



## 2017 Annual Groundwater Monitoring and Corrective Action Report

### **Columbia Energy Center Dry Ash Disposal Facility Pardeeville, Wisconsin**

Prepared for:



Prepared by:

**SCS ENGINEERS**  
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January 31, 2018  
File No. 25216067.17

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**2017 Annual Groundwater Monitoring and Corrective Action Report**

**Columbia Energy Center  
Dry Ash Disposal Facility  
Pardeeville, Wisconsin**

Prepared for:

**Alliant Energy**

Prepared by:

**SCS ENGINEERS**  
2830 Dairy Drive  
Madison, Wisconsin 53718-6751  
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## 1.0 INTRODUCTION

This 2017 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the “Coal Combustion Residuals (CCR) Final Rule” published by the U.S. Environmental Protection Agency (USEPA) in the *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, dated April 17, 2015 (USEPA, 2015). Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2017 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units.

This report covers the period of groundwater monitoring from December 21, 2015, through December 31, 2017. December 21, 2015, is the date of the first background sampling round. All future annual reports will cover the period from January 1 through December 31 of the previous year.

The groundwater monitoring system for the Columbia Energy Center (COL) Dry Ash Disposal Facility is a multi-unit system. The active CCR landfill at the Columbia Energy Center includes three existing CCR units:

- COL Dry Ash Disposal Facility – Module 1 (existing CCR Landfill)
- COL Dry Ash Disposal Facility – Module 2 (existing CCR Landfill)
- COL Dry Ash Disposal Facility – Module 3 (existing CCR Landfill)

The system is designed to detect monitored constituents at the waste boundary of the COL Dry Ash Disposal Facility as required by 40 CFR 257.91(d). The groundwater monitoring system consists of two upgradient and three downgradient monitoring wells.

## 2.0 §257.90(e) ANNUAL REPORT REQUIREMENTS

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

## 2.1 § 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 showing the Dry Ash Disposal Facility and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 1**. Other CCR units are also shown on **Figure 1**.

## 2.2 § 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 Dry Ash Disposal Facility in 2017. Upgradient monitoring well MW-301 and downgradient monitoring well MW-302 were installed on November 11-12, 2015, at the Dry Ash Disposal Facility. The following monitoring wells were installed prior to October 2015: MW-33AR (downgradient well), MW-34A (downgradient well), and MW-84A (upgradient well).

## 2.3 § 257.90(E)(3) SUMMARY OF SAMPLING EVENTS

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

Nine groundwater samples were collected from each CCR monitoring well for the establishment of background. Background sampling began in December 2015 and concluded in August 2017. Background samples were analyzed for both Appendix III and Appendix IV constituents. A summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs is included in **Table 1**. The results of the analytical laboratory analyses are provided in the laboratory reports in **Appendices A1** through **A9**.

Detection monitoring was initiated at the site on October 17, 2017. The date of sample collection, field measurements, and the analytical results of the analytical laboratory analyses are provided in **Appendix A10**.

Assessment monitoring has not been initiated for the Dry Ash Disposal Facility at the Columbia Energy Center.

## 2.4 §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);*

Following completion of nine background groundwater monitoring events, detection monitoring was initiated in October 2017 as described in Section 2.3. There were no transitions between monitoring programs or statistically significant increase (SSI) determinations completed in 2017.

## 2.5 §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 2017 Annual Groundwater Monitoring and Corrective Action Report for the CCR Units.

### 2.5.1 §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 detection monitoring.

**Summary of Key Actions Completed.** Collection of background groundwater quality data was completed, and the initial detection monitoring sampling and analysis event was completed.

**Description of Any Problems Encountered:**

- Monitoring wells MW-34A and MW-84A were resampled for radium in July 2016 (background round 3) because the original radium sample containers were damaged during shipping.

**Discussion of Actions to Resolve the Problems.** See above.

**Projection of Key Activities for the Upcoming Year (2018):**

- Statistical evaluation and determination of any SSIs for October 2017 monitoring event (by 1/15/18)

- If an SSI is determined, then within 90 days either
  - Complete alternative source demonstration (if applicable), or
  - Establish an assessment monitoring program
- Two semi-annual groundwater sampling and analysis events (April and October 2018)

### **2.5.2 §257.94(d) Alternative Detection Monitoring Frequency**

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

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

### **2.5.3 §257.94(e)(2) Alternative Source Demonstration for Detection Monitoring**

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

Not Applicable. No alternative source demonstration was completed in 2017.

### **2.5.4 §257.95(c) Alternative Assessment Monitoring Frequency**

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

Not Applicable. Assessment monitoring has not been initiated and no alternative assessment monitoring frequency has been proposed.

### **2.5.5 §257.95(d)(3) Assessment Monitoring Results and Standards**

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

Not Applicable. Assessment monitoring was not performed in 2017.



**2.5.6 §257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring**

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

Not Applicable. Assessment monitoring has not been initiated and no alternative source demonstration for assessment monitoring was completed in 2017.

**2.5.7 §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.

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**TABLE 1**

CCR Rule Groundwater Samples Summary

**Table 1. CCR Rule Groundwater Samples Summary**

**Columbia Energy Center-Dry Ash Disposal Facility / SCS Engineers Project #25216067**

Sample Dates	Downgradient Wells			Background Wells	
	MW-302	MW-34A	MW-33AR	MW-84A	MW-301
12/21-22/2015	B	B	B	B	B
4/4-5/2016	B	B	B	B	B
7/7-28/16	B	B	B	B	B
10/12-13/2016	B	B	B	B	B
12/29/2016	B	B	B	B	B
1/25-26/2017	B	B	B	B	B
4/10-11/2017	B	B	B	B	B
6/5-6/2017	B	B	B	B	B
8/7-9/2017	B	B	B	B	B
10/23-24/2017	D	D	D	D	D
Total Samples	10	10	10	10	10

Abbreviations:

B = Background Sample

D = Required by Detection Monitoring Program

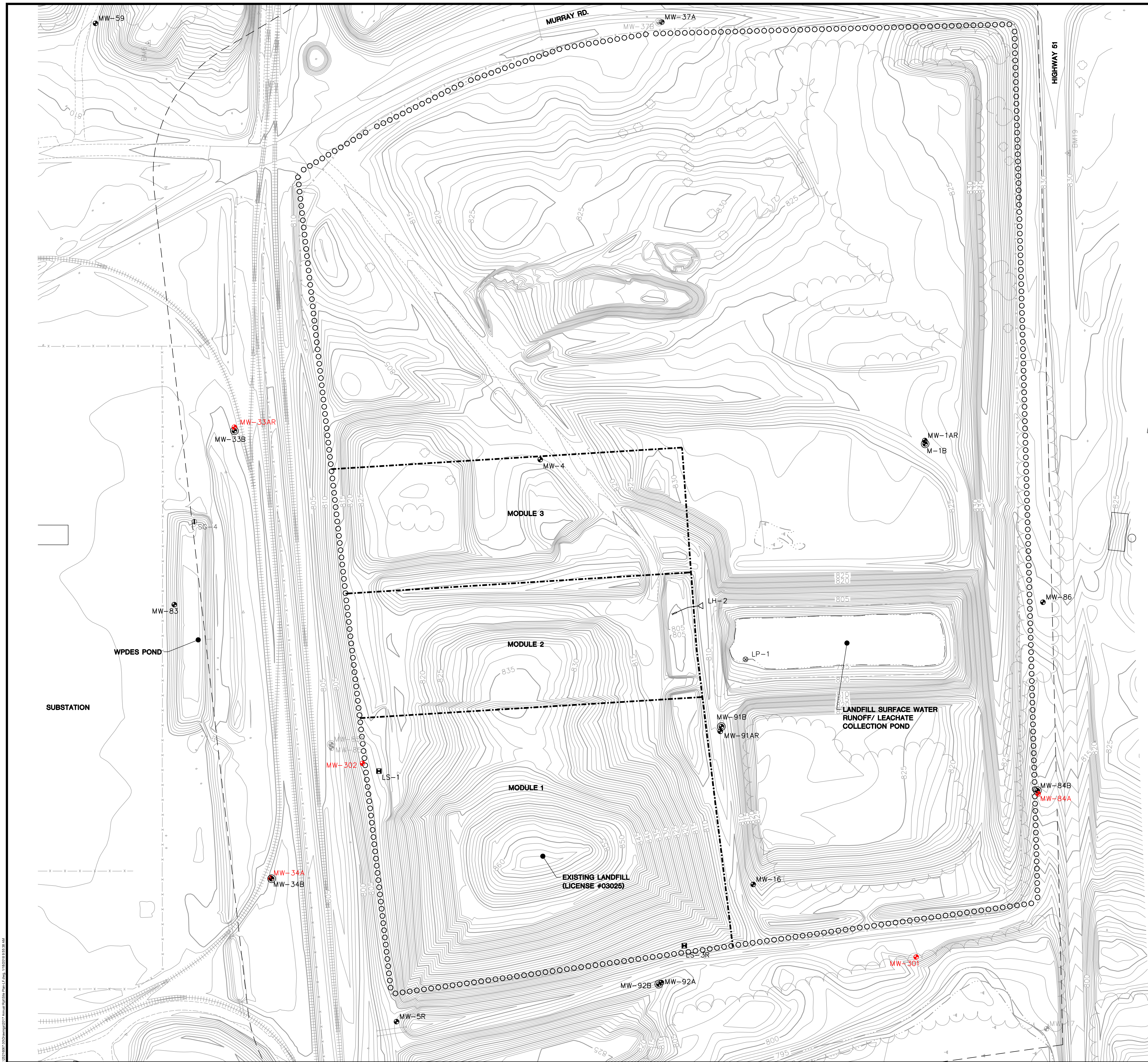
Created by: NDK Date: 1/4/2018  
 Last revision by: NDK Date: 1/8/2018  
 Checked by: JD Date: 1/8/2018

I:\25216067.00\Reports\2017 Annual Report-Active LF\[GW\_Samples\_Summary\_Table\_COL\_ActLF-1.xlsx]GW Summary

**FIGURE 1**

Site Plan and Well Location Map

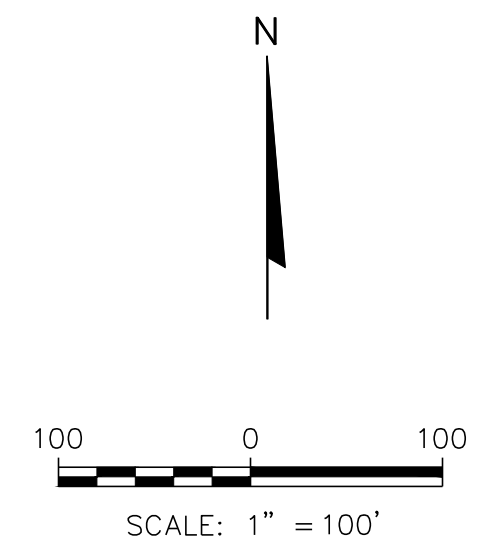




LEGEND

	EXISTING MAJOR CONTOUR (10' INTERVAL)
	EXISTING MINOR CONTOUR (2' CONTOUR)
	EXISTING FENCELINE
	EXISTING TRACKS
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EDGE OF WATER
	DESIGN MANAGEMENT ZONE
	APPROVED LIMITS OF WASTE
	CONSTRUCTED LIMITS OF WASTE
	WATER SUPPLY WELL
	STAFF GAUGE
	WATER TABLE WELL
	PIEZOMETER
	SURFACE WATER SAMPLE LOCATION
	LYSIMETER
	ABANDONED WATER TABLE WELL
	ABANDONED PIEZOMETER
	LEACHATE HEADWELL
	CCR RULE MONITORING WELL

- NOTES:
1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014.
  2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND AUGUST 2012.
  3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
  4. THE LOCATIONS OF THE ASH PONDS FACILITY DESIGN MANAGEMENT ZONE DEMARCATION LINES ARE APPROXIMATE AND BASED ON THE WATER TABLE MAP (OCTOBER 2012) FIGURE BY RMT.
  5. THE LOCATION OF THE ACTIVE DRY ASH LANDFILL DESIGN MANAGEMENT ZONE DEMARCATION LINE IS BASED ON A 300 FOOT OFFSET FROM THE DESIGN LIMITS OF ASH EXCEPT WHERE OFFSET WOULD EXTEND LINE BEYOND PROPERTY LINE.





## **APPENDIX A**

- A1 Round 1 Background Sampling, Analytical Laboratory Report
- A2 Round 2 Background Sampling, Analytical Laboratory Report
- A3 Round 3 Background Sampling, Analytical Laboratory Report
- A4 Round 4 Background Sampling, Analytical Laboratory Report
- A5 Round 5 Background Sampling, Analytical Laboratory Report
- A6 Round 6 Background Sampling, Analytical Laboratory Report
- A7 Round 7 Background Sampling, Analytical Laboratory Report
- A8 Round 8 Background Sampling, Analytical Laboratory Report
- A9 Round 9 Background Sampling, Analytical Laboratory Report
- A10 Fall 2017 Detection Sampling, Analytical Laboratory Report

## A1 Round 1 Background Sampling, Analytical Laboratory Report



January 25, 2018

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on December 24, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the January 16, 2016 report. This report has been reissued on January 25, 2018. In 2017, the process for calculating Total Radium concentration using results from individual Ra-226 and Ra-228 analyses was standardized. At the client's request, this project from 2016 has been revised to include a Total Radium concentration using the standardized method.

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

Sincerely,



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

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Kyle Kramer, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY

Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
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## CERTIFICATIONS

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
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 Certification  
Wyoming Certification #: 8TMS-L

---

### Green Bay Certification IDs

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

Virginia VELAP ID: 460263  
South Carolina Certification #: 83006001  
Texas Certification #: T104704529-14-1  
Wisconsin Certification #: 405132750  
Wisconsin DATCP Certification #: 105-444  
USDA Soil Permit #: P330-16-00157  
Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40126561001	MW305	Water	12/21/15 10:30	12/24/15 08:35
40126561002	MW304	Water	12/21/15 11:35	12/24/15 08:35
40126561003	MW303	Water	12/21/15 12:40	12/24/15 08:35
40126561004	MW33AR	Water	12/21/15 14:00	12/24/15 08:35
40126561005	MW34A	Water	12/21/15 15:10	12/24/15 08:35
40126561006	MW34A DUP	Water	12/21/15 15:10	12/24/15 08:35
40126561007	MW301	Water	12/22/15 09:45	12/24/15 08:35
40126561008	MW84A	Water	12/22/15 11:05	12/24/15 08:35
40126561009	MW302	Water	12/22/15 12:25	12/24/15 08:35
40126561010	MW4R	Water	12/22/15 14:00	12/24/15 08:35
40126561011	FB	Water	12/22/15 14:10	12/24/15 08:35

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40126561001	MW305	EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40126561002	MW304	EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40126561003	MW303	EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40126561004	MW33AR	EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40126561005	MW34A	EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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### SAMPLE ANALYTE COUNT

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40126561006	MW34A DUP	SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
40126561007	MW301	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
40126561008	MW84A	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
40126561009	MW302	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	JBR	14	PASI-G
40126561010	MW4R	EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 7470	AJT	1	PASI-G
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40126561011	FB	EPA 6020	JBR	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

**Sample: MW305**      **Lab ID: 40126561001**      Collected: 12/21/15 10:30      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<b>0.81J</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 15:19	7440-36-0	
Arsenic	<b>0.56J</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 15:19	7440-38-2	
Barium	<b>9.8</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 15:19	7440-39-3	
Beryllium	<b>0.19J</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 15:19	7440-41-7	
Boron	<b>1020</b>	ug/L	50.0	10	5	12/29/15 09:44	12/31/15 20:47	7440-42-8	
Cadmium	<b>0.31J</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 15:19	7440-43-9	
Calcium	<b>46400</b>	ug/L	1250	368	5	12/29/15 09:44	12/31/15 20:47	7440-70-2	
Chromium	<b>1.4</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 15:19	7440-47-3	
Cobalt	<b>0.37J</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 15:19	7440-48-4	
Lead	<b>0.38J</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 15:19	7439-92-1	
Lithium	<b>0.50J</b>	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 15:19	7439-93-2	
Molybdenum	<b>33.2</b>	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 15:19	7439-98-7	
Selenium	<b>3.7</b>	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 15:19	7782-49-2	
Thallium	<b>0.44J</b>	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 15:19	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:11	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>258</b>	mg/L	20.0	8.7	1		12/28/15 15:35		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	<b>7.9</b>	Std. Units	0.10	0.010	1		12/28/15 10:30		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>37.1</b>	mg/L	4.0	2.0	1		01/04/16 17:05	16887-00-6	
Fluoride	<b>0.76</b>	mg/L	0.40	0.20	1		01/04/16 17:05	16984-48-8	
Sulfate	<b>105</b>	mg/L	20.0	10.0	5		01/05/16 10:49	14808-79-8	

**Sample: MW304**      **Lab ID: 40126561002**      Collected: 12/21/15 11:35      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<b>0.72J</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 15:44	7440-36-0	
Arsenic	<b>2.3</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 15:44	7440-38-2	
Barium	<b>42.9</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 15:44	7440-39-3	
Beryllium	<b>0.34J</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 15:44	7440-41-7	
Boron	<b>609</b>	ug/L	10.0	2.0	1	12/29/15 09:44	12/31/15 21:19	7440-42-8	
Cadmium	<b>0.64J</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 15:44	7440-43-9	
Calcium	<b>78800</b>	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 15:44	7440-70-2	
Chromium	<b>2.1</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 15:44	7440-47-3	
Cobalt	<b>1.9</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 15:44	7440-48-4	
Lead	<b>1.1</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 15:44	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

<b>Sample: MW304</b>									
<b>Lab ID: 40126561002</b>									
Collected: 12/21/15 11:35 Received: 12/24/15 08:35 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Lithium	<b>0.93J</b>	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 15:44	7439-93-2	
Molybdenum	<b>15.6</b>	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 15:44	7439-98-7	
Selenium	<b>1.0</b>	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 15:44	7782-49-2	
Thallium	<b>0.68J</b>	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 15:44	7440-28-0	
<b>7470 Mercury</b>									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:13	7439-97-6	
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Total Dissolved Solids	<b>420</b>	mg/L	20.0	8.7	1		12/28/15 15:35		
<b>9040 pH</b>									
Analytical Method: EPA 9040									
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		12/28/15 10:30		H6
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0									
Chloride	<b>34.2</b>	mg/L	4.0	2.0	1		01/04/16 17:16	16887-00-6	
Fluoride	<b>0.27J</b>	mg/L	0.40	0.20	1		01/04/16 17:16	16984-48-8	
Sulfate	<b>71.9</b>	mg/L	20.0	10.0	5		01/05/16 11:01	14808-79-8	

<b>Sample: MW303</b>									
<b>Lab ID: 40126561003</b>									
Collected: 12/21/15 12:40 Received: 12/24/15 08:35 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Antimony	<b>0.92J</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 15:57	7440-36-0	
Arsenic	<b>49.2</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 15:57	7440-38-2	
Barium	<b>19.1</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 15:57	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 15:57	7440-41-7	
Boron	<b>3000</b>	ug/L	50.0	10	5	12/29/15 09:44	12/31/15 21:31	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 15:57	7440-43-9	
Calcium	<b>9830</b>	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 15:57	7440-70-2	
Chromium	<b>50.6</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 15:57	7440-47-3	
Cobalt	<b>1.8</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 15:57	7440-48-4	
Lead	<b>1.4</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 15:57	7439-92-1	
Lithium	<b>1.6</b>	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 15:57	7439-93-2	
Molybdenum	<b>195</b>	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 15:57	7439-98-7	
Selenium	<b>126</b>	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 15:57	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 15:57	7440-28-0	
<b>7470 Mercury</b>									
Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:16	7439-97-6	

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## ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

**Sample: MW303**      **Lab ID: 40126561003**      Collected: 12/21/15 12:40      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>1230</b>	mg/L	20.0	8.7	1		12/28/15 15:36		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	<b>9.5</b>	Std. Units	0.10	0.010	1		12/28/15 10:30		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>29.6J</b>	mg/L	40.0	20.0	10		01/05/16 11:12	16887-00-6	D3,M0
Fluoride	<b>&lt;2.0</b>	mg/L	4.0	2.0	10		01/05/16 11:12	16984-48-8	D3
Sulfate	<b>597</b>	mg/L	200	100	50		01/05/16 18:08	14808-79-8	

**Sample: MW33AR**      **Lab ID: 40126561004**      Collected: 12/21/15 14:00      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<b>0.14J</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:03	7440-36-0	
Arsenic	<b>0.46J</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:03	7440-38-2	
Barium	<b>25.8</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:03	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:03	7440-41-7	
Boron	<b>954</b>	ug/L	50.0	10	5	12/29/15 09:44	12/31/15 21:38	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:03	7440-43-9	
Calcium	<b>50000</b>	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:03	7440-70-2	
Chromium	<b>2.3</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:03	7440-47-3	
Cobalt	<b>&lt;0.036</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:03	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:03	7439-92-1	
Lithium	<b>1.3</b>	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:03	7439-93-2	
Molybdenum	<b>4.7</b>	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:03	7439-98-7	
Selenium	<b>2.2</b>	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:03	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:03	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:18	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>356</b>	mg/L	20.0	8.7	1		12/28/15 15:36		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	<b>7.8</b>	Std. Units	0.10	0.010	1		12/28/15 10:30		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>10.6</b>	mg/L	4.0	2.0	1		01/05/16 13:19	16887-00-6	B
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		01/05/16 13:19	16984-48-8	
Sulfate	<b>96.2</b>	mg/L	20.0	10.0	5		01/05/16 18:42	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

**Sample: MW34A**      **Lab ID: 40126561005**      Collected: 12/21/15 15:10      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:23	7440-36-0	
Arsenic	0.20J	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:23	7440-38-2	
Barium	15.8	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:23	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:23	7440-41-7	
Boron	230	ug/L	10.0	2.0	1	12/29/15 09:44	12/31/15 21:44	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:23	7440-43-9	
Calcium	65300	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:23	7440-70-2	
Chromium	2.5	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:23	7440-47-3	
Cobalt	0.29J	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:23	7440-48-4	
Lead	0.38J	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:23	7439-92-1	
Lithium	0.70J	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:23	7439-93-2	
Molybdenum	1.1	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:23	7439-98-7	
Selenium	0.77J	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:23	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:23	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:20	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	300	mg/L	20.0	8.7	1		12/28/15 15:37		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.7	Std. Units	0.10	0.010	1		12/28/15 10:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	4.9	mg/L	4.0	2.0	1		01/05/16 13:31	16887-00-6	B
Fluoride	<0.20	mg/L	0.40	0.20	1		01/05/16 13:31	16984-48-8	
Sulfate	69.9	mg/L	20.0	10.0	5		01/05/16 19:17	14808-79-8	

**Sample: MW34A DUP**      **Lab ID: 40126561006**      Collected: 12/21/15 15:10      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:29	7440-36-0	
Arsenic	0.20J	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:29	7440-38-2	
Barium	11.1	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:29	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:29	7440-41-7	
Boron	205	ug/L	10.0	2.0	1	12/29/15 09:44	01/05/16 17:17	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:29	7440-43-9	
Calcium	65200	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:29	7440-70-2	
Chromium	2.2	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:29	7440-47-3	
Cobalt	0.13J	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:29	7440-48-4	
Lead	0.18J	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:29	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

Sample: MW34A DUP      Lab ID: 40126561006      Collected: 12/21/15 15:10      Received: 12/24/15 08:35      Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Lithium	0.64J	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:29	7439-93-2	
Molybdenum	1.1	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:29	7439-98-7	
Selenium	1.0	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:29	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:29	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<0.10	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:23	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	324	mg/L	20.0	8.7	1		12/28/15 15:37		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	7.7	Std. Units	0.10	0.010	1		12/28/15 10:30		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	4.8	mg/L	4.0	2.0	1		01/05/16 13:42	16887-00-6	B
Fluoride	<0.20	mg/L	0.40	0.20	1		01/05/16 13:42	16984-48-8	
Sulfate	71.3	mg/L	20.0	10.0	5		01/05/16 19:29	14808-79-8	

Sample: MW301      Lab ID: 40126561007      Collected: 12/22/15 09:45      Received: 12/24/15 08:35      Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	0.15J	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:35	7440-36-0	
Arsenic	0.26J	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:35	7440-38-2	
Barium	20.2	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:35	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:35	7440-41-7	
Boron	26.5	ug/L	10.0	2.0	1	12/29/15 09:44	01/05/16 17:23	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:35	7440-43-9	
Calcium	126000	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:35	7440-70-2	
Chromium	2.1	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:35	7440-47-3	
Cobalt	1.4	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:35	7440-48-4	
Lead	0.90J	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:35	7439-92-1	
Lithium	1.3	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:35	7439-93-2	
Molybdenum	0.35J	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:35	7439-98-7	B
Selenium	0.30J	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:35	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:35	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<0.10	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:25	7439-97-6	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

**Sample: MW301**      **Lab ID: 40126561007**      Collected: 12/22/15 09:45      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>478</b>	mg/L	20.0	8.7	1		12/28/15 15:38		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	<b>7.0</b>	Std. Units	0.10	0.010	1		12/28/15 10:50		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>3.7J</b>	mg/L	4.0	2.0	1		01/05/16 13:54	16887-00-6	B
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		01/05/16 13:54	16984-48-8	
Sulfate	<b>9.3</b>	mg/L	4.0	2.0	1		01/05/16 13:54	14808-79-8	

**Sample: MW84A**      **Lab ID: 40126561008**      Collected: 12/22/15 11:05      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<b>&lt;0.073</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:42	7440-36-0	
Arsenic	<b>0.15J</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:42	7440-38-2	
Barium	<b>15.3</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:42	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:42	7440-41-7	
Boron	<b>11.9</b>	ug/L	10.0	2.0	1	12/29/15 09:44	01/05/16 17:29	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:42	7440-43-9	
Calcium	<b>74000</b>	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:42	7440-70-2	
Chromium	<b>2.5</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:42	7440-47-3	
Cobalt	<b>0.095J</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:42	7440-48-4	
Lead	<b>0.16J</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:42	7439-92-1	
Lithium	<b>0.72J</b>	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:42	7439-93-2	
Molybdenum	<b>&lt;0.070</b>	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:42	7439-98-7	
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:42	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:42	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:27	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>316</b>	mg/L	20.0	8.7	1		12/28/15 15:38		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	<b>7.5</b>	Std. Units	0.10	0.010	1		12/28/15 10:50		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>4.9</b>	mg/L	4.0	2.0	1		01/05/16 14:05	16887-00-6	B
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		01/05/16 14:05	16984-48-8	
Sulfate	<b>4.9</b>	mg/L	4.0	2.0	1		01/05/16 14:05	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

**Sample: MW302**      **Lab ID: 40126561009**      Collected: 12/22/15 12:25      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.17J</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:48	7440-36-0	
Arsenic	<b>&lt;0.099</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:48	7440-38-2	
Barium	<b>14.3</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:48	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:48	7440-41-7	
Boron	<b>80.0</b>	ug/L	10.0	2.0	1	12/29/15 09:44	01/05/16 17:36	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:48	7440-43-9	
Calcium	<b>68800</b>	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:48	7440-70-2	
Chromium	<b>2.3</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:48	7440-47-3	
Cobalt	<b>0.11J</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:48	7440-48-4	
Lead	<b>0.10J</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:48	7439-92-1	
Lithium	<b>17.1</b>	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:48	7439-93-2	
Molybdenum	<b>8.9</b>	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:48	7439-98-7	
Selenium	<b>2.8</b>	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:48	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:48	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:34	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>312</b>	mg/L	20.0	8.7	1		12/28/15 15:39		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.5</b>	Std. Units	0.10	0.010	1		12/28/15 10:50		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.2</b>	mg/L	4.0	2.0	1		01/05/16 14:40	16887-00-6	B
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		01/05/16 14:40	16984-48-8	
Sulfate	<b>37.4</b>	mg/L	4.0	2.0	1		01/05/16 14:40	14808-79-8	

**Sample: MW4R**      **Lab ID: 40126561010**      Collected: 12/22/15 14:00      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.13J</b>	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 16:54	7440-36-0	
Arsenic	<b>0.17J</b>	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 16:54	7440-38-2	
Barium	<b>25.4</b>	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 16:54	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 16:54	7440-41-7	
Boron	<b>1000</b>	ug/L	50.0	10	5	12/29/15 09:44	01/05/16 17:42	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 16:54	7440-43-9	
Calcium	<b>105000</b>	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 16:54	7440-70-2	
Chromium	<b>0.68J</b>	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 16:54	7440-47-3	
Cobalt	<b>0.33J</b>	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 16:54	7440-48-4	
Lead	<b>0.067J</b>	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 16:54	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

Sample: MW4R Lab ID: 40126561010 Collected: 12/22/15 14:00 Received: 12/24/15 08:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Lithium	4.3	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 16:54	7439-93-2	
Molybdenum	14.6	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 16:54	7439-98-7	
Selenium	3.0	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 16:54	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 16:54	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:36	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	544	mg/L	20.0	8.7	1		12/28/15 15:39		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		12/28/15 10:50		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	45.9	mg/L	4.0	2.0	1		01/05/16 14:52	16887-00-6	
Fluoride	0.22J	mg/L	0.40	0.20	1		01/05/16 14:52	16984-48-8	
Sulfate	112	mg/L	20.0	10.0	5		01/05/16 19:40	14808-79-8	

Sample: FB Lab ID: 40126561011 Collected: 12/22/15 14:10 Received: 12/24/15 08:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	12/29/15 09:44	12/30/15 17:01	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	12/29/15 09:44	12/30/15 17:01	7440-38-2	
Barium	0.40J	ug/L	1.0	0.062	1	12/29/15 09:44	12/30/15 17:01	7440-39-3	B
Beryllium	<0.13	ug/L	1.0	0.13	1	12/29/15 09:44	12/30/15 17:01	7440-41-7	
Boron	3.1J	ug/L	10.0	2.0	1	12/29/15 09:44	01/05/16 17:48	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	12/29/15 09:44	12/30/15 17:01	7440-43-9	
Calcium	202J	ug/L	250	73.6	1	12/29/15 09:44	12/30/15 17:01	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	12/29/15 09:44	12/30/15 17:01	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	12/29/15 09:44	12/30/15 17:01	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	12/29/15 09:44	12/30/15 17:01	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	12/29/15 09:44	12/30/15 17:01	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	12/29/15 09:44	12/30/15 17:01	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	12/29/15 09:44	12/30/15 17:01	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	12/29/15 09:44	12/30/15 17:01	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	12/29/15 14:10	12/30/15 09:39	7439-97-6	

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### ANALYTICAL RESULTS

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

**Sample: FB**      **Lab ID: 40126561011**      Collected: 12/22/15 14:10      Received: 12/24/15 08:35      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Total Dissolved Solids	<b>&lt;8.7</b>	mg/L	20.0	8.7	1		12/28/15 15:39		
<b>9040 pH</b>									
Analytical Method: EPA 9040									
pH	<b>3.8</b>	Std. Units	0.10	0.010	1		12/30/15 09:00		H6
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0									
Chloride	<b>2.5J</b>	mg/L	4.0	2.0	1		01/05/16 15:03	16887-00-6	B
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		01/05/16 15:03	16984-48-8	
Sulfate	<b>&lt;2.0</b>	mg/L	4.0	2.0	1		01/05/16 15:03	14808-79-8	

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### QUALITY CONTROL DATA

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

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QC Batch: 214223 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

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METHOD BLANK: 1279157 Matrix: Water  
 Associated Lab Samples: 40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.10	0.20	12/30/15 08:39	

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LABORATORY CONTROL SAMPLE: 1279158

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

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MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1279159 1279160

Parameter	Units	40126353001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.10	5	5	5.0	4.9	99	98	85-115	1	20	

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

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### QUALITY CONTROL DATA

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

QC Batch: 214176 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

METHOD BLANK: 1279060 Matrix: Water  
Associated Lab Samples: 40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.073	1.0	12/30/15 15:06	
Arsenic	ug/L	<0.099	1.0	12/30/15 15:06	
Barium	ug/L	0.51J	1.0	12/30/15 15:06	
Beryllium	ug/L	<0.13	1.0	12/30/15 15:06	
Boron	ug/L	<2.0	10.0	12/31/15 19:56	
Cadmium	ug/L	<0.089	1.0	12/30/15 15:06	
Calcium	ug/L	<73.6	250	12/30/15 15:06	
Chromium	ug/L	<0.39	1.0	12/30/15 15:06	
Cobalt	ug/L	<0.036	1.0	12/30/15 15:06	
Lead	ug/L	<0.040	1.0	12/30/15 15:06	
Lithium	ug/L	<0.11	1.0	12/30/15 15:06	
Molybdenum	ug/L	0.093J	1.0	12/30/15 15:06	
Selenium	ug/L	<0.21	1.0	12/30/15 15:06	
Thallium	ug/L	<0.14	1.0	12/30/15 15:06	

