Std. Units | -- | 7.3 | -- | 6.7 | 7.1 | 6.9 | 8 | 7.2 |

# Single Location
## Name: WPL - Columbia

Location ID: MW-308
Number of Sampling Dates: 24

| Parameter Name | Units | 1/26/2017 | 4/10/2017 | 6/5/2017 | 8/9/2017 | 10/23/2017 | 4/24/2018 | 10/24/2018 | 4/1/2019 | 10/7/2019 | 12/13/2019 | 2/3/2020 | 5/27/2020 | 10/7/2020 | 4/12/2021 | 10/12/2021 | 4/11/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 740 | 614 | 565 | 644 | 707 | 584 | 430 | 587 | 694 | 647 | 606 | 476 | 563 | 463 | 704 | 503 |
| Calcium | ug/L | 132000 | 129000 | 140000 | 131000 | 134000 | 126000 | 144000 | 132000 | 131000 | 130000 | 124000 | 132000 | 123000 | 120000 | 115000 | 136000 |
| Chloride | mg/L | 7.5 | 5.8 | 5.8 | 3.7 | 5.6 | 3.7 | <2.5 | 1.8 | 1.6 | 2.3 | 1.5 | 1.2 | 1.1 | 0.96 | 3.6 | 0.9 |
| Fluoride | mg/L | <0.5 | <0.5 | <0.5 | 0.11 | <0.5 | <0.5 | <0.5 | <0.1 | <0.1 | <0.48 | -- | <0.095 | 0.12 | <0.095 | <0.48 | <0.095 |
| Field pH | Std. Units | 7.38 | 7.56 | 7.09 | 7.25 | 7.51 | 7.1 | 6.78 | 7.39 | 7.48 | 7.25 | 7.29 | 7.1 | 7.09 | 7.25 | 7.11 | 6.93 |
| Sulfate | mg/L | 6.1 | 5.5 | 14.8 | 1.7 | <5 | <5 | 70.7 | 1.1 | <1 | <2.2 | <2.2 | 2.8 | 0.52 | <0.44 | <2.2 | 7.3 |
| Total Dissolved Solids | mg/L | 544 | 526 | 508 | 546 | 486 | 512 | 566 | 484 | 470 | 504 | 468 | 510 | 490 | 470 | 460 | 502 |
| Antimony | ug/L | <0.073 | 0.12 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | -- | -- | <0.15 | -- | <0.15 | -- | <0.15 | <0.15 | <0.15 |
| Arsenic | ug/L | 3.4 | 3.5 | 2.3 | 2.6 | 5.1 | 4.9 | 6.8 | -- | -- | 3.5 | 3.6 | 3.1 | 3.7 | 2.8 | 6.3 | 3.3 |
| Barium | ug/L | 70.8 | 95.1 | 66.7 | 75 | 86.6 | 85.4 | 84.8 | -- | -- | 62.4 | 55.6 | 59.1 | 61.5 | 52.6 | 59.2 | 63.6 |
| Beryllium | ug/L | <0.13 | 0.17 | <0.18 | <0.18 | <0.18 | <0.18 | <0.18 | -- | -- | <0.25 | -- | <0.25 | -- | <0.25 | <0.25 | <0.25 |
| Cadmium | ug/L | <0.089 | <0.089 | <0.081 | <0.081 | <0.081 | <0.081 | <0.15 | -- | -- | <0.15 | -- | <0.15 | -- | <0.15 | <0.15 | <0.15 |
| Chromium | ug/L | 0.97 | 9.3 | <1 | 1.1 | 4 | 7.9 | <1 | -- | -- | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Cobalt | ug/L | 0.28 | 1.6 | 0.21 | 0.26 | 0.85 | 1.7 | 1 | -- | -- | <0.12 | <0.12 | <0.12 | <0.12 | <0.12 | 0.22 | 0.22 |
| Lead | ug/L | 0.28 | 2.5 | <0.2 | 0.37 | 1.2 | 2.5 | <0.24 | -- | -- | <0.24 | -- | <0.24 | -- | <0.24 | 0.24 | <0.24 |
| Lithium | ug/L | 0.28 | 2.2 | 0.18 | 0.26 | 0.96 | 2.1 | <0.19 | -- | -- | <0.22 | 0.35 | <0.22 | <0.22 | <0.22 | 0.23 | <0.22 |
| Mercury | ug/L | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.13 | <0.084 | -- | -- | <0.084 | -- | <0.084 | -- | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | 1.2 | 1.4 | 2.2 | 0.91 | 1.2 | 0.54 | 3.2 | -- | -- | 3 | 1.2 | 0.9 | 1.1 | 0.86 | 7.1 | 0.92 |
| Selenium | ug/L | <0.21 | 0.72 | <0.32 | <0.32 | 0.35 | 0.45 | <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 | <0.14 | <0.14 | -- | <0.14 | <0.14 | <0.14 |
| Total Radium | pCi/L | 1.67 | 0.78 | 1.44 | 1.18 | 0.318 | 0.581 | 0.274 | -- | -- | 0.733 | 0.257 | 0.569 | 1.03 | 0.151 | 0.517 | 0.407 |
| Radium-226 | pCi/L | 0 | 0.295 | 0 | 0.454 | -0.077 | 0.411 | 0.274 | -- | -- | 0.0522 | -0.053 | 0.249 | 0.21 | 0.0739 | -0.114 | -0.31 |
| Radium-228 | pCi/L | 1.67 | 0.485 | 1.44 | 0.722 | 0.318 | 0.17 | -0.042 | -- | -- | 0.681 | 0.257 | 0.32 | 0.815 | 0.0768 | 0.517 | 0.407 |
| Field Specific Conductance | umhos/cm | 920 | 1457 | 819 | 864 | 810 | 902 | 987 | 924 | 896 | 1051 | 909 | 897 | 916 | 864 | 894 | 942 |
| Oxygen, Dissolved | mg/L | 1.15 | 0.19 | 0.16 | 0.08 | 0.2 | 0.11 | 0.08 | 0.15 | 0.07 | 0.4 | 0.08 | 0.21 | 0.45 | 0.13 | -- | 0.25 |
| Field Oxidation Potential | mV | -105.4 | -106.4 | -76.1 | -71.4 | 100 | -184 | -147.8 | -137.7 | -170 | -154.9 | -151.7 | -91.5 | -123.5 | -136.9 | -110.8 | 202.4 |
| Groundwater Elevation | feet | 785.73 | 786.51 | 786.46 | 785.37 | 784.17 | 782.65 | 787.81 | 787.53 | 787.18 | 786.43 | 786.48 | 786.28 | 785.68 | 785.55 | 783.76 | 784.19 |
| Temperature | deg C | 11.5 | 9 | 10.6 | 14.9 | 14.6 | 10.5 | 15.1 | 8.9 | 15 | 12 | 10.4 | 12.1 | 15.5 | 9.8 | 15.8 | 10.5 |
| Turbidity | NTU | 14.9 | 113.1 | 9.85 | 16.81 | 38.62 | 133.7 | 9.3 | 3.44 | 6.75 | 0 | 1.52 | 4.44 | 0 | 1.87 | 11.07 | 2.15 |
| pH at 25 Degrees C | Std. Units | 7.4 | 7.4 | 7.2 | 7.3 | 7.3 | 7.2 | 7.3 | 7.4 | 7.4 | 7.2 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 | 7.2 |