LABORATORY CONTROL SAMPLE: 1279061

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	521	104	80-120	
Arsenic	ug/L	500	505	101	80-120	
Barium	ug/L	500	494	99	80-120	
Beryllium	ug/L	500	496	99	80-120	
Boron	ug/L	500	475	95	80-120	
Cadmium	ug/L	500	523	105	80-120	
Calcium	ug/L	5000	4860	97	80-120	
Chromium	ug/L	500	494	99	80-120	
Cobalt	ug/L	500	483	97	80-120	
Lead	ug/L	500	495	99	80-120	
Lithium	ug/L	500	465	93	80-120	
Molybdenum	ug/L	500	516	103	80-120	
Selenium	ug/L	500	529	106	80-120	
Thallium	ug/L	500	504	101	80-120	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Parameter	Units	1279062		1279063		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40126561001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	0.81J	500	500	514	520	103	104	75-125	1	20		
Arsenic	ug/L	0.56J	500	500	505	508	101	102	75-125	1	20		
Barium	ug/L	9.8	500	500	497	501	97	98	75-125	1	20		
Beryllium	ug/L	0.19J	500	500	484	481	97	96	75-125	1	20		
Boron	ug/L	1020	500	500	1470	1480	91	93	75-125	1	20		
Cadmium	ug/L	0.31J	500	500	511	516	102	103	75-125	1	20		
Calcium	ug/L	46400	5000	5000	52400	50700	119	85	75-125	3	20		
Chromium	ug/L	1.4	500	500	492	489	98	97	75-125	1	20		
Cobalt	ug/L	0.37J	500	500	476	479	95	96	75-125	1	20		
Lead	ug/L	0.38J	500	500	499	498	100	100	75-125	0	20		
Lithium	ug/L	0.50J	500	500	458	459	92	92	75-125	0	20		
Molybdenum	ug/L	33.2	500	500	550	551	103	104	75-125	0	20		
Selenium	ug/L	3.7	500	500	522	533	104	106	75-125	2	20		
Thallium	ug/L	0.44J	500	500	509	509	102	102	75-125	0	20		

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### QUALITY CONTROL DATA

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

QC Batch: 214159

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

METHOD BLANK: 1279027

Matrix: Water

Associated Lab Samples: 40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	12/28/15 15:27	

LABORATORY CONTROL SAMPLE: 1279028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	562	592	105	80-120	

SAMPLE DUPLICATE: 1279029

Parameter	Units	40126485001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	234	238	2	5	

SAMPLE DUPLICATE: 1279030

Parameter	Units	40126592001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	772	784	2	5	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

QC Batch: 214037 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40126561001, 40126561002, 40126561003

METHOD BLANK: 1278692 Matrix: Water  
Associated Lab Samples: 40126561001, 40126561002, 40126561003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<2.0	4.0	01/04/16 09:57	
Fluoride	mg/L	<0.20	0.40	01/04/16 09:57	
Sulfate	mg/L	<2.0	4.0	01/04/16 09:57	

LABORATORY CONTROL SAMPLE: 1278693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.6	93	90-110	
Fluoride	mg/L	2	1.9	94	90-110	
Sulfate	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1278694 1278695

Parameter	Units	40126392009		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	Spike Conc.	Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	152	400	400	510	506	89	88	90-110	1	20	M0	
Fluoride	mg/L	<4.0	40	40	39.6	38.7	99	97	90-110	2	20		
Sulfate	mg/L	<40.0	400	400	406	385	92	86	90-110	5	20	M0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1278696 1278697

Parameter	Units	40126561003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	Spike Conc.	Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	29.6J	200	200	196	197	83	84	90-110	1	20	M0	
Fluoride	mg/L	<2.0	20	20	20.0	20.2	92	93	90-110	1	20		
Sulfate	mg/L	597	1000	1000	1540	1550	95	96	90-110	1	20		

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### QUALITY CONTROL DATA

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

QC Batch: 214443 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

METHOD BLANK: 1280078 Matrix: Water  
Associated Lab Samples: 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	2.5J	4.0	01/05/16 10:03	
Fluoride	mg/L	<0.20	0.40	01/05/16 10:03	
Sulfate	mg/L	<2.0	4.0	01/05/16 10:03	

LABORATORY CONTROL SAMPLE: 1280079

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.7	94	90-110	
Fluoride	mg/L	2	1.9	96	90-110	
Sulfate	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1280080 1280081

Parameter	Units	40126694001		1280081		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	4.9	20	22.3	22.6	87	88	90-110	1	20	M0
Fluoride	mg/L	0.74	2	2.6	2.6	94	95	90-110	1	20	
Sulfate	mg/L	9.8	20	28.5	28.8	94	95	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1280082 1280083

Parameter	Units	40126714002		1280083		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	6.5	20	24.9	25.0	92	92	90-110	0	20	
Fluoride	mg/L	1.4	2	3.4	3.4	98	99	90-110	1	20	
Sulfate	mg/L	161	200	353	351	96	95	90-110	0	20	

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### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

Sample: MW305		Lab ID: 40126561001	Collected: 12/21/15 10:30	Received: 12/24/15 08:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.253 ± 0.584 (0.965)</b> C:NA T:90%	pCi/L	01/13/16 10:23	13982-63-3	
Radium-228	EPA 904.0	<b>-0.223 ± 0.428 (1.04)</b> C:83% T:77%	pCi/L	01/11/16 16:22	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.253 ± 1.01 (2.01)</b>	pCi/L	01/16/16 11:37	7440-14-4	

Sample: MW304		Lab ID: 40126561002	Collected: 12/21/15 11:35	Received: 12/24/15 08:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.759 ± 0.750 (0.975)</b> C:NA T:85%	pCi/L	01/13/16 10:43	13982-63-3	
Radium-228	EPA 904.0	<b>0.267 ± 0.422 (0.914)</b> C:87% T:78%	pCi/L	01/11/16 16:22	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.03 ± 1.17 (1.89)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Sample: MW303		Lab ID: 40126561003	Collected: 12/21/15 12:40	Received: 12/24/15 08:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.25 ± 0.935 (0.483)</b> C:NA T:94%	pCi/L	01/13/16 10:42	13982-63-3	
Radium-228	EPA 904.0	<b>0.404 ± 0.421 (0.874)</b> C:86% T:82%	pCi/L	01/11/16 16:23	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.65 ± 1.36 (1.36)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Sample: MW33AR		Lab ID: 40126561004	Collected: 12/21/15 14:00	Received: 12/24/15 08:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.202 ± 0.920 (0.546)</b> C:NA T:85%	pCi/L	01/13/16 11:03	13982-63-3	
Radium-228	EPA 904.0	<b>0.558 ± 0.476 (0.958)</b> C:84% T:74%	pCi/L	01/11/16 16:22	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.760 ± 1.40 (1.50)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Sample: MW34A		Lab ID: 40126561005	Collected: 12/21/15 15:10	Received: 12/24/15 08:35	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.585 ± 0.684 (0.969)</b> C:NA T:91%	pCi/L	01/13/16 11:23	13982-63-3	
Radium-228	EPA 904.0	<b>0.104 ± 0.423 (0.960)</b> C:84% T:72%	pCi/L	01/11/16 16:23	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW34A</b> <b>Lab ID: 40126561005</b> Collected: 12/21/15 15:10      Received: 12/24/15 08:35      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	<b>0.689 ± 1.11 (1.93)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW34A DUP</b> <b>Lab ID: 40126561006</b> Collected: 12/21/15 15:10      Received: 12/24/15 08:35      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.198 ± 0.905 (0.537)</b> C:NA T:82%	pCi/L	01/13/16 11:02	13982-63-3	
Radium-228	EPA 904.0	<b>0.498 ± 0.458 (0.944)</b> C:84% T:93%	pCi/L	01/11/16 16:23	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.696 ± 1.36 (1.48)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW301</b> <b>Lab ID: 40126561007</b> Collected: 12/22/15 09:45      Received: 12/24/15 08:35      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.655 ± 0.721 (0.979)</b> C:NA T:90%	pCi/L	01/13/16 10:54	13982-63-3	
Radium-228	EPA 904.0	<b>0.651 ± 0.431 (0.823)</b> C:86% T:86%	pCi/L	01/11/16 16:23	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.31 ± 1.15 (1.80)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW84A</b> <b>Lab ID: 40126561008</b> Collected: 12/22/15 11:05      Received: 12/24/15 08:35      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.156 ± 0.579 (0.956)</b> C:NA T:89%	pCi/L	01/13/16 11:12	13982-63-3	
Radium-228	EPA 904.0	<b>0.437 ± 0.398 (0.809)</b> C:87% T:82%	pCi/L	01/11/16 16:23	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.593 ± 0.977 (1.77)</b>	pCi/L	01/13/16 13:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW302</b> <b>Lab ID: 40126561009</b> Collected: 12/22/15 12:25      Received: 12/24/15 08:35      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.184 ± 0.840 (0.499)</b> C:NA T:91%	pCi/L	01/13/16 11:14	13982-63-3	
Radium-228	EPA 904.0	<b>-0.0287 ± 0.348 (0.822)</b> C:85% T:79%	pCi/L	01/11/16 16:23	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.184 ± 1.19 (1.32)</b>	pCi/L	01/16/16 11:37	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW4R</b>		<b>Lab ID: 40126561010</b>	Collected: 12/22/15 14:00	Received: 12/24/15 08:35	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 903.1	<b>0.764 ± 0.876 (0.518)</b>	pCi/L	01/13/16 11:29	13982-63-3		
Radium-228	EPA 904.0	<b>0.00701 ± 0.390 (0.907)</b>	pCi/L	01/11/16 16:23	15262-20-1		
Total Radium	Total Radium Calculation	<b>0.771 ± 1.27 (1.43)</b>	pCi/L	01/13/16 13:04	7440-14-4		

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: FB</b>		<b>Lab ID: 40126561011</b>	Collected: 12/22/15 14:10	Received: 12/24/15 08:35	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 903.1	<b>0.643 ± 0.981 (0.581)</b>	pCi/L	01/13/16 11:24	13982-63-3		
Radium-228	EPA 904.0	<b>0.277 ± 0.426 (0.921)</b>	pCi/L	01/11/16 16:24	15262-20-1		
Total Radium	Total Radium Calculation	<b>0.920 ± 1.41 (1.50)</b>	pCi/L	01/13/16 13:04	7440-14-4		

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

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QC Batch:	205904	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011		

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METHOD BLANK:	1007362	Matrix:	Water
Associated Lab Samples:	40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.335 ± 0.376 (0.791) C:88% T:77%	pCi/L	01/11/16 12:35	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

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QC Batch:	205906	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011		

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METHOD BLANK:	1007364	Matrix:	Water
Associated Lab Samples:	40126561001, 40126561002, 40126561003, 40126561004, 40126561005, 40126561006, 40126561007, 40126561008, 40126561009, 40126561010, 40126561011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.234 ± 0.459 (0.839) C:NA T:85%	pCi/L	01/13/16 10:32	

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## QUALIFIERS

Project: 25215173.30 WPL-COLUMBIA  
Pace Project No.: 40126561

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40126561001	MW305	EPA 3010	214176	EPA 6020	214260
40126561002	MW304	EPA 3010	214176	EPA 6020	214260
40126561003	MW303	EPA 3010	214176	EPA 6020	214260
40126561004	MW33AR	EPA 3010	214176	EPA 6020	214260
40126561005	MW34A	EPA 3010	214176	EPA 6020	214260
40126561006	MW34A DUP	EPA 3010	214176	EPA 6020	214260
40126561007	MW301	EPA 3010	214176	EPA 6020	214260
40126561008	MW84A	EPA 3010	214176	EPA 6020	214260
40126561009	MW302	EPA 3010	214176	EPA 6020	214260
40126561010	MW4R	EPA 3010	214176	EPA 6020	214260
40126561011	FB	EPA 3010	214176	EPA 6020	214260
40126561001	MW305	EPA 7470	214223	EPA 7470	214263
40126561002	MW304	EPA 7470	214223	EPA 7470	214263
40126561003	MW303	EPA 7470	214223	EPA 7470	214263
40126561004	MW33AR	EPA 7470	214223	EPA 7470	214263
40126561005	MW34A	EPA 7470	214223	EPA 7470	214263
40126561006	MW34A DUP	EPA 7470	214223	EPA 7470	214263
40126561007	MW301	EPA 7470	214223	EPA 7470	214263
40126561008	MW84A	EPA 7470	214223	EPA 7470	214263
40126561009	MW302	EPA 7470	214223	EPA 7470	214263
40126561010	MW4R	EPA 7470	214223	EPA 7470	214263
40126561011	FB	EPA 7470	214223	EPA 7470	214263
40126561001	MW305	EPA 903.1	205906		
40126561002	MW304	EPA 903.1	205906		
40126561003	MW303	EPA 903.1	205906		
40126561004	MW33AR	EPA 903.1	205906		
40126561005	MW34A	EPA 903.1	205906		
40126561006	MW34A DUP	EPA 903.1	205906		
40126561007	MW301	EPA 903.1	205906		
40126561008	MW84A	EPA 903.1	205906		
40126561009	MW302	EPA 903.1	205906		
40126561010	MW4R	EPA 903.1	205906		
40126561011	FB	EPA 903.1	205906		
40126561001	MW305	EPA 904.0	205904		
40126561002	MW304	EPA 904.0	205904		
40126561003	MW303	EPA 904.0	205904		
40126561004	MW33AR	EPA 904.0	205904		
40126561005	MW34A	EPA 904.0	205904		
40126561006	MW34A DUP	EPA 904.0	205904		
40126561007	MW301	EPA 904.0	205904		
40126561008	MW84A	EPA 904.0	205904		
40126561009	MW302	EPA 904.0	205904		
40126561010	MW4R	EPA 904.0	205904		
40126561011	FB	EPA 904.0	205904		
40126561001	MW305	Total Radium Calculation	285975		
40126561002	MW304	Total Radium Calculation	206527		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25215173.30 WPL-COLUMBIA

Pace Project No.: 40126561

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40126561003	MW303	Total Radium Calculation	206527		
40126561004	MW33AR	Total Radium Calculation	206527		
40126561005	MW34A	Total Radium Calculation	206527		
40126561006	MW34A DUP	Total Radium Calculation	206527		
40126561007	MW301	Total Radium Calculation	206527		
40126561008	MW84A	Total Radium Calculation	206527		
40126561009	MW302	Total Radium Calculation	285975		
40126561010	MW4R	Total Radium Calculation	206527		
40126561011	FB	Total Radium Calculation	206527		
40126561001	MW305	SM 2540C	214159		
40126561002	MW304	SM 2540C	214159		
40126561003	MW303	SM 2540C	214159		
40126561004	MW33AR	SM 2540C	214159		
40126561005	MW34A	SM 2540C	214159		
40126561006	MW34A DUP	SM 2540C	214159		
40126561007	MW301	SM 2540C	214159		
40126561008	MW84A	SM 2540C	214159		
40126561009	MW302	SM 2540C	214159		
40126561010	MW4R	SM 2540C	214159		
40126561011	FB	SM 2540C	214159		
40126561001	MW305	EPA 9040	214120		
40126561002	MW304	EPA 9040	214120		
40126561003	MW303	EPA 9040	214120		
40126561004	MW33AR	EPA 9040	214120		
40126561005	MW34A	EPA 9040	214120		
40126561006	MW34A DUP	EPA 9040	214120		
40126561007	MW301	EPA 9040	214120		
40126561008	MW84A	EPA 9040	214120		
40126561009	MW302	EPA 9040	214120		
40126561010	MW4R	EPA 9040	214120		
40126561011	FB	EPA 9040	214225		
40126561001	MW305	EPA 300.0	214037		
40126561002	MW304	EPA 300.0	214037		
40126561003	MW303	EPA 300.0	214037		
40126561004	MW33AR	EPA 300.0	214443		
40126561005	MW34A	EPA 300.0	214443		
40126561006	MW34A DUP	EPA 300.0	214443		
40126561007	MW301	EPA 300.0	214443		
40126561008	MW84A	EPA 300.0	214443		
40126561009	MW302	EPA 300.0	214443		
40126561010	MW4R	EPA 300.0	214443		
40126561011	FB	EPA 300.0	214443		

### REPORT OF LABORATORY ANALYSIS

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UPPER MIDWEST REGION  
MN: 612-607-1700 WI: 920-469-2436

410120501

# CHAIN OF CUSTODY

**Preservation Codes**  
 A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

Company Name: **SCS Engineers**  
 Branch/Location: **Madison WI's**  
 Project Contact: **Tom Kawowski**  
 Phone: \_\_\_\_\_  
 Project Number: **25215173.30**  
 Project Name: **WPL - CD44w819**  
 Project State: **WI**  
 Sampled By (Print): **Gary Skirke**  
 Sampled By (Sign): *Gary Skirke*  
 PO #: \_\_\_\_\_  
 Regulatory Program: \_\_\_\_\_

Y/N	Filtered? (YES/NO)	Matrix Codes	Analysis Requested	Pick Label
N			pH	A
N			TDS/Chloride	A
N			Fluoride Sulfate	A
N			Mercury	D
N			<del>As, Bc</del> Cd Cr Pb Lithium	D
N			Radium 226	D
N			Radium 228	D
N			Antimony, Beryllium, Cobalt, Molybdenum, Selenium, Thallium	D

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: **SCS Engineers**  
 Mail To Address: **2830 Darry Dr  
Madison WI 53718**  
 Invoice To Contact: **Tom Kawowski**  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_

**Data Package Options**  
 (billable)  
 EPA Level III  
 EPA Level IV  
 On your sample (billable)  
 NOT needed on your sample  
**Matrix Codes**  
 A= Air B= Biotin C= Charcoal O= Oil S= Soil SI= Sludge  
 W= Water DW= Drinking Water GW= Ground Water SW= Surface Water WW= Waste Water WP= Wipe

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX	Analysis Requested											CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					PH	TDS/Chloride	Fluoride Sulfate	Mercury	<del>As, Bc</del> Cd Cr Pb Lithium	Radium 226	Radium 228	Antimony, Beryllium, Cobalt, Molybdenum, Selenium, Thallium						
001	MW 305	12/21/15	1030	GW	X	X	X	X	X	X	X	X	X	X				
002	MW 304	12/21/15	1135	GW	X	X	X	X	X	X	X	X	X	X				
003	MW 303	12/21/15	1240	GW	X	X	X	X	X	X	X	X	X	X				
004	MW 334R	12/21/15	1400	GW	X	X	X	X	X	X	X	X	X	X				
005	MW 349	12/21/15	1510	GW	X	X	X	X	X	X	X	X	X	X				
006	MW 349 Day	12/21/15	1510	GW	X	X	X	X	X	X	X	X	X	X				
007	MW 301	12/22/15	0945	GW	X	X	X	X	X	X	X	X	X	X				
008	MW 349	12/22/15	1105	GW	X	X	X	X	X	X	X	X	X	X				
009	MW 302	12/22/15	1225	GW	X	X	X	X	X	X	X	X	X	X				
010	MW 4R	12/22/15	1400	GW	X	X	X	X	X	X	X	X	X	X				
011	FB	12/22/15	1410	GW	X	X	X	X	X	X	X	X	X	X				

Rush Turnaround Time Requested - Prelims  
 (Rush TAT subject to approval/surcharge)  
 Date Needed: \_\_\_\_\_

Transmit Prelim Rush Results by (complete what you want):  
 Email #1: \_\_\_\_\_  
 Email #2: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Fax: \_\_\_\_\_

Relinquished By: *Gary Skirke* Date/Time: **12/23/15 08:00**  
 Relinquished By: *Wally Jammin* Date/Time: **12/23/15 1800**  
 Relinquished By: *Ed Negaska* Date/Time: **12/24/15 0835**

Received By: *Wally Jammin* Date/Time: **12/23/15 9:21**  
 Received By: *Wally Jammin* Date/Time: **12/23/15 12:30**  
 Received By: *Wally Jammin* Date/Time: **12/23/15 12:30**

Special pricing and release of liability

Receipt Temp = \_\_\_\_\_  
 Sample Receipt pH \_\_\_\_\_  
 OK / Adjusted \_\_\_\_\_  
 Coater Custody Seal Present / Not Present \_\_\_\_\_  
 Intact / Not Intact \_\_\_\_\_

PAGE Project No. **110120501**

(Please Print Clearly)

# CHAIN OF CUSTODY



UPPER MIDWEST REGION  
MN: 612-607-1700 WI: 920-469-2436

Page 1 of 1

Page 31 of 32

Company Name: SES Engineers  
 Branch/Location: Madison WI's  
 Project Contact: Tom Kawowski  
 Phone: \_\_\_\_\_  
 Project Number: 25315173.30  
 Project Name: WPL - Chl/Am/Br  
 Project State: WI  
 Sampled By (Print): Gary Stokiel  
 Sampled By (Sign): Gary Stokiel  
 PO #: \_\_\_\_\_

Regulatory Program: \_\_\_\_\_  
 Matrix Codes:  
 A = Air B = Back D = Drinking Water  
 C = Chemical G = Ground Water  
 O = Oil S = Soil SW = Surface Water  
 SI = Sludge WP = Waste Water  
 W = Water GW = Ground Water  
 W = Surface Water WP = Waste Water

Analysis Requested	V/N	Pick Label
pH	N	A
TDS/Chloride	N	A
Fluoride sulfate	N	A
Mercury	N	D
As, Bc Cd Cr Pb Lithium	N	D
Radium 226	N	D
Radium 228	N	D
Antimony, Beryllium, Cobalt, Molybdenum, Selenium, Vanadium	N	D

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: SES Engineers  
 Mail To Address: 2830 Daring Dr  
Madison WI 53718  
 Invoice To Contact: Tom Kawowski  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_

Data Package Options:  
 EPA Level III  
 EPA Level IV  
 On your sample (billable)  
 NOT needed on your sample

CLIENT FIELD ID	DATE	TIME	MATRIX
MU 305	12/21/15	1030	GW
MU 304	12/21/15	1135	GW
MU 303	12/21/15	1240	GW
MU 334R	12/21/15	1400	GW
MU 344	12/21/15	1510	GW
MU 344 Day	12/18/15	1510	GW
MU 301	12/22/15	0945	GW
MU 844	12/22/15	1105	GW
MU 302	12/22/15	1225	GW
MU 4R	12/22/15	1400	GW
EB	12/22/15	1410	GW

Transmit Prelim Rush Results by (complete what you want):  
 Date Needed: \_\_\_\_\_  
 Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)  
 Requisitioned By: Gary Stokiel Date/Time: 12/23/15 0800  
 Requisitioned By: Mark Forman Date/Time: 12/23/15 1800  
 Requisitioned By: Shogofa Date/Time: 02/15/15 0835  
 Received By: Mark Forman Date/Time: 12/23/15 9:21  
 Received By: Mark Forman Date/Time: 02/15/15 0835  
 Received By: Shogofa Date/Time: \_\_\_\_\_

Special pricing and release of liability  
 Samples on HOLD are subject to special pricing and release of liability  
 Receipt Temp = POI °C  
 Sample Receipt pH OK Adjusted  
 Cooler Custody Seal Present / Not Present  
 Intact / Not Intact

Version 6/08/14/06

Sample Condition Upon Receipt

Pace Analytical Services, Inc.  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302



Project #:

WO#: 40126561

Client Name: SCS Engineers

Courier:  Fed Ex  UPS  Client  Pace Other: CS Logistics



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: N/A Type of Ice:  Wet  Blue Dry None  Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: ROT / Corr: \_\_\_\_\_ Biological Tissue is Frozen:  yes

Temp Blank Present:  yes  no  no

Person examining contents:  
Date: 12-24-15  
Initials: SKW

Temp should be above freezing to 6°C for all sample except Biota.  
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	<u>004 - No Collect time on all bottles</u> <u>010 - 1-250mlps No Collect time on</u> <u>samples</u> <u>12-24-15 SKW</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>SKW</u> Lab Std #ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

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

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Comments/ Resolution: Original and copy of COC in shipment 12-24-15 SKW  
-005 Rad bottles ID says "MW 34" N/A 12/24/15

Project Manager Review: AMH for DM Date: 12/24/15



## A2 Round 2 Background Sampling, Analytical Laboratory Report

January 25, 2018

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on April 07, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the April 29, 2016 report. This report has been reissued on January 25, 2018. In 2017, the process for calculating Total Radium concentration using results from individual Ra-226 and Ra-228 analyses was standardized. At the client's request, this project from 2016 has been revised to include a Total Radium concentration using the standardized method.

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

Sincerely,



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

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Kyle Kramer, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY

Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

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 Certification

Wyoming Certification #: 8TMS-L

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### Green Bay Certification IDs

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

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40130377001	MW303	Water	04/04/16 17:05	04/07/16 09:25
40130377002	MW304	Water	04/04/16 16:25	04/07/16 09:25
40130377003	MW305	Water	04/04/16 13:25	04/07/16 09:25
40130377004	M4R	Water	04/04/16 15:10	04/07/16 09:25
40130377005	MW33AR	Water	04/05/16 15:55	04/07/16 09:25
40130377006	MW34A	Water	04/05/16 15:15	04/07/16 09:25
40130377007	MW84A	Water	04/05/16 13:45	04/07/16 09:25
40130377008	MW301	Water	04/05/16 13:00	04/07/16 09:25
40130377009	MW302	Water	04/05/16 11:05	04/07/16 09:25
40130377010	FIELD BLANK	Water	04/05/16 13:50	04/07/16 09:25

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40130377001	MW303	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40130377002	MW304	EPA 6020	DS1
EPA 7470	AJT			1	PASI-G
	JLJ			7	PASI-G
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	JLW			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40130377003	MW305			EPA 6020	DS1
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40130377004	M4R	EPA 6020	DS1
EPA 7470	AJT			1	PASI-G
	JLJ			7	PASI-G
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	JLW			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40130377005	MW33AR			EPA 6020	DS1

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40130377006	MW34A	EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40130377007	MW84A	SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
40130377008	MW301		JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
40130377009	MW302	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G

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### SAMPLE ANALYTE COUNT

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40130377010	FIELD BLANK	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW303**      **Lab ID: 40130377001**      Collected: 04/04/16 17:05      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.23J</b>	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 07:24	7440-36-0	
Arsenic	<b>12.6</b>	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 07:24	7440-38-2	
Barium	<b>13.6</b>	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 07:24	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 07:24	7440-41-7	
Boron	<b>2130</b>	ug/L	100	20.0	10	04/15/16 07:47	04/19/16 06:44	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 07:24	7440-43-9	
Calcium	<b>36000</b>	ug/L	2500	736	10	04/15/16 07:47	04/21/16 01:26	7440-70-2	P6
Chromium	<b>60.0</b>	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 07:24	7440-47-3	
Cobalt	<b>0.46J</b>	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 07:24	7440-48-4	
Lead	<b>0.11J</b>	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 07:24	7439-92-1	
Lithium	<b>1.0</b>	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 07:24	7439-93-2	
Molybdenum	<b>62.6</b>	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 07:24	7439-98-7	
Selenium	<b>24.0</b>	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 07:24	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 07:24	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:39	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>9.43</b>	Std. Units			1		04/04/16 17:05		
Field Specific Conductance	<b>641</b>	umhos/cm			1		04/04/16 17:05		
Oxygen, Dissolved	<b>4.95</b>	mg/L			1		04/04/16 17:05	7782-44-7	
REDOX	<b>30.60</b>	mV			1		04/04/16 17:05		
Turbidity	<b>N/A</b>	NTU			1		04/04/16 17:05		
Static Water Level	<b>783.58</b>	feet			1		04/04/16 17:05		
Temperature, Water (C)	<b>10.7</b>	deg C			1		04/04/16 17:05		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>562</b>	mg/L	20.0	8.7	1		04/07/16 17:24		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>8.8</b>	Std. Units	0.10	0.010	1		04/08/16 09:25		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>8.0</b>	mg/L	4.0	2.0	1		04/15/16 20:55	16887-00-6	B
Fluoride	<b>0.28J</b>	mg/L	0.40	0.20	1		04/15/16 20:55	16984-48-8	
Sulfate	<b>311</b>	mg/L	80.0	40.0	20		04/15/16 21:06	14808-79-8	

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## ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW304**      **Lab ID: 40130377002**      Collected: 04/04/16 16:25      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 07:11	7440-36-0	
Arsenic	1.1	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 07:11	7440-38-2	
Barium	34.8	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 07:11	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 07:11	7440-41-7	
Boron	420	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 07:11	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 07:11	7440-43-9	
Calcium	77600	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 01:52	7440-70-2	
Chromium	1.5	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 07:11	7440-47-3	
Cobalt	1.2	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 07:11	7440-48-4	
Lead	0.47J	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 07:11	7439-92-1	
Lithium	0.51J	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 07:11	7439-93-2	
Molybdenum	9.2	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 07:11	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 07:11	7782-49-2	
Thallium	0.15J	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 07:11	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:42	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.45	Std. Units			1		04/04/16 16:25		
Field Specific Conductance	535	umhos/cm			1		04/04/16 16:25		
Oxygen, Dissolved	0.45	mg/L			1		04/04/16 16:25	7782-44-7	
REDOX	-65.2	mV			1		04/04/16 16:25		
Turbidity	N/A	NTU			1		04/04/16 16:25		
Static Water Level	792.16	feet			1		04/04/16 16:25		
Temperature, Water (C)	9.7	deg C			1		04/04/16 16:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	434	mg/L	20.0	8.7	1		04/07/16 17:24		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		04/08/16 09:25		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	29.3	mg/L	4.0	2.0	1		04/15/16 21:17	16887-00-6	
Fluoride	<0.20	mg/L	0.40	0.20	1		04/15/16 21:17	16984-48-8	
Sulfate	71.7	mg/L	20.0	10.0	5		04/15/16 21:28	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW305**      **Lab ID: 40130377003**      Collected: 04/04/16 13:25      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.32J</b>	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:04	7440-36-0	
Arsenic	<b>0.34J</b>	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:04	7440-38-2	
Barium	<b>3.9</b>	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:04	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:04	7440-41-7	
Boron	<b>525</b>	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:04	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:04	7440-43-9	
Calcium	<b>37500</b>	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:05	7440-70-2	
Chromium	<b>1.6</b>	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:04	7440-47-3	
Cobalt	<b>0.069J</b>	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:04	7440-48-4	
Lead	<b>0.056J</b>	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:04	7439-92-1	
Lithium	<b>0.24J</b>	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:04	7439-93-2	
Molybdenum	<b>37.3</b>	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:04	7439-98-7	
Selenium	<b>3.0</b>	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:04	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:04	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:44	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.68</b>	Std. Units			1		04/04/16 13:25		
Field Specific Conductance	<b>285.6</b>	umhos/cm			1		04/04/16 13:25		
Oxygen, Dissolved	<b>5.60</b>	mg/L			1		04/04/16 13:25	7782-44-7	
REDOX	<b>67.3</b>	mV			1		04/04/16 13:25		
Turbidity	<b>N/A</b>	NTU			1		04/04/16 13:25		
Static Water Level	<b>812.15</b>	feet			1		04/04/16 13:25		
Temperature, Water (C)	<b>10.9</b>	deg C			1		04/04/16 13:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>228</b>	mg/L	20.0	8.7	1		04/07/16 17:25		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.9</b>	Std. Units	0.10	0.010	1		04/08/16 09:25		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>25.3</b>	mg/L	4.0	2.0	1		04/15/16 21:39	16887-00-6	
Fluoride	<b>0.70</b>	mg/L	0.40	0.20	1		04/15/16 21:39	16984-48-8	
Sulfate	<b>78.7</b>	mg/L	20.0	10.0	5		04/15/16 22:13	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Sample: M4R Lab ID: 40130377004 Collected: 04/04/16 15:10 Received: 04/07/16 09:25 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	0.14J	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:11	7440-36-0	
Arsenic	0.20J	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:11	7440-38-2	
Barium	16.3	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:11	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:11	7440-41-7	
Boron	461	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:11	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:11	7440-43-9	
Calcium	79400	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:12	7440-70-2	
Chromium	1.6	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:11	7440-47-3	
Cobalt	0.11J	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:11	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:11	7439-92-1	
Lithium	1.7	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:11	7439-93-2	
Molybdenum	9.9	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:11	7439-98-7	
Selenium	6.4	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:11	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:11	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:46	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.55	Std. Units			1		04/04/16 15:10		
Field Specific Conductance	535.0	umhos/cm			1		04/04/16 15:10		
Oxygen, Dissolved	3.63	mg/L			1		04/04/16 15:10	7782-44-7	
REDOX	129.6	mV			1		04/04/16 15:10		
Turbidity	N/A	NTU			1		04/04/16 15:10		
Static Water Level	811.83	feet			1		04/04/16 15:10		
Temperature, Water (C)	11.7	deg C			1		04/04/16 15:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	440	mg/L	20.0	8.7	1		04/07/16 17:25		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.6	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	23.8	mg/L	4.0	2.0	1		04/15/16 22:24	16887-00-6	
Fluoride	<0.20	mg/L	0.40	0.20	1		04/15/16 22:24	16984-48-8	
Sulfate	102	mg/L	20.0	10.0	5		04/18/16 15:59	14808-79-8	

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## ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW33AR**      **Lab ID: 40130377005**      Collected: 04/05/16 15:55      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	0.11J	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:17	7440-36-0	
Arsenic	0.38J	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:17	7440-38-2	
Barium	24.8	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:17	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:17	7440-41-7	
Boron	813	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:17	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:17	7440-43-9	
Calcium	48900	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:32	7440-70-2	
Chromium	2.1	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:17	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:17	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:17	7439-92-1	
Lithium	1.3	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:17	7439-93-2	
Molybdenum	4.1	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:17	7439-98-7	
Selenium	2.0	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:17	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:17	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:48	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	8.08	Std. Units			1		04/05/16 15:55		
Field Specific Conductance	417.6	umhos/cm			1		04/05/16 15:55		
Oxygen, Dissolved	9.67	mg/L			1		04/05/16 15:55	7782-44-7	
REDOX	176.0	mV			1		04/05/16 15:55		
Turbidity	1.37	NTU			1		04/05/16 15:55		
Static Water Level	763.29	feet			1		04/05/16 15:55		
Temperature, Water (C)	10.1	deg C			1		04/05/16 15:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	354	mg/L	20.0	8.7	1		04/11/16 17:16		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.8	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	12.5	mg/L	4.0	2.0	1		04/15/16 22:35	16887-00-6	B
Fluoride	<0.20	mg/L	0.40	0.20	1		04/15/16 22:35	16984-48-8	
Sulfate	91.5	mg/L	20.0	10.0	5		04/15/16 22:46	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

**Sample: MW34A**      **Lab ID: 40130377006**      Collected: 04/05/16 15:15      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:24	7440-36-0	
Arsenic	0.35J	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:24	7440-38-2	
Barium	9.1	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:24	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:24	7440-41-7	
Boron	220	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:24	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:24	7440-43-9	
Calcium	63500	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:39	7440-70-2	
Chromium	2.0	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:24	7440-47-3	
Cobalt	0.048J	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:24	7440-48-4	
Lead	0.046J	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:24	7439-92-1	
Lithium	0.40J	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:24	7439-93-2	
Molybdenum	1.1	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:24	7439-98-7	
Selenium	0.78J	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:24	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:24	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:51	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.92	Std. Units			1		04/05/16 15:15		
Field Specific Conductance	386.9	umhos/cm			1		04/05/16 15:15		
Oxygen, Dissolved	9.38	mg/L			1		04/05/16 15:15	7782-44-7	
REDOX	163.5	mV			1		04/05/16 15:15		
Turbidity	4.08	NTU			1		04/05/16 15:15		
Static Water Level	795.16	feet			1		04/05/16 15:15		
Temperature, Water (C)	10.9	deg C			1		04/05/16 15:15		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	298	mg/L	20.0	8.7	1		04/11/16 17:17		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.7	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	5.1	mg/L	4.0	2.0	1		04/15/16 22:57	16887-00-6	B
Fluoride	<0.20	mg/L	0.40	0.20	1		04/15/16 22:57	16984-48-8	
Sulfate	71.6	mg/L	20.0	10.0	5		04/15/16 23:08	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW84A**      **Lab ID: 40130377007**      Collected: 04/05/16 13:45      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.084J</b>	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:30	7440-36-0	
Arsenic	<b>0.29J</b>	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:30	7440-38-2	
Barium	<b>12.7</b>	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:30	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:30	7440-41-7	
Boron	<b>14.0</b>	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:30	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:30	7440-43-9	
Calcium	<b>72200</b>	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:45	7440-70-2	
Chromium	<b>1.9</b>	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:30	7440-47-3	
Cobalt	<b>&lt;0.036</b>	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:30	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:30	7439-92-1	
Lithium	<b>0.44J</b>	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:30	7439-93-2	
Molybdenum	<b>&lt;0.070</b>	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:30	7439-98-7	
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:30	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:30	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:53	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.61</b>	Std. Units			1		04/05/16 13:45		
Field Specific Conductance	<b>427.0</b>	umhos/cm			1		04/05/16 13:45		
Oxygen, Dissolved	<b>9.37</b>	mg/L			1		04/05/16 13:45	7782-44-7	
REDOX	<b>165.1</b>	mV			1		04/05/16 13:45		
Turbidity	<b>0.86</b>	NTU			1		04/05/16 13:45		
Static Water Level	<b>786.30</b>	feet			1		04/05/16 13:45		
Temperature, Water (C)	<b>10.2</b>	deg C			1		04/05/16 13:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>322</b>	mg/L	20.0	8.7	1		04/11/16 17:17		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.7</b>	mg/L	4.0	2.0	1		04/15/16 23:19	16887-00-6	B
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		04/15/16 23:19	16984-48-8	M0
Sulfate	<b>4.3</b>	mg/L	4.0	2.0	1		04/15/16 23:19	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW301**      **Lab ID: 40130377008**      Collected: 04/05/16 13:00      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.094J</b>	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:37	7440-36-0	
Arsenic	<b>0.26J</b>	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:37	7440-38-2	
Barium	<b>11.1</b>	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:37	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:37	7440-41-7	
Boron	<b>25.2</b>	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:37	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:37	7440-43-9	
Calcium	<b>115000</b>	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:52	7440-70-2	
Chromium	<b>0.58J</b>	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:37	7440-47-3	
Cobalt	<b>0.25J</b>	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:37	7440-48-4	
Lead	<b>0.077J</b>	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:37	7439-92-1	
Lithium	<b>0.58J</b>	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:37	7439-93-2	
Molybdenum	<b>0.15J</b>	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:37	7439-98-7	
Selenium	<b>0.21J</b>	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:37	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:37	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:55	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.01</b>	Std. Units			1		04/05/16 13:00		
Field Specific Conductance	<b>573</b>	umhos/cm			1		04/05/16 13:00		
Oxygen, Dissolved	<b>2.71</b>	mg/L			1		04/05/16 13:00	7782-44-7	
REDOX	<b>123.7</b>	mV			1		04/05/16 13:00		
Turbidity	<b>1.52</b>	NTU			1		04/05/16 13:00		
Static Water Level	<b>768.12</b>	feet			1		04/05/16 13:00		
Temperature, Water (C)	<b>7.7</b>	deg C			1		04/05/16 13:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>486</b>	mg/L	20.0	8.7	1		04/11/16 17:17		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.0</b>	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.0</b>	mg/L	4.0	2.0	1		04/12/16 20:02	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		04/12/16 20:02	16984-48-8	
Sulfate	<b>15.3</b>	mg/L	4.0	2.0	1		04/12/16 20:02	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: MW302**      **Lab ID: 40130377009**      Collected: 04/05/16 11:05      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.092J</b>	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:44	7440-36-0	
Arsenic	<b>0.17J</b>	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:44	7440-38-2	
Barium	<b>9.7</b>	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:44	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:44	7440-41-7	
Boron	<b>78.8</b>	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:44	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:44	7440-43-9	
Calcium	<b>65900</b>	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 02:59	7440-70-2	
Chromium	<b>3.3</b>	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:44	7440-47-3	
Cobalt	<b>0.11J</b>	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:44	7440-48-4	
Lead	<b>0.084J</b>	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:44	7439-92-1	
Lithium	<b>13.7</b>	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:44	7439-93-2	
Molybdenum	<b>8.0</b>	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:44	7439-98-7	
Selenium	<b>2.7</b>	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:44	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:44	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.10</b>	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 08:58	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.70</b>	Std. Units			1		04/05/16 11:05		
Field Specific Conductance	<b>383.6</b>	umhos/cm			1		04/05/16 11:05		
Oxygen, Dissolved	<b>9.7</b>	mg/L			1		04/05/16 11:05	7782-44-7	
REDOX	<b>198.60</b>	mV			1		04/05/16 11:05		
Turbidity	<b>9.69</b>	NTU			1		04/05/16 11:05		
Static Water Level	<b>778.91</b>	feet			1		04/05/16 11:05		
Temperature, Water (C)	<b>9.8</b>	deg C			1		04/05/16 11:05		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>312</b>	mg/L	20.0	8.7	1		04/11/16 17:18		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.1</b>	mg/L	4.0	2.0	1		04/12/16 20:16	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		04/12/16 20:16	16984-48-8	
Sulfate	<b>55.6</b>	mg/L	4.0	2.0	1		04/12/16 20:16	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: FIELD BLANK**      **Lab ID: 40130377010**      Collected: 04/05/16 13:50      Received: 04/07/16 09:25      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/15/16 07:47	04/19/16 08:50	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	04/15/16 07:47	04/19/16 08:50	7440-38-2	
Barium	0.30J	ug/L	1.0	0.062	1	04/15/16 07:47	04/19/16 08:50	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/15/16 07:47	04/19/16 08:50	7440-41-7	
Boron	2.7J	ug/L	10.0	2.0	1	04/15/16 07:47	04/19/16 08:50	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/15/16 07:47	04/19/16 08:50	7440-43-9	
Calcium	<73.6	ug/L	250	73.6	1	04/15/16 07:47	04/21/16 03:05	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	04/15/16 07:47	04/19/16 08:50	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	04/15/16 07:47	04/19/16 08:50	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	04/15/16 07:47	04/19/16 08:50	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	04/15/16 07:47	04/19/16 08:50	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	04/15/16 07:47	04/19/16 08:50	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	04/15/16 07:47	04/19/16 08:50	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/15/16 07:47	04/19/16 08:50	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.10	ug/L	0.20	0.10	1	04/14/16 13:05	04/15/16 09:00	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		04/11/16 17:18		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	5.7	Std. Units	0.10	0.010	1		04/08/16 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	2.2J	mg/L	4.0	2.0	1		04/18/16 11:33	16887-00-6	
Fluoride	<0.20	mg/L	0.40	0.20	1		04/18/16 11:33	16984-48-8	
Sulfate	<2.0	mg/L	4.0	2.0	1		04/18/16 11:33	14808-79-8	

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

QC Batch: 221939

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010

METHOD BLANK: 1319830

Matrix: Water

Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.10	0.20	04/15/16 08:11	

LABORATORY CONTROL SAMPLE: 1319831

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1319832 1319833

Parameter	Units	40130690001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.00010U mg/L	5	5	5.3	5.2	105	105	85-115	1	20	

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

QC Batch: 221972 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010

METHOD BLANK: 1320160 Matrix: Water  
Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.073	1.0	04/19/16 06:31	
Arsenic	ug/L	<0.099	1.0	04/19/16 06:31	
Barium	ug/L	<0.062	1.0	04/19/16 06:31	
Beryllium	ug/L	<0.13	1.0	04/19/16 06:31	
Boron	ug/L	<2.0	10.0	04/19/16 06:31	
Cadmium	ug/L	<0.089	1.0	04/19/16 06:31	
Calcium	ug/L	<73.6	250	04/21/16 01:12	
Chromium	ug/L	<0.39	1.0	04/19/16 06:31	
Cobalt	ug/L	<0.036	1.0	04/19/16 06:31	
Lead	ug/L	<0.040	1.0	04/19/16 06:31	
Lithium	ug/L	<0.11	1.0	04/19/16 06:31	
Molybdenum	ug/L	<0.070	1.0	04/19/16 06:31	
Selenium	ug/L	<0.21	1.0	04/19/16 06:31	
Thallium	ug/L	<0.14	1.0	04/19/16 06:31	

LABORATORY CONTROL SAMPLE: 1320161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	558	112	80-120	
Arsenic	ug/L	500	494	99	80-120	
Barium	ug/L	500	509	102	80-120	
Beryllium	ug/L	500	491	98	80-120	
Boron	ug/L	500	486	97	80-120	
Cadmium	ug/L	500	559	112	80-120	
Calcium	ug/L	5000	5040	101	80-120	
Chromium	ug/L	500	520	104	80-120	
Cobalt	ug/L	500	485	97	80-120	
Lead	ug/L	500	468	94	80-120	
Lithium	ug/L	500	471	94	80-120	
Molybdenum	ug/L	500	531	106	80-120	
Selenium	ug/L	500	521	104	80-120	
Thallium	ug/L	500	474	95	80-120	

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1320162		1320163		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40130377001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	0.23J	500	500	556	566	111	113	75-125	2	20		
Arsenic	ug/L	12.6	500	500	502	512	98	100	75-125	2	20		
Barium	ug/L	13.6	500	500	520	531	101	103	75-125	2	20		
Beryllium	ug/L	<0.13	500	500	443	447	89	89	75-125	1	20		
Boron	ug/L	2130	500	500	2680	2640	109	101	75-125	1	20		
Cadmium	ug/L	<0.089	500	500	541	552	108	110	75-125	2	20		
Calcium	ug/L	36000	5000	5000	39000	37700	61	34	75-125	3	20	P6	
Chromium	ug/L	60.0	500	500	566	582	101	104	75-125	3	20		
Cobalt	ug/L	0.46J	500	500	461	476	92	95	75-125	3	20		
Lead	ug/L	0.11J	500	500	457	467	91	93	75-125	2	20		
Lithium	ug/L	1.0	500	500	440	448	88	89	75-125	2	20		
Molybdenum	ug/L	62.6	500	500	595	603	106	108	75-125	1	20		
Selenium	ug/L	24.0	500	500	524	529	100	101	75-125	1	20		
Thallium	ug/L	<0.14	500	500	465	477	93	95	75-125	3	20		

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

QC Batch: 221415 Analysis Method: SM 2540C  
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
 Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004

METHOD BLANK: 1316761 Matrix: Water  
 Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	04/07/16 17:18	

LABORATORY CONTROL SAMPLE: 1316762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	597	588	98	80-120	

SAMPLE DUPLICATE: 1316763

Parameter	Units	40130214001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	824	796	3	5	

SAMPLE DUPLICATE: 1316764

Parameter	Units	40130207001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	408	410	0	5	

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

QC Batch: 221657 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010

METHOD BLANK: 1318362 Matrix: Water  
Associated Lab Samples: 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	04/11/16 17:13	

LABORATORY CONTROL SAMPLE: 1318363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	597	542	91	80-120	

SAMPLE DUPLICATE: 1318364

Parameter	Units	40130262001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	320	300	6	5	R1

SAMPLE DUPLICATE: 1318365

Parameter	Units	40130375002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	252	256	2	5	

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

QC Batch: 221521 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007

METHOD BLANK: 1317493 Matrix: Water  
Associated Lab Samples: 40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	2.1J	4.0	04/15/16 16:52	
Fluoride	mg/L	<0.20	0.40	04/15/16 16:52	
Sulfate	mg/L	<2.0	4.0	04/15/16 16:52	

LABORATORY CONTROL SAMPLE: 1317494

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.3	96	90-110	
Fluoride	mg/L	2	2.2	108	90-110	
Sulfate	mg/L	20	19.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1317495 1317496

Parameter	Units	40130268003		MSD		MSD		MSD		% Rec Limits	Max		Qual
		Result	MS Spike Conc.	Spike Conc.	Result	MSD Result	MS % Rec	MSD % Rec	RPD		RPD		
Chloride	mg/L	42.6	100	100	139	141	97	98	90-110	1	20		
Fluoride	mg/L	<1.0	10	10	11.0	11.2	109	112	90-110	3	20	M0	
Sulfate	mg/L	73.6	100	100	174	176	101	103	90-110	1	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1317497 1317498

Parameter	Units	40130377007		MSD		MSD		MSD		% Rec Limits	Max		Qual
		Result	MS Spike Conc.	Spike Conc.	Result	MSD Result	MS % Rec	MSD % Rec	RPD		RPD		
Chloride	mg/L	4.7	20	20	23.4	23.8	93	95	90-110	1	20		
Fluoride	mg/L	<0.20	2	2	2.3	2.3	113	116	90-110	2	20	M0	
Sulfate	mg/L	4.3	20	20	23.6	23.9	97	98	90-110	1	20		

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**QUALITY CONTROL DATA**

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

QC Batch: 221566 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40130377008, 40130377009

METHOD BLANK: 1318057 Matrix: Water  
Associated Lab Samples: 40130377008, 40130377009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<2.0	4.0	04/12/16 17:04	
Fluoride	mg/L	<0.20	0.40	04/12/16 17:04	
Sulfate	mg/L	<2.0	4.0	04/12/16 17:04	

LABORATORY CONTROL SAMPLE: 1318058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.6	98	90-110	
Fluoride	mg/L	2	2.1	105	90-110	
Sulfate	mg/L	20	19.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1318061 1318062

Parameter	Units	40130548003		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	144	400	400	400	534	539	98	99	90-110	1	20			
Fluoride	mg/L	0.20U	2	2	2	2.0	2.1	99	102	90-110	2	20			
Sulfate	mg/L	252	400	400	400	662	667	103	104	90-110	1	20			

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### QUALITY CONTROL DATA

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

QC Batch: 221896 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40130377010

METHOD BLANK: 1319600 Matrix: Water  
Associated Lab Samples: 40130377010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<2.0	4.0	04/18/16 10:05	
Fluoride	mg/L	<0.20	0.40	04/18/16 10:05	
Sulfate	mg/L	<2.0	4.0	04/18/16 10:05	

LABORATORY CONTROL SAMPLE: 1319601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.2	96	90-110	
Fluoride	mg/L	2	2.0	100	90-110	
Sulfate	mg/L	20	19.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1319602 1319603

Parameter	Units	40130386001 Result	MS Spike Conc.	MSD Spike Conc.	1319602		1319603		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	74.1	200	200	264	266	95	96	90-110	1	20	
Fluoride	mg/L	<4.0	20	20	21.0	21.1	105	106	90-110	1	20	
Sulfate	mg/L	120	200	200	318	319	99	99	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1319604 1319605

Parameter	Units	40130609002 Result	MS Spike Conc.	MSD Spike Conc.	1319604		1319605		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	616	400	400	1080	1070	116	113	90-110	1	20	M0
Fluoride	mg/L	76.1	40	40	103	102	67	65	90-110	1	20	M0
Sulfate	mg/L	<40.0	400	400	399	394	92	91	90-110	1	20	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Sample: MW303		Lab ID: 40130377001	Collected: 04/04/16 17:05	Received: 04/07/16 09:25	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.375 ± 1.07 (1.63)</b> C:NA T:90%	pCi/L	04/27/16 18:57	13982-63-3	
Radium-228	EPA 904.0	<b>0.185 ± 0.351 (0.770)</b> C:74% T:90%	pCi/L	04/27/16 16:52	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.560 ± 1.42 (2.40)</b>	pCi/L	04/29/16 14:53	7440-14-4	

Sample: MW304		Lab ID: 40130377002	Collected: 04/04/16 16:25	Received: 04/07/16 09:25	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.180 ± 0.822 (0.488)</b> C:NA T:90%	pCi/L	04/27/16 18:57	13982-63-3	
Radium-228	EPA 904.0	<b>0.294 ± 0.317 (0.661)</b> C:77% T:101%	pCi/L	04/27/16 16:52	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.474 ± 1.14 (1.15)</b>	pCi/L	04/29/16 14:53	7440-14-4	

Sample: MW305		Lab ID: 40130377003	Collected: 04/04/16 13:25	Received: 04/07/16 09:25	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.037 ± 0.608 (0.995)</b> C:NA T:99%	pCi/L	04/27/16 18:57	13982-63-3	
Radium-228	EPA 904.0	<b>0.0515 ± 0.283 (0.646)</b> C:81% T:98%	pCi/L	04/27/16 16:52	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.0515 ± 0.891 (1.64)</b>	pCi/L	04/29/16 11:37	7440-14-4	

Sample: M4R		Lab ID: 40130377004	Collected: 04/04/16 15:10	Received: 04/07/16 09:25	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.160 ± 0.595 (0.982)</b> C:NA T:92%	pCi/L	04/27/16 18:57	13982-63-3	
Radium-228	EPA 904.0	<b>0.0865 ± 0.307 (0.693)</b> C:81% T:97%	pCi/L	04/27/16 16:53	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.247 ± 0.902 (1.68)</b>	pCi/L	04/29/16 14:53	7440-14-4	

Sample: MW33AR		Lab ID: 40130377005	Collected: 04/05/16 15:55	Received: 04/07/16 09:25	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.709 ± 0.813 (0.480)</b> C:NA T:87%	pCi/L	04/27/16 19:33	13982-63-3	
Radium-228	EPA 904.0	<b>0.143 ± 0.274 (0.602)</b> C:85% T:98%	pCi/L	04/27/16 16:53	15262-20-1	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW33AR</b> <b>Lab ID: 40130377005</b> Collected: 04/05/16 15:55      Received: 04/07/16 09:25      Matrix: Water PWS:      Site ID:      Sample Type:						
Total Radium	Total Radium Calculation	<b>0.852 ± 1.09 (1.08)</b>	pCi/L	04/29/16 14:53	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW34A</b> <b>Lab ID: 40130377006</b> Collected: 04/05/16 15:15      Received: 04/07/16 09:25      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.869 ± 0.907 (1.23)</b> C:NA T:87%	pCi/L	04/27/16 19:22	13982-63-3	
Radium-228	EPA 904.0	<b>-0.0217 ± 0.236 (0.557)</b> C:84% T:102%	pCi/L	04/27/16 16:53	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.869 ± 1.14 (1.79)</b>	pCi/L	04/29/16 11:45	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW84A</b> <b>Lab ID: 40130377007</b> Collected: 04/05/16 13:45      Received: 04/07/16 09:25      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>-0.088 ± 0.713 (1.24)</b> C:NA T:92%	pCi/L	04/27/16 19:10	13982-63-3	
Radium-228	EPA 904.0	<b>0.0809 ± 0.247 (0.555)</b> C:86% T:107%	pCi/L	04/27/16 16:53	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.0809 ± 0.960 (1.80)</b>	pCi/L	04/29/16 11:45	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW301</b> <b>Lab ID: 40130377008</b> Collected: 04/05/16 13:00      Received: 04/07/16 09:25      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.294 ± 0.600 (0.987)</b> C:NA T:89%	pCi/L	04/27/16 19:11	13982-63-3	
Radium-228	EPA 904.0	<b>0.820 ± 0.365 (0.612)</b> C:85% T:100%	pCi/L	04/27/16 16:53	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.11 ± 0.965 (1.60)</b>	pCi/L	04/29/16 14:53	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW302</b> <b>Lab ID: 40130377009</b> Collected: 04/05/16 11:05      Received: 04/07/16 09:25      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.100 ± 0.560 (0.930)</b> C:NA T:84%	pCi/L	04/27/16 19:46	13982-63-3	
Radium-228	EPA 904.0	<b>0.405 ± 0.301 (0.589)</b> C:83% T:101%	pCi/L	04/27/16 16:53	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.505 ± 0.861 (1.52)</b>	pCi/L	04/29/16 14:53	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

**Sample: FIELD BLANK**      **Lab ID: 40130377010**      Collected: 04/05/16 13:50      Received: 04/07/16 09:25      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0835 ± 0.714 (1.18)</b> <b>C:NA T:90%</b>	pCi/L	04/27/16 19:58	13982-63-3	
Radium-228	EPA 904.0	<b>0.381 ± 0.270 (0.518)</b> <b>C:83% T:102%</b>	pCi/L	04/27/16 16:53	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.465 ± 0.984 (1.70)</b>	pCi/L	04/29/16 11:37	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

---

QC Batch:	216576	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010		

---

METHOD BLANK:	1058371	Matrix:	Water
Associated Lab Samples:	40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.625 ± 0.487 (0.962) C:82% T:61%	pCi/L	04/27/16 12:44	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

---

QC Batch:	216568	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010		

---

METHOD BLANK:	1058357	Matrix:	Water
Associated Lab Samples:	40130377001, 40130377002, 40130377003, 40130377004, 40130377005, 40130377006, 40130377007, 40130377008, 40130377009, 40130377010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.213 ± 0.324 (0.763) C:NA T:95%	pCi/L	04/27/16 13:33	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 25216067 COLUMBIA-CCR  
Pace Project No.: 40130377

---

### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

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

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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40130377001	MW303	EPA 3010	221972	EPA 6020	222093
40130377002	MW304	EPA 3010	221972	EPA 6020	222093
40130377003	MW305	EPA 3010	221972	EPA 6020	222093
40130377004	M4R	EPA 3010	221972	EPA 6020	222093
40130377005	MW33AR	EPA 3010	221972	EPA 6020	222093
40130377006	MW34A	EPA 3010	221972	EPA 6020	222093
40130377007	MW84A	EPA 3010	221972	EPA 6020	222093
40130377008	MW301	EPA 3010	221972	EPA 6020	222093
40130377009	MW302	EPA 3010	221972	EPA 6020	222093
40130377010	FIELD BLANK	EPA 3010	221972	EPA 6020	222093
40130377001	MW303	EPA 7470	221939	EPA 7470	221960
40130377002	MW304	EPA 7470	221939	EPA 7470	221960
40130377003	MW305	EPA 7470	221939	EPA 7470	221960
40130377004	M4R	EPA 7470	221939	EPA 7470	221960
40130377005	MW33AR	EPA 7470	221939	EPA 7470	221960
40130377006	MW34A	EPA 7470	221939	EPA 7470	221960
40130377007	MW84A	EPA 7470	221939	EPA 7470	221960
40130377008	MW301	EPA 7470	221939	EPA 7470	221960
40130377009	MW302	EPA 7470	221939	EPA 7470	221960
40130377010	FIELD BLANK	EPA 7470	221939	EPA 7470	221960
40130377001	MW303	EPA 903.1	216568		
40130377002	MW304	EPA 903.1	216568		
40130377003	MW305	EPA 903.1	216568		
40130377004	M4R	EPA 903.1	216568		
40130377005	MW33AR	EPA 903.1	216568		
40130377006	MW34A	EPA 903.1	216568		
40130377007	MW84A	EPA 903.1	216568		
40130377008	MW301	EPA 903.1	216568		
40130377009	MW302	EPA 903.1	216568		
40130377010	FIELD BLANK	EPA 903.1	216568		
40130377001	MW303	EPA 904.0	216576		
40130377002	MW304	EPA 904.0	216576		
40130377003	MW305	EPA 904.0	216576		
40130377004	M4R	EPA 904.0	216576		
40130377005	MW33AR	EPA 904.0	216576		
40130377006	MW34A	EPA 904.0	216576		
40130377007	MW84A	EPA 904.0	216576		
40130377008	MW301	EPA 904.0	216576		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 COLUMBIA-CCR

Pace Project No.: 40130377

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40130377009	MW302	EPA 904.0	216576		
40130377010	FIELD BLANK	EPA 904.0	216576		
40130377001	MW303	Total Radium Calculation	218294		
40130377002	MW304	Total Radium Calculation	218294		
40130377003	MW305	Total Radium Calculation	285975		
40130377004	M4R	Total Radium Calculation	218294		
40130377005	MW33AR	Total Radium Calculation	218294		
40130377006	MW34A	Total Radium Calculation	285986		
40130377007	MW84A	Total Radium Calculation	285986		
40130377008	MW301	Total Radium Calculation	218294		
40130377009	MW302	Total Radium Calculation	218294		
40130377010	FIELD BLANK	Total Radium Calculation	285975		
40130377001	MW303	SM 2540C	221415		
40130377002	MW304	SM 2540C	221415		
40130377003	MW305	SM 2540C	221415		
40130377004	M4R	SM 2540C	221415		
40130377005	MW33AR	SM 2540C	221657		
40130377006	MW34A	SM 2540C	221657		
40130377007	MW84A	SM 2540C	221657		
40130377008	MW301	SM 2540C	221657		
40130377009	MW302	SM 2540C	221657		
40130377010	FIELD BLANK	SM 2540C	221657		
40130377001	MW303	EPA 9040	221515		
40130377002	MW304	EPA 9040	221515		
40130377003	MW305	EPA 9040	221515		
40130377004	M4R	EPA 9040	221515		
40130377005	MW33AR	EPA 9040	221515		
40130377006	MW34A	EPA 9040	221515		
40130377007	MW84A	EPA 9040	221515		
40130377008	MW301	EPA 9040	221515		
40130377009	MW302	EPA 9040	221515		
40130377010	FIELD BLANK	EPA 9040	221515		
40130377001	MW303	EPA 300.0	221521		
40130377002	MW304	EPA 300.0	221521		
40130377003	MW305	EPA 300.0	221521		
40130377004	M4R	EPA 300.0	221521		
40130377005	MW33AR	EPA 300.0	221521		
40130377006	MW34A	EPA 300.0	221521		
40130377007	MW84A	EPA 300.0	221521		
40130377008	MW301	EPA 300.0	221566		
40130377009	MW302	EPA 300.0	221566		
40130377010	FIELD BLANK	EPA 300.0	221896		

### REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: SCS  
 Branch/Location: Madison WI  
 Project Contact: Mig Boggett  
 Phone: \_\_\_\_\_  
 Project Number: 25916064  
 Project Name: Columbia-CCR  
 Project State: WI  
 Sampled By (Print): Paul A. Grover  
 Sampled By (Sign): Paul A. Grover  
 PO #: \_\_\_\_\_

**Data Package Options**  
 EPA Level III  
 EPA Level IV

**MSMSD**  
 On your sample (billable)  
 NOT needed on your sample

**Matrix Codes**  
 A = Air  
 B = Biota  
 C = Charcoal  
 O = Oil  
 S = Soil  
 SI = Sludge  
 W = Water  
 DW = Drinking Water  
 GW = Ground Water  
 SW = Surface Water  
 WW = Waste Water  
 WP = Wipe

FACE LAB #	CLIENT FIELD ID	COLLECTION DATE	TIME	MATRIX
001	MW 303	4/4/16	17:05	GW
002	MW 304		16:25	
003	MW 305		13:25	
004	M 4 R		15:10	
005	MW 33 AR		4/5/16	15:55
006	MW 34 A		15:15	
007	MW 84 A		13:45	
008	MW 301		13:00	
009	MW 302		11:05	
010	Field Blank		13:50	DT



### CHAIN OF CUSTODY

ANone B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

REGULATORY PROGRAM:  
 FILTERED? (YES/NO)  
 PRESERVATION (CODE)

**Analyses Requested**

V/I/N	Pick Letter	Analysis
N	D	Radium 226
N	D	Radium 228
N	D	Metals
N	D	Hg
N	A	Pb
N	A	TDS, Cl, F, SO4

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: \_\_\_\_\_  
 Mail To Address: \_\_\_\_\_  
 Invoice To Contact: \_\_\_\_\_  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_  
 CLIENT COMMENTS: \_\_\_\_\_  
 LAB COMMENTS (Lab Use Only): \_\_\_\_\_  
 Profile #: \_\_\_\_\_

Rush Turnaround Time Requested - Prelims  
 (Rush TAT subject to approval/surcharge)  
 Date Needed: \_\_\_\_\_

Transmit Prelim Rush Results by (complete what you want):  
 Email #1: \_\_\_\_\_  
 Email #2: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Fax: \_\_\_\_\_

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
<u>Logan</u>	<u>4/7/16 0925</u>	<u>Paul A. Grover</u>	<u>4/7/16 0925</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

PACE Project No. 40130377  
 Receipt Temp = RO1 °C  
 Sample Receipt pH OK/Adjusted  
 Cooler Custody Seal Present / Not Present Intact / Not Intact



Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project # WO#: 40130377

Client Name: SCS

Courier: Fed Ex UPS Client Pace Other: CS Logistics
Tracking #: 845-0506116 845-0406116



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 NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: /Corr: ROI Biological Tissue is Frozen: yes

Temp Blank Present: yes no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 4/7/16
Initials: [Signature]

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like 'Chain of Custody Present', 'Short Hold Time Analysis (<72hr):', 'Rush Turn Around Time Requested:', 'Containers Intact:', 'Filtered volume received for Dissolved tests', 'Sample Labels match COC:', 'All containers needing preservation have been checked.', 'Headspace in VOA Vials (>6mm):', 'Trip Blank Present:'.

Client Notification/ Resolution:
Person Contacted: Date/Time:
Comments/ Resolution:

Project Manager Review: [Signature] Date: 4-7-16

### A3 Round 3 Background Sampling, Analytical Laboratory Report

January 25, 2018

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135014

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on July 09, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the August 13, 2016 report. This report has been reissued on January 25, 2018. In 2017, the process for calculating Total Radium concentration using results from individual Ra-226 and Ra-228 analyses was standardized. At the client's request, this project from 2016 has been revised to include a Total Radium concentration using the standardized method.