# Single Location
## Name: WPL - Columbia

Location ID: MW-308
Number of Sampling Dates: 24

| Parameter Name | Units | 10/25/2022 | 1/20/2023 | 2/20/2023 | 4/24/2023 | 10/10/2023 | 11/20/2023 | 4/16/2024 | 10/18/2024 |
|---|---|---|---|---|---|---|---|---|---|
| Boron | ug/L | 667 | 536 | 561 | 288 | 663 | 742 | 446 | 556 |
| Calcium | ug/L | 125000 | 135000 | 150000 | 130000 | 127000 | 127000 | 141000 | 124000 |
| Chloride | mg/L | 1.7 | 1.1 | 1.1 | 3 | 2.4 | 5.7 | 4.6 | 8.5 |
| Fluoride | mg/L | <0.095 | <0.095 | <0.095 | <0.48 | <0.095 | <0.48 | 0.1 | <0.48 |
| Field pH | Std. Units | 7.15 | 7.14 | 7.15 | 6.99 | 7.05 | 6.89 | 6.94 | 7.29 |
| Sulfate | mg/L | 0.55 | 4.3 | 2.5 | 47.6 | 0.59 | 2.5 | 13.8 | 3.1 |
| Total Dissolved Solids | mg/L | 492 | 538 | 562 | 580 | 542 | 490 | 570 | 496 |
| Antimony | ug/L | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | 0.21 | <0.15 | <0.15 |
| Arsenic | ug/L | 4.5 | 2.8 | 3.3 | 4.9 | 4.5 | 5.7 | 2.6 | 4.4 |
| Barium | ug/L | 54 | 63.3 | 66.2 | 77.7 | 66.9 | 92.2 | 83.6 | 55.1 |
| 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 | 2.7 | 6.4 | 1 | <1 |
| Cobalt | ug/L | <0.12 | <0.12 | 0.24 | 1.7 | 0.53 | 2.2 | 0.6 | 0.19 |
| Lead | ug/L | <0.24 | <0.24 | <0.24 | <0.24 | 0.7 | 1.7 | <0.24 | <0.24 |
| Lithium | ug/L | <0.22 | <0.22 | <0.22 | <0.22 | 0.77 | 1.6 | <0.22 | <0.22 |
| Mercury | ug/L | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 | <0.066 |
| Molybdenum | ug/L | 0.87 | 1.2 | 1 | 9 | 0.63 | 12.9 | 2 | 0.94 |
| Selenium | ug/L | <0.32 | <0.32 | <0.32 | <0.32 | <0.32 | 0.65 | <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 | 0.8 | 0.88 | 0.0103 | 1.48 | 0.644 | 0.499 | 0.918 | 0.619 |
| Radium-226 | pCi/L | 0.05 | 0.253 | -0.159 | 0.703 | 0.427 | 0.196 | 0.132 | 0.16 |
| Radium-228 | pCi/L | 0.75 | 0.627 | 0.0103 | 0.773 | 0.217 | 0.303 | 0.786 | 0.459 |
| Field Specific Conductance | umhos/cm | 900 | 866 | 890 | 938 | 940 | 956 | 980 | 854 |
| Oxygen, Dissolved | mg/L | 0.05 | 0.1 | 0.08 | 0.14 | 0.18 | 0.18 | 0.12 | 0.07 |
| Field Oxidation Potential | mV | -28.3 | -154.1 | -113.8 | -125.5 | -154.1 | -123.8 | -116.8 | -172.1 |
| Groundwater Elevation | feet | 784.16 | 784.98 | 785.32 | 787.75 | 783.09 | 782.85 | 784.51 | 786.34 |
| Temperature | deg C | 13.5 | 10 | 9.1 | 8.2 | 15.7 | 10.7 | 13.9 | 15.7 |
| Turbidity | NTU | 1.92 | 1.09 | 4.41 | 3.72 | 25.06 | 18.3 | 0.57 | 1.81 |
| pH at 25 Degrees C | Std. Units | 7.2 | 7.2 | -- | 7.1 | 7.4 | 6.8 | 7.9 | 7.8 |

# Appendix E

# Statistical Evaluations

# E1 April 2024 LCL Evaluation – Cobalt for Historical Data Set and Last Eight Events of Assessment Monitoring

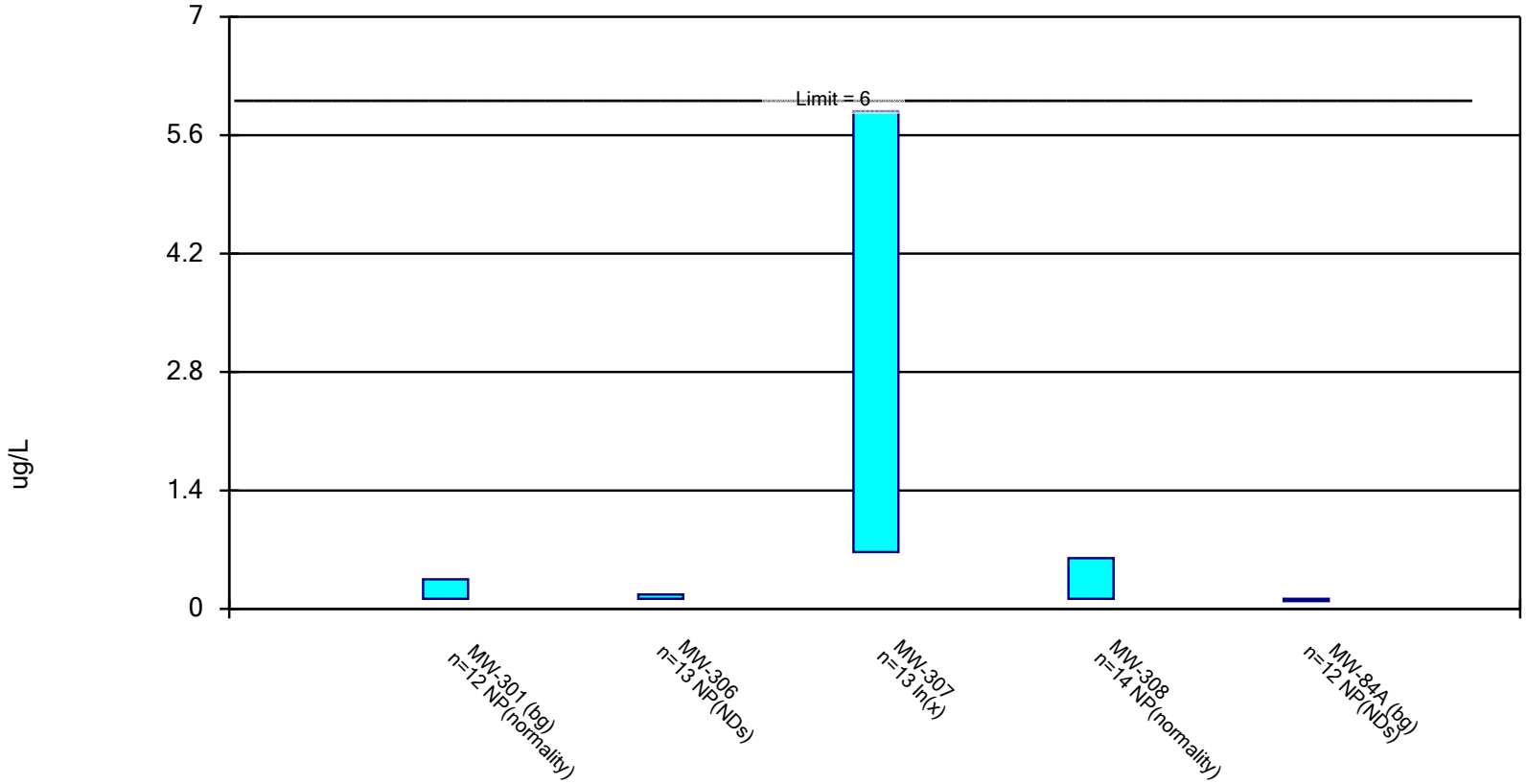
# Confidence Interval

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 7/29/2024, 10:19 AM

| Constituent | Well | Upper Lim. | Lower Lim. | Compliance | Sig. | N | %NDs | Transform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt (ug/L) | MW-301 (bg) | 0.35 | 0.12 | 6 | No | 12 | 41.67 | No | 0.01 | NP (normality) |
| Cobalt (ug/L) | MW-306 | 0.17 | 0.12 | 6 | No | 13 | 76.92 | No | 0.01 | NP (NDs) |
| Cobalt (ug/L) | MW-307 | 5.884 | 0.6714 | 6 | No | 13 | 0 | ln(x) | 0.01 | Param. |
| Cobalt (ug/L) | MW-308 | 0.6 | 0.12 | 6 | No | 14 | 50 | No | 0.01 | NP (normality) |
| Cobalt (ug/L) | MW-84A (bg) | 0.12 | 0.12 | 6 | No | 12 | 83.33 | No | 0.01 | NP (NDs) |

# Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.