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

Sincerely,



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

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Kyle Kramer, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY

Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

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 Certification

Wyoming Certification #: 8TMS-L

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### Green Bay Certification IDs

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

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40135014001	MW34A	Water	07/07/16 12:55	07/09/16 07:30
40135014002	MW33AR	Water	07/07/16 13:45	07/09/16 07:30
40135014003	MW302	Water	07/07/16 14:35	07/09/16 07:30
40135014004	MW303	Water	07/07/16 16:05	07/09/16 07:30
40135014005	MW304	Water	07/07/16 17:20	07/09/16 07:30
40135014006	M4R	Water	07/07/16 18:20	07/09/16 07:30
40135014007	MW305	Water	07/08/16 12:05	07/09/16 07:30
40135014008	MW84A	Water	07/08/16 13:00	07/09/16 07:30
40135014009	MW301	Water	07/08/16 13:50	07/09/16 07:30
40135014010	FIELD BLANK	Water	07/08/16 14:00	07/09/16 07:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40135014001	MW34A	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40135014002	MW33AR	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
40135014003	MW302	EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40135014004	MW303	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40135014005	MW304	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40135014006	M4R	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
40135014007	MW305	EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40135014008	MW84A	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
40135014009	MW301	EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
40135014010	FIELD BLANK	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			JLJ	7	PASI-G

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW34A**      **Lab ID: 40135014001**      Collected: 07/07/16 12:55      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 14:27	7440-36-0	
Arsenic	0.26J	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 14:27	7440-38-2	1q
Barium	9.4	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 14:27	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 14:27	7440-41-7	
Boron	216	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 14:27	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 14:27	7440-43-9	
Calcium	60000	ug/L	2500	736	10	07/13/16 08:12	07/15/16 13:26	7440-70-2	
Chromium	2.2	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 14:27	7440-47-3	
Cobalt	0.16J	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 14:27	7440-48-4	
Lead	0.18J	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 14:27	7439-92-1	B
Lithium	0.56J	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 14:27	7439-93-2	
Molybdenum	1.1	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 14:27	7439-98-7	
Selenium	0.71J	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 14:27	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 14:27	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:23	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.52	Std. Units			1		07/07/16 12:55		
Field Specific Conductance	494.3	umhos/cm			1		07/07/16 12:55		
Oxygen, Dissolved	3.96	mg/L			1		07/07/16 12:55	7782-44-7	
REDOX	28.8	mV			1		07/07/16 12:55		
Turbidity	6.3	NTU			1		07/07/16 12:55		
Static Water Level	785.05	feet			1		07/07/16 12:55		
Temperature, Water (C)	10.8	deg C			1		07/07/16 12:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	304	mg/L	20.0	8.7	1		07/14/16 16:20		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		07/11/16 13:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	5.6	mg/L	4.0	2.0	1		07/18/16 15:27	16887-00-6	
Fluoride	<0.20	mg/L	0.40	0.20	1		07/18/16 15:27	16984-48-8	
Sulfate	63.4	mg/L	20.0	10.0	5		07/18/16 17:45	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW33AR**      **Lab ID: 40135014002**      Collected: 07/07/16 13:45      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.18J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 14:00	7440-36-0	
Arsenic	<b>0.52J</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 14:00	7440-38-2	1q
Barium	<b>26.8</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 14:00	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 14:00	7440-41-7	
Boron	<b>794</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 14:00	7440-42-8	
Cadmium	<b>0.11J</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 14:00	7440-43-9	
Calcium	<b>50500</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 14:00	7440-70-2	
Chromium	<b>1.9</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 14:00	7440-47-3	
Cobalt	<b>0.13J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 14:00	7440-48-4	
Lead	<b>0.14J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 14:00	7439-92-1	B
Lithium	<b>1.1</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 14:00	7439-93-2	
Molybdenum	<b>4.4</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 14:00	7439-98-7	
Selenium	<b>2.1</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 14:00	7782-49-2	
Thallium	<b>0.17J</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 14:00	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:25	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.68</b>	Std. Units			1		07/07/16 13:45		
Field Specific Conductance	<b>583.4</b>	umhos/cm			1		07/07/16 13:45		
Oxygen, Dissolved	<b>3.82</b>	mg/L			1		07/07/16 13:45	7782-44-7	
REDOX	<b>39.9</b>	mV			1		07/07/16 13:45		
Turbidity	<b>0.57</b>	NTU			1		07/07/16 13:45		
Static Water Level	<b>785.19</b>	feet			1		07/07/16 13:45		
Temperature, Water (C)	<b>11.9</b>	deg C			1		07/07/16 13:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>364</b>	mg/L	20.0	8.7	1		07/14/16 16:21		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.7</b>	Std. Units	0.10	0.010	1		07/11/16 13:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>12.5</b>	mg/L	4.0	2.0	1		07/18/16 15:38	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		07/18/16 15:38	16984-48-8	
Sulfate	<b>99.2</b>	mg/L	20.0	10.0	5		07/18/16 17:57	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW302**      **Lab ID: 40135014003**      Collected: 07/07/16 14:35      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.20J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:01	7440-36-0	
Arsenic	<b>0.23J</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:01	7440-38-2	1q
Barium	<b>14.6</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:01	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:01	7440-41-7	
Boron	<b>134</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:01	7440-42-8	
Cadmium	<b>0.14J</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:01	7440-43-9	
Calcium	<b>66900</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:01	7440-70-2	
Chromium	<b>2.7</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:01	7440-47-3	
Cobalt	<b>0.20J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:01	7440-48-4	
Lead	<b>0.24J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:01	7439-92-1	B
Lithium	<b>4.5</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:01	7439-93-2	
Molybdenum	<b>2.4</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:01	7439-98-7	
Selenium	<b>1.8</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:01	7782-49-2	
Thallium	<b>0.24J</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:01	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:28	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.29</b>	Std. Units			1		07/07/16 14:35		
Field Specific Conductance	<b>578</b>	umhos/cm			1		07/07/16 14:35		
Oxygen, Dissolved	<b>3.7</b>	mg/L			1		07/07/16 14:35	7782-44-7	
REDOX	<b>80.00</b>	mV			1		07/07/16 14:35		
Turbidity	<b>2.08</b>	NTU			1		07/07/16 14:35		
Static Water Level	<b>786.28</b>	feet			1		07/07/16 14:35		
Temperature, Water (C)	<b>11.2</b>	deg C			1		07/07/16 14:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>344</b>	mg/L	20.0	8.7	1		07/14/16 16:21		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		07/11/16 13:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>3.1J</b>	mg/L	4.0	2.0	1		07/18/16 15:50	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		07/18/16 15:50	16984-48-8	
Sulfate	<b>35.4</b>	mg/L	4.0	2.0	1		07/18/16 15:50	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW303**      **Lab ID: 40135014004**      Collected: 07/07/16 16:05      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.32J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:08	7440-36-0	
Arsenic	<b>27.9</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:08	7440-38-2	
Barium	<b>7.5</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:08	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:08	7440-41-7	
Boron	<b>1680</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:08	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:08	7440-43-9	
Calcium	<b>14200</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:08	7440-70-2	
Chromium	<b>66.3</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:08	7440-47-3	
Cobalt	<b>0.60J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:08	7440-48-4	
Lead	<b>0.15J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:08	7439-92-1	B
Lithium	<b>0.77J</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:08	7439-93-2	
Molybdenum	<b>69.5</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:08	7439-98-7	
Selenium	<b>26.6</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:08	7782-49-2	
Thallium	<b>0.15J</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:08	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:30	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>9.48</b>	Std. Units			1		07/07/16 16:05		
Field Specific Conductance	<b>1076</b>	umhos/cm			1		07/07/16 16:05		
Oxygen, Dissolved	<b>2.91</b>	mg/L			1		07/07/16 16:05	7782-44-7	
REDOX	<b>-2.30</b>	mV			1		07/07/16 16:05		
Turbidity	<b>4.27</b>	NTU			1		07/07/16 16:05		
Static Water Level	<b>784.6</b>	feet			1		07/07/16 16:05		
Temperature, Water (C)	<b>12.2</b>	deg C			1		07/07/16 16:05		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>724</b>	mg/L	20.0	8.7	1		07/14/16 16:22		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>9.0</b>	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>45.9J</b>	mg/L	80.0	40.0	20		07/18/16 18:08	16887-00-6	D3
Fluoride	<b>&lt;4.0</b>	mg/L	8.0	4.0	20		07/18/16 18:08	16984-48-8	D3
Sulfate	<b>352</b>	mg/L	80.0	40.0	20		07/18/16 18:08	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW304**      **Lab ID: 40135014005**      Collected: 07/07/16 17:20      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:14	7440-36-0	
Arsenic	1.2	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:14	7440-38-2	
Barium	28.2	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:14	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:14	7440-41-7	
Boron	445	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:14	7440-42-8	
Cadmium	0.12J	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:14	7440-43-9	
Calcium	72000	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:14	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:14	7440-47-3	
Cobalt	0.62J	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:14	7440-48-4	
Lead	0.43J	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:14	7439-92-1	B
Lithium	0.17J	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:14	7439-93-2	
Molybdenum	21.9	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:14	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:14	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:14	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:32	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.25	Std. Units			1		07/07/16 17:20		
Field Specific Conductance	680	umhos/cm			1		07/07/16 17:20		
Oxygen, Dissolved	0.33	mg/L			1		07/07/16 17:20	7782-44-7	
REDOX	21.2	mV			1		07/07/16 17:20		
Turbidity	2.57	NTU			1		07/07/16 17:20		
Static Water Level	787.36	feet			1		07/07/16 17:20		
Temperature, Water (C)	16.4	deg C			1		07/07/16 17:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	402	mg/L	20.0	8.7	1		07/14/16 16:22		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	34.2	mg/L	4.0	2.0	1		07/18/16 16:36	16887-00-6	
Fluoride	0.23J	mg/L	0.40	0.20	1		07/18/16 16:36	16984-48-8	
Sulfate	66.2	mg/L	20.0	10.0	5		07/18/16 18:20	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: M4R**      **Lab ID: 40135014006**      Collected: 07/07/16 18:20      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.13J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:35	7440-36-0	
Arsenic	<b>0.18J</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:35	7440-38-2	1q
Barium	<b>17.6</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:35	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:35	7440-41-7	
Boron	<b>453</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:35	7440-42-8	
Cadmium	<b>0.21J</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:35	7440-43-9	
Calcium	<b>68900</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:35	7440-70-2	
Chromium	<b>&lt;0.39</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:35	7440-47-3	
Cobalt	<b>0.16J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:35	7440-48-4	
Lead	<b>0.73J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:35	7439-92-1	B
Lithium	<b>1.5</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:35	7439-93-2	
Molybdenum	<b>13.2</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:35	7439-98-7	
Selenium	<b>15.3</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:35	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:35	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:39	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.26</b>	Std. Units			1		07/07/16 18:20		
Field Specific Conductance	<b>662.0</b>	umhos/cm			1		07/07/16 18:20		
Oxygen, Dissolved	<b>0.1</b>	mg/L			1		07/07/16 18:20	7782-44-7	
REDOX	<b>52.4</b>	mV			1		07/07/16 18:20		
Turbidity	<b>0.05</b>	NTU			1		07/07/16 18:20		
Static Water Level	<b>801.07</b>	feet			1		07/07/16 18:20		
Temperature, Water (C)	<b>13.9</b>	deg C			1		07/07/16 18:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>410</b>	mg/L	20.0	8.7	1		07/14/16 16:23		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>37.2</b>	mg/L	4.0	2.0	1		07/18/16 16:47	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		07/18/16 16:47	16984-48-8	
Sulfate	<b>88.5</b>	mg/L	20.0	10.0	5		07/18/16 18:54	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW305**      **Lab ID: 40135014007**      Collected: 07/08/16 12:05      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.43J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:41	7440-36-0	
Arsenic	<b>0.26J</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:41	7440-38-2	1q
Barium	<b>6.4</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:41	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:41	7440-41-7	
Boron	<b>1110</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:41	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:41	7440-43-9	
Calcium	<b>47300</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:41	7440-70-2	
Chromium	<b>1.1</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:41	7440-47-3	
Cobalt	<b>0.070J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:41	7440-48-4	
Lead	<b>0.27J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:41	7439-92-1	B
Lithium	<b>&lt;0.11</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:41	7439-93-2	
Molybdenum	<b>34.8</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:41	7439-98-7	
Selenium	<b>4.8</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:41	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:41	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:42	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.04</b>	Std. Units			1		07/08/16 12:05		
Field Specific Conductance	<b>489.1</b>	umhos/cm			1		07/08/16 12:05		
Oxygen, Dissolved	<b>1.17</b>	mg/L			1		07/08/16 12:05	7782-44-7	
REDOX	<b>96.1</b>	mV			1		07/08/16 12:05		
Turbidity	<b>0.96</b>	NTU			1		07/08/16 12:05		
Static Water Level	<b>789.26</b>	feet			1		07/08/16 12:05		
Temperature, Water (C)	<b>17</b>	deg C			1		07/08/16 12:05		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>282</b>	mg/L	20.0	8.7	1		07/14/16 16:23		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.9</b>	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>32.4</b>	mg/L	4.0	2.0	1		07/18/16 16:59	16887-00-6	
Fluoride	<b>0.44</b>	mg/L	0.40	0.20	1		07/18/16 16:59	16984-48-8	
Sulfate	<b>99.2</b>	mg/L	20.0	10.0	5		07/18/16 19:06	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW84A**      **Lab ID: 40135014008**      Collected: 07/08/16 13:00      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.10J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:48	7440-36-0	
Arsenic	<b>0.14J</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:48	7440-38-2	1q
Barium	<b>12.2</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:48	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:48	7440-41-7	
Boron	<b>14.7</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:48	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:48	7440-43-9	
Calcium	<b>67600</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:48	7440-70-2	
Chromium	<b>1.8</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:48	7440-47-3	
Cobalt	<b>0.053J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:48	7440-48-4	
Lead	<b>0.39J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:48	7439-92-1	B
Lithium	<b>0.50J</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:48	7439-93-2	
Molybdenum	<b>0.073J</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:48	7439-98-7	
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:48	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:48	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:44	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.45</b>	Std. Units			1		07/08/16 13:00		
Field Specific Conductance	<b>574.8</b>	umhos/cm			1		07/08/16 13:00		
Oxygen, Dissolved	<b>3.78</b>	mg/L			1		07/08/16 13:00	7782-44-7	
REDOX	<b>139.9</b>	mV			1		07/08/16 13:00		
Turbidity	<b>2.75</b>	NTU			1		07/08/16 13:00		
Static Water Level	<b>785.89</b>	feet			1		07/08/16 13:00		
Temperature, Water (C)	<b>11.3</b>	deg C			1		07/08/16 13:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>316</b>	mg/L	20.0	8.7	1		07/14/16 16:24		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>5.1</b>	mg/L	4.0	2.0	1		07/18/16 17:10	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		07/18/16 17:10	16984-48-8	
Sulfate	<b>3.7J</b>	mg/L	4.0	2.0	1		07/18/16 17:10	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

**Sample: MW301**      **Lab ID: 40135014009**      Collected: 07/08/16 13:50      Received: 07/09/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.13J</b>	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 15:55	7440-36-0	
Arsenic	<b>0.19J</b>	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 15:55	7440-38-2	1q
Barium	<b>11.6</b>	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 15:55	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 15:55	7440-41-7	
Boron	<b>23.6</b>	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 15:55	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 15:55	7440-43-9	
Calcium	<b>108000</b>	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 15:55	7440-70-2	
Chromium	<b>0.59J</b>	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 15:55	7440-47-3	
Cobalt	<b>0.22J</b>	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 15:55	7440-48-4	
Lead	<b>0.48J</b>	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 15:55	7439-92-1	B
Lithium	<b>0.69J</b>	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 15:55	7439-93-2	
Molybdenum	<b>0.14J</b>	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 15:55	7439-98-7	
Selenium	<b>0.39J</b>	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 15:55	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 15:55	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:46	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>6.87</b>	Std. Units			1		07/08/16 13:50		
Field Specific Conductance	<b>796</b>	umhos/cm			1		07/08/16 13:50		
Oxygen, Dissolved	<b>1.47</b>	mg/L			1		07/08/16 13:50	7782-44-7	
REDOX	<b>133.9</b>	mV			1		07/08/16 13:50		
Turbidity	<b>3.89</b>	NTU			1		07/08/16 13:50		
Static Water Level	<b>786.31</b>	feet			1		07/08/16 13:50		
Temperature, Water (C)	<b>10</b>	deg C			1		07/08/16 13:50		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>464</b>	mg/L	20.0	8.7	1		07/14/16 16:24		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>6.8</b>	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>3.5J</b>	mg/L	4.0	2.0	1		07/18/16 17:41	16887-00-6	
Fluoride	<b>&lt;0.20</b>	mg/L	0.40	0.20	1		07/18/16 17:41	16984-48-8	
Sulfate	<b>15.0</b>	mg/L	4.0	2.0	1		07/18/16 17:41	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Sample: **FIELD BLANK** Lab ID: **40135014010** Collected: 07/08/16 14:00 Received: 07/09/16 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	07/13/16 08:12	07/15/16 13:12	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	07/13/16 08:12	07/15/16 13:12	7440-38-2	1q
Barium	0.075J	ug/L	1.0	0.062	1	07/13/16 08:12	07/15/16 13:12	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	07/13/16 08:12	07/15/16 13:12	7440-41-7	
Boron	<2.0	ug/L	10.0	2.0	1	07/13/16 08:12	07/15/16 13:12	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	07/13/16 08:12	07/15/16 13:12	7440-43-9	
Calcium	<73.6	ug/L	250	73.6	1	07/13/16 08:12	07/15/16 13:12	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	07/13/16 08:12	07/15/16 13:12	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	07/13/16 08:12	07/15/16 13:12	7440-48-4	
Lead	0.17J	ug/L	1.0	0.040	1	07/13/16 08:12	07/15/16 13:12	7439-92-1	B
Lithium	<0.11	ug/L	1.0	0.11	1	07/13/16 08:12	07/15/16 13:12	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	07/13/16 08:12	07/15/16 13:12	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	07/13/16 08:12	07/15/16 13:12	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	07/13/16 08:12	07/15/16 13:12	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	07/11/16 11:25	07/12/16 09:49	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		07/14/16 16:24		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	3.0	Std. Units	0.10	0.010	1		07/11/16 13:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<2.0	mg/L	4.0	2.0	1		07/18/16 17:52	16887-00-6	
Fluoride	<0.20	mg/L	0.40	0.20	1		07/18/16 17:52	16984-48-8	
Sulfate	<2.0	mg/L	4.0	2.0	1		07/18/16 17:52	14808-79-8	

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**QUALITY CONTROL DATA**

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

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QC Batch: 229494 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008, 40135014009, 40135014010

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METHOD BLANK: 1362031 Matrix: Water  
 Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008, 40135014009, 40135014010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	07/12/16 09:12	

LABORATORY CONTROL SAMPLE: 1362032

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1362033 1362034

Parameter	Units	40134987001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.13	5	5	4.7	4.6	95	92	85-115	3	20	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135014

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QC Batch: 229718 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008, 40135014009, 40135014010

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METHOD BLANK: 1362900 Matrix: Water  
Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008, 40135014009, 40135014010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.073	1.0	07/15/16 13:06	
Arsenic	ug/L	<0.099	1.0	07/15/16 13:06	
Barium	ug/L	<0.062	1.0	07/15/16 13:06	
Beryllium	ug/L	<0.13	1.0	07/15/16 13:06	
Boron	ug/L	<2.0	10.0	07/15/16 13:06	
Cadmium	ug/L	<0.089	1.0	07/15/16 13:06	
Calcium	ug/L	<73.6	250	07/15/16 13:06	
Chromium	ug/L	<0.39	1.0	07/15/16 13:06	
Cobalt	ug/L	<0.036	1.0	07/15/16 13:06	
Lead	ug/L	0.091J	1.0	07/15/16 13:06	
Lithium	ug/L	<0.11	1.0	07/15/16 13:06	
Molybdenum	ug/L	<0.070	1.0	07/15/16 13:06	
Selenium	ug/L	<0.21	1.0	07/15/16 13:06	
Thallium	ug/L	<0.14	1.0	07/15/16 13:06	

LABORATORY CONTROL SAMPLE: 1362901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	517	103	80-120	
Arsenic	ug/L	500	474	95	80-120	
Barium	ug/L	500	492	98	80-120	
Beryllium	ug/L	500	478	96	80-120	
Boron	ug/L	500	475	95	80-120	
Cadmium	ug/L	500	526	105	80-120	
Calcium	ug/L	5000	5120	102	80-120	
Chromium	ug/L	500	464	93	80-120	
Cobalt	ug/L	500	470	94	80-120	
Lead	ug/L	500	461	92	80-120	
Lithium	ug/L	500	462	92	80-120	
Molybdenum	ug/L	500	523	105	80-120	
Selenium	ug/L	500	511	102	80-120	
Thallium	ug/L	500	451	90	80-120	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Parameter	Units	1362902		1362903		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40135014001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	<0.073	500	500	516	518	103	104	75-125	0	20		
Arsenic	ug/L	0.26J	500	500	467	469	93	94	75-125	0	20		
Barium	ug/L	9.4	500	500	492	499	97	98	75-125	1	20		
Beryllium	ug/L	<0.13	500	500	478	479	96	96	75-125	0	20		
Boron	ug/L	216	500	500	695	696	96	96	75-125	0	20		
Cadmium	ug/L	<0.089	500	500	516	522	103	104	75-125	1	20		
Calcium	ug/L	60000	5000	5000	64600	65600	91	111	75-125	2	20		
Chromium	ug/L	2.2	500	500	460	463	92	92	75-125	1	20		
Cobalt	ug/L	0.16J	500	500	449	452	90	90	75-125	0	20		
Lead	ug/L	0.18J	500	500	449	454	90	91	75-125	1	20		
Lithium	ug/L	0.56J	500	500	476	480	95	96	75-125	1	20		
Molybdenum	ug/L	1.1	500	500	500	500	100	100	75-125	0	20		
Selenium	ug/L	0.71J	500	500	503	504	100	101	75-125	0	20		
Thallium	ug/L	<0.14	500	500	445	451	89	90	75-125	1	20		

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135014

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QC Batch: 229931 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008, 40135014009, 40135014010

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METHOD BLANK: 1364220 Matrix: Water  
Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008, 40135014009, 40135014010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	07/14/16 16:19	

LABORATORY CONTROL SAMPLE: 1364221

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	586	554	95	80-120	

SAMPLE DUPLICATE: 1364222

Parameter	Units	40135014001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	304	318	5	5	

SAMPLE DUPLICATE: 1364223

Parameter	Units	40135014002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	364	370	2	5	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135014

QC Batch: 229865 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008

METHOD BLANK: 1363865 Matrix: Water  
Associated Lab Samples: 40135014001, 40135014002, 40135014003, 40135014004, 40135014005, 40135014006, 40135014007, 40135014008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<2.0	4.0	07/18/16 10:23	
Fluoride	mg/L	<0.20	0.40	07/18/16 10:23	
Sulfate	mg/L	<2.0	4.0	07/18/16 10:23	

LABORATORY CONTROL SAMPLE: 1363866

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.0	95	90-110	
Fluoride	mg/L	2	2.0	98	90-110	
Sulfate	mg/L	20	18.9	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1363867 1363868

Parameter	Units	40135050001		1363868		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	46.4	100	100	143	144	97	97	90-110	0	20
Fluoride	mg/L	<1.0	10	10	10.3	10.4	103	104	90-110	1	20
Sulfate	mg/L	18.7J	100	100	111	112	93	93	90-110	1	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1363869 1363870

Parameter	Units	40135014008		1363870		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	5.1	20	20	23.9	23.7	94	93	90-110	1	20
Fluoride	mg/L	<0.20	2	2	2.1	2.1	107	107	90-110	0	20
Sulfate	mg/L	3.7J	20	20	23.0	22.8	96	95	90-110	1	20

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135014

QC Batch: 229911 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40135014009, 40135014010

METHOD BLANK: 1364173 Matrix: Water  
Associated Lab Samples: 40135014009, 40135014010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<2.0	4.0	07/18/16 16:23	
Fluoride	mg/L	<0.20	0.40	07/18/16 16:23	
Sulfate	mg/L	<2.0	4.0	07/18/16 16:23	

LABORATORY CONTROL SAMPLE: 1364174

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.1	96	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	19.3	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1364175 1364176

Parameter	Units	40135208001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Chloride	mg/L	41.2	100	100	100	137	139	96	98	90-110	1	20
Fluoride	mg/L	<0.20	2	2	2	2.0	2.1	98	100	90-110	2	20
Sulfate	mg/L	6.5	20	20	20	25.7	26.1	96	98	90-110	2	20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1364177 1364178

Parameter	Units	40135047001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Chloride	mg/L	692	1000	1000	1000	1730	1720	104	102	90-110	1	20
Fluoride	mg/L	<10.0	100	100	100	100	101	100	101	90-110	0	20
Sulfate	mg/L	370	1000	1000	1000	1350	1340	98	97	90-110	1	20

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### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Project No.: 40135014

Sample: MW33AR		Lab ID: 40135014002	Collected: 07/07/16 13:45	Received: 07/09/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.835 ± 0.958 (0.566)</b> C:NA T:92%	pCi/L	07/29/16 11:35	13982-63-3	
Radium-228	EPA 904.0	<b>0.951 ± 0.457 (0.780)</b> C:81% T:91%	pCi/L	07/28/16 01:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.79 ± 1.42 (1.35)</b>	pCi/L	08/02/16 10:51	7440-14-4	

Sample: MW302		Lab ID: 40135014003	Collected: 07/07/16 14:35	Received: 07/09/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.358 ± 0.703 (1.43)</b> C:NA T:87%	pCi/L	07/29/16 11:34	13982-63-3	
Radium-228	EPA 904.0	<b>1.21 ± 0.700 (1.27)</b> C:83% T:78%	pCi/L	07/28/16 01:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.21 ± 1.40 (2.70)</b>	pCi/L	08/13/16 11:37	7440-14-4	

Sample: MW304		Lab ID: 40135014005	Collected: 07/07/16 17:20	Received: 07/09/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.084 ± 0.568 (0.942)</b> C:NA T:97%	pCi/L	07/29/16 11:45	13982-63-3	
Radium-228	EPA 904.0	<b>2.24 ± 0.678 (0.882)</b> C:80% T:83%	pCi/L	07/28/16 01:22	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.24 ± 1.25 (1.82)</b>	pCi/L	08/13/16 11:37	7440-14-4	

Sample: M4R		Lab ID: 40135014006	Collected: 07/07/16 18:20	Received: 07/09/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.635 ± 0.968 (0.573)</b> C:NA T:89%	pCi/L	07/29/16 12:44	13982-63-3	
Radium-228	EPA 904.0	<b>1.10 ± 0.474 (0.771)</b> C:78% T:88%	pCi/L	07/28/16 01:23	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.74 ± 1.44 (1.34)</b>	pCi/L	08/02/16 10:51	7440-14-4	

Sample: MW305		Lab ID: 40135014007	Collected: 07/08/16 12:05	Received: 07/09/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.112 ± 0.628 (1.04)</b> C:NA T:91%	pCi/L	07/29/16 12:44	13982-63-3	
Radium-228	EPA 904.0	<b>1.32 ± 0.504 (0.759)</b> C:81% T:80%	pCi/L	07/28/16 01:23	15262-20-1	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Sample: MW305		Lab ID: 40135014007	Collected: 07/08/16 12:05	Received: 07/09/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.43 ± 1.13 (1.80)		pCi/L	08/02/16 10:51	7440-14-4	

Sample: MW301		Lab ID: 40135014009	Collected: 07/08/16 13:50	Received: 07/09/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.404 ± 0.922 (0.547) C:NA T:92%		pCi/L	07/29/16 12:06	13982-63-3	
Radium-228	EPA 904.0	0.486 ± 0.697 (1.50) C:76% T:74%		pCi/L	08/01/16 12:33	15262-20-1	
Total Radium	Total Radium Calculation	0.890 ± 1.62 (2.05)		pCi/L	08/02/16 10:51	7440-14-4	

Sample: FIELD BLANK		Lab ID: 40135014010	Collected: 07/08/16 14:00	Received: 07/09/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.000 ± 0.568 (0.944) C:NA T:95%		pCi/L	07/29/16 11:53	13982-63-3	
Radium-228	EPA 904.0	0.362 ± 0.483 (1.03) C:70% T:70%		pCi/L	08/01/16 12:33	15262-20-1	
Total Radium	Total Radium Calculation	0.362 ± 1.05 (1.97)		pCi/L	08/02/16 10:51	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

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QC Batch:	227024	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40135014002, 40135014003, 40135014005, 40135014006, 40135014007, 40135014009, 40135014010		

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METHOD BLANK:	1112326	Matrix:	Water
Associated Lab Samples:	40135014002, 40135014003, 40135014005, 40135014006, 40135014007, 40135014009, 40135014010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.245 ± 0.374 (0.601) C:NA T:92%	pCi/L	07/29/16 10:53	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

QC Batch: 227030

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 40135014009, 40135014010

METHOD BLANK: 1112332

Matrix: Water

Associated Lab Samples: 40135014009, 40135014010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.993 ± 0.521 (0.910) C:74% T:64%	pCi/L	08/01/16 12:33	

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## QUALIFIERS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### BATCH QUALIFIERS

Batch: 227029

[1] The LCS(D) for Ra-228 batch 30467 was not spiked. All other QC pass and samples are all non-DW. PM notified 7/28/16 @ 11:16.

### ANALYTE QUALIFIERS

1q Analyte was measured in the associated method blank at -0.10 ug/L.

B Analyte was detected in the associated method blank.

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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40135014001	MW34A	EPA 3010	229718	EPA 6020	229786
40135014002	MW33AR	EPA 3010	229718	EPA 6020	229786
40135014003	MW302	EPA 3010	229718	EPA 6020	229786
40135014004	MW303	EPA 3010	229718	EPA 6020	229786
40135014005	MW304	EPA 3010	229718	EPA 6020	229786
40135014006	M4R	EPA 3010	229718	EPA 6020	229786
40135014007	MW305	EPA 3010	229718	EPA 6020	229786
40135014008	MW84A	EPA 3010	229718	EPA 6020	229786
40135014009	MW301	EPA 3010	229718	EPA 6020	229786
40135014010	FIELD BLANK	EPA 3010	229718	EPA 6020	229786
40135014001	MW34A	EPA 7470	229494	EPA 7470	229529
40135014002	MW33AR	EPA 7470	229494	EPA 7470	229529
40135014003	MW302	EPA 7470	229494	EPA 7470	229529
40135014004	MW303	EPA 7470	229494	EPA 7470	229529
40135014005	MW304	EPA 7470	229494	EPA 7470	229529
40135014006	M4R	EPA 7470	229494	EPA 7470	229529
40135014007	MW305	EPA 7470	229494	EPA 7470	229529
40135014008	MW84A	EPA 7470	229494	EPA 7470	229529
40135014009	MW301	EPA 7470	229494	EPA 7470	229529
40135014010	FIELD BLANK	EPA 7470	229494	EPA 7470	229529
40135014001	MW34A				
40135014002	MW33AR				
40135014003	MW302				
40135014004	MW303				
40135014005	MW304				
40135014006	M4R				
40135014007	MW305				
40135014008	MW84A				
40135014009	MW301				
40135014002	MW33AR	EPA 903.1	227024		
40135014003	MW302	EPA 903.1	227024		
40135014005	MW304	EPA 903.1	227024		
40135014006	M4R	EPA 903.1	227024		
40135014007	MW305	EPA 903.1	227024		
40135014009	MW301	EPA 903.1	227024		
40135014010	FIELD BLANK	EPA 903.1	227024		
40135014002	MW33AR	EPA 904.0	227029		
40135014003	MW302	EPA 904.0	227029		
40135014005	MW304	EPA 904.0	227029		
40135014006	M4R	EPA 904.0	227029		
40135014007	MW305	EPA 904.0	227029		
40135014009	MW301	EPA 904.0	227030		
40135014010	FIELD BLANK	EPA 904.0	227030		
40135014002	MW33AR	Total Radium Calculation	228361		
40135014003	MW302	Total Radium Calculation	285975		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135014

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40135014005	MW304	Total Radium Calculation	285975		
40135014006	M4R	Total Radium Calculation	228361		
40135014007	MW305	Total Radium Calculation	228361		
40135014009	MW301	Total Radium Calculation	228361		
40135014010	FIELD BLANK	Total Radium Calculation	228361		
40135014001	MW34A	SM 2540C	229931		
40135014002	MW33AR	SM 2540C	229931		
40135014003	MW302	SM 2540C	229931		
40135014004	MW303	SM 2540C	229931		
40135014005	MW304	SM 2540C	229931		
40135014006	M4R	SM 2540C	229931		
40135014007	MW305	SM 2540C	229931		
40135014008	MW84A	SM 2540C	229931		
40135014009	MW301	SM 2540C	229931		
40135014010	FIELD BLANK	SM 2540C	229931		
40135014001	MW34A	EPA 9040	229546		
40135014002	MW33AR	EPA 9040	229546		
40135014003	MW302	EPA 9040	229546		
40135014004	MW303	EPA 9040	229546		
40135014005	MW304	EPA 9040	229546		
40135014006	M4R	EPA 9040	229546		
40135014007	MW305	EPA 9040	229546		
40135014008	MW84A	EPA 9040	229546		
40135014009	MW301	EPA 9040	229546		
40135014010	FIELD BLANK	EPA 9040	229546		
40135014001	MW34A	EPA 300.0	229865		
40135014002	MW33AR	EPA 300.0	229865		
40135014003	MW302	EPA 300.0	229865		
40135014004	MW303	EPA 300.0	229865		
40135014005	MW304	EPA 300.0	229865		
40135014006	M4R	EPA 300.0	229865		
40135014007	MW305	EPA 300.0	229865		
40135014008	MW84A	EPA 300.0	229865		
40135014009	MW301	EPA 300.0	229911		
40135014010	FIELD BLANK	EPA 300.0	229911		

### REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **SCS**  
 Branch/Location: **Madison**  
 Project Contact: **Mia Blodgett**  
 Phone: **608-234-2830**  
 Project Number: **25814067**  
 Project Name: **Alliant - Columbia**  
 Project State: **WI**  
 Sampled By (Print): **Paul A. Grover**  
 Sampled By (Sign): **Paul A. Grover**  
 PO #: \_\_\_\_\_  
 Regulatory Program: \_\_\_\_\_



### CHAIN OF CUSTODY

As=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED? (YES/NO)  
 PRESERVATION (CODE)\*

PAGE LAB #	CLIENT FIELD ID	COLLECTION DATE	TIME	MATRIX	Analyses Requested	
					V/I/N	Pick Label
001	MW 344	7/9/16	12:55	GW	X	X
002	MW 33AR		13:45			
003	MW 302		14:35			
004	MW 303		14:05			
005	MW 3D4		17:20			
006	M 4R		18:20			
007	MW 305	7/8/16	12:05			
008	MW 844		13:00			
009	MW 301		13:50			
010	Field Blank		14:00	DI		

UPPER MIDWEST REGION  
 MN: 612-607-1700 WI: 920-469-2436  
 Page 1 of 31

40135014

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: \_\_\_\_\_  
 Mail To Address: \_\_\_\_\_  
 Invoice To Contact: \_\_\_\_\_  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_  
 CLIENT COMMENTS: 2-500mlp  
 LAB COMMENTS (Lab Use Only): 4-250mlp ARDD  
 Profile #: \_\_\_\_\_

Relinquished By: **Paul A. Grover** Date/Time: **7/8/16 16:00**  
 Relinquished By: **Capri** Date/Time: **7/9/16 07:30**  
 Relinquished By: **Paul A. Grover** Date/Time: **7/9/16**  
 Received By: **Paul A. Grover** Date/Time: **7/8/16 16:00**  
 Received By: **Capri** Date/Time: **7/9/16 07:30**  
 Received By: **Paul A. Grover** Date/Time: **7/9/16**

PAGE Project No. **40135014**  
 Receipt Temp = **201** °C  
 Sample Receipt pH **(OK) Adjusted**  
 Cooler Custody Seal Present / Not Present **Intact / Not Intact**

CO196127(Jun2006) Filled in by lab per sample labels of 7/9/16

4013504

Table 2. Sampling Points and Parameters - CCR Rule Sampling Program  
 Groundwater Monitoring - Columbia Dry Ash and Ash Ponds Disposal Facilities / SCS Engineers Project #25216067

	Parameter	MW-301	MW-302	MW-303	MW-304	MW-305	M-4R	MW-33AR	MW-34A	MW-84A	Field Blank	TOTAL
Appendix III Parameters	Boron	x	x	x	x	x	x	x	x	x	x	10
	Calcium	x	x	x	x	x	x	x	x	x	x	10
	Chloride	x	x	x	x	x	x	x	x	x	x	10
	Fluoride	x	x	x	x	x	x	x	x	x	x	10
	pH	x	x	x	x	x	x	x	x	x	x	10
	Sulfate	x	x	x	x	x	x	x	x	x	x	10
	TDS	x	x	x	x	x	x	x	x	x	x	10
Appendix IV Parameters	Antimony	x	x	x	x	x	x	x	x	x	x	10
	Arsenic	x	x	x	x	x	x	x	x	x	x	10
	Barium	x	x	x	x	x	x	x	x	x	x	10
	Beryllium	x	x	x	x	x	x	x	x	x	x	10
	Cadmium	x	x	x	x	x	x	x	x	x	x	10
	Chromium	x	x	x	x	x	x	x	x	x	x	10
	Cobalt	x	x	x	x	x	x	x	x	x	x	10
	Fluoride	x	x	x	x	x	x	x	x	x	x	10
	Lead	x	x	x	x	x	x	x	x	x	x	10
	Lithium	x	x	x	x	x	x	x	x	x	x	10
	Mercury	x	x	x	x	x	x	x	x	x	x	10
	Molybdenum	x	x	x	x	x	x	x	x	x	x	10
	Selenium	x	x	x	x	x	x	x	x	x	x	10
	Thallium	x	x	x	x	x	x	x	x	x	x	10
Radium	x	x	x	x	x	x	x	x	x	x	10	
Field Parameters	Groundwater Elevation	x	x	x	x	x	x	x	x	x		9
	Well Depth	x	x	x	x	x	x	x	x	x		9
	pH (field)	x	x	x	x	x	x	x	x	x		9
	Specific Conductance	x	x	x	x	x	x	x	x	x		9
	Dissolved Oxygen	x	x	x	x	x	x	x	x	x		9
	ORP	x	x	x	x	x	x	x	x	x		9
	Temperature	x	x	x	x	x	x	x	x	x		9
	Turbidity	x	x	x	x	x	x	x	x	x		9
	Color	x	x	x	x	x	x	x	x	x		9
	Odor	x	x	x	x	x	x	x	x	x		9

Notes:

I:\25216067.00\Deliverables\Sampling and Analysis Plan\[2\_WPL\_COL\_CCR\_Rule\_Sampling.xls]Sheet1

Sample Condition Upon Receipt

Pace Analytical Services, Inc.  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302



Project #:

WO#: 40135014



Client Name: SCS

Courier:  Fed Ex  UPS  Client  Pace  Other: CS Logistics

Tracking #: 18116-070816

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: N/A Type of Ice:  Wet  Blue  Dry  None  Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: \_\_\_\_\_ /Corr: ROI Biological Tissue is Frozen:  yes  no

Temp Blank Present:  yes  no

Person examining contents:  
Date: 7/9/16  
Initials: KB

Temp should be above freezing to 6°C for all sample except Biota.  
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <sup>①</sup> times filled in by lab kb 7/9/16
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. requested analyses Radium 226/228, metals, mercury, pH, TDS, Cl, F, + SO4 per container order sheet kb 7/9/16
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. 001 2-500mlp <sup>D</sup> + 1-250mlp <sup>D</sup> ID MW-34B, no time for 004 1-250mlp <sup>A</sup> + 005 1-250mlp <sup>D</sup> kb 7/9/16
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>KB</u> Lab Std #ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

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

Project Manager Review: [Signature] Date: 7-9-16



January 25, 2018

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135961

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on July 29, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the August 26, 2016 report. This report has been reissued on January 25, 2018. In 2017, the process for calculating Total Radium concentration using results from individual Ra-226 and Ra-228 analyses was standardized. At the client's request, this project from 2016 has been revised to include a Total Radium concentration using the standardized method.

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

Sincerely,



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

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Kyle Kramer, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY

Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40135961

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
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 Certification  
Wyoming Certification #: 8TMS-L

---

### Green Bay Certification IDs

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

Virginia VELAP ID: 460263  
South Carolina Certification #: 83006001  
Texas Certification #: T104704529-14-1  
Wisconsin Certification #: 405132750  
Wisconsin DATCP Certification #: 105-444  
USDA Soil Permit #: P330-16-00157  
Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40135961001	MW 34A	Water	07/28/16 12:10	07/29/16 07:30
40135961002	MW 303	Water	07/28/16 13:07	07/29/16 07:30
40135961003	MW 84A	Water	07/28/16 14:18	07/29/16 07:30
40135961004	FIELD BLANK	Water	07/28/16 14:45	07/29/16 07:30

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40135961001	MW 34A		JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40135961002	MW 303		JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40135961003	MW 84A		JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40135961004	FIELD BLANK	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

**Sample: MW 34A**      **Lab ID: 40135961001**      Collected: 07/28/16 12:10      Received: 07/29/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.4</b>	Std. Units			1		07/28/16 12:10		
Field Specific Conductance	<b>503.6</b>	umhos/cm			1		07/28/16 12:10		
Oxygen, Dissolved	<b>5.11</b>	mg/L			1		07/28/16 12:10	7782-44-7	
REDOX	<b>130.8</b>	mV			1		07/28/16 12:10		
Turbidity	<b>4.96</b>	NTU			1		07/28/16 12:10		
Static Water Level	<b>784.86</b>	feet			1		07/28/16 12:10		
Temperature, Water (C)	<b>10.9</b>	deg C			1		07/28/16 12:10		

**Sample: MW 303**      **Lab ID: 40135961002**      Collected: 07/28/16 13:07      Received: 07/29/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Field Data</b>		Analytical Method:							
Field pH	<b>9.13</b>	Std. Units			1		07/28/16 13:07		
Field Specific Conductance	<b>1154</b>	umhos/cm			1		07/28/16 13:07		
Oxygen, Dissolved	<b>3.86</b>	mg/L			1		07/28/16 13:07	7782-44-7	
REDOX	<b>22.10</b>	mV			1		07/28/16 13:07		
Turbidity	<b>3.38</b>	NTU			1		07/28/16 13:07		
Static Water Level	<b>784.35</b>	feet			1		07/28/16 13:07		
Temperature, Water (C)	<b>11.9</b>	deg C			1		07/28/16 13:07		

**Sample: MW 84A**      **Lab ID: 40135961003**      Collected: 07/28/16 14:18      Received: 07/29/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.34</b>	Std. Units			1		07/28/16 14:18		
Field Specific Conductance	<b>579.3</b>	umhos/cm			1		07/28/16 14:18		
Oxygen, Dissolved	<b>5.11</b>	mg/L			1		07/28/16 14:18	7782-44-7	
REDOX	<b>138.3</b>	mV			1		07/28/16 14:18		
Turbidity	<b>0.17</b>	NTU			1		07/28/16 14:18		
Static Water Level	<b>785.61</b>	feet			1		07/28/16 14:18		
Temperature, Water (C)	<b>11</b>	deg C			1		07/28/16 14:18		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>-0.132 ± 0.300 (0.611)</b> C:NA T:90%	pCi/L	08/22/16 13:36	13982-63-3	
Radium-228		EPA 904.0	<b>0.788 ± 0.427 (0.772)</b> C:70% T:86%	pCi/L	08/19/16 01:15	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.788 ± 0.727 (1.38)</b>	pCi/L	08/26/16 11:45	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.0662 ± 0.302 (0.487)</b> C:NA T:89%	pCi/L	08/22/16 13:28	13982-63-3	
Radium-228		EPA 904.0	<b>0.525 ± 0.370 (0.706)</b> C:70% T:85%	pCi/L	08/19/16 01:15	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.591 ± 0.672 (1.19)</b>	pCi/L	08/23/16 15:19	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>-0.058 ± 0.302 (0.700)</b> C:NA T:97%	pCi/L	08/22/16 21:18	13982-63-3	
Radium-228		EPA 904.0	<b>1.37 ± 0.422 (0.567)</b> C:90% T:89%	pCi/L	08/19/16 01:15	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.37 ± 0.724 (1.27)</b>	pCi/L	08/26/16 11:37	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.000 ± 0.309 (0.692)</b> C:NA T:92%	pCi/L	08/22/16 21:30	13982-63-3	
Radium-228		EPA 904.0	<b>1.18 ± 0.471 (0.755)</b> C:69% T:86%	pCi/L	08/19/16 01:15	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.18 ± 0.780 (1.45)</b>	pCi/L	08/23/16 15:19	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

QC Batch: 229364 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Associated Lab Samples: 40135961001, 40135961002, 40135961003, 40135961004

METHOD BLANK: 1123864 Matrix: Water

Associated Lab Samples: 40135961001, 40135961002, 40135961003, 40135961004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.141 ± 0.390 (0.922) C:NA T:96%	pCi/L	08/22/16 12:44	

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

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## QUALIFIERS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40135961

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40135961001	MW 34A				
40135961002	MW 303				
40135961003	MW 84A				
40135961001	MW 34A	EPA 903.1	229364		
40135961002	MW 303	EPA 903.1	229364		
40135961003	MW 84A	EPA 903.1	229364		
40135961004	FIELD BLANK	EPA 903.1	229364		
40135961001	MW 34A	EPA 904.0	229375		
40135961002	MW 303	EPA 904.0	229375		
40135961003	MW 84A	EPA 904.0	229375		
40135961004	FIELD BLANK	EPA 904.0	229375		
40135961001	MW 34A	Total Radium Calculation	285986		
40135961002	MW 303	Total Radium Calculation	230779		
40135961003	MW 84A	Total Radium Calculation	285975		
40135961004	FIELD BLANK	Total Radium Calculation	230779		

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(Please Print Clearly)



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UPPER MIDWEST REGION  
MIN: 612-607-1700 WI: 920-469-2436

# CHAIN OF CUSTODY

A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED? (YES/NO)  
 PRESERVATION (CODE)\*

V/N	Pick Label	Analyses Requested
N		Radium 226
N		Radium 228

**Quote #:**  
**Mail To Contact:**  
**Mail To Company:**  
**Mail To Address:**  
**Invoice To Contact:**  
**Invoice To Company:**  
**Invoice To Address:**  
**Invoice To Phone:**  
**CLIENT COMMENTS**  
**LAB COMMENTS (Lab Use Only)**  
**Profile #**

**Data Package Options**  
 EPA Level III  
 EPA Level IV  
 On your sample (billable)  
 NOT needed on your sample

**MS/MSD**  
 A = Air  
 B = Biotin  
 C = Charcoal  
 D = Oil  
 S = Soil  
 SI = Sludge  
 W = Water  
 DW = Drinking Water  
 GW = Ground Water  
 SW = Surface Water  
 WW = Waste Water  
 WP = Wipe

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX
001	MW 344	1/23/16	13:07	GW
002	MW 383			
003	MW 844			
004	FIN Blank			

**Analyses Requested**  
 Radium 226  
 Radium 228

**CLIENT COMMENTS**  
 4-500mlps  
**LAB COMMENTS (Lab Use Only)**  
**Profile #**

**Company Name:** SCS  
**Branch/Location:** Madison, WI  
**Project Contact:** Meg Blodgett  
**Phone:** 608-216-7362  
**Project Number:** 25216067  
**Project Name:** Alliant - Columbia  
**Project State:** WI  
**Sampled By (Print):** Paul A. Grover  
**Sampled By (Sign):** Paul A. Grover  
**PO #:**  
**Regulatory Program:**

**Rush Turnaround Time Requested - Prelims**  
 (Rush TAT subject to approval/surcharge)  
**Date Needed:**  
**Transmit Prelim Rush Results by (complete what you want):**  
**Email #1:**  
**Email #2:**  
**Telephone:**  
**Fax:**  
 Samples on HOLD are subject to special pricing and release of liability

**Relinquished By:** Paul A. Grover  
**Date/Time:** 1/28/16 13:00  
**Received By:**  
**Date/Time:**  
**Relinquished By:** Durham  
**Date/Time:** 7/29/16 07:30  
**Received By:** Matt Blodgett  
**Date/Time:** 8/30/16 07:30  
**Relinquished By:**  
**Date/Time:**  
**Received By:**  
**Date/Time:**

**PAGE Project No.**  
 40135401  
**Receipt Temp =** NA °C  
**Sample Receipt pH**  
 OK / Adjusted  
 Cooler Custody-Seal Present / Not Present  
 Intact / Not Intact

# Sample Condition Upon Receipt

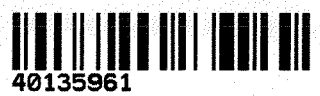
Pace Analytical Services, Inc.  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302



Client Name: SCS

Project # **WO# : 40135961**

Courier:  Fed Ex  UPS  Client  Pace  Other: Dunham



Tracking #: 1196478

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: NA    Type of Ice:  Wet  Blue  Dry  None  Samples on ice, cooling process has begun

Cooler Temperature:    Uncorr:    /Corr: NA    Biological Tissue is Frozen:  yes  no

Temp Blank Present:  yes  no

Person examining contents:  
Date: 7/29/16  
Initials: KD

Temp should be above freezing to 6°C for all sample except Biota.  
Frozen Biota Samples should be received ≤ 0°C.

**Comments:**

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	KD 7/29/16
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. 002 time 1207
-Includes date/time/ID/Analysis Matrix: <u>W</u>		KD 7/29/16
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>KD</u> Lab Std #/ID of preservative:    Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

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

**Project Manager Review:** AMH for DM    Date: 7/29/16

## A4 Round 4 Background Sampling, Analytical Laboratory Report

November 07, 2016

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 WPL-COLUMBIA (CCR)  
Pace Project No.: 40140212

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on October 15, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Brian Basten for  
Dan Milewsky  
dan.milewsky@pacelabs.com  
Project Manager

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

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### Green Bay Certification IDs

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

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40140212001	FIELD BLANK	Water	10/13/16 17:20	10/15/16 07:30
40140212002	MW33AR	Water	10/13/16 10:55	10/15/16 07:30
40140212003	MW34A	Water	10/13/16 12:15	10/15/16 07:30
40140212004	MW84A	Water	10/13/16 16:00	10/15/16 07:30
40140212005	M-4R	Water	10/12/16 13:10	10/15/16 07:30
40140212006	MW301	Water	10/13/16 17:10	10/15/16 07:30
40140212007	MW302	Water	10/13/16 14:35	10/15/16 07:30
40140212008	MW303	Water	10/12/16 15:35	10/15/16 07:30
40140212009	MW304	Water	10/13/16 16:50	10/15/16 07:30
40140212010	MW305	Water	10/13/16 09:55	10/15/16 07:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40140212001	FIELD BLANK	EPA 6020	SDW	14
		EPA 7470	AJT	1
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	JMN	3
40140212002	MW33AR	EPA 6020	SDW	14
		EPA 7470	AJT	1
			AMH	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
40140212003	MW34A	EPA 300.0	JMN	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			AMH	7
		SM 2540C	TMK	1
40140212004	MW84A	EPA 9040	ALY	1
		EPA 300.0	JMN	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			AMH	7
40140212005	M-4R	SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	JMN	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
40140212006	MW301		AMH	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	JMN	3
		EPA 6020	SDW	14
40140212007	MW302	EPA 7470	AJT	1
			AMH	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	JMN	3

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

Lab ID	Sample ID	Method	Analysts	Analytes Reported	
40140212008	MW303		AMH	7	
		SM 2540C	TMK	1	
		EPA 9040	ALY	1	
		EPA 300.0	JMN	3	
		EPA 6020	SDW	14	
		EPA 7470	AJT	1	
			AMH	7	
40140212009	MW304	SM 2540C	TMK	1	
		EPA 9040	ALY	1	
		EPA 300.0	JMN	3	
		EPA 6020	SDW	14	
		EPA 7470	AJT	1	
			AMH	7	
			SM 2540C	TMK	1
40140212010	MW305	EPA 9040	ALY	1	
		EPA 300.0	JMN	3	
		EPA 6020	SDW	14	
		EPA 7470	AJT	1	
			AMH	7	
			SM 2540C	TMK	1
			EPA 9040	ALY	1
	EPA 300.0	JMN	3		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: FIELD BLANK**      **Lab ID: 40140212001**      Collected: 10/13/16 17:20      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 16:04	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 16:04	7440-38-2	
Barium	0.16J	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 16:04	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 16:04	7440-41-7	
Boron	<2.0	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 16:04	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 16:04	7440-43-9	
Calcium	<73.6	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 16:04	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 16:04	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 16:04	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 16:04	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 16:04	7439-93-2	
Molybdenum	0.097J	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 16:04	7439-98-7	B
Selenium	<0.21	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 16:04	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 16:04	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:36	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		10/20/16 13:29		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	4.0	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<0.50	mg/L	2.0	0.50	1		11/02/16 16:53	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		11/02/16 16:53	16984-48-8	
Sulfate	<1.0	mg/L	3.0	1.0	1		11/02/16 16:53	14808-79-8	

**Sample: MW33AR**      **Lab ID: 40140212002**      Collected: 10/13/16 10:55      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	0.79J	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 16:44	7440-36-0	
Arsenic	1.2	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 16:44	7440-38-2	
Barium	47.7	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 16:44	7440-39-3	
Beryllium	0.28J	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 16:44	7440-41-7	
Boron	827	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 16:44	7440-42-8	
Cadmium	0.66J	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 16:44	7440-43-9	
Calcium	79000	ug/L	2500	736	10	10/19/16 10:02	10/20/16 16:17	7440-70-2	P6
Chromium	2.2	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 16:44	7440-47-3	
Cobalt	0.68J	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 16:44	7440-48-4	
Lead	0.73J	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 16:44	7439-92-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW33AR**      **Lab ID: 40140212002**      Collected: 10/13/16 10:55      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Lithium	<b>2.8</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 16:44	7439-93-2	
Molybdenum	<b>2.4</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 16:44	7439-98-7	B
Selenium	<b>2.9</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 16:44	7782-49-2	
Thallium	<b>0.76J</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 16:44	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470      Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:39	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.23</b>	Std. Units			1		10/13/16 10:55		
Field Specific Conductance	<b>1255</b>	umhos/cm			1		10/13/16 10:55		
Oxygen, Dissolved	<b>9.98</b>	mg/L			1		10/13/16 10:55	7782-44-7	
REDOX	<b>67.7</b>	mV			1		10/13/16 10:55		
Turbidity	<b>0.45</b>	NTU			1		10/13/16 10:55		
Static Water Level	<b>787.36</b>	feet			1		10/13/16 10:55		
Temperature, Water (C)	<b>13.2</b>	deg C			1		10/13/16 10:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>456</b>	mg/L	20.0	8.7	1		10/20/16 13:30		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>52.5</b>	mg/L	10.0	2.5	5		11/02/16 17:05	16887-00-6	
Fluoride	<b>&lt;0.50</b>	mg/L	1.5	0.50	5		11/02/16 17:05	16984-48-8	D3
Sulfate	<b>124</b>	mg/L	15.0	5.0	5		11/02/16 17:05	14808-79-8	

**Sample: MW34A**      **Lab ID: 40140212003**      Collected: 10/13/16 12:15      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Antimony	<b>0.59J</b>	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 17:25	7440-36-0	
Arsenic	<b>0.87J</b>	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 17:25	7440-38-2	
Barium	<b>9.9</b>	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 17:25	7440-39-3	
Beryllium	<b>0.28J</b>	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 17:25	7440-41-7	
Boron	<b>212</b>	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 17:25	7440-42-8	
Cadmium	<b>0.51J</b>	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 17:25	7440-43-9	
Calcium	<b>55600</b>	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 17:25	7440-70-2	
Chromium	<b>2.2</b>	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 17:25	7440-47-3	
Cobalt	<b>0.53J</b>	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 17:25	7440-48-4	
Lead	<b>0.61J</b>	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 17:25	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW34A**      **Lab ID: 40140212003**      Collected: 10/13/16 12:15      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Lithium	<b>0.80J</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 17:25	7439-93-2	
Molybdenum	<b>1.7</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 17:25	7439-98-7	B
Selenium	<b>1.2</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 17:25	7782-49-2	
Thallium	<b>0.68J</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 17:25	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470      Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:41	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.19</b>	Std. Units			1		10/13/16 12:15		
Field Specific Conductance	<b>819</b>	umhos/cm			1		10/13/16 12:15		
Oxygen, Dissolved	<b>10.33</b>	mg/L			1		10/13/16 12:15	7782-44-7	
REDOX	<b>77.5</b>	mV			1		10/13/16 12:15		
Turbidity	<b>2.27</b>	NTU			1		10/13/16 12:15		
Static Water Level	<b>786.45</b>	feet			1		10/13/16 12:15		
Temperature, Water (C)	<b>12.2</b>	deg C			1		10/13/16 12:15		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>288</b>	mg/L	20.0	8.7	1		10/20/16 13:30		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>6.8</b>	mg/L	2.0	0.50	1		11/02/16 17:35	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/02/16 17:35	16984-48-8	
Sulfate	<b>54.8</b>	mg/L	3.0	1.0	1		11/02/16 17:35	14808-79-8	

**Sample: MW84A**      **Lab ID: 40140212004**      Collected: 10/13/16 16:00      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Antimony	<b>&lt;0.073</b>	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 17:38	7440-36-0	
Arsenic	<b>0.35J</b>	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 17:38	7440-38-2	
Barium	<b>14.2</b>	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 17:38	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 17:38	7440-41-7	
Boron	<b>11.1</b>	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 17:38	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 17:38	7440-43-9	
Calcium	<b>74000</b>	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 17:38	7440-70-2	
Chromium	<b>2.0</b>	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 17:38	7440-47-3	
Cobalt	<b>&lt;0.036</b>	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 17:38	7440-48-4	
Lead	<b>0.049J</b>	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 17:38	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW84A**      **Lab ID: 40140212004**      Collected: 10/13/16 16:00      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Lithium	<b>0.56J</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 17:38	7439-93-2	
Molybdenum	<b>0.12J</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 17:38	7439-98-7	B
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 17:38	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 17:38	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470      Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:43	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.91</b>	Std. Units			1		10/13/16 16:00		
Field Specific Conductance	<b>1002</b>	umhos/cm			1		10/13/16 16:00		
Oxygen, Dissolved	<b>9.61</b>	mg/L			1		10/13/16 16:00	7782-44-7	
REDOX	<b>82.7</b>	mV			1		10/13/16 16:00		
Turbidity	<b>0.30</b>	NTU			1		10/13/16 16:00		
Static Water Level	<b>787.22</b>	feet			1		10/13/16 16:00		
Temperature, Water (C)	<b>11.5</b>	deg C			1		10/13/16 16:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>324</b>	mg/L	20.0	8.7	1		10/20/16 13:30		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.3</b>	mg/L	2.0	0.50	1		11/02/16 17:50	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/02/16 17:50	16984-48-8	
Sulfate	<b>2.6J</b>	mg/L	3.0	1.0	1		11/02/16 17:50	14808-79-8	

**Sample: M-4R**      **Lab ID: 40140212005**      Collected: 10/12/16 13:10      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Antimony	<b>&lt;0.073</b>	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 17:45	7440-36-0	
Arsenic	<b>0.25J</b>	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 17:45	7440-38-2	
Barium	<b>27.5</b>	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 17:45	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 17:45	7440-41-7	
Boron	<b>793</b>	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 17:45	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 17:45	7440-43-9	
Calcium	<b>94300</b>	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 17:45	7440-70-2	
Chromium	<b>0.49J</b>	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 17:45	7440-47-3	
Cobalt	<b>0.11J</b>	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 17:45	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 17:45	7439-92-1	

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## ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: M-4R**      **Lab ID: 40140212005**      Collected: 10/12/16 13:10      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	2.6	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 17:45	7439-93-2	
Molybdenum	11.6	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 17:45	7439-98-7	
Selenium	7.7	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 17:45	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 17:45	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:45	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.67	Std. Units			1		10/12/16 13:10		
Field Specific Conductance	1332	umhos/cm			1		10/12/16 13:10		
Oxygen, Dissolved	0.68	mg/L			1		10/12/16 13:10	7782-44-7	
REDOX	20.9	mV			1		10/12/16 13:10		
Turbidity	0.24	NTU			1		10/12/16 13:10		
Static Water Level	801.52	feet			1		10/12/16 13:10		
Temperature, Water (C)	16.5	deg C			1		10/12/16 13:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	468	mg/L	20.0	8.7	1		10/19/16 16:44		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.1	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	33.6	mg/L	2.0	0.50	1		11/02/16 18:02	16887-00-6	
Fluoride	0.16J	mg/L	0.30	0.10	1		11/02/16 18:02	16984-48-8	
Sulfate	82.8	mg/L	15.0	5.0	5		11/03/16 14:01	14808-79-8	

**Sample: MW301**      **Lab ID: 40140212006**      Collected: 10/13/16 17:10      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 17:52	7440-36-0	
Arsenic	0.24J	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 17:52	7440-38-2	
Barium	15.6	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 17:52	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 17:52	7440-41-7	
Boron	30.6	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 17:52	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 17:52	7440-43-9	
Calcium	118000	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 17:52	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 17:52	7440-47-3	
Cobalt	0.041J	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 17:52	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 17:52	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW301**      **Lab ID: 40140212006**      Collected: 10/13/16 17:10      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.60J</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 17:52	7439-93-2	
Molybdenum	<b>0.12J</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 17:52	7439-98-7	B
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 17:52	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 17:52	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:48	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.28</b>	Std. Units			1		10/13/16 17:10		
Field Specific Conductance	<b>1464</b>	umhos/cm			1		10/13/16 17:10		
Oxygen, Dissolved	<b>1.99</b>	mg/L			1		10/13/16 17:10	7782-44-7	
REDOX	<b>100.8</b>	mV			1		10/13/16 17:10		
Turbidity	<b>0.59</b>	NTU			1		10/13/16 17:10		
Static Water Level	<b>787.64</b>	feet			1		10/13/16 17:10		
Temperature, Water (C)	<b>11.2</b>	deg C			1		10/13/16 17:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>490</b>	mg/L	20.0	8.7	1		10/20/16 16:06		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>6.8</b>	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>2.2</b>	mg/L	2.0	0.50	1		11/02/16 18:15	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/02/16 18:15	16984-48-8	
Sulfate	<b>13.9</b>	mg/L	3.0	1.0	1		11/02/16 18:15	14808-79-8	

**Sample: MW302**      **Lab ID: 40140212007**      Collected: 10/13/16 14:35      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.14J</b>	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 17:59	7440-36-0	
Arsenic	<b>0.20J</b>	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 17:59	7440-38-2	
Barium	<b>16.4</b>	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 17:59	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 17:59	7440-41-7	
Boron	<b>132</b>	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 17:59	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 17:59	7440-43-9	
Calcium	<b>71700</b>	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 17:59	7440-70-2	
Chromium	<b>1.7</b>	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 17:59	7440-47-3	
Cobalt	<b>&lt;0.036</b>	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 17:59	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 17:59	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW302**      **Lab ID: 40140212007**      Collected: 10/13/16 14:35      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>3.0</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 17:59	7439-93-2	
Molybdenum	<b>1.6</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 17:59	7439-98-7	B
Selenium	<b>1.2</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 17:59	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 17:59	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:50	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.72</b>	Std. Units			1		10/13/16 14:35		
Field Specific Conductance	<b>1006</b>	umhos/cm			1		10/13/16 14:35		
Oxygen, Dissolved	<b>9.37</b>	mg/L			1		10/13/16 14:35	7782-44-7	
REDOX	<b>96.30</b>	mV			1		10/13/16 14:35		
Turbidity	<b>0.81</b>	NTU			1		10/13/16 14:35		
Static Water Level	<b>787.76</b>	feet			1		10/13/16 14:35		
Temperature, Water (C)	<b>12.2</b>	deg C			1		10/13/16 14:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>360</b>	mg/L	20.0	8.7	1		10/20/16 16:06		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.2</b>	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>1.1J</b>	mg/L	2.0	0.50	1		11/03/16 14:14	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/03/16 14:14	16984-48-8	
Sulfate	<b>64.7</b>	mg/L	15.0	5.0	5		11/02/16 18:28	14808-79-8	

**Sample: MW303**      **Lab ID: 40140212008**      Collected: 10/12/16 15:35      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.076J</b>	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 18:06	7440-36-0	
Arsenic	<b>13.4</b>	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 18:06	7440-38-2	
Barium	<b>19.6</b>	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 18:06	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 18:06	7440-41-7	
Boron	<b>1770</b>	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 18:06	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 18:06	7440-43-9	
Calcium	<b>44500</b>	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 18:06	7440-70-2	
Chromium	<b>79.9</b>	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 18:06	7440-47-3	
Cobalt	<b>0.47J</b>	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 18:06	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 18:06	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW303**      **Lab ID: 40140212008**      Collected: 10/12/16 15:35      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	1.3	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 18:06	7439-93-2	
Molybdenum	91.9	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 18:06	7439-98-7	
Selenium	25.0	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 18:06	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 18:06	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:52	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	9.75	Std. Units			1		10/12/16 15:35		
Field Specific Conductance	1946	umhos/cm			1		10/12/16 15:35		
Oxygen, Dissolved	7.24	mg/L			1		10/12/16 15:35	7782-44-7	
REDOX	26.20	mV			1		10/12/16 15:35		
Turbidity	0.14	NTU			1		10/12/16 15:35		
Static Water Level	786.18	feet			1		10/12/16 15:35		
Temperature, Water (C)	12.1	deg C			1		10/12/16 15:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	694	mg/L	20.0	8.7	1		10/19/16 16:44		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	8.8	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<0.50	mg/L	2.0	0.50	1		11/03/16 14:26	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		11/03/16 14:26	16984-48-8	
Sulfate	438	mg/L	30.0	10.0	10		11/03/16 14:39	14808-79-8	

**Sample: MW304**      **Lab ID: 40140212009**      Collected: 10/13/16 16:50      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 18:12	7440-36-0	
Arsenic	1.8	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 18:12	7440-38-2	
Barium	39.5	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 18:12	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 18:12	7440-41-7	
Boron	659	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 18:12	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 18:12	7440-43-9	
Calcium	77000	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 18:12	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 18:12	7440-47-3	
Cobalt	0.83J	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 18:12	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 18:12	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

**Sample: MW304**      **Lab ID: 40140212009**      Collected: 10/13/16 16:50      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.14J</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 18:12	7439-93-2	
Molybdenum	<b>17.1</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 18:12	7439-98-7	
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 18:12	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 18:12	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 08:55	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.71</b>	Std. Units			1		10/13/16 16:50		
Field Specific Conductance	<b>1211</b>	umhos/cm			1		10/13/16 16:50		
Oxygen, Dissolved	<b>0.59</b>	mg/L			1		10/13/16 16:50	7782-44-7	
REDOX	<b>-68.70</b>	mV			1		10/13/16 16:50		
Turbidity	<b>2.19</b>	NTU			1		10/13/16 16:50		
Static Water Level	<b>788.18</b>	feet			1		10/13/16 16:50		
Temperature, Water (C)	<b>16.3</b>	deg C			1		10/13/16 16:50		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>406</b>	mg/L	20.0	8.7	1		10/20/16 16:06		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		10/18/16 12:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>31.4</b>	mg/L	10.0	2.5	5		11/02/16 18:53	16887-00-6	
Fluoride	<b>&lt;0.50</b>	mg/L	1.5	0.50	5		11/02/16 18:53	16984-48-8	D3
Sulfate	<b>46.8</b>	mg/L	15.0	5.0	5		11/02/16 18:53	14808-79-8	

**Sample: MW305**      **Lab ID: 40140212010**      Collected: 10/13/16 09:55      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.51J</b>	ug/L	1.0	0.073	1	10/19/16 10:02	10/20/16 18:19	7440-36-0	
Arsenic	<b>0.27J</b>	ug/L	1.0	0.099	1	10/19/16 10:02	10/20/16 18:19	7440-38-2	
Barium	<b>9.4</b>	ug/L	1.0	0.062	1	10/19/16 10:02	10/20/16 18:19	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	10/19/16 10:02	10/20/16 18:19	7440-41-7	
Boron	<b>1270</b>	ug/L	10.0	2.0	1	10/19/16 10:02	10/20/16 18:19	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	10/19/16 10:02	10/20/16 18:19	7440-43-9	
Calcium	<b>56700</b>	ug/L	250	73.6	1	10/19/16 10:02	10/20/16 18:19	7440-70-2	
Chromium	<b>0.83J</b>	ug/L	1.0	0.39	1	10/19/16 10:02	10/20/16 18:19	7440-47-3	
Cobalt	<b>&lt;0.036</b>	ug/L	1.0	0.036	1	10/19/16 10:02	10/20/16 18:19	7440-48-4	
Lead	<b>0.20J</b>	ug/L	1.0	0.040	1	10/19/16 10:02	10/20/16 18:19	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 WPL-COLUMBIA (CCR)  
Pace Project No.: 40140212

**Sample: MW305**      **Lab ID: 40140212010**      Collected: 10/13/16 09:55      Received: 10/15/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.34J</b>	ug/L	1.0	0.11	1	10/19/16 10:02	10/20/16 18:19	7439-93-2	
Molybdenum	<b>40.2</b>	ug/L	1.0	0.070	1	10/19/16 10:02	10/20/16 18:19	7439-98-7	
Selenium	<b>3.7</b>	ug/L	1.0	0.21	1	10/19/16 10:02	10/20/16 18:19	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	10/19/16 10:02	10/20/16 18:19	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	10/20/16 12:50	10/21/16 09:02	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.25</b>	Std. Units			1		10/13/16 09:55		
Field Specific Conductance	<b>861</b>	umhos/cm			1		10/13/16 09:55		
Oxygen, Dissolved	<b>1.38</b>	mg/L			1		10/13/16 09:55	7782-44-7	
REDOX	<b>-31.4</b>	mV			1		10/13/16 09:55		
Turbidity	<b>0.59</b>	NTU			1		10/13/16 09:55		
Static Water Level	<b>789.78</b>	feet			1		10/13/16 09:55		
Temperature, Water (C)	<b>26.1</b>	deg C			1		10/13/16 09:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>298</b>	mg/L	20.0	8.7	1		10/20/16 16:07		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		10/18/16 12:45		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>29.4</b>	mg/L	10.0	2.5	5		11/02/16 19:43	16887-00-6	
Fluoride	<b>0.65J</b>	mg/L	1.5	0.50	5		11/02/16 19:43	16984-48-8	D3
Sulfate	<b>108</b>	mg/L	15.0	5.0	5		11/02/16 19:43	14808-79-8	