Constituent: Cobalt Analysis Run 7/29/2024 10:17 AM View: COL Secondary Pond

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

# Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 7/29/2024 10:19 AM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-301 (bg) | MW-306 | MW-307 | MW-308 | MW-84A (bg) |
|---|---|---|---|---|---|
| 4/2/2019 | 0.35 (J) | | | | |
| 4/3/2019 | | | | | <0.12 (U) |
| 10/9/2019 | <0.12 (U) | | | | <0.12 (U) |
| 12/13/2019 | | <0.12 (U) | 0.46 (J) | <0.12 (U) | |
| 2/3/2020 | 0.17 (J) | <0.12 (U) | 1 | <0.12 (U) | <0.12 (U) |
| 5/27/2020 | | | 0.55 (J) | <0.12 (U) | |
| 5/28/2020 | | <0.12 (U) | | | |
| 5/29/2020 | <0.12 (U) | | | | <0.12 (U) |
| 10/7/2020 | | <0.12 (U) | | <0.12 (U) | |
| 10/8/2020 | 0.29 (J) | | 0.61 (J) | | <0.12 (U) |
| 4/12/2021 | | <0.12 (U) | 0.26 (J) | <0.12 (U) | |
| 4/14/2021 | <0.12 (U) | | | | 0.52 (J) |
| 10/12/2021 | | <0.12 (U) | 0.68 (J) | 0.22 (J) | |
| 10/14/2021 | 0.34 (J) | | | | 0.12 (J) |
| 4/11/2022 | | | | 0.22 (J) | |
| 4/12/2022 | | <0.12 (U) | 1 | | |
| 4/13/2022 | 0.32 (J) | | | | <0.12 (U) |
| 10/25/2022 | | | | <0.12 (U) | |
| 10/27/2022 | 0.52 (J) | | | | <0.12 (U) |
| 1/20/2023 | | 0.49 (J) | 8.7 | <0.12 (U) | |
| 2/20/2023 | | 0.14 (J) | 20.2 | 0.24 (J) | |
| 4/24/2023 | | <0.12 (U) | | 1.7 | |
| 4/25/2023 | | | 16 | | |
| 4/27/2023 | <0.12 (U) | | | | <0.12 (U) |
| 10/10/2023 | | 0.17 (J) | 5.7 | 0.53 (J) | |
| 10/11/2023 | 0.13 (J) | | | | <0.12 |
| 11/20/2023 | | <0.12 (U) | 4.8 | 2.2 | |
| 4/16/2024 | | <0.12 | 3.6 | 0.6 (J) | |
| 4/17/2024 | <0.12 | | | | <0.12 |
| Mean | 0.2267 | 0.1538 | 4.889 | 0.4679 | 0.1533 |
| Std. Dev. | 0.1336 | 0.102 | 6.461 | 0.6541 | 0.1155 |
| Upper Lim. | 0.35 | 0.17 | 5.884 | 0.6 | 0.12 |
| Lower Lim. | 0.12 | 0.12 | 0.6714 | 0.12 | 0.12 |


ND substitution: RL or RL/2 if <15% NDs.