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### QUALITY CONTROL DATA

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

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QC Batch: 238568 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 40140212001, 40140212002, 40140212003, 40140212004, 40140212005, 40140212006, 40140212007, 40140212008, 40140212009, 40140212010

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METHOD BLANK: 1413330 Matrix: Water  
 Associated Lab Samples: 40140212001, 40140212002, 40140212003, 40140212004, 40140212005, 40140212006, 40140212007, 40140212008, 40140212009, 40140212010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.073	1.0	10/20/16 15:57	
Arsenic	ug/L	<0.099	1.0	10/20/16 15:57	
Barium	ug/L	<0.062	1.0	10/20/16 15:57	
Beryllium	ug/L	<0.13	1.0	10/20/16 15:57	
Boron	ug/L	<2.0	10.0	10/20/16 15:57	
Cadmium	ug/L	<0.089	1.0	10/20/16 15:57	
Calcium	ug/L	<73.6	250	10/20/16 15:57	
Chromium	ug/L	<0.39	1.0	10/20/16 15:57	
Cobalt	ug/L	<0.036	1.0	10/20/16 15:57	
Lead	ug/L	<0.040	1.0	10/20/16 15:57	
Lithium	ug/L	<0.11	1.0	10/20/16 15:57	
Molybdenum	ug/L	0.25J	1.0	10/20/16 15:57	
Selenium	ug/L	<0.21	1.0	10/20/16 15:57	
Thallium	ug/L	<0.14	1.0	10/20/16 15:57	

LABORATORY CONTROL SAMPLE: 1413331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	518	104	80-120	
Arsenic	ug/L	500	497	99	80-120	
Barium	ug/L	500	512	102	80-120	
Beryllium	ug/L	500	478	96	80-120	
Boron	ug/L	500	447	89	80-120	
Cadmium	ug/L	500	519	104	80-120	
Calcium	ug/L	5000	4730	95	80-120	
Chromium	ug/L	500	475	95	80-120	
Cobalt	ug/L	500	478	96	80-120	
Lead	ug/L	500	516	103	80-120	
Lithium	ug/L	500	458	92	80-120	
Molybdenum	ug/L	500	507	101	80-120	
Selenium	ug/L	500	530	106	80-120	
Thallium	ug/L	500	480	96	80-120	

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### QUALITY CONTROL DATA

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

Parameter	Units	1414228		1414229		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40140212002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	0.79J	500	500	533	526	107	105	75-125	1	20		
Arsenic	ug/L	1.2	500	500	520	514	104	103	75-125	1	20		
Barium	ug/L	47.7	500	500	576	570	106	104	75-125	1	20		
Beryllium	ug/L	0.28J	500	500	481	483	96	97	75-125	0	20		
Boron	ug/L	827	500	500	1290	1270	93	88	75-125	2	20		
Cadmium	ug/L	0.66J	500	500	524	518	105	103	75-125	1	20		
Calcium	ug/L	79000	5000	5000	83000	79500	80	9	75-125	4	20	P6	
Chromium	ug/L	2.2	500	500	490	484	98	96	75-125	1	20		
Cobalt	ug/L	0.68J	500	500	488	486	97	97	75-125	0	20		
Lead	ug/L	0.73J	500	500	535	528	107	105	75-125	1	20		
Lithium	ug/L	2.8	500	500	469	469	93	93	75-125	0	20		
Molybdenum	ug/L	2.4	500	500	524	521	104	104	75-125	0	20		
Selenium	ug/L	2.9	500	500	537	531	107	106	75-125	1	20		
Thallium	ug/L	0.76J	500	500	502	494	100	99	75-125	2	20		

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### QUALITY CONTROL DATA

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

QC Batch: 238642

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40140212005, 40140212008

METHOD BLANK: 1413841

Matrix: Water

Associated Lab Samples: 40140212005, 40140212008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	10/19/16 16:40	

LABORATORY CONTROL SAMPLE: 1413842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	640	598	93	80-120	

SAMPLE DUPLICATE: 1413843

Parameter	Units	40140105004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	528	524	1	5	

SAMPLE DUPLICATE: 1413844

Parameter	Units	40140212005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	468	472	1	5	

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### QUALITY CONTROL DATA

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

QC Batch: 238773

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40140212001, 40140212002, 40140212003, 40140212004

METHOD BLANK: 1414575

Matrix: Water

Associated Lab Samples: 40140212001, 40140212002, 40140212003, 40140212004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	10/20/16 13:22	

LABORATORY CONTROL SAMPLE: 1414576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	640	564	88	80-120	

SAMPLE DUPLICATE: 1414577

Parameter	Units	40140094005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	332000 ug/L	324	2	5	

SAMPLE DUPLICATE: 1414578

Parameter	Units	40140187001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	410	392	4	5	

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### QUALITY CONTROL DATA

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

QC Batch: 238819

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40140212006, 40140212007, 40140212009, 40140212010

METHOD BLANK: 1414901

Matrix: Water

Associated Lab Samples: 40140212006, 40140212007, 40140212009, 40140212010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	10/20/16 16:05	

LABORATORY CONTROL SAMPLE: 1414902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	640	582	91	80-120	

SAMPLE DUPLICATE: 1414903

Parameter	Units	40140279001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	524	542	3	5	

SAMPLE DUPLICATE: 1414904

Parameter	Units	40140292001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	478	476	0	5	

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**QUALITY CONTROL DATA**

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

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QC Batch:	238456	Analysis Method:	EPA 9040
QC Batch Method:	EPA 9040	Analysis Description:	9040 pH
Associated Lab Samples:	40140212001, 40140212002, 40140212003, 40140212004, 40140212005, 40140212006, 40140212007, 40140212008, 40140212009, 40140212010		

---

SAMPLE DUPLICATE: 1412844

Parameter	Units	40140078001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	8.1	8.1	0	20	H6

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SAMPLE DUPLICATE: 1412845

Parameter	Units	40140061001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.4	7.5	1	20	H6

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### QUALITY CONTROL DATA

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

QC Batch:	238652	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	40140212001, 40140212002, 40140212003, 40140212004, 40140212005, 40140212006, 40140212007, 40140212008, 40140212009, 40140212010		

METHOD BLANK: 1413958 Matrix: Water  
Associated Lab Samples: 40140212001, 40140212002, 40140212003, 40140212004, 40140212005, 40140212006, 40140212007, 40140212008, 40140212009, 40140212010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	11/02/16 13:07	
Fluoride	mg/L	<0.10	0.30	11/02/16 13:07	
Sulfate	mg/L	<1.0	3.0	11/02/16 13:07	

LABORATORY CONTROL SAMPLE: 1413959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.1	100	90-110	
Fluoride	mg/L	2	2.0	100	90-110	
Sulfate	mg/L	20	19.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1413960 1413961

Parameter	Units	40140131002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	163	200	200	359	366	98	102	90-110	2	15		
Fluoride	mg/L	<1.0	20	20	19.6	20.0	98	100	90-110	2	15		
Sulfate	mg/L	34.7	200	200	229	233	97	99	90-110	1	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1413962 1413963

Parameter	Units	40140219016		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	43.3	100	100	150	150	106	107	90-110	0	15		
Fluoride	mg/L	<0.50	10	10	10.4	10.3	104	103	90-110	0	15		
Sulfate	mg/L	129	100	100	230	230	101	102	90-110	0	15		

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## QUALIFIERS

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

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### DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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.

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

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 25216067 WPL-COLUMBIA (CCR)  
Pace Project No.: 40140212

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40140212001	FIELD BLANK	EPA 3010	238568	EPA 6020	238713
40140212002	MW33AR	EPA 3010	238568	EPA 6020	238713
40140212003	MW34A	EPA 3010	238568	EPA 6020	238713
40140212004	MW84A	EPA 3010	238568	EPA 6020	238713
40140212005	M-4R	EPA 3010	238568	EPA 6020	238713
40140212006	MW301	EPA 3010	238568	EPA 6020	238713
40140212007	MW302	EPA 3010	238568	EPA 6020	238713
40140212008	MW303	EPA 3010	238568	EPA 6020	238713
40140212009	MW304	EPA 3010	238568	EPA 6020	238713
40140212010	MW305	EPA 3010	238568	EPA 6020	238713
40140212001	FIELD BLANK	EPA 7470	238719	EPA 7470	238794
40140212002	MW33AR	EPA 7470	238719	EPA 7470	238794
40140212003	MW34A	EPA 7470	238719	EPA 7470	238794
40140212004	MW84A	EPA 7470	238719	EPA 7470	238794
40140212005	M-4R	EPA 7470	238719	EPA 7470	238794
40140212006	MW301	EPA 7470	238719	EPA 7470	238794
40140212007	MW302	EPA 7470	238719	EPA 7470	238794
40140212008	MW303	EPA 7470	238719	EPA 7470	238794
40140212009	MW304	EPA 7470	238719	EPA 7470	238794
40140212010	MW305	EPA 7470	238719	EPA 7470	238794
40140212002	MW33AR				
40140212003	MW34A				
40140212004	MW84A				
40140212005	M-4R				
40140212006	MW301				
40140212007	MW302				
40140212008	MW303				
40140212009	MW304				
40140212010	MW305				
40140212001	FIELD BLANK	SM 2540C	238773		
40140212002	MW33AR	SM 2540C	238773		
40140212003	MW34A	SM 2540C	238773		
40140212004	MW84A	SM 2540C	238773		
40140212005	M-4R	SM 2540C	238642		
40140212006	MW301	SM 2540C	238819		
40140212007	MW302	SM 2540C	238819		
40140212008	MW303	SM 2540C	238642		
40140212009	MW304	SM 2540C	238819		
40140212010	MW305	SM 2540C	238819		
40140212001	FIELD BLANK	EPA 9040	238456		
40140212002	MW33AR	EPA 9040	238456		
40140212003	MW34A	EPA 9040	238456		
40140212004	MW84A	EPA 9040	238456		
40140212005	M-4R	EPA 9040	238456		
40140212006	MW301	EPA 9040	238456		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 WPL-COLUMBIA (CCR)

Pace Project No.: 40140212

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40140212007	MW302	EPA 9040	238456		
40140212008	MW303	EPA 9040	238456		
40140212009	MW304	EPA 9040	238456		
40140212010	MW305	EPA 9040	238456		
40140212001	FIELD BLANK	EPA 300.0	238652		
40140212002	MW33AR	EPA 300.0	238652		
40140212003	MW34A	EPA 300.0	238652		
40140212004	MW84A	EPA 300.0	238652		
40140212005	M-4R	EPA 300.0	238652		
40140212006	MW301	EPA 300.0	238652		
40140212007	MW302	EPA 300.0	238652		
40140212008	MW303	EPA 300.0	238652		
40140212009	MW304	EPA 300.0	238652		
40140212010	MW305	EPA 300.0	238652		

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(Please Print Clearly)



# CHAIN OF CUSTODY

A=None B=HCl C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

UPPER MIDWEST REGION  
 MN: 612-607-1700 WI: 920-469-2436

Page 1 of

40140212

Company Name: SCS

Branch/Location: Madison, WI

Project Contact: Mag Biedack

Phone: (608) 214-1362

Project Number: 258140067

Project Name: WRK - Columbia

Project State: WI

Sampled By (Print): Paul A. Grover

Sampled By (Sign): Paul A. Grover

PO #: \_\_\_\_\_

Regulatory Program: \_\_\_\_\_

**Data Package Options** (billable)

EPA Level III

EPA Level IV

On your sample (billable)

NOT needed on your sample

**Matrix Codes**

A = Air  
B = Biot  
C = Charcoal  
O = Oil  
S = Soil  
SI = Sludge

W = Water  
DW = Drinking Water  
GW = Ground Water  
SW = Surface Water  
WW = Waste Water  
WP = Wipe

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX
001	FIELD Blank	10/13/16	11:26	DI
002	MW33AR	10:55		GW
003	MW3YA	13:15		
004	MW5YA	16:00		
005	M-4R	10/24/16	13:10	
006	MW3B1	10/13/16	17:10	
007	MW3D2	14:35		
008	MW3B3	10/12/16	15:35	
009	MW3D4	10/13/16	16:55	
010	MW3D5	9:55		

### Analyses Requested

V/N	Pick Label	Analysis
No		Metals
D		Hg
A		Pb
A		TDS, Cl, F, SO4

Relinquished By:	Date/Time:	Received By:	Date/Time:
<u>Paul A. Grover</u>	<u>10/14/16 16:30</u>	<u>Mag Biedack</u>	<u>10/14/16 16:50</u>
<u>Mag Biedack</u>	<u>10/14/16 16:50</u>	<u>Paul A. Grover</u>	<u>10/14/16 16:50</u>

Quote #: \_\_\_\_\_

Mail To Contact: \_\_\_\_\_

Mail To Company: \_\_\_\_\_

Mail To Address: \_\_\_\_\_

Invoice To Contact: \_\_\_\_\_

Invoice To Company: \_\_\_\_\_

Invoice To Address: \_\_\_\_\_

Invoice To Phone: \_\_\_\_\_

CLIENT COMMENTS: \_\_\_\_\_

LAB COMMENTS (Lab Use Only): 4-250ml PABD

Profile #: \_\_\_\_\_

PAGE Project No. 40140212

Receipt Temp = 60 °C

Sample Receipt pH OK / Adjusted \_\_\_\_\_

Cooler Custody Seal Present / Not Present Intact / Not Intact





Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Client Name: SCS

Project #:

WO#: 40140212

Courier: Fed Ex UPS Client Pace Other: CS Logistics
Tracking #: 1887-101416



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: NA

Type of Ice: Wet Blue Dry None

Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: ROI /Corr:

Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 10-15-16
Initials: MM

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like Chain of Custody Present, Short Hold Time Analysis, Rush Turn Around Time Requested, etc.

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review:

Handwritten signature of Project Manager

Date: 10-15-16

November 15, 2016

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 WPL-COLUMBIA (RADS)  
Pace Project No.: 40140213

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on October 15, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Milewsky  
dan.milewsky@pacelabs.com  
Project Manager

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 WPL-COLUMBIA (RADS)  
Pace Project No.: 40140213

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
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 Certification  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 WPL-COLUMBIA (RADS)

Pace Project No.: 40140213

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40140213001	FIELD BLANK	Water	10/13/16 17:20	10/15/16 07:30
40140213002	MW33AR	Water	10/13/16 10:55	10/15/16 07:30
40140213003	MW34A	Water	10/13/16 12:15	10/15/16 07:30
40140213004	MW84A	Water	10/13/16 16:00	10/15/16 07:30
40140213005	M-4R	Water	10/12/16 13:10	10/15/16 07:30
40140213006	MW301	Water	10/13/16 17:10	10/15/16 07:30
40140213007	MW302	Water	10/13/16 14:35	10/15/16 07:30
40140213008	MW303	Water	10/12/16 15:35	10/15/16 07:30
40140213009	MW304	Water	10/13/16 16:50	10/15/16 07:30
40140213010	MW305	Water	10/13/16 09:55	10/15/16 07:30

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### SAMPLE ANALYTE COUNT

Project: 25216067 WPL-COLUMBIA (RADS)  
Pace Project No.: 40140213

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40140213002	MW33AR	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213003	MW34A	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213004	MW84A	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213005	M-4R	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213006	MW301	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213007	MW302	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213008	MW303	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213009	MW304	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40140213010	MW305	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 WPL-COLUMBIA (RADS)  
Pace Project No.: 40140213

Sample: MW33AR		Lab ID: 40140213002	Collected: 10/13/16 10:55	Received: 10/15/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.209 ± 0.319 (0.837)</b> C:NA T:90%	pCi/L	11/10/16 11:22	13982-63-3	
Radium-228	EPA 904.0	<b>1.01 ± 0.605 (1.12)</b> C:80% T:85%	pCi/L	11/10/16 15:20	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.01 ± 0.924 (1.96)</b>	pCi/L	11/11/16 17:43	7440-14-4	

Sample: MW34A		Lab ID: 40140213003	Collected: 10/13/16 12:15	Received: 10/15/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.256 ± 0.356 (0.594)</b> C:NA T:95%	pCi/L	11/10/16 11:22	13982-63-3	
Radium-228	EPA 904.0	<b>0.346 ± 0.500 (1.08)</b> C:82% T:87%	pCi/L	11/10/16 15:20	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.602 ± 0.856 (1.67)</b>	pCi/L	11/11/16 17:43	7440-14-4	

Sample: MW84A		Lab ID: 40140213004	Collected: 10/13/16 16:00	Received: 10/15/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.132 ± 0.301 (0.179)</b> C:NA T:90%	pCi/L	11/10/16 11:22	13982-63-3	
Radium-228	EPA 904.0	<b>0.693 ± 0.639 (1.32)</b> C:83% T:90%	pCi/L	11/10/16 15:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.825 ± 0.940 (1.50)</b>	pCi/L	11/11/16 17:43	7440-14-4	

Sample: M-4R		Lab ID: 40140213005	Collected: 10/12/16 13:10	Received: 10/15/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.467 ± 0.350 (0.181)</b> C:NA T:92%	pCi/L	11/10/16 11:22	13982-63-3	
Radium-228	EPA 904.0	<b>0.0824 ± 0.476 (1.09)</b> C:79% T:87%	pCi/L	11/10/16 15:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.549 ± 0.826 (1.27)</b>	pCi/L	11/11/16 17:43	7440-14-4	

Sample: MW301		Lab ID: 40140213006	Collected: 10/13/16 17:10	Received: 10/15/16 07:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.067 ± 0.345 (0.799)</b> C:NA T:89%	pCi/L	11/10/16 11:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.631 ± 0.517 (1.03)</b> C:77% T:92%	pCi/L	11/10/16 15:21	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 WPL-COLUMBIA (RADS)

Pace Project No.: 40140213

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW301</b> <b>Lab ID: 40140213006</b> Collected: 10/13/16 17:10      Received: 10/15/16 07:30      Matrix: Water PWS:      Site ID:      Sample Type:						
Total Radium	Total Radium Calculation	<b>0.631 ± 0.862 (1.83)</b>	pCi/L	11/11/16 17:43	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW302</b> <b>Lab ID: 40140213007</b> Collected: 10/13/16 14:35      Received: 10/15/16 07:30      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.208 ± 0.317 (0.188)</b> C:NA T:92%	pCi/L	11/10/16 11:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.192 ± 0.542 (1.21)</b> C:74% T:85%	pCi/L	11/10/16 15:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.400 ± 0.859 (1.40)</b>	pCi/L	11/11/16 17:43	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW303</b> <b>Lab ID: 40140213008</b> Collected: 10/12/16 15:35      Received: 10/15/16 07:30      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>-0.377 ± 0.861 (2.03)</b> C:NA T:89%	pCi/L	11/10/16 20:40	13982-63-3	
Radium-228	EPA 904.0	<b>0.0851 ± 0.433 (0.986)</b> C:74% T:76%	pCi/L	11/10/16 15:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.0851 ± 1.29 (3.02)</b>	pCi/L	11/11/16 17:39	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW304</b> <b>Lab ID: 40140213009</b> Collected: 10/13/16 16:50      Received: 10/15/16 07:30      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.000 ± 1.01 (2.19)</b> C:NA T:99%	pCi/L	11/10/16 20:14	13982-63-3	
Radium-228	EPA 904.0	<b>0.885 ± 0.521 (0.972)</b> C:77% T:80%	pCi/L	11/10/16 15:27	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.885 ± 1.53 (3.16)</b>	pCi/L	11/11/16 17:39	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW305</b> <b>Lab ID: 40140213010</b> Collected: 10/13/16 09:55      Received: 10/15/16 07:30      Matrix: Water PWS:      Site ID:      Sample Type:						
Radium-226	EPA 903.1	<b>0.594 ± 0.905 (1.46)</b> C:NA T:89%	pCi/L	11/10/16 20:41	13982-63-3	
Radium-228	EPA 904.0	<b>0.396 ± 0.435 (0.908)</b> C:75% T:78%	pCi/L	11/10/16 15:14	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.990 ± 1.34 (2.37)</b>	pCi/L	11/11/16 17:39	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 WPL-COLUMBIA (RADS)

Pace Project No.: 40140213

---

QC Batch:	239014	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40140213001, 40140213002, 40140213003, 40140213004, 40140213005, 40140213006, 40140213007		

---

METHOD BLANK:	1174598	Matrix:	Water
Associated Lab Samples:	40140213001, 40140213002, 40140213003, 40140213004, 40140213005, 40140213006, 40140213007		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0659 ± 0.263 (0.628) C:83% T:90%	pCi/L	11/10/16 15:20	

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

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## QUALIFIERS

Project: 25216067 WPL-COLUMBIA (RADS)

Pace Project No.: 40140213

---

### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 WPL-COLUMBIA (RADS)

Pace Project No.: 40140213

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40140213001	FIELD BLANK	EPA 903.1	239106		
40140213002	MW33AR	EPA 903.1	239106		
40140213003	MW34A	EPA 903.1	239106		
40140213004	MW84A	EPA 903.1	239106		
40140213005	M-4R	EPA 903.1	239106		
40140213006	MW301	EPA 903.1	239106		
40140213007	MW302	EPA 903.1	239106		
40140213008	MW303	EPA 903.1	239107		
40140213009	MW304	EPA 903.1	239107		
40140213010	MW305	EPA 903.1	239107		
40140213001	FIELD BLANK	EPA 904.0	239014		
40140213002	MW33AR	EPA 904.0	239014		
40140213003	MW34A	EPA 904.0	239014		
40140213004	MW84A	EPA 904.0	239014		
40140213005	M-4R	EPA 904.0	239014		
40140213006	MW301	EPA 904.0	239014		
40140213007	MW302	EPA 904.0	239014		
40140213008	MW303	EPA 904.0	239018		
40140213009	MW304	EPA 904.0	239018		
40140213010	MW305	EPA 904.0	239018		
40140213001	FIELD BLANK	Total Radium Calculation	240092		
40140213002	MW33AR	Total Radium Calculation	240092		
40140213003	MW34A	Total Radium Calculation	240092		
40140213004	MW84A	Total Radium Calculation	240092		
40140213005	M-4R	Total Radium Calculation	240092		
40140213006	MW301	Total Radium Calculation	240092		
40140213007	MW302	Total Radium Calculation	240092		
40140213008	MW303	Total Radium Calculation	240093		
40140213009	MW304	Total Radium Calculation	240093		
40140213010	MW305	Total Radium Calculation	240093		

### REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: SCS  
Branch/Location: Madison, WI  
Project Contact: New Budget  
Phone: (608) 216-7362

Project Number: 25214069  
Project Name: WPA - Columbia  
Project State: WI  
Sampled By (Print): Paul A. Brown  
Sampled By (Sign): Paul A. Brown

PO #:   
Regulatory Program:   
Data Package Options (billable):  
 EPA Level III  
 EPA Level IV

MS/MSD (billable):  
 On your sample  
 NOT needed on your sample

Matrix Codes:  
A = Air  
B = Biota  
C = Charcoal  
O = Oil  
S = Soil  
SI = Sludge  
W = Water  
DW = Drinking Water  
GW = Ground Water  
SW = Surface Water  
WW = Waste Water  
WP = Wipe

CLIENT FIELD ID  
DATE  
COLLECTION TIME  
MATRIX

Analyses Requested  
Y/N  
Pick Label  
Radon 226  
Radon 228

Matrix Codes:  
W = Water  
DW = Drinking Water  
GW = Ground Water  
SW = Surface Water  
WW = Waste Water  
WP = Wipe

DATE  
COLLECTION TIME  
MATRIX

DATE  
COLLECTION TIME  
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MATRIX

DATE  
COLLECTION TIME  
MATRIX



# CHAIN OF CUSTODY

Preservation Codes:  
A=None B=HCL C=H2SO4 D=HNO3 E=D1 Water F=Methanol G=NaOH  
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?  
(YES/NO)  
PRESERVATION CODE\*

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
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Radon 226  
Radon 228

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Radon 226  
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Radon 226  
Radon 228

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Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

Y/N  
Pick Label  
Radon 226  
Radon 228

UPPER MIDWEST REGION  
MN: 612-607-1700 WI: 920-469-2436

Page 1 of 1  
40140213

Quote #:

Mail To Contact:

Mail To Company:

Mail To Address:

Invoice To Contact:

Invoice To Company:

Invoice To Address:

Invoice To Phone:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Profile #

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX	Analyses Requested	Y/N	Pick Label	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	FIELD Blank	10/13/16	17:20	DI	Radon 226	N	N			
002	MW 334R	10/13/16	16:55	GW	Radon 228	N	N			
003	MW 344A	10/13/16	18:15							
004	MW 844A	10/13/16	16:00							
005	M-4R	10/13/16	13:15							
006	MW-3D1	10/13/16	17:18							
007	MW-3D2	10/13/16	14:35							
008	MW-3D3	10/13/16	15:35							
009	MW-3D4	10/13/16	16:58							
010	MW-3D5	10/13/16	9:55							

Rush Turnaround Time Requested - Prelims  
(Rush TAT subject to approval/surcharge)  
Date Needed:

Relinquished By: Paul A. Brown 10/14/16 16:30  
Received By: Marnie Karpman 10/15/16 07:30

Relinquished By:   
Received By:   
Date/Time:   
Date/Time:

Relinquished By:   
Received By:   
Date/Time:   
Date/Time:

PAGE Project No.  
40140213

Sample Receipt pH  
OK / Adjusted  
Cooler Custody Seal  
Present / Not Present  
Intact / Not Intact

Receipt Temp = 90.1 °C  
Version 6.0 08/14/05



Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Client Name: SCS

Project #:

WO#: 40140213

Courier: Fed Ex UPS Client Pace Other: CS Logistics
Tracking #: 1887-101416



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: none Type of Ice: Wet Blue Dry None

Cooler Temperature: Uncorr: ROI /Corr: Biological Tissue is Frozen: yes

Temp Blank Present: yes no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 10-15-16
Initials: MM

Comments:

Table with 15 rows for Chain of Custody, Volume, Containers, and Trip Blank checks. Includes handwritten notes like '009-010 collect date 10/12/16' and 'HNO3 H2SO4 NaOH NaOH + ZnAct'.

Client Notification/ Resolution:

Person Contacted: Date/Time: If checked, see attached form for additional comments

Comments/ Resolution:

Project Manager Review:

Handwritten signature

Date: 10-15-16

## A5 Round 5 Background Sampling, Analytical Laboratory Report



January 30, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on December 30, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Milewsky  
dan.milewsky@pacelabs.com  
Project Manager

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

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 Certification

Wyoming Certification #: 8TMS-L

---

### Green Bay Certification IDs

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

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40144021001	FIELD BLANK	Water	12/29/16 13:40	12/30/16 07:30
40144021002	MW301	Water	12/29/16 13:45	12/30/16 07:30
40144021003	MW302	Water	12/29/16 12:10	12/30/16 07:30
40144021004	MW33AR	Water	12/29/16 11:10	12/30/16 07:30
40144021005	MW34A	Water	12/29/16 10:25	12/30/16 07:30
40144021006	MW84A	Water	12/29/16 13:00	12/30/16 07:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40144021001	FIELD BLANK	EPA 6020	SDW	14	PASI-G
		EPA 7470	LMS	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40144021002	MW301	EPA 6020	SDW	14	PASI-G
		EPA 7470	LMS	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
40144021003	MW302	EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	LMS	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
40144021004	MW33AR	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	LMS	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
40144021005	MW34A	SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	LMS	1	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40144021006	MW84A		JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	JMN	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	LMS	1	PASI-G
			JLJ	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	JMN	3	PASI-G

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: FIELD BLANK</b> <b>Lab ID: 40144021001</b> Collected: 12/29/16 13:40      Received: 12/30/16 07:30      Matrix: Water									
Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<0.073	ug/L	1.0	0.073	1	01/03/17 07:52	01/05/17 22:29	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	01/03/17 07:52	01/05/17 22:29	7440-38-2	1q
Barium	<0.062	ug/L	1.0	0.062	1	01/03/17 07:52	01/05/17 22:29	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	01/03/17 07:52	01/05/17 22:29	7440-41-7	
Boron	<2.0	ug/L	10.0	2.0	1	01/03/17 07:52	01/05/17 22:29	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	01/03/17 07:52	01/05/17 22:29	7440-43-9	
Calcium	<73.6	ug/L	250	73.6	1	01/03/17 07:52	01/05/17 22:29	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	01/03/17 07:52	01/05/17 22:29	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	01/03/17 07:52	01/05/17 22:29	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	01/03/17 07:52	01/05/17 22:29	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	01/03/17 07:52	01/05/17 22:29	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	01/03/17 07:52	01/05/17 22:29	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	01/03/17 07:52	01/05/17 22:29	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/03/17 07:52	01/05/17 22:29	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<0.13	ug/L	0.42	0.13	1	01/05/17 10:06	01/06/17 09:07	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		01/05/17 15:59		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	6.5	Std. Units	0.10	0.010	1		01/04/17 08:55		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<0.50	mg/L	2.0	0.50	1		01/11/17 13:35	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		01/11/17 13:35	16984-48-8	
Sulfate	<1.0	mg/L	3.0	1.0	1		01/11/17 13:35	14808-79-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: MW301</b> <b>Lab ID: 40144021002</b> Collected: 12/29/16 13:45      Received: 12/30/16 07:30      Matrix: Water									
Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	0.40J	ug/L	1.0	0.073	1	01/03/17 07:52	01/05/17 23:10	7440-36-0	B
Arsenic	0.40J	ug/L	1.0	0.099	1	01/03/17 07:52	01/05/17 23:10	7440-38-2	1q
Barium	15.0	ug/L	1.0	0.062	1	01/03/17 07:52	01/05/17 23:10	7440-39-3	
Beryllium	0.19J	ug/L	1.0	0.13	1	01/03/17 07:52	01/05/17 23:10	7440-41-7	
Boron	32.8	ug/L	10.0	2.0	1	01/03/17 07:52	01/05/17 23:10	7440-42-8	
Cadmium	0.32J	ug/L	1.0	0.089	1	01/03/17 07:52	01/05/17 23:10	7440-43-9	
Calcium	129000	ug/L	2500	736	10	01/03/17 07:52	01/05/17 22:43	7440-70-2	P6
Chromium	0.70J	ug/L	1.0	0.39	1	01/03/17 07:52	01/05/17 23:10	7440-47-3	
Cobalt	0.38J	ug/L	1.0	0.036	1	01/03/17 07:52	01/05/17 23:10	7440-48-4	
Lead	0.34J	ug/L	1.0	0.040	1	01/03/17 07:52	01/05/17 23:10	7439-92-1	B

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

**Sample: MW301**      **Lab ID: 40144021002**      Collected: 12/29/16 13:45      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.87J</b>	ug/L	1.0	0.11	1	01/03/17 07:52	01/05/17 23:10	7439-93-2	
Molybdenum	<b>0.38J</b>	ug/L	1.0	0.070	1	01/03/17 07:52	01/05/17 23:10	7439-98-7	B
Selenium	<b>0.26J</b>	ug/L	1.0	0.21	1	01/03/17 07:52	01/05/17 23:10	7782-49-2	
Thallium	<b>0.48J</b>	ug/L	1.0	0.14	1	01/03/17 07:52	01/05/17 23:10	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	01/05/17 10:06	01/06/17 09:10	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>6.63</b>	Std. Units			1		12/29/16 13:45		
Field Specific Conductance	<b>859</b>	umhos/cm			1		12/29/16 13:45		
Oxygen, Dissolved	<b>1.34</b>	mg/L			1		12/29/16 13:45	7782-44-7	
REDOX	<b>95.8</b>	mV			1		12/29/16 13:45		
Turbidity	<b>0.74</b>	NTU			1		12/29/16 13:45		
Static Water Level	<b>787.37</b>	feet			1		12/29/16 13:45		
Temperature, Water (C)	<b>10.1</b>	deg C			1		12/29/16 13:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>444</b>	mg/L	20.0	8.7	1		01/05/17 16:00		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>6.9</b>	Std. Units	0.10	0.010	1		01/04/17 08:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>2.0J</b>	mg/L	2.0	0.50	1		01/11/17 13:45	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		01/11/17 13:45	16984-48-8	
Sulfate	<b>12.3J</b>	mg/L	15.0	5.0	5		01/12/17 17:26	14808-79-8	D3

**Sample: MW302**      **Lab ID: 40144021003**      Collected: 12/29/16 12:10      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.14J</b>	ug/L	1.0	0.073	1	01/03/17 07:52	01/05/17 23:51	7440-36-0	B
Arsenic	<b>&lt;0.099</b>	ug/L	1.0	0.099	1	01/03/17 07:52	01/05/17 23:51	7440-38-2	1q
Barium	<b>16.9</b>	ug/L	1.0	0.062	1	01/03/17 07:52	01/05/17 23:51	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	01/03/17 07:52	01/05/17 23:51	7440-41-7	
Boron	<b>106</b>	ug/L	10.0	2.0	1	01/03/17 07:52	01/05/17 23:51	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	01/03/17 07:52	01/05/17 23:51	7440-43-9	
Calcium	<b>76100</b>	ug/L	250	73.6	1	01/03/17 07:52	01/05/17 23:51	7440-70-2	
Chromium	<b>2.4</b>	ug/L	1.0	0.39	1	01/03/17 07:52	01/05/17 23:51	7440-47-3	
Cobalt	<b>0.079J</b>	ug/L	1.0	0.036	1	01/03/17 07:52	01/05/17 23:51	7440-48-4	
Lead	<b>0.073J</b>	ug/L	1.0	0.040	1	01/03/17 07:52	01/05/17 23:51	7439-92-1	B

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

**Sample: MW302**      **Lab ID: 40144021003**      Collected: 12/29/16 12:10      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	3.3	ug/L	1.0	0.11	1	01/03/17 07:52	01/05/17 23:51	7439-93-2	
Molybdenum	1.6	ug/L	1.0	0.070	1	01/03/17 07:52	01/05/17 23:51	7439-98-7	
Selenium	2.0	ug/L	1.0	0.21	1	01/03/17 07:52	01/05/17 23:51	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/03/17 07:52	01/05/17 23:51	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	01/05/17 10:06	01/06/17 08:54	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.12	Std. Units			1		12/29/16 12:10		
Field Specific Conductance	588.9	umhos/cm			1		12/29/16 12:10		
Oxygen, Dissolved	8.50	mg/L			1		12/29/16 12:10	7782-44-7	
REDOX	88.9	mV			1		12/29/16 12:10		
Turbidity	1.78	NTU			1		12/29/16 12:10		
Static Water Level	787.05	feet			1		12/29/16 12:10		
Temperature, Water (C)	11.1	deg C			1		12/29/16 12:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	330	mg/L	20.0	8.7	1		01/05/17 16:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.1	Std. Units	0.10	0.010	1		01/04/17 08:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	1.2J	mg/L	2.0	0.50	1		01/11/17 13:55	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		01/11/17 13:55	16984-48-8	
Sulfate	56.4	mg/L	15.0	5.0	5		01/12/17 17:36	14808-79-8	

**Sample: MW33AR**      **Lab ID: 40144021004**      Collected: 12/29/16 11:10      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	0.11J	ug/L	1.0	0.073	1	01/03/17 07:52	01/06/17 00:04	7440-36-0	B
Arsenic	0.32J	ug/L	1.0	0.099	1	01/03/17 07:52	01/06/17 00:04	7440-38-2	1q
Barium	37.8	ug/L	1.0	0.062	1	01/03/17 07:52	01/06/17 00:04	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	01/03/17 07:52	01/06/17 00:04	7440-41-7	
Boron	812	ug/L	10.0	2.0	1	01/03/17 07:52	01/06/17 00:04	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	01/03/17 07:52	01/06/17 00:04	7440-43-9	
Calcium	63100	ug/L	250	73.6	1	01/03/17 07:52	01/06/17 00:04	7440-70-2	
Chromium	1.9	ug/L	1.0	0.39	1	01/03/17 07:52	01/06/17 00:04	7440-47-3	
Cobalt	0.039J	ug/L	1.0	0.036	1	01/03/17 07:52	01/06/17 00:04	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	01/03/17 07:52	01/06/17 00:04	7439-92-1	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Sample: MW33AR Lab ID: 40144021004 Collected: 12/29/16 11:10 Received: 12/30/16 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Lithium	1.4	ug/L	1.0	0.11	1	01/03/17 07:52	01/06/17 00:04	7439-93-2	
Molybdenum	3.8	ug/L	1.0	0.070	1	01/03/17 07:52	01/06/17 00:04	7439-98-7	
Selenium	2.0	ug/L	1.0	0.21	1	01/03/17 07:52	01/06/17 00:04	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	01/03/17 07:52	01/06/17 00:04	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	01/05/17 10:06	01/06/17 09:17	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.63	Std. Units			1		12/29/16 11:10		
Field Specific Conductance	702	umhos/cm			1		12/29/16 11:10		
Oxygen, Dissolved	9.41	mg/L			1		12/29/16 11:10	7782-44-7	
REDOX	73.5	mV			1		12/29/16 11:10		
Turbidity	0.44	NTU			1		12/29/16 11:10		
Static Water Level	785.66	feet			1		12/29/16 11:10		
Temperature, Water (C)	12.2	deg C			1		12/29/16 11:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	440	mg/L	20.0	8.7	1		01/05/17 16:02		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.6	Std. Units	0.10	0.010	1		01/04/17 08:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	39.6	mg/L	2.0	0.50	1		01/11/17 14:05	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		01/11/17 14:05	16984-48-8	
Sulfate	132	mg/L	30.0	10.0	10		01/12/17 14:05	14808-79-8	

Sample: MW34A Lab ID: 40144021005 Collected: 12/29/16 10:25 Received: 12/30/16 07:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	01/03/17 07:52	01/06/17 00:11	7440-36-0	
Arsenic	0.23J	ug/L	1.0	0.099	1	01/03/17 07:52	01/06/17 00:11	7440-38-2	1q
Barium	9.5	ug/L	1.0	0.062	1	01/03/17 07:52	01/06/17 00:11	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	01/03/17 07:52	01/06/17 00:11	7440-41-7	
Boron	224	ug/L	10.0	2.0	1	01/03/17 07:52	01/06/17 00:11	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	01/03/17 07:52	01/06/17 00:11	7440-43-9	
Calcium	62800	ug/L	250	73.6	1	01/03/17 07:52	01/06/17 00:11	7440-70-2	
Chromium	1.8	ug/L	1.0	0.39	1	01/03/17 07:52	01/06/17 00:11	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	01/03/17 07:52	01/06/17 00:11	7440-48-4	
Lead	0.049J	ug/L	1.0	0.040	1	01/03/17 07:52	01/06/17 00:11	7439-92-1	B

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

**Sample: MW34A**      **Lab ID: 40144021005**      Collected: 12/29/16 10:25      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.51J</b>	ug/L	1.0	0.11	1	01/03/17 07:52	01/06/17 00:11	7439-93-2	
Molybdenum	<b>1.1</b>	ug/L	1.0	0.070	1	01/03/17 07:52	01/06/17 00:11	7439-98-7	B
Selenium	<b>0.45J</b>	ug/L	1.0	0.21	1	01/03/17 07:52	01/06/17 00:11	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	01/03/17 07:52	01/06/17 00:11	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	01/05/17 10:06	01/06/17 09:19	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.43</b>	Std. Units			1		12/29/16 10:25		
Field Specific Conductance	<b>490.0</b>	umhos/cm			1		12/29/16 10:25		
Oxygen, Dissolved	<b>9.90</b>	mg/L			1		12/29/16 10:25	7782-44-7	
REDOX	<b>72.9</b>	mV			1		12/29/16 10:25		
Turbidity	<b>0.95</b>	NTU			1		12/29/16 10:25		
Static Water Level	<b>785.72</b>	feet			1		12/29/16 10:25		
Temperature, Water (C)	<b>12.3</b>	deg C			1		12/29/16 10:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>242</b>	mg/L	20.0	8.7	1		01/05/17 16:05		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		01/04/17 09:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>7.1</b>	mg/L	2.0	0.50	1		01/06/17 12:25	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		01/06/17 12:25	16984-48-8	
Sulfate	<b>63.9</b>	mg/L	15.0	5.0	5		01/06/17 12:55	14808-79-8	

**Sample: MW84A**      **Lab ID: 40144021006**      Collected: 12/29/16 13:00      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>&lt;0.073</b>	ug/L	1.0	0.073	1	01/03/17 07:52	01/06/17 00:18	7440-36-0	
Arsenic	<b>0.19J</b>	ug/L	1.0	0.099	1	01/03/17 07:52	01/06/17 00:18	7440-38-2	1q
Barium	<b>18.4</b>	ug/L	1.0	0.062	1	01/03/17 07:52	01/06/17 00:18	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	01/03/17 07:52	01/06/17 00:18	7440-41-7	
Boron	<b>14.7</b>	ug/L	10.0	2.0	1	01/03/17 07:52	01/06/17 00:18	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	01/03/17 07:52	01/06/17 00:18	7440-43-9	
Calcium	<b>76000</b>	ug/L	250	73.6	1	01/03/17 07:52	01/06/17 00:18	7440-70-2	
Chromium	<b>2.0</b>	ug/L	1.0	0.39	1	01/03/17 07:52	01/06/17 00:18	7440-47-3	
Cobalt	<b>&lt;0.036</b>	ug/L	1.0	0.036	1	01/03/17 07:52	01/06/17 00:18	7440-48-4	
Lead	<b>0.11J</b>	ug/L	1.0	0.040	1	01/03/17 07:52	01/06/17 00:18	7439-92-1	B

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

**Sample: MW84A**      **Lab ID: 40144021006**      Collected: 12/29/16 13:00      Received: 12/30/16 07:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.56J</b>	ug/L	1.0	0.11	1	01/03/17 07:52	01/06/17 00:18	7439-93-2	
Molybdenum	<b>&lt;0.070</b>	ug/L	1.0	0.070	1	01/03/17 07:52	01/06/17 00:18	7439-98-7	
Selenium	<b>&lt;0.21</b>	ug/L	1.0	0.21	1	01/03/17 07:52	01/06/17 00:18	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	01/03/17 07:52	01/06/17 00:18	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	01/05/17 10:06	01/06/17 09:21	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.25</b>	Std. Units			1		12/29/16 13:00		
Field Specific Conductance	<b>578.2</b>	umhos/cm			1		12/29/16 13:00		
Oxygen, Dissolved	<b>8.94</b>	mg/L			1		12/29/16 13:00	7782-44-7	
REDOX	<b>87.0</b>	mV			1		12/29/16 13:00		
Turbidity	<b>0.25</b>	NTU			1		12/29/16 13:00		
Static Water Level	<b>786.63</b>	feet			1		12/29/16 13:00		
Temperature, Water (C)	<b>10.8</b>	deg C			1		12/29/16 13:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>316</b>	mg/L	20.0	8.7	1		01/05/17 16:05		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		01/04/17 09:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.7</b>	mg/L	2.0	0.50	1		01/06/17 13:25	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		01/06/17 13:25	16984-48-8	
Sulfate	<b>2.7J</b>	mg/L	3.0	1.0	1		01/06/17 13:25	14808-79-8	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

QC Batch: 245777

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

METHOD BLANK: 1453917

Matrix: Water

Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	01/06/17 08:49	

LABORATORY CONTROL SAMPLE: 1453918

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: 1453919 1453920

Parameter	Units	1453919		1453920		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40144021003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.13	5	5	5.1	5.2	103	103	85-115	1	20

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

QC Batch: 245563 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

METHOD BLANK: 1453094 Matrix: Water  
Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	0.33J	1.0	01/05/17 22:22	
Arsenic	ug/L	<0.099	1.0	01/05/17 22:22	
Barium	ug/L	<0.062	1.0	01/05/17 22:22	
Beryllium	ug/L	<0.13	1.0	01/05/17 22:22	
Boron	ug/L	<2.0	10.0	01/05/17 22:22	
Cadmium	ug/L	<0.089	1.0	01/05/17 22:22	
Calcium	ug/L	<73.6	250	01/05/17 22:22	
Chromium	ug/L	<0.39	1.0	01/05/17 22:22	
Cobalt	ug/L	<0.036	1.0	01/05/17 22:22	
Lead	ug/L	0.042J	1.0	01/05/17 22:22	
Lithium	ug/L	<0.11	1.0	01/05/17 22:22	
Molybdenum	ug/L	0.16J	1.0	01/05/17 22:22	
Selenium	ug/L	<0.21	1.0	01/05/17 22:22	
Thallium	ug/L	<0.14	1.0	01/05/17 22:22	

LABORATORY CONTROL SAMPLE: 1453095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	524	105	80-120	
Arsenic	ug/L	500	524	105	80-120	
Barium	ug/L	500	514	103	80-120	
Beryllium	ug/L	500	509	102	80-120	
Boron	ug/L	500	485	97	80-120	
Cadmium	ug/L	500	543	109	80-120	
Calcium	ug/L	5000	4990	100	80-120	
Chromium	ug/L	500	514	103	80-120	
Cobalt	ug/L	500	512	102	80-120	
Lead	ug/L	500	492	98	80-120	
Lithium	ug/L	500	497	99	80-120	
Molybdenum	ug/L	500	526	105	80-120	
Selenium	ug/L	500	543	109	80-120	
Thallium	ug/L	500	489	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1453096 1453097

Parameter	Units	40144021002 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	ug/L	0.40J	500	500	505	518	101	104	75-125	3	20	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1453096		1453097		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40144021002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Arsenic	ug/L	0.40J	500	500	518	531	103	106	75-125	3	20		
Barium	ug/L	15.0	500	500	514	529	100	103	75-125	3	20		
Beryllium	ug/L	0.19J	500	500	503	534	101	107	75-125	6	20		
Boron	ug/L	32.8	500	500	516	562	97	106	75-125	9	20		
Cadmium	ug/L	0.32J	500	500	520	532	104	106	75-125	2	20		
Calcium	ug/L	129000	5000	5000	129000	134000	-8	92	75-125	4	20	P6	
Chromium	ug/L	0.70J	500	500	497	511	99	102	75-125	3	20		
Cobalt	ug/L	0.38J	500	500	494	506	99	101	75-125	2	20		
Lead	ug/L	0.34J	500	500	478	493	96	99	75-125	3	20		
Lithium	ug/L	0.87J	500	500	502	542	100	108	75-125	8	20		
Molybdenum	ug/L	0.38J	500	500	513	528	102	106	75-125	3	20		
Selenium	ug/L	0.26J	500	500	528	541	106	108	75-125	3	20		
Thallium	ug/L	0.48J	500	500	487	497	97	99	75-125	2	20		

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

QC Batch: 245799

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

METHOD BLANK: 1454028

Matrix: Water

Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	01/05/17 15:58	

LABORATORY CONTROL SAMPLE: 1454029

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	586	532	91	80-120	

SAMPLE DUPLICATE: 1454030

Parameter	Units	40144047001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2180	2180	0	5	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

QC Batch: 245711 Analysis Method: EPA 9040

QC Batch Method: EPA 9040 Analysis Description: 9040 pH

Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006

SAMPLE DUPLICATE: 1453682

Parameter	Units	40143875014 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	6.9	7.0	0	20	H6

SAMPLE DUPLICATE: 1453683

Parameter	Units	40144021001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	6.5	6.6	1	20	H6

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

QC Batch: 245801 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40144021005, 40144021006

METHOD BLANK: 1454032 Matrix: Water  
Associated Lab Samples: 40144021005, 40144021006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	01/06/17 11:55	
Fluoride	mg/L	<0.10	0.30	01/06/17 11:55	
Sulfate	mg/L	<1.0	3.0	01/06/17 11:55	

LABORATORY CONTROL SAMPLE: 1454033

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.4	102	90-110	
Fluoride	mg/L	2	2.0	101	90-110	
Sulfate	mg/L	20	20.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1454034 1454035

Parameter	Units	40144021005		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	7.1	20	20	28.2	28.6	105	107	90-110	1	15				
Fluoride	mg/L	<0.10	2	2	2.0	2.1	102	103	90-110	1	15				
Sulfate	mg/L	63.9	100	100	167	170	103	106	90-110	2	15				

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

QC Batch: 245977 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004

METHOD BLANK: 1454914 Matrix: Water  
Associated Lab Samples: 40144021001, 40144021002, 40144021003, 40144021004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	01/11/17 11:25	
Fluoride	mg/L	<0.10	0.30	01/11/17 11:25	
Sulfate	mg/L	<1.0	3.0	01/11/17 11:25	

LABORATORY CONTROL SAMPLE: 1454915

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.5	103	90-110	
Fluoride	mg/L	2	2.0	102	90-110	
Sulfate	mg/L	20	20.3	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1454916 1454917

Parameter	Units	40143976001 Result	MS Spike Conc.	MSD Spike Conc.	1454916		1454917		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	3410	2000	2000	5350	5330	97	96	90-110	0	15	
Fluoride	mg/L	<10.0	200	200	206	206	103	103	90-110	0	15	
Sulfate	mg/L	253J	2000	2000	2300	2300	102	102	90-110	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1454918 1454919

Parameter	Units	40144021004 Result	MS Spike Conc.	MSD Spike Conc.	1454918		1454919		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	39.6	20	20	59.3	59.4	99	99	90-110	0	15	
Fluoride	mg/L	<0.10	2	2	2.1	2.1	103	105	90-110	2	15	
Sulfate	mg/L	132	200	200	334	335	101	101	90-110	0	15	

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### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Sample: FIELD BLANK		Lab ID: 40144021001	Collected: 12/29/16 13:40	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.229 ± 0.421 (0.955)</b>		pCi/L	01/27/17 10:25	13982-63-3	
		<b>C:NA T:89%</b>					
Radium-228	EPA 904.0	<b>0.652 ± 0.391 (0.733)</b>		pCi/L	01/26/17 15:41	15262-20-1	
		<b>C:81% T:84%</b>					
Total Radium	Total Radium Calculation	<b>0.652 ± 0.812 (1.69)</b>		pCi/L	01/30/17 14:39	7440-14-4	

Sample: MW301		Lab ID: 40144021002	Collected: 12/29/16 13:45	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.108 ± 0.247 (0.146)</b>		pCi/L	01/27/17 10:26	13982-63-3	
		<b>C:NA T:94%</b>					
Radium-228	EPA 904.0	<b>0.905 ± 0.445 (0.772)</b>		pCi/L	01/26/17 15:41	15262-20-1	
		<b>C:83% T:73%</b>					
Total Radium	Total Radium Calculation	<b>1.01 ± 0.692 (0.918)</b>		pCi/L	01/30/17 14:39	7440-14-4	

Sample: MW302		Lab ID: 40144021003	Collected: 12/29/16 12:10	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.103 ± 0.235 (0.554)</b>		pCi/L	01/27/17 10:40	13982-63-3	
		<b>C:NA T:97%</b>					
Radium-228	EPA 904.0	<b>0.252 ± 0.338 (0.722)</b>		pCi/L	01/26/17 15:42	15262-20-1	
		<b>C:80% T:83%</b>					
Total Radium	Total Radium Calculation	<b>0.252 ± 0.573 (1.28)</b>		pCi/L	01/30/17 14:39	7440-14-4	

Sample: MW33AR		Lab ID: 40144021004	Collected: 12/29/16 11:10	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.834 ± 0.496 (0.472)</b>		pCi/L	01/27/17 10:40	13982-63-3	
		<b>C:NA T:84%</b>					
Radium-228	EPA 904.0	<b>0.698 ± 0.411 (0.771)</b>		pCi/L	01/26/17 15:42	15262-20-1	
		<b>C:82% T:82%</b>					
Total Radium	Total Radium Calculation	<b>1.53 ± 0.907 (1.24)</b>		pCi/L	01/30/17 14:39	7440-14-4	

Sample: MW34A		Lab ID: 40144021005	Collected: 12/29/16 10:25	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.235 ± 0.327 (0.828)</b>		pCi/L	01/27/17 10:40	13982-63-3	
		<b>C:NA T:83%</b>					
Radium-228	EPA 904.0	<b>0.509 ± 0.356 (0.691)</b>		pCi/L	01/26/17 15:42	15262-20-1	
		<b>C:87% T:80%</b>					

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Sample: MW34A		Lab ID: 40144021005	Collected: 12/29/16 10:25	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	<b>0.509 ± 0.683</b>	<b>(1.52)</b>	pCi/L	01/30/17 14:39	7440-14-4	

Sample: MW84A		Lab ID: 40144021006	Collected: 12/29/16 13:00	Received: 12/30/16 07:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.168 ± 0.292</b>	<b>(0.521)</b>	pCi/L	01/27/17 10:40	13982-63-3	
		<b>C:NA T:88%</b>					
Radium-228	EPA 904.0	<b>0.236 ± 0.301</b>	<b>(0.639)</b>	pCi/L	01/26/17 15:42	15262-20-1	
		<b>C:84% T:84%</b>					
Total Radium	Total Radium Calculation	<b>0.404 ± 0.593</b>	<b>(1.16)</b>	pCi/L	01/30/17 14:39	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

---

QC Batch:	246417	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006		

---

METHOD BLANK:	1211752	Matrix:	Water
Associated Lab Samples:	40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.336 (0.710) C:NA T:98%	pCi/L	01/27/17 10:13	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

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QC Batch:	246418	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006		

---

METHOD BLANK:	1211755	Matrix:	Water
Associated Lab Samples:	40144021001, 40144021002, 40144021003, 40144021004, 40144021005, 40144021006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.536 ± 0.323 (0.592) C:80% T:88%	pCi/L	01/26/17 15:42	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

1q Analyte was measured in the associated method blank at -0.24 ug/L.

B Analyte was detected in the associated method blank.

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.

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

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40144021

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40144021001	FIELD BLANK	EPA 3010	245563	EPA 6020	245626
40144021002	MW301	EPA 3010	245563	EPA 6020	245626
40144021003	MW302	EPA 3010	245563	EPA 6020	245626
40144021004	MW33AR	EPA 3010	245563	EPA 6020	245626
40144021005	MW34A	EPA 3010	245563	EPA 6020	245626
40144021006	MW84A	EPA 3010	245563	EPA 6020	245626
40144021001	FIELD BLANK	EPA 7470	245777	EPA 7470	245802
40144021002	MW301	EPA 7470	245777	EPA 7470	245802
40144021003	MW302	EPA 7470	245777	EPA 7470	245802
40144021004	MW33AR	EPA 7470	245777	EPA 7470	245802
40144021005	MW34A	EPA 7470	245777	EPA 7470	245802
40144021006	MW84A	EPA 7470	245777	EPA 7470	245802
40144021002	MW301				
40144021003	MW302				
40144021004	MW33AR				
40144021005	MW34A				
40144021006	MW84A				
40144021001	FIELD BLANK	EPA 903.1	246417		
40144021002	MW301	EPA 903.1	246417		
40144021003	MW302	EPA 903.1	246417		
40144021004	MW33AR	EPA 903.1	246417		
40144021005	MW34A	EPA 903.1	246417		
40144021006	MW84A	EPA 903.1	246417		
40144021001	FIELD BLANK	EPA 904.0	246418		
40144021002	MW301	EPA 904.0	246418		
40144021003	MW302	EPA 904.0	246418		
40144021004	MW33AR	EPA 904.0	246418		
40144021005	MW34A	EPA 904.0	246418		
40144021006	MW84A	EPA 904.0	246418		
40144021001	FIELD BLANK	Total Radium Calculation	247868		
40144021002	MW301	Total Radium Calculation	247868		
40144021003	MW302	Total Radium Calculation	247868		
40144021004	MW33AR	Total Radium Calculation	247868		
40144021005	MW34A	Total Radium Calculation	247868		
40144021006	MW84A	Total Radium Calculation	247868		
40144021001	FIELD BLANK	SM 2540C	245799		
40144021002	MW301	SM 2540C	245799		
40144021003	MW302	SM 2540C	245799		
40144021004	MW33AR	SM 2540C	245799		
40144021005	MW34A	SM 2540C	245799		
40144021006	MW84A	SM 2540C	245799		
40144021001	FIELD BLANK	EPA 9040	245711		
40144021002	MW301	EPA 9040	245711		
40144021003	MW302	EPA 9040	245711		
40144021004	MW33AR	EPA 9040	245711		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40144021

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40144021005	MW34A	EPA 9040	245711		
40144021006	MW84A	EPA 9040	245711		
40144021001	FIELD BLANK	EPA 300.0	245977		
40144021002	MW301	EPA 300.0	245977		
40144021003	MW302	EPA 300.0	245977		
40144021004	MW33AR	EPA 300.0	245977		
40144021005	MW34A	EPA 300.0	245801		
40144021006	MW84A	EPA 300.0	245801		

### REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: SCS  
 Branch/Location: Manchester, VT  
 Project Contact: Mike Blockwith  
 Phone: (603) 284-2830  
 Project Number: 258140067  
 Project Name: Alliant - Columbia  
 Project State: VT  
 Sampled By (Print): Paul A. Grover  
 Sampled By (Sign): Paul A. Grover  
 PO #: \_\_\_\_\_  
 Regulatory Program: \_\_\_\_\_



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# CHAIN OF CUSTODY

Preservation Codes  
 A=None B=HCl C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Disulfate Solution I=Sodium Thiosulfate J=Other

UPPER MIDWEST REGION  
 MN: 612-607-1700 WI: 920-469-2436

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX	Analyses Requested	Y/N	Pick Label	Date/Time		Date/Time			
								Reinquired By	Reinquired By	Received By	Received By		
001	FIELD Blank	12/21/16	13:40	DI	Ph	X		Paul A. Grover	12/21/16	18:30	Paul A. Grover	12/21/16	18:30
002	MW 381	12/21/16	13:45	GW	TDS, Cl, F, SO4	X		Paul A. Grover	12/21/16	18:30	Paul A. Grover	12/21/16	18:30
003	MW 302	12/21/16	11:10		Metals	X		Paul A. Grover	12/21/16	18:30	Paul A. Grover	12/21/16	18:30
004	MW 33AR	12/21/16	11:10		Radium 226	X		Paul A. Grover	12/21/16	18:30	Paul A. Grover	12/21/16	18:30
005	MW 34A	12/21/16	11:25		Radium 228	X		Paul A. Grover	12/21/16	18:30	Paul A. Grover	12/21/16	18:30
006	MW 81A	12/21/16	13:50					Paul A. Grover	12/21/16	18:30	Paul A. Grover	12/21/16	18:30

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: \_\_\_\_\_  
 Mail To Address: \_\_\_\_\_  
 Invoice To Contact: \_\_\_\_\_  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_  
 CLIENT COMMENTS: 2-14P, 3-350 WLP ARD  
 LAB COMMENTS (Lab Use Only): \_\_\_\_\_  
 Profile #: \_\_\_\_\_

PAGE Project No. 40144021  
 Receipt Temp = POI °C  
 Sample Receipt pH OK/Adjusted  
 Cooler Custody Seal Present / Not Present  
 Intact / Not Intact

Sample Condition Upon Receipt

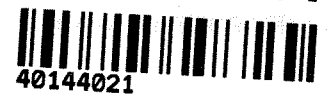
Pace Analytical Services, Inc.  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302



Client Name: SCS

Project #: **WO# : 40144021**

Courier:  Fed Ex  UPS  Client  Pace Other: Durham



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: N/A Type of Ice:  Wet  Blue  Dry  None  Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: ROT /Corr: \_\_\_\_\_ Biological Tissue is Frozen:  yes  no

Temp Blank Present:  yes  no  no

Person examining contents:  
Date: 12-30-16  
Initials: SW

Temp should be above freezing to 6°C for all sample except Biota.  
Frozen Biota Samples should be received ≤ 0°C.

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. Original and a copy. (12-30-16 SW)
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. 005-2-250mlp AD ID MW37B (12-30-16 SW)
-Includes date/time/ID/Analysis Matrix:		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤ 2, NaOH + ZnAct ≥ 9, NaOH ≥ 12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>SW</u> Lab Std #ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

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

Project Manager Review: [Signature] Date: 12-30-16

## A6 Round 6 Background Sampling, Analytical Laboratory Report

February 23, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on January 28, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Milewsky  
dan.milewsky@pacelabs.com  
Project Manager

Enclosures

cc: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

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 Certification

Wyoming Certification #: 8TMS-L

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### Green Bay Certification IDs

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

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40145002001	MW-302	Water	01/25/17 16:20	01/28/17 08:15
40145002002	MW-305	Water	01/25/17 16:10	01/28/17 08:15
40145002003	MW-4R	Water	01/25/17 15:25	01/28/17 08:15
40145002004	MW-33AR	Water	01/25/17 14:40	01/28/17 08:15
40145002005	MW-34A	Water	01/25/17 13:25	01/28/17 08:15
40145002006	MW-84A	Water	01/25/17 12:25	01/28/17 08:15
40145002007	MW-301	Water	01/25/17 11:45	01/28/17 08:15
40145002008	MW-303	Water	01/26/17 08:55	01/28/17 08:15
40145002009	MW-304	Water	01/26/17 10:40	01/28/17 08:15
40145002010	MW-307	Water	01/26/17 13:40	01/28/17 08:15
40145002011	MW-308	Water	01/26/17 16:00	01/28/17 08:15
40145002012	MW-306	Water	01/26/17 17:30	01/28/17 08:15
40145002013	FIELD BLANK	Water	01/26/17 18:00	01/28/17 08:15

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40145002001	MW-302	EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40145002002	MW-305	EPA 6020	DS1
EPA 7470	AJT			1	PASI-G
	AMH			7	PASI-G
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	JLW			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40145002003	MW-4R			EPA 6020	DS1
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40145002004	MW-33AR	EPA 6020	DS1
EPA 7470	AJT			1	PASI-G
	AMH			7	PASI-G
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	JLW			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40145002005	MW-34A			EPA 6020	DS1

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40145002006	MW-84A	EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40145002007	MW-301	SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
40145002008	MW-303		AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
40145002009	MW-304	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40145002010	MW-307		AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
40145002011	MW-308	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
40145002012	MW-306	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
40145002013	FIELD BLANK	EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA

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### SAMPLE ANALYTE COUNT

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-302**      **Lab ID: 40145002001**      Collected: 01/25/17 16:20      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.17J</b>	ug/L	1.0	0.073	1	02/02/17 06:52	02/02/17 23:40	7440-36-0	
Arsenic	<b>0.24J</b>	ug/L	1.0	0.099	1	02/02/17 06:52	02/02/17 23:40	7440-38-2	
Barium	<b>17.8</b>	ug/L	1.0	0.062	1	02/02/17 06:52	02/02/17 23:40	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	02/02/17 06:52	02/02/17 23:40	7440-41-7	
Boron	<b>149</b>	ug/L	10.0	2.0	1	02/02/17 06:52	02/02/17 23:40	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	02/02/17 06:52	02/02/17 23:40	7440-43-9	
Calcium	<b>75400</b>	ug/L	2500	736	10	02/02/17 06:52	02/02/17 23:00	7440-70-2	P6
Chromium	<b>2.6</b>	ug/L	1.0	0.39	1	02/02/17 06:52	02/02/17 23:40	7440-47-3	
Cobalt	<b>0.083J</b>	ug/L	1.0	0.036	1	02/02/17 06:52	02/02/17 23:40	7440-48-4	
Lead	<b>0.075J</b>	ug/L	1.0	0.040	1	02/02/17 06:52	02/02/17 23:40	7439-92-1	
Lithium	<b>3.2</b>	ug/L	1.0	0.11	1	02/02/17 06:52	02/02/17 23:40	7439-93-2	
Molybdenum	<b>1.6</b>	ug/L	1.0	0.070	1	02/02/17 06:52	02/02/17 23:40	7439-98-7	
Selenium	<b>1.6</b>	ug/L	1.0	0.21	1	02/02/17 06:52	02/02/17 23:40	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	02/02/17 06:52	02/02/17 23:40	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:36	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.21</b>	Std. Units			1		01/25/17 16:20		
Field Specific Conductance	<b>726</b>	umhos/cm			1		01/25/17 16:20		
Oxygen, Dissolved	<b>6.22</b>	mg/L			1		01/25/17 16:20	7782-44-7	
REDOX	<b>223.40</b>	mV			1		01/25/17 16:20		
Turbidity	<b>1.26</b>	NTU			1		01/25/17 16:20		
Static Water Level	<b>786.89</b>	feet			1		01/25/17 16:20		
Temperature, Water (C)	<b>10.4</b>	deg C			1		01/25/17 16:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>384</b>	mg/L	20.0	8.7	1		02/01/17 15:38		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.8</b>	Std. Units	0.10	0.010	1		01/30/17 11:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>1.6J</b>	mg/L	2.0	0.50	1		02/08/17 12:11	16887-00-6	
Fluoride	<b>0.13J</b>	mg/L	0.30	0.10	1		02/08/17 12:11	16984-48-8	
Sulfate	<b>61.6</b>	mg/L	15.0	5.0	5		02/08/17 14:59	14808-79-8	M0,R1