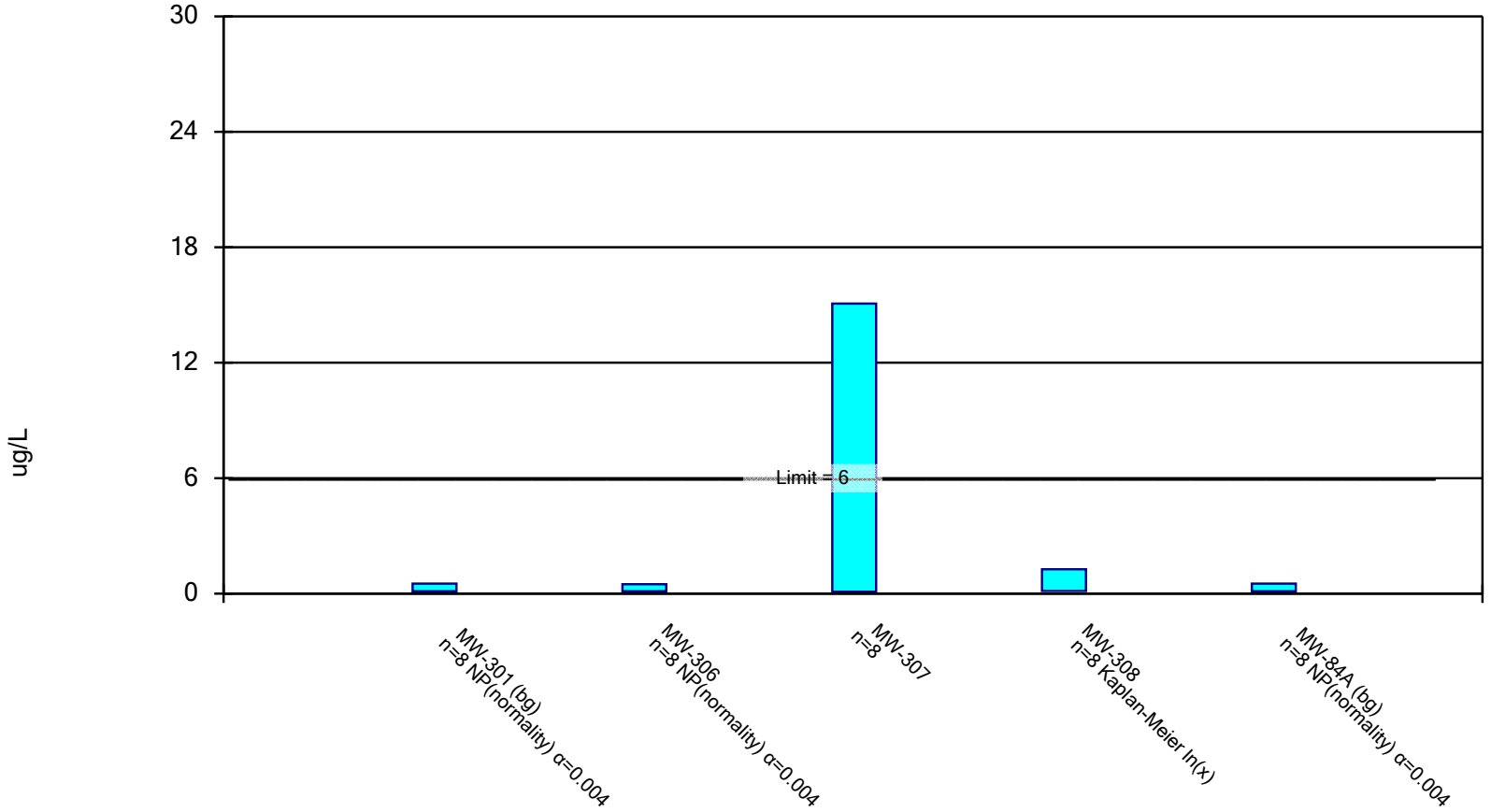
# Confidence Interval

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 7/29/2024, 10:57 AM

| Constituent | Well | Upper Lim. | Lower Lim. | Compliance | Sig. | N | %NDs | Transform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt (ug/L) | MW-301 (bg) | 0.52 | 0.12 | 6 | No | 8 | 37.5 | No | 0.004 | NP (normality) |
| Cobalt (ug/L) | MW-306 | 0.49 | 0.12 | 6 | No | 8 | 62.5 | No | 0.004 | NP (normality) |
| Cobalt (ug/L) | MW-307 | 15.07 | 0.09626 | 6 | No | 8 | 0 | No | 0.01 | Param. |
| Cobalt (ug/L) | MW-308 | 1.262 | 0.1375 | 6 | No | 8 | 25 | ln(x) | 0.01 | Param. |
| Cobalt (ug/L) | MW-84A (bg) | 0.52 | 0.12 | 6 | No | 8 | 75 | No | 0.004 | NP (normality) |

# Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.




Constituent: Cobalt Analysis Run 7/29/2024 10:56 AM View: COL Secondary Pond

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

# Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 7/29/2024 10:57 AM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-301 (bg) | MW-306 | MW-307 | MW-308 | MW-84A (bg) |
|---|---|---|---|---|---|
| 10/8/2020 | 0.29 (J) | | | | <0.12 (U) |
| 4/14/2021 | <0.12 (U) | | | | 0.52 (J) |
| 10/12/2021 | | <0.12 (U) | 0.68 (J) | | |
| 10/14/2021 | 0.34 (J) | | | | 0.12 (J) |
| 4/11/2022 | | | | 0.22 (J) | |
| 4/12/2022 | | <0.12 (U) | 1 | | |
| 4/13/2022 | 0.32 (J) | | | | <0.12 (U) |
| 10/25/2022 | | | | <0.12 (U) | |
| 10/27/2022 | 0.52 (J) | | | | <0.12 (U) |
| 1/20/2023 | | 0.49 (J) | 8.7 | <0.12 (U) | |
| 2/20/2023 | | 0.14 (J) | 20.2 | 0.24 (J) | |
| 4/24/2023 | | <0.12 (U) | | 1.7 | |
| 4/25/2023 | | | 16 | | |
| 4/27/2023 | <0.12 (U) | | | | <0.12 (U) |
| 10/10/2023 | | 0.17 (J) | 5.7 | 0.53 (J) | |
| 10/11/2023 | 0.13 (J) | | | | <0.12 |
| 11/20/2023 | | <0.12 (U) | 4.8 | 2.2 | |
| 4/16/2024 | | <0.12 | 3.6 | 0.6 (J) | |
| 4/17/2024 | <0.12 | | | | <0.12 |
| Mean | 0.245 | 0.175 | 7.585 | 0.7162 | 0.17 |
| Std. Dev. | 0.1476 | 0.1285 | 7.065 | 0.793 | 0.1414 |
| Upper Lim. | 0.52 | 0.49 | 15.07 | 1.262 | 0.52 |
| Lower Lim. | 0.12 | 0.12 | 0.09626 | 0.1375 | 0.12 |


ND substitution: RL or RL/2 if <15% NDs.

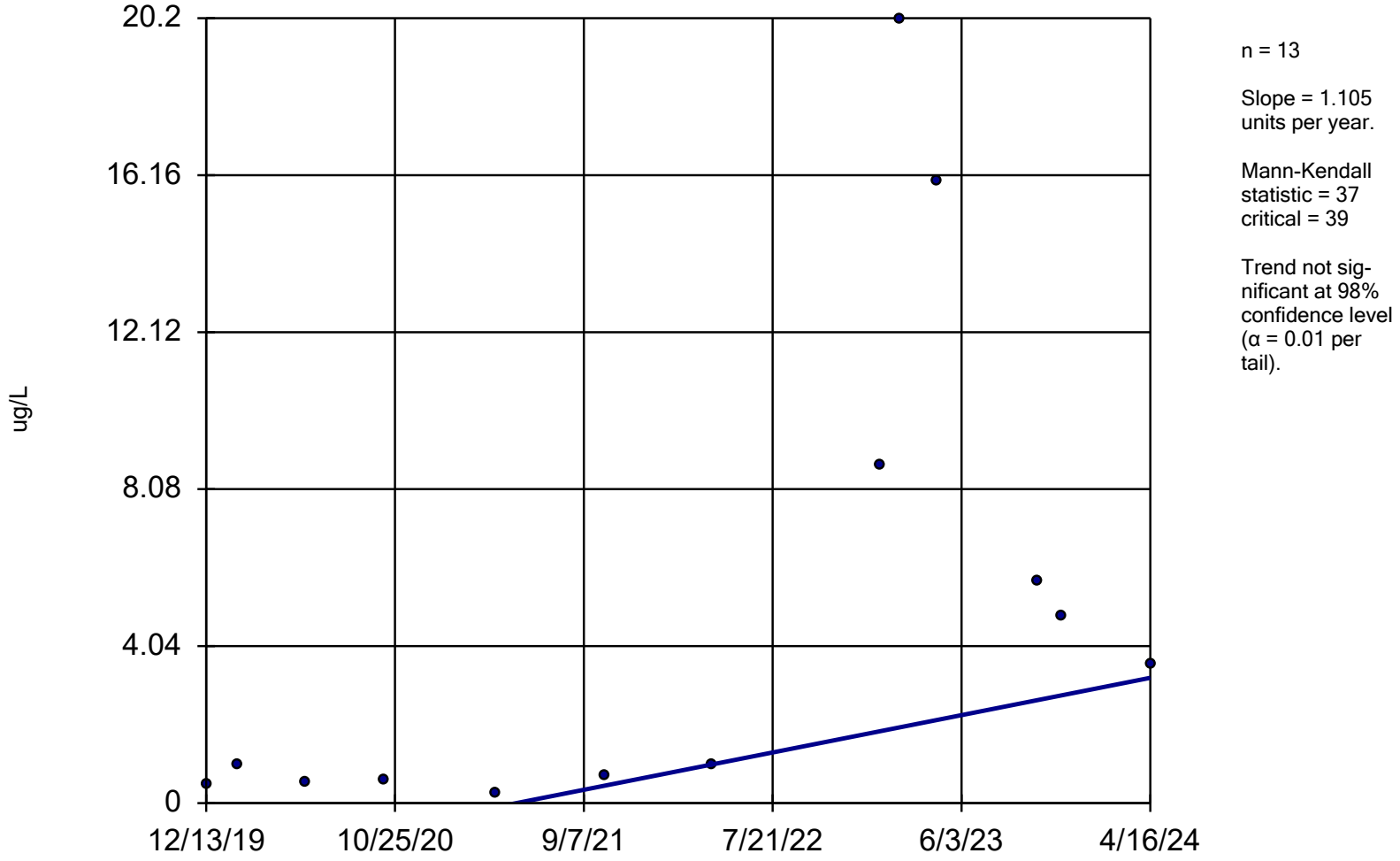
# Trend Test

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 7/29/2024, 11:17 AM

| Constituent | Well | Slope | Calc. | Critical | Sig. | N | %NDs | Normality | Xform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt (ug/L) | MW-307 | 1.105 | 37 | 39 | No | 13 | 0 | n/a | n/a | 0.02 | NP |

# Cobalt

## MW-307




n = 13

Slope = 1.105 units per year.

Mann-Kendall statistic = 37
critical = 39

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band  Analysis Run 7/29/2024 11:02 AM  View: COL Secondary Pond

Columbia Energy Center  Client: SCS Engineers  Data: December - Chem- export-Dec2020

# Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 7/29/2024 11:17 AM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-307 |
|---|---|
| 12/13/2019 | 0.46 (J) |
| 2/3/2020 | 1 |
| 5/27/2020 | 0.55 (J) |
| 10/8/2020 | 0.61 (J) |
| 4/12/2021 | 0.26 (J) |
| 10/12/2021 | 0.68 (J) |
| 4/12/2022 | 1 |
| 1/20/2023 | 8.7 |
| 2/20/2023 | 20.2 |
| 4/25/2023 | 16 |
| 10/10/2023 | 5.7 |
| 11/20/2023 | 4.8 |
| 4/16/2024 | 3.6 |

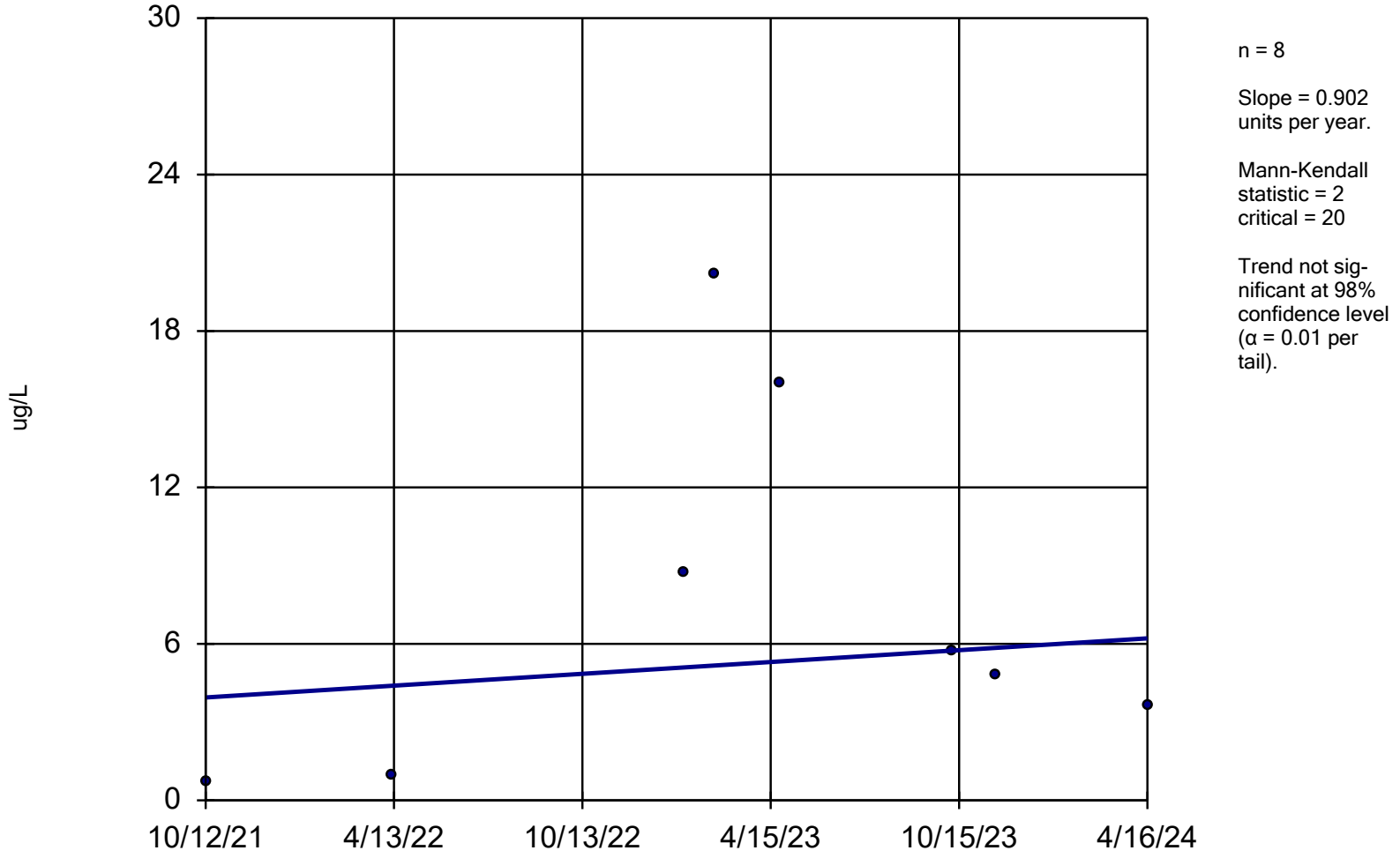
# Trend Test

Columbia Energy Center  Client: SCS Engineers  Data: December - Chem- export-Dec2020  Printed 7/29/2024, 11:26 AM

| Constituent | Well | Slope | Calc. | Critical | Sig. | N | %NDs | Normality | Xform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt (ug/L) | MW-307 | 0.902 | 2 | 20 | No | 8 | 0 | n/a | n/a | 0.02 | NP |

# Cobalt

## MW-307




Sen's Slope and 98% Confidence Band  Analysis Run 7/29/2024 11:25 AM  View: COL Secondary Pond

Columbia Energy Center  Client: SCS Engineers  Data: December - Chem- export-Dec2020

# Sen's Slope Estimator

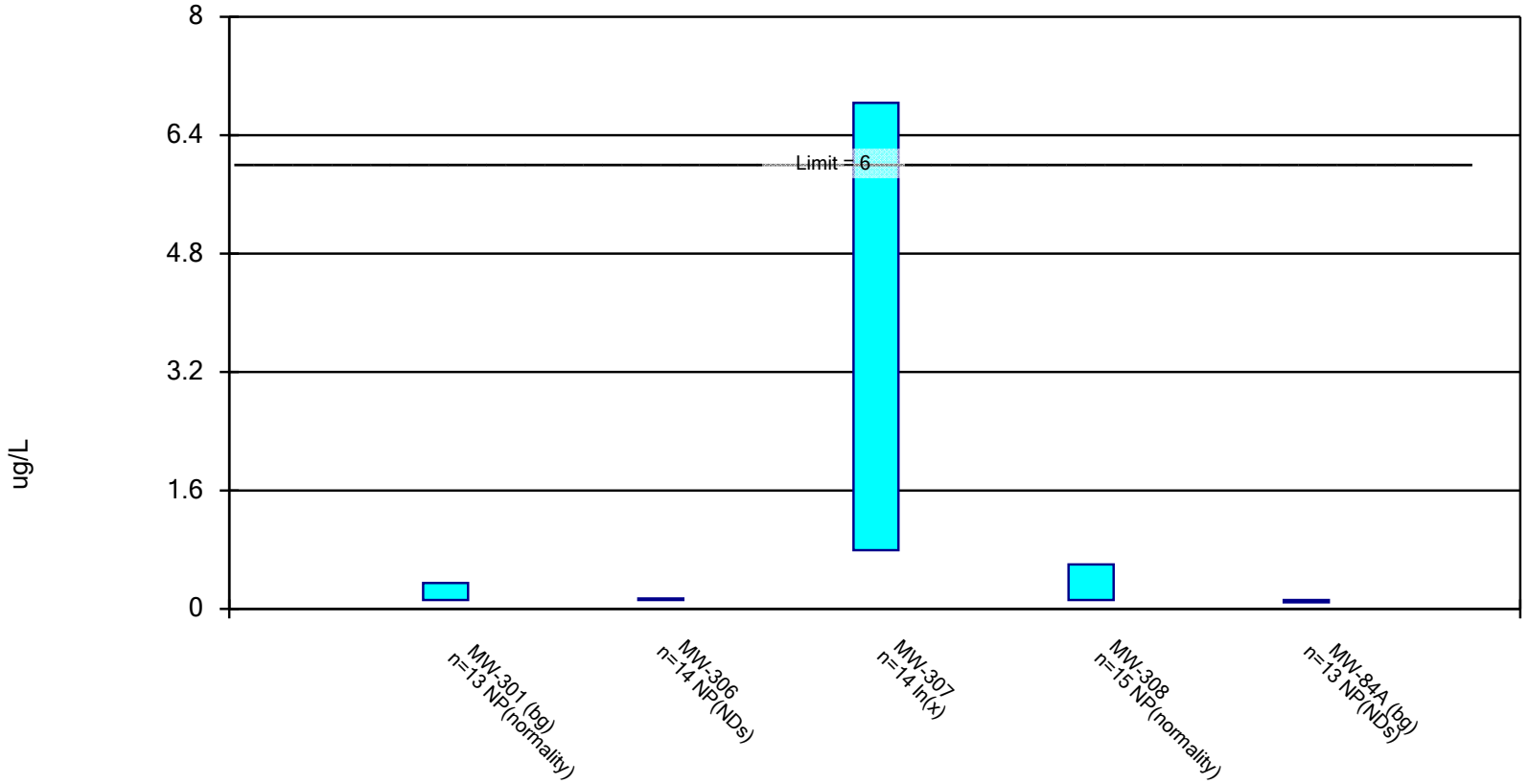
Constituent: Cobalt (ug/L) Analysis Run 7/29/2024 11:26 AM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-307 |
|---|---|
| 12/13/2019 | 0.46 (J) |
| 2/3/2020 | 1 |
| 5/27/2020 | 0.55 (J) |
| 10/8/2020 | 0.61 (J) |
| 4/12/2021 | 0.26 (J) |
| 10/12/2021 | 0.68 (J) |
| 4/12/2022 | 1 |
| 1/20/2023 | 8.7 |
| 2/20/2023 | 20.2 |
| 4/25/2023 | 16 |
| 10/10/2023 | 5.7 |
| 11/20/2023 | 4.8 |
| 4/16/2024 | 3.6 |

# E2 October 2024 LCL Evaluation – Cobalt for Historical Data Set and Last Eight Events of Assessment Monitoring

# Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.




Constituent: Cobalt Analysis Run 1/7/2025 3:51 PM View: COL Secondary Pond

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

# Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 1/7/2025 3:51 PM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-301 (bg) | MW-306 | MW-307 | MW-308 | MW-84A (bg) |
|---|---|---|---|---|---|
| 4/2/2019 | 0.35 (J) | | | | |
| 4/3/2019 | | | | | <0.12 (U) |
| 10/9/2019 | <0.12 (U) | | | | <0.12 (U) |
| 12/13/2019 | | <0.12 (U) | 0.46 (J) | <0.12 (U) | |
| 2/3/2020 | 0.17 (J) | <0.12 (U) | 1 | <0.12 (U) | <0.12 (U) |
| 5/27/2020 | | | 0.55 (J) | <0.12 (U) | |
| 5/28/2020 | | <0.12 (U) | | | |
| 5/29/2020 | <0.12 (U) | | | | <0.12 (U) |
| 10/7/2020 | | <0.12 (U) | | <0.12 (U) | |
| 10/8/2020 | 0.29 (J) | | 0.61 (J) | | <0.12 (U) |
| 4/12/2021 | | <0.12 (U) | 0.26 (J) | <0.12 (U) | |
| 4/14/2021 | <0.12 (U) | | | | 0.52 (J) |
| 10/12/2021 | | <0.12 (U) | 0.68 (J) | 0.22 (J) | |
| 10/14/2021 | 0.34 (J) | | | | 0.12 (J) |
| 4/11/2022 | | | | 0.22 (J) | |
| 4/12/2022 | | <0.12 (U) | 1 | | |
| 4/13/2022 | 0.32 (J) | | | | <0.12 (U) |
| 10/25/2022 | | | | <0.12 (U) | |
| 10/27/2022 | 0.52 (J) | | | | <0.12 (U) |
| 1/20/2023 | | 0.49 (J) | 8.7 | <0.12 (U) | |
| 2/20/2023 | | 0.14 (J) | 20.2 | 0.24 (J) | |
| 4/24/2023 | | <0.12 (U) | | 1.7 | |
| 4/25/2023 | | | 16 | | |
| 4/27/2023 | <0.12 (U) | | | | <0.12 (U) |
| 10/10/2023 | | 0.17 (J) | 5.7 | 0.53 (J) | |
| 10/11/2023 | 0.13 (J) | | | | <0.12 |
| 11/20/2023 | | <0.12 (U) | 4.8 | 2.2 | |
| 4/16/2024 | | <0.12 | 3.6 | 0.6 (J) | |
| 4/17/2024 | <0.12 | | | | <0.12 |
| 10/2/2024 | <0.12 | | | | <0.12 |
| 10/18/2024 | | <0.12 | 18.1 | 0.19 (J) | |
| Mean | 0.2185 | 0.1514 | 5.833 | 0.4493 | 0.1508 |
| Std. Dev. | 0.1313 | 0.09844 | 7.141 | 0.6344 | 0.1109 |
| Upper Lim. | 0.35 | 0.14 | 6.838 | 0.6 | 0.12 |
| Lower Lim. | 0.12 | 0.12 | 0.7921 | 0.12 | 0.12 |


ND substitution: RL or RL/2 if <15% NDs.

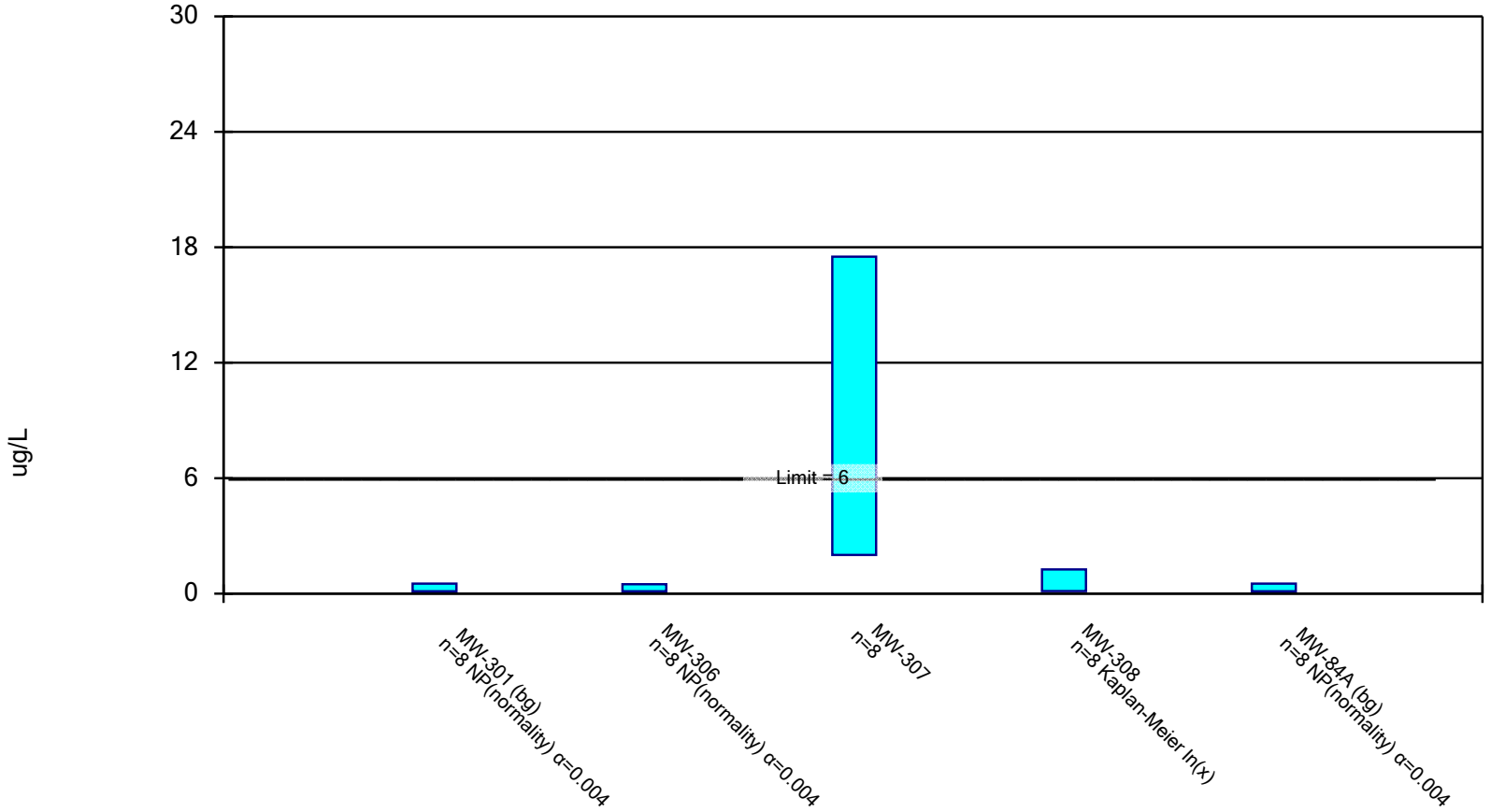
# Confidence Interval

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 1/7/2025, 3:50 PM

| Constituent | Well | Upper Lim. | Lower Lim. | Compliance | Sig. | N | %NDs | Transform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt (ug/L) | MW-301 (bg) | 0.52 | 0.12 | 6 | No | 8 | 50 | No | 0.004 | NP (normality) |
| Cobalt (ug/L) | MW-306 | 0.49 | 0.12 | 6 | No | 8 | 62.5 | No | 0.004 | NP (normality) |
| Cobalt (ug/L) | MW-307 | 17.51 | 2.011 | 6 | No | 8 | 0 | No | 0.01 | Param. |
| Cobalt (ug/L) | MW-308 | 1.255 | 0.1332 | 6 | No | 8 | 25 | ln(x) | 0.01 | Param. |
| Cobalt (ug/L) | MW-84A (bg) | 0.52 | 0.12 | 6 | No | 8 | 75 | No | 0.004 | NP (normality) |

# Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.




Constituent: Cobalt Analysis Run 1/7/2025 3:48 PM View: COL Secondary Pond

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

# Confidence Interval

Constituent: Cobalt (ug/L) Analysis Run 1/7/2025 3:50 PM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-301 (bg) | MW-306 | MW-307 | MW-308 | MW-84A (bg) |
|---|---|---|---|---|---|
| 4/14/2021 | <0.12 (U) | | | | 0.52 (J) |
| 10/14/2021 | 0.34 (J) | | | | 0.12 (J) |
| 4/12/2022 | | <0.12 (U) | 1 | | |
| 4/13/2022 | 0.32 (J) | | | | <0.12 (U) |
| 10/25/2022 | | | | <0.12 (U) | |
| 10/27/2022 | 0.52 (J) | | | | <0.12 (U) |
| 1/20/2023 | | 0.49 (J) | 8.7 | <0.12 (U) | |
| 2/20/2023 | | 0.14 (J) | 20.2 | 0.24 (J) | |
| 4/24/2023 | | <0.12 (U) | | 1.7 | |
| 4/25/2023 | | | 16 | | |
| 4/27/2023 | <0.12 (U) | | | | <0.12 (U) |
| 10/10/2023 | | 0.17 (J) | 5.7 | 0.53 (J) | |
| 10/11/2023 | 0.13 (J) | | | | <0.12 |
| 11/20/2023 | | <0.12 (U) | 4.8 | 2.2 | |
| 4/16/2024 | | <0.12 | 3.6 | 0.6 (J) | |
| 4/17/2024 | <0.12 | | | | <0.12 |
| 10/2/2024 | <0.12 | | | | <0.12 |
| 10/18/2024 | | <0.12 | 18.1 | 0.19 (J) | |
| Mean | 0.2237 | 0.175 | 9.763 | 0.7125 | 0.17 |
| Std. Dev. | 0.1523 | 0.1285 | 7.313 | 0.7957 | 0.1414 |
| Upper Lim. | 0.52 | 0.49 | 17.51 | 1.255 | 0.52 |
| Lower Lim. | 0.12 | 0.12 | 2.011 | 0.1332 | 0.12 |


ND substitution: RL or RL/2 if <15% NDs.

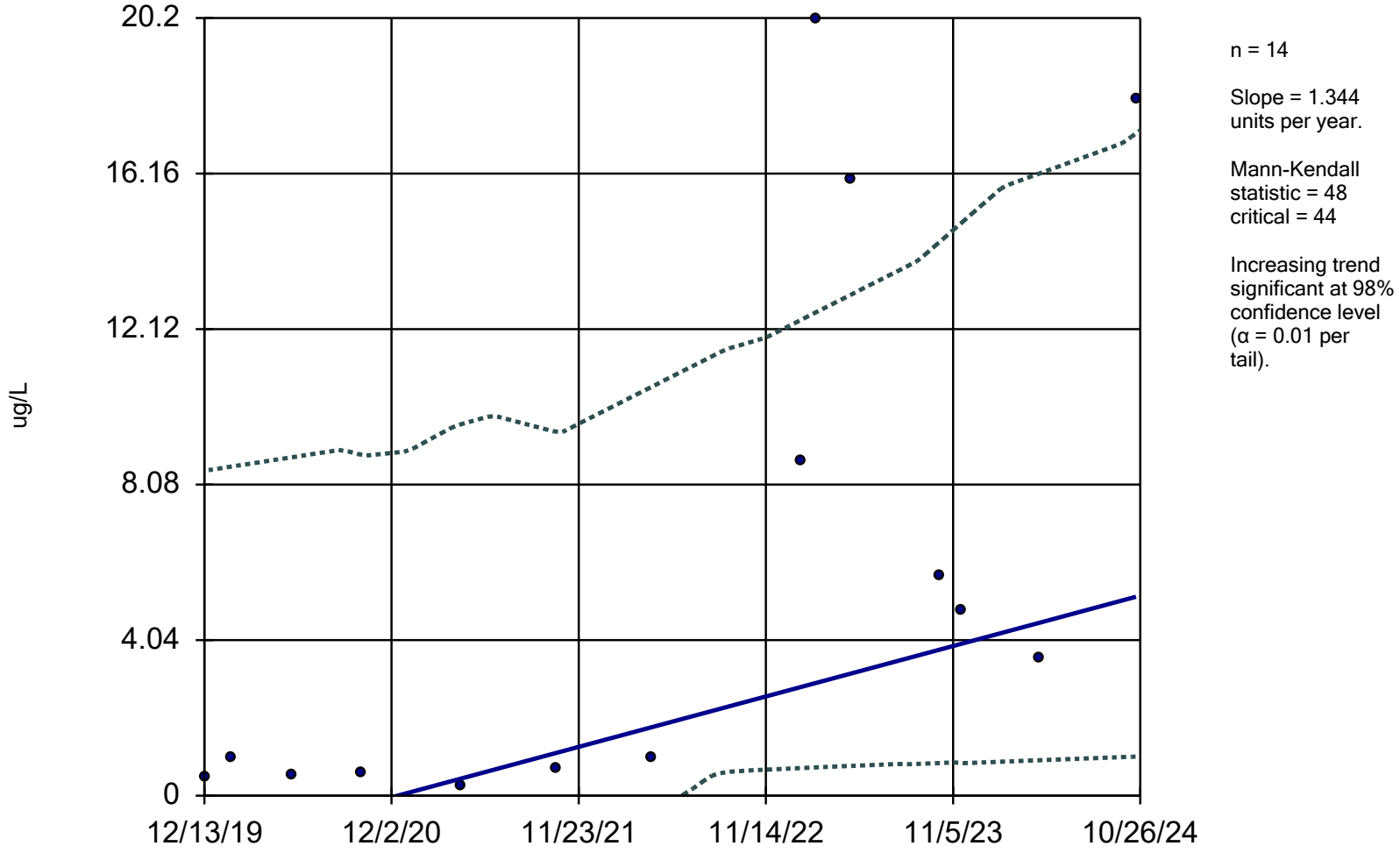
# Trend Test

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 1/7/2025, 3:54 PM

| Constituent | Well | Slope | Calc. | Critical | Sig. | N | %NDs | Normality | Xform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cobalt (ug/L)** | **MW-307** | **1.344** | **48** | **44** | **Yes** | **14** | **0** | **n/a** | **n/a** | **0.02** | **NP** |

# Cobalt

## MW-307




Sen's Slope and 98% Confidence Band  Analysis Run 1/7/2025 3:53 PM  View: COL Secondary Pond

Columbia Energy Center  Client: SCS Engineers  Data: December - Chem- export-Dec2020

# Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 1/7/2025 3:54 PM View: COL Secondary Pond
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

| | MW-307 | LCL | UCL |
|---|---|---|---|
| 12/13/2019 | 0.46 (J) | -8.985 | 8.44 |
| 2/3/2020 | 1 | -8.475 | 8.549 |
| 5/27/2020 | 0.55 (J) | -7.355 | 8.789 |
| 10/8/2020 | 0.61 (J) | -6.038 | 8.842 |
| 4/12/2021 | 0.26 (J) | -4.211 | 9.639 |
| 10/12/2021 | 0.68 (J) | -2.413 | 9.444 |
| 4/12/2022 | 1 | -0.5452 | 10.62 |
| 1/20/2023 | 8.7 | 0.7162 | 12.36 |
| 2/20/2023 | 20.2 | 0.7356 | 12.57 |
| 4/25/2023 | 16 | 0.7735 | 13.01 |
| 10/10/2023 | 5.7 | 0.8471 | 14.38 |
| 11/20/2023 | 4.8 | 0.8424 | 14.86 |
| 4/16/2024 | 3.6 | 0.9195 | 16.15 |
| 10/18/2024 | 18.1 | 1.016 | 17.2 |

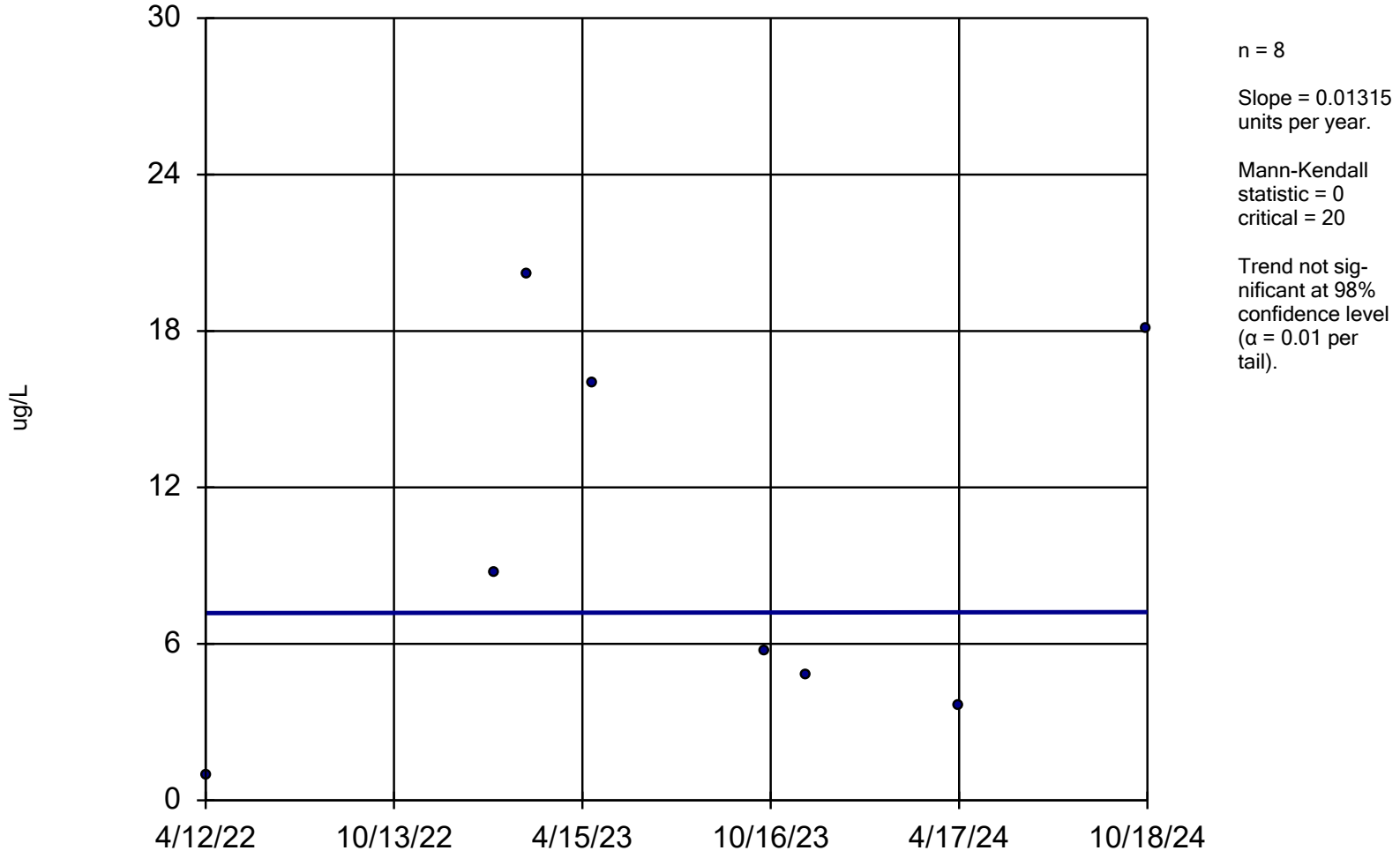
# Trend Test

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 1/7/2025, 3:54 PM

| Constituent | Well | Slope | Calc. | Critical | Sig. | N | %NDs | Normality | Xform | Alpha | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt (ug/L) | MW-307 | 0.01315 | 0 | 20 | No | 8 | 0 | n/a | n/a | 0.02 | NP |

# Cobalt

## MW-307




Sen's Slope and 98% Confidence Band  Analysis Run 1/7/2025 3:54 PM  View: COL Secondary Pond

Columbia Energy Center  Client: SCS Engineers  Data: December - Chem- export-Dec2020