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

**Sample: MW-305**      **Lab ID: 4014500202**      Collected: 01/25/17 16:10      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.71J</b>	ug/L	1.0	0.073	1	02/02/17 06:52	02/02/17 23:27	7440-36-0	
Arsenic	<b>0.78J</b>	ug/L	1.0	0.099	1	02/02/17 06:52	02/02/17 23:27	7440-38-2	
Barium	<b>12.7</b>	ug/L	1.0	0.062	1	02/02/17 06:52	02/02/17 23:27	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	02/02/17 06:52	02/02/17 23:27	7440-41-7	
Boron	<b>733</b>	ug/L	10.0	2.0	1	02/02/17 06:52	02/02/17 23:27	7440-42-8	
Cadmium	<b>0.34J</b>	ug/L	1.0	0.089	1	02/02/17 06:52	02/02/17 23:27	7440-43-9	
Calcium	<b>96500</b>	ug/L	250	73.6	1	02/02/17 06:52	02/02/17 23:27	7440-70-2	
Chromium	<b>1.5</b>	ug/L	1.0	0.39	1	02/02/17 06:52	02/02/17 23:27	7440-47-3	
Cobalt	<b>0.44J</b>	ug/L	1.0	0.036	1	02/02/17 06:52	02/02/17 23:27	7440-48-4	
Lead	<b>0.38J</b>	ug/L	1.0	0.040	1	02/02/17 06:52	02/02/17 23:27	7439-92-1	
Lithium	<b>0.21J</b>	ug/L	1.0	0.11	1	02/02/17 06:52	02/02/17 23:27	7439-93-2	
Molybdenum	<b>69.1</b>	ug/L	1.0	0.070	1	02/02/17 06:52	02/02/17 23:27	7439-98-7	
Selenium	<b>6.8</b>	ug/L	1.0	0.21	1	02/02/17 06:52	02/02/17 23:27	7782-49-2	
Thallium	<b>0.45J</b>	ug/L	1.0	0.14	1	02/02/17 06:52	02/02/17 23:27	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:47	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.17</b>	Std. Units			1		01/25/17 16:10		
Field Specific Conductance	<b>727</b>	umhos/cm			1		01/25/17 16:10		
Oxygen, Dissolved	<b>2.31</b>	mg/L			1		01/25/17 16:10	7782-44-7	
REDOX	<b>-27.6</b>	mV			1		01/25/17 16:10		
Turbidity	<b>1.61</b>	NTU			1		01/25/17 16:10		
Static Water Level	<b>789.36</b>	feet			1		01/25/17 16:10		
Temperature, Water (C)	<b>18.2</b>	deg C			1		01/25/17 16:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>530</b>	mg/L	20.0	8.7	1		02/01/17 15:38		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>8.0</b>	Std. Units	0.10	0.010	1		01/30/17 11:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>46.1</b>	mg/L	2.0	0.50	1		02/08/17 12:47	16887-00-6	
Fluoride	<b>0.53</b>	mg/L	0.30	0.10	1		02/08/17 12:47	16984-48-8	
Sulfate	<b>274</b>	mg/L	30.0	10.0	10		02/08/17 16:12	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-4R**      **Lab ID: 40145002003**      Collected: 01/25/17 15:25      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.24J</b>	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 00:27	7440-36-0	
Arsenic	<b>0.47J</b>	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 00:27	7440-38-2	
Barium	<b>24.0</b>	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 00:27	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 00:27	7440-41-7	
Boron	<b>866</b>	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 00:27	7440-42-8	
Cadmium	<b>0.10J</b>	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 00:27	7440-43-9	
Calcium	<b>103000</b>	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 00:27	7440-70-2	
Chromium	<b>0.40J</b>	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 00:27	7440-47-3	
Cobalt	<b>0.31J</b>	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 00:27	7440-48-4	
Lead	<b>0.094J</b>	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 00:27	7439-92-1	
Lithium	<b>6.1</b>	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 00:27	7439-93-2	
Molybdenum	<b>17.6</b>	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 00:27	7439-98-7	
Selenium	<b>10.5</b>	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 00:27	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 00:27	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:50	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.27</b>	Std. Units			1		01/25/17 15:25		
Field Specific Conductance	<b>819</b>	umhos/cm			1		01/25/17 15:25		
Oxygen, Dissolved	<b>0.11</b>	mg/L			1		01/25/17 15:25	7782-44-7	
REDOX	<b>-0.5</b>	mV			1		01/25/17 15:25		
Turbidity	<b>0.43</b>	NTU			1		01/25/17 15:25		
Static Water Level	<b>789.64</b>	feet			1		01/25/17 15:25		
Temperature, Water (C)	<b>14.9</b>	deg C			1		01/25/17 15:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>570</b>	mg/L	20.0	8.7	1		02/01/17 15:39		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.2</b>	Std. Units	0.10	0.010	1		01/31/17 10:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>36.5</b>	mg/L	2.0	0.50	1		02/07/17 14:49	16887-00-6	
Fluoride	<b>0.38</b>	mg/L	0.30	0.10	1		02/07/17 14:49	16984-48-8	
Sulfate	<b>144</b>	mg/L	30.0	10.0	10		02/07/17 20:11	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-33AR**      **Lab ID: 40145002004**      Collected: 01/25/17 14:40      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.12J</b>	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 00:34	7440-36-0	
Arsenic	<b>0.45J</b>	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 00:34	7440-38-2	
Barium	<b>33.8</b>	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 00:34	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 00:34	7440-41-7	
Boron	<b>763</b>	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 00:34	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 00:34	7440-43-9	
Calcium	<b>57500</b>	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 00:34	7440-70-2	
Chromium	<b>2.0</b>	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 00:34	7440-47-3	
Cobalt	<b>0.065J</b>	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 00:34	7440-48-4	
Lead	<b>0.046J</b>	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 00:34	7439-92-1	
Lithium	<b>1.3</b>	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 00:34	7439-93-2	
Molybdenum	<b>3.6</b>	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 00:34	7439-98-7	
Selenium	<b>2.3</b>	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 00:34	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 00:34	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:52	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.62</b>	Std. Units			1		01/25/17 14:40		
Field Specific Conductance	<b>797</b>	umhos/cm			1		01/25/17 14:40		
Oxygen, Dissolved	<b>6.46</b>	mg/L			1		01/25/17 14:40	7782-44-7	
REDOX	<b>193.9</b>	mV			1		01/25/17 14:40		
Turbidity	<b>0.23</b>	NTU			1		01/25/17 14:40		
Static Water Level	<b>785.88</b>	feet			1		01/25/17 14:40		
Temperature, Water (C)	<b>11.3</b>	deg C			1		01/25/17 14:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>426</b>	mg/L	20.0	8.7	1		02/01/17 15:39		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		01/31/17 10:20		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>41.4</b>	mg/L	2.0	0.50	1		02/07/17 15:01	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		02/07/17 15:01	16984-48-8	
Sulfate	<b>133</b>	mg/L	15.0	5.0	5		02/07/17 18:46	14808-79-8	

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## ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-34A**      **Lab ID: 40145002005**      Collected: 01/25/17 13:25      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 00:41	7440-36-0	
Arsenic	0.36J	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 00:41	7440-38-2	
Barium	8.9	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 00:41	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 00:41	7440-41-7	
Boron	214	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 00:41	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 00:41	7440-43-9	
Calcium	58900	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 00:41	7440-70-2	
Chromium	1.8	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 00:41	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 00:41	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 00:41	7439-92-1	
Lithium	0.46J	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 00:41	7439-93-2	
Molybdenum	1.0	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 00:41	7439-98-7	
Selenium	0.82J	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 00:41	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 00:41	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:54	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.71	Std. Units			1		01/25/17 13:25		
Field Specific Conductance	470.9	umhos/cm			1		01/25/17 13:25		
Oxygen, Dissolved	9.83	mg/L			1		01/25/17 13:25	7782-44-7	
REDOX	17.9	mV			1		01/25/17 13:25		
Turbidity	2.09	NTU			1		01/25/17 13:25		
Static Water Level	785.98	feet			1		01/25/17 13:25		
Temperature, Water (C)	12.3	deg C			1		01/25/17 13:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	310	mg/L	20.0	8.7	1		02/01/17 15:39		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	7.2	mg/L	2.0	0.50	1		02/07/17 15:13	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		02/07/17 15:13	16984-48-8	
Sulfate	71.2	mg/L	15.0	5.0	5		02/07/17 20:23	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-84A**      **Lab ID: 40145002006**      Collected: 01/25/17 12:25      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 00:47	7440-36-0	
Arsenic	0.35J	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 00:47	7440-38-2	
Barium	13.8	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 00:47	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 00:47	7440-41-7	
Boron	16.1	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 00:47	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 00:47	7440-43-9	
Calcium	70800	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 00:47	7440-70-2	
Chromium	1.9	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 00:47	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 00:47	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 00:47	7439-92-1	
Lithium	0.56J	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 00:47	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 00:47	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 00:47	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 00:47	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:57	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	6.99	Std. Units			1		01/25/17 12:25		
Field Specific Conductance	489	umhos/cm			1		01/25/17 12:25		
Oxygen, Dissolved	6.48	mg/L			1		01/25/17 12:25	7782-44-7	
REDOX	192.9	mV			1		01/25/17 12:25		
Turbidity	0.33	NTU			1		01/25/17 12:25		
Static Water Level	786.7	feet			1		01/25/17 12:25		
Temperature, Water (C)	10.9	deg C			1		01/25/17 12:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	328	mg/L	20.0	8.7	1		02/01/17 15:40		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	4.6	mg/L	2.0	0.50	1		02/07/17 16:01	16887-00-6	
Fluoride	0.12J	mg/L	0.30	0.10	1		02/07/17 16:01	16984-48-8	
Sulfate	3.0	mg/L	3.0	1.0	1		02/07/17 16:01	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-301**      **Lab ID: 40145002007**      Collected: 01/25/17 11:45      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 00:54	7440-36-0	
Arsenic	0.13J	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 00:54	7440-38-2	
Barium	13.5	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 00:54	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 00:54	7440-41-7	
Boron	32.6	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 00:54	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 00:54	7440-43-9	
Calcium	124000	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 00:54	7440-70-2	
Chromium	0.53J	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 00:54	7440-47-3	
Cobalt	0.071J	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 00:54	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 00:54	7439-92-1	
Lithium	0.67J	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 00:54	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 00:54	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 00:54	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 00:54	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 08:59	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.1	Std. Units			1		01/25/17 11:45		
Field Specific Conductance	1018	umhos/cm			1		01/25/17 11:45		
Oxygen, Dissolved	1.24	mg/L			1		01/25/17 11:45	7782-44-7	
REDOX	226.1	mV			1		01/25/17 11:45		
Turbidity	0.42	NTU			1		01/25/17 11:45		
Static Water Level	787.27	feet			1		01/25/17 11:45		
Temperature, Water (C)	8.8	deg C			1		01/25/17 11:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	514	mg/L	20.0	8.7	1		02/01/17 15:40		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	6.9	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	1.5J	mg/L	2.0	0.50	1		02/07/17 16:19	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		02/07/17 16:19	16984-48-8	
Sulfate	6.5	mg/L	3.0	1.0	1		02/07/17 16:19	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-303**      **Lab ID: 4014500208**      Collected: 01/26/17 08:55      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.23J</b>	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 01:01	7440-36-0	
Arsenic	<b>27.0</b>	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 01:01	7440-38-2	
Barium	<b>6.1</b>	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 01:01	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 01:01	7440-41-7	
Boron	<b>1790</b>	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 01:01	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 01:01	7440-43-9	
Calcium	<b>7330</b>	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 01:01	7440-70-2	
Chromium	<b>73.4</b>	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 01:01	7440-47-3	
Cobalt	<b>0.54J</b>	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 01:01	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 01:01	7439-92-1	
Lithium	<b>0.59J</b>	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 01:01	7439-93-2	
Molybdenum	<b>91.2</b>	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 01:01	7439-98-7	
Selenium	<b>32.8</b>	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 01:01	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 01:01	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 09:01	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>9.94</b>	Std. Units			1		01/26/17 08:55		
Field Specific Conductance	<b>1134</b>	umhos/cm			1		01/26/17 08:55		
Oxygen, Dissolved	<b>6.92</b>	mg/L			1		01/26/17 08:55	7782-44-7	
REDOX	<b>-55.30</b>	mV			1		01/26/17 08:55		
Turbidity	<b>1.52</b>	NTU			1		01/26/17 08:55		
Static Water Level	<b>785.28</b>	feet			1		01/26/17 08:55		
Temperature, Water (C)	<b>11.6</b>	deg C			1		01/26/17 08:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>794</b>	mg/L	20.0	8.7	1		02/01/17 15:40		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>9.2</b>	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>14.2J</b>	mg/L	20.0	5.0	10		02/08/17 11:22	16887-00-6	D3
Fluoride	<b>&lt;1.0</b>	mg/L	3.0	1.0	10		02/08/17 11:22	16984-48-8	D3
Sulfate	<b>453</b>	mg/L	30.0	10.0	10		02/08/17 11:22	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

**Sample: MW-304**      **Lab ID: 4014500209**      Collected: 01/26/17 10:40      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 01:21	7440-36-0	
Arsenic	0.99J	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 01:21	7440-38-2	
Barium	28.2	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 01:21	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 01:21	7440-41-7	
Boron	614	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 01:21	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 01:21	7440-43-9	
Calcium	65700	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 01:21	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 01:21	7440-47-3	
Cobalt	0.73J	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 01:21	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 01:21	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 01:21	7439-93-2	
Molybdenum	14.4	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 01:21	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 01:21	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 01:21	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 09:03	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.59	Std. Units			1		01/26/17 10:40		
Field Specific Conductance	624.9	umhos/cm			1		01/26/17 10:40		
Oxygen, Dissolved	1.96	mg/L			1		01/26/17 10:40	7782-44-7	
REDOX	-58.70	mV			1		01/26/17 10:40		
Turbidity	1.2	NTU			1		01/26/17 10:40		
Static Water Level	789.34	feet			1		01/26/17 10:40		
Temperature, Water (C)	12.4	deg C			1		01/26/17 10:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	388	mg/L	20.0	8.7	1		02/01/17 15:40		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.7	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	42.8	mg/L	2.0	0.50	1		02/07/17 16:46	16887-00-6	
Fluoride	0.26J	mg/L	0.30	0.10	1		02/07/17 16:46	16984-48-8	
Sulfate	56.9	mg/L	15.0	5.0	5		02/08/17 11:34	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-307**      **Lab ID: 40145002010**      Collected: 01/26/17 13:40      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 01:27	7440-36-0	
Arsenic	2.0	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 01:27	7440-38-2	
Barium	10.7	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 01:27	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 01:27	7440-41-7	
Boron	319	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 01:27	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 01:27	7440-43-9	
Calcium	70300	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 01:27	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 01:27	7440-47-3	
Cobalt	0.33J	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 01:27	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 01:27	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 01:27	7439-93-2	
Molybdenum	1.0	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 01:27	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 01:27	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 01:27	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 09:06	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	6.89	Std. Units			1		01/26/17 13:40		
Field Specific Conductance	570.2	umhos/cm			1		01/26/17 13:40		
Oxygen, Dissolved	0.23	mg/L			1		01/26/17 13:40	7782-44-7	
REDOX	-119.6	mV			1		01/26/17 13:40		
Turbidity	1.9	NTU			1		01/26/17 13:40		
Static Water Level	785.36	feet			1		01/26/17 13:40		
Temperature, Water (C)	10.1	deg C			1		01/26/17 13:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	318	mg/L	20.0	8.7	1		02/01/17 15:41		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.5	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	8.7J	mg/L	10.0	2.5	5		02/07/17 16:58	16887-00-6	D3
Fluoride	<0.50	mg/L	1.5	0.50	5		02/07/17 16:58	16984-48-8	D3
Sulfate	14.2J	mg/L	15.0	5.0	5		02/07/17 16:58	14808-79-8	D3

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-308**      **Lab ID: 40145002011**      Collected: 01/26/17 16:00      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 01:34	7440-36-0	
Arsenic	3.4	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 01:34	7440-38-2	
Barium	70.8	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 01:34	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 01:34	7440-41-7	
Boron	740	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 01:34	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 01:34	7440-43-9	
Calcium	132000	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 01:34	7440-70-2	
Chromium	0.97J	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 01:34	7440-47-3	
Cobalt	0.28J	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 01:34	7440-48-4	
Lead	0.28J	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 01:34	7439-92-1	
Lithium	0.28J	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 01:34	7439-93-2	
Molybdenum	1.2	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 01:34	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 01:34	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 01:34	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 09:08	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.38	Std. Units			1		01/26/17 16:00		
Field Specific Conductance	920	umhos/cm			1		01/26/17 16:00		
Oxygen, Dissolved	1.15	mg/L			1		01/26/17 16:00	7782-44-7	
REDOX	-105.4	mV			1		01/26/17 16:00		
Turbidity	14.9	NTU			1		01/26/17 16:00		
Static Water Level	785.73	feet			1		01/26/17 16:00		
Temperature, Water (C)	11.5	deg C			1		01/26/17 16:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	544	mg/L	20.0	8.7	1		02/01/17 15:41		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	7.5J	mg/L	10.0	2.5	5		02/07/17 17:10	16887-00-6	D3
Fluoride	<0.50	mg/L	1.5	0.50	5		02/07/17 17:10	16984-48-8	D3
Sulfate	6.1J	mg/L	15.0	5.0	5		02/07/17 17:10	14808-79-8	D3

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: MW-306**      **Lab ID: 40145002012**      Collected: 01/26/17 17:30      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.074J</b>	ug/L	1.0	0.073	1	02/02/17 06:52	02/03/17 01:41	7440-36-0	
Arsenic	<b>0.14J</b>	ug/L	1.0	0.099	1	02/02/17 06:52	02/03/17 01:41	7440-38-2	
Barium	<b>19.2</b>	ug/L	1.0	0.062	1	02/02/17 06:52	02/03/17 01:41	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	02/02/17 06:52	02/03/17 01:41	7440-41-7	
Boron	<b>138</b>	ug/L	10.0	2.0	1	02/02/17 06:52	02/03/17 01:41	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	02/02/17 06:52	02/03/17 01:41	7440-43-9	
Calcium	<b>81200</b>	ug/L	250	73.6	1	02/02/17 06:52	02/03/17 01:41	7440-70-2	
Chromium	<b>1.6</b>	ug/L	1.0	0.39	1	02/02/17 06:52	02/03/17 01:41	7440-47-3	
Cobalt	<b>0.054J</b>	ug/L	1.0	0.036	1	02/02/17 06:52	02/03/17 01:41	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	02/02/17 06:52	02/03/17 01:41	7439-92-1	
Lithium	<b>13.9</b>	ug/L	1.0	0.11	1	02/02/17 06:52	02/03/17 01:41	7439-93-2	
Molybdenum	<b>11.4</b>	ug/L	1.0	0.070	1	02/02/17 06:52	02/03/17 01:41	7439-98-7	
Selenium	<b>0.52J</b>	ug/L	1.0	0.21	1	02/02/17 06:52	02/03/17 01:41	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	02/02/17 06:52	02/03/17 01:41	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 09:15	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.98</b>	Std. Units			1		01/26/17 17:30		
Field Specific Conductance	<b>531.8</b>	umhos/cm			1		01/26/17 17:30		
Oxygen, Dissolved	<b>5.91</b>	mg/L			1		01/26/17 17:30	7782-44-7	
REDOX	<b>-16.1</b>	mV			1		01/26/17 17:30		
Turbidity	<b>0.41</b>	NTU			1		01/26/17 17:30		
Static Water Level	<b>785.5</b>	feet			1		01/26/17 17:30		
Temperature, Water (C)	<b>10.1</b>	deg C			1		01/26/17 17:30		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>310</b>	mg/L	20.0	8.7	1		02/01/17 15:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.5</b>	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>1.7J</b>	mg/L	2.0	0.50	1		02/07/17 17:22	16887-00-6	
Fluoride	<b>0.15J</b>	mg/L	0.30	0.10	1		02/07/17 17:22	16984-48-8	
Sulfate	<b>8.2</b>	mg/L	3.0	1.0	1		02/07/17 17:22	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

**Sample: FIELD BLANK**      **Lab ID: 40145002013**      Collected: 01/26/17 18:00      Received: 01/28/17 08:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	02/02/17 06:52	02/02/17 22:46	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	02/02/17 06:52	02/02/17 22:46	7440-38-2	
Barium	<0.062	ug/L	1.0	0.062	1	02/02/17 06:52	02/02/17 22:46	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	02/02/17 06:52	02/02/17 22:46	7440-41-7	
Boron	<2.0	ug/L	10.0	2.0	1	02/02/17 06:52	02/02/17 22:46	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	02/02/17 06:52	02/02/17 22:46	7440-43-9	
Calcium	<73.6	ug/L	250	73.6	1	02/02/17 06:52	02/02/17 22:46	7440-70-2	
Chromium	<0.39	ug/L	1.0	0.39	1	02/02/17 06:52	02/02/17 22:46	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	02/02/17 06:52	02/02/17 22:46	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	02/02/17 06:52	02/02/17 22:46	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	02/02/17 06:52	02/02/17 22:46	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	02/02/17 06:52	02/02/17 22:46	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	02/02/17 06:52	02/02/17 22:46	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	02/02/17 06:52	02/02/17 22:46	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	02/09/17 13:00	02/10/17 09:17	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		02/01/17 15:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.2	Std. Units	0.10	0.010	1		01/31/17 10:40		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<0.50	mg/L	2.0	0.50	1		02/09/17 11:12	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		02/09/17 11:12	16984-48-8	
Sulfate	<1.0	mg/L	3.0	1.0	1		02/09/17 11:12	14808-79-8	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

QC Batch: 247519 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 40145002001, 40145002002, 40145002003, 40145002004, 40145002005, 40145002006, 40145002007, 40145002008, 40145002009, 40145002010, 40145002011, 40145002012, 40145002013

METHOD BLANK: 1462496 Matrix: Water  
Associated Lab Samples: 40145002001, 40145002002, 40145002003, 40145002004, 40145002005, 40145002006, 40145002007, 40145002008, 40145002009, 40145002010, 40145002011, 40145002012, 40145002013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.073	1.0	02/02/17 22:40	
Arsenic	ug/L	<0.099	1.0	02/02/17 22:40	
Barium	ug/L	<0.062	1.0	02/02/17 22:40	
Beryllium	ug/L	<0.13	1.0	02/02/17 22:40	
Boron	ug/L	<2.0	10.0	02/02/17 22:40	
Cadmium	ug/L	<0.089	1.0	02/02/17 22:40	
Calcium	ug/L	<73.6	250	02/02/17 22:40	
Chromium	ug/L	<0.39	1.0	02/02/17 22:40	
Cobalt	ug/L	<0.036	1.0	02/02/17 22:40	
Lead	ug/L	<0.040	1.0	02/02/17 22:40	
Lithium	ug/L	<0.11	1.0	02/02/17 22:40	
Molybdenum	ug/L	0.098J	1.0	02/02/17 22:40	
Selenium	ug/L	<0.21	1.0	02/02/17 22:40	
Thallium	ug/L	<0.14	1.0	02/02/17 22:40	

LABORATORY CONTROL SAMPLE: 1462497

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	506	101	80-120	
Arsenic	ug/L	500	490	98	80-120	
Barium	ug/L	500	497	99	80-120	
Beryllium	ug/L	500	493	99	80-120	
Boron	ug/L	500	482	96	80-120	
Cadmium	ug/L	500	509	102	80-120	
Calcium	ug/L	5000	5070	101	80-120	
Chromium	ug/L	500	488	98	80-120	
Cobalt	ug/L	500	482	96	80-120	
Lead	ug/L	500	475	95	80-120	
Lithium	ug/L	500	486	97	80-120	
Molybdenum	ug/L	500	503	101	80-120	
Selenium	ug/L	500	525	105	80-120	
Thallium	ug/L	500	476	95	80-120	

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1462498		1462499		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40145002001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Antimony	ug/L	0.17J	500	500	518	528	104	106	75-125	2	20		
Arsenic	ug/L	0.24J	500	500	499	508	100	101	75-125	2	20		
Barium	ug/L	17.8	500	500	516	522	100	101	75-125	1	20		
Beryllium	ug/L	<0.13	500	500	495	498	99	100	75-125	1	20		
Boron	ug/L	149	500	500	635	651	97	100	75-125	2	20		
Cadmium	ug/L	<0.089	500	500	518	530	104	106	75-125	2	20		
Calcium	ug/L	75400	5000	5000	80200	83800	95	169	75-125	5	20	P6	
Chromium	ug/L	2.6	500	500	492	503	98	100	75-125	2	20		
Cobalt	ug/L	0.083J	500	500	480	493	96	99	75-125	3	20		
Lead	ug/L	0.075J	500	500	492	506	98	101	75-125	3	20		
Lithium	ug/L	3.2	500	500	504	508	100	101	75-125	1	20		
Molybdenum	ug/L	1.6	500	500	511	526	102	105	75-125	3	20		
Selenium	ug/L	1.6	500	500	537	542	107	108	75-125	1	20		
Thallium	ug/L	<0.14	500	500	498	513	100	103	75-125	3	20		

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

QC Batch: 247324 Analysis Method: EPA 9040

QC Batch Method: EPA 9040 Analysis Description: 9040 pH

Associated Lab Samples: 40145002001, 40145002002

SAMPLE DUPLICATE: 1461625

Parameter	Units	40144884001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	10.7	10.8	0	20	H6

SAMPLE DUPLICATE: 1461626

Parameter	Units	40144814001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	8.0	8.0	0	20	H6

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

QC Batch: 247277 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40145002003, 40145002004, 40145002005, 40145002006, 40145002007, 40145002008, 40145002009, 40145002010, 40145002011, 40145002012

METHOD BLANK: 1461484 Matrix: Water  
Associated Lab Samples: 40145002003, 40145002004, 40145002005, 40145002006, 40145002007, 40145002008, 40145002009, 40145002010, 40145002011, 40145002012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	02/07/17 10:48	
Fluoride	mg/L	<0.10	0.30	02/07/17 10:48	
Sulfate	mg/L	<1.0	3.0	02/07/17 10:48	

LABORATORY CONTROL SAMPLE: 1461485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.5	93	90-110	
Fluoride	mg/L	2	1.9	93	90-110	
Sulfate	mg/L	20	18.4	92	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1461486 1461487

Parameter	Units	40144902003		40144902003		40144902003		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					MS % Rec
Chloride	mg/L	201	200	200	200	421	423	110	111	90-110	0	15 M0
Fluoride	mg/L	<0.10	2	2	2	2.2	2.1	107	102	90-110	5	15
Sulfate	mg/L	23.9	20	20	20	46.4	44.6	112	103	90-110	4	15 M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1464216 1464217

Parameter	Units	40145002012		40145002012		40145002012		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					MS % Rec
Chloride	mg/L	1.7J	20	20	20	21.9	22.3	101	103	90-110	2	15
Fluoride	mg/L	0.15J	2	2	2	2.2	2.2	102	105	90-110	2	15
Sulfate	mg/L	8.2	20	20	20	29.0	29.5	104	107	90-110	2	15

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### QUALITY CONTROL DATA

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

QC Batch: 247899 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40145002001, 40145002002, 40145002013

METHOD BLANK: 1465048 Matrix: Water

Associated Lab Samples: 40145002001, 40145002002, 40145002013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	02/08/17 10:58	
Fluoride	mg/L	<0.10	0.30	02/08/17 10:58	
Sulfate	mg/L	<1.0	3.0	02/08/17 10:58	

LABORATORY CONTROL SAMPLE: 1465049

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.9	95	90-110	
Fluoride	mg/L	2	1.9	95	90-110	
Sulfate	mg/L	20	19.1	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1465050 1465051

Parameter	Units	40145002001		40145002002		40145002013		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec						
Chloride	mg/L	1.6J	20	20	21.8	20.7	101	96	90-110	5	15		
Fluoride	mg/L	0.13J	2	2	2.2	2.1	104	97	90-110	7	15		
Sulfate	mg/L	61.6	100	100	180	152	119	90	90-110	17	15	M0,R1	

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Project No.: 40145002

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>1.37 ± 1.22 (1.80)</b> C:NA T:96%	pCi/L	02/22/17 10:25	13982-63-3	
Radium-228		EPA 904.0	<b>1.23 ± 0.678 (1.20)</b> C:47% T:87%	pCi/L	02/21/17 16:30	15262-20-1	
Total Radium		Total Radium Calculation	<b>2.60 ± 1.90 (3.00)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.000 ± 1.22 (2.50)</b> C:NA T:87%	pCi/L	02/22/17 10:25	13982-63-3	
Radium-228		EPA 904.0	<b>0.838 ± 0.702 (1.40)</b> C:48% T:82%	pCi/L	02/21/17 16:33	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.838 ± 1.92 (3.90)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.984 ± 0.796 (0.444)</b> C:NA T:89%	pCi/L	02/22/17 10:25	13982-63-3	
Radium-228		EPA 904.0	<b>0.720 ± 0.752 (1.56)</b> C:45% T:80%	pCi/L	02/21/17 16:30	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.70 ± 1.55 (2.00)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.314 ± 0.756 (1.46)</b> C:NA T:90%	pCi/L	02/22/17 10:25	13982-63-3	
Radium-228		EPA 904.0	<b>0.242 ± 0.638 (1.43)</b> C:54% T:81%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.556 ± 1.39 (2.89)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.477 ± 1.29 (2.39)</b> C:NA T:89%	pCi/L	02/22/17 10:25	13982-63-3	
Radium-228		EPA 904.0	<b>-0.459 ± 0.418 (1.07)</b> C:64% T:85%	pCi/L	02/21/17 16:28	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-34A</b> <b>Lab ID: 40145002005</b> Collected: 01/25/17 13:25      Received: 01/28/17 08:15      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	<b>0.477 ± 1.71 (3.46)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-84A</b> <b>Lab ID: 40145002006</b> Collected: 01/25/17 12:25      Received: 01/28/17 08:15      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.624 ± 0.868 (1.45)</b> C:NA T:91%	pCi/L	02/22/17 10:40	13982-63-3	
Radium-228	EPA 904.0	<b>0.766 ± 0.589 (1.16)</b> C:56% T:89%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.39 ± 1.46 (2.61)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-301</b> <b>Lab ID: 40145002007</b> Collected: 01/25/17 11:45      Received: 01/28/17 08:15      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.46 ± 0.968 (0.439)</b> C:NA T:92%	pCi/L	02/22/17 10:40	13982-63-3	
Radium-228	EPA 904.0	<b>0.964 ± 0.681 (1.33)</b> C:52% T:88%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.42 ± 1.65 (1.77)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-303</b> <b>Lab ID: 40145002008</b> Collected: 01/26/17 08:55      Received: 01/28/17 08:15      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.776 ± 1.01 (2.46)</b> C:NA T:90%	pCi/L	02/22/17 10:40	13982-63-3	
Radium-228	EPA 904.0	<b>1.24 ± 0.696 (1.27)</b> C:54% T:84%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.24 ± 1.71 (3.73)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-304</b> <b>Lab ID: 40145002009</b> Collected: 01/26/17 10:40      Received: 01/28/17 08:15      Matrix: Water						
PWS:      Site ID:      Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.426 ± 0.738 (1.32)</b> C:NA T:95%	pCi/L	02/22/17 10:40	13982-63-3	
Radium-228	EPA 904.0	<b>0.819 ± 0.602 (1.18)</b> C:54% T:90%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.25 ± 1.34 (2.50)</b>	pCi/L	02/22/17 16:54	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>-0.523 ± 0.797 (2.09)</b> C:NA T:93%	pCi/L	02/22/17 10:40	13982-63-3	
Radium-228		EPA 904.0	<b>0.864 ± 0.669 (1.33)</b> C:56% T:86%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.864 ± 1.47 (3.42)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.000 ± 0.772 (1.73)</b> C:NA T:90%	pCi/L	02/22/17 10:40	13982-63-3	
Radium-228		EPA 904.0	<b>1.67 ± 0.694 (1.10)</b> C:60% T:84%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.67 ± 1.47 (2.83)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>-0.148 ± 0.768 (1.78)</b> C:NA T:96%	pCi/L	02/22/17 10:57	13982-63-3	
Radium-228		EPA 904.0	<b>0.653 ± 0.524 (1.04)</b> C:66% T:86%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.653 ± 1.29 (2.82)</b>	pCi/L	02/22/17 16:54	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	<b>0.762 ± 0.795 (1.12)</b> C:NA T:95%	pCi/L	02/22/17 10:57	13982-63-3	
Radium-228		EPA 904.0	<b>1.17 ± 0.588 (0.998)</b> C:53% T:92%	pCi/L	02/21/17 16:28	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.93 ± 1.38 (2.12)</b>	pCi/L	02/22/17 16:54	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

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QC Batch:	249327	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40145002001, 40145002002, 40145002003, 40145002004, 40145002005, 40145002006, 40145002007, 40145002008, 40145002009, 40145002010, 40145002011, 40145002012, 40145002013		

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METHOD BLANK:	1226233	Matrix:	Water
Associated Lab Samples:	40145002001, 40145002002, 40145002003, 40145002004, 40145002005, 40145002006, 40145002007, 40145002008, 40145002009, 40145002010, 40145002011, 40145002012, 40145002013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.375 ± 0.276 (0.532) C:91% T:81%	pCi/L	02/21/17 16:29	

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## QUALIFIERS

Project: 25216067 ALLIANT-COLUMBIA  
Pace Project No.: 40145002

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### 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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40145002001	MW-302	EPA 3010	247519	EPA 6020	247591
40145002002	MW-305	EPA 3010	247519	EPA 6020	247591
40145002003	MW-4R	EPA 3010	247519	EPA 6020	247591
40145002004	MW-33AR	EPA 3010	247519	EPA 6020	247591
40145002005	MW-34A	EPA 3010	247519	EPA 6020	247591
40145002006	MW-84A	EPA 3010	247519	EPA 6020	247591
40145002007	MW-301	EPA 3010	247519	EPA 6020	247591
40145002008	MW-303	EPA 3010	247519	EPA 6020	247591
40145002009	MW-304	EPA 3010	247519	EPA 6020	247591
40145002010	MW-307	EPA 3010	247519	EPA 6020	247591
40145002011	MW-308	EPA 3010	247519	EPA 6020	247591
40145002012	MW-306	EPA 3010	247519	EPA 6020	247591
40145002013	FIELD BLANK	EPA 3010	247519	EPA 6020	247591
40145002001	MW-302	EPA 7470	248000	EPA 7470	248011
40145002002	MW-305	EPA 7470	248000	EPA 7470	248011
40145002003	MW-4R	EPA 7470	248000	EPA 7470	248011
40145002004	MW-33AR	EPA 7470	248000	EPA 7470	248011
40145002005	MW-34A	EPA 7470	248000	EPA 7470	248011
40145002006	MW-84A	EPA 7470	248000	EPA 7470	248011
40145002007	MW-301	EPA 7470	248000	EPA 7470	248011
40145002008	MW-303	EPA 7470	248000	EPA 7470	248011
40145002009	MW-304	EPA 7470	248000	EPA 7470	248011
40145002010	MW-307	EPA 7470	248000	EPA 7470	248011
40145002011	MW-308	EPA 7470	248000	EPA 7470	248011
40145002012	MW-306	EPA 7470	248000	EPA 7470	248011
40145002013	FIELD BLANK	EPA 7470	248000	EPA 7470	248011
40145002001	MW-302				
40145002002	MW-305				
40145002003	MW-4R				
40145002004	MW-33AR				
40145002005	MW-34A				
40145002006	MW-84A				
40145002007	MW-301				
40145002008	MW-303				
40145002009	MW-304				
40145002010	MW-307				
40145002011	MW-308				
40145002012	MW-306				
40145002001	MW-302	EPA 903.1	249326		
40145002002	MW-305	EPA 903.1	249326		
40145002003	MW-4R	EPA 903.1	249326		
40145002004	MW-33AR	EPA 903.1	249326		
40145002005	MW-34A	EPA 903.1	249326		
40145002006	MW-84A	EPA 903.1	249326		
40145002007	MW-301	EPA 903.1	249326		
40145002008	MW-303	EPA 903.1	249326		
40145002009	MW-304	EPA 903.1	249326		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40145002010	MW-307	EPA 903.1	249326		
40145002011	MW-308	EPA 903.1	249326		
40145002012	MW-306	EPA 903.1	249326		
40145002013	FIELD BLANK	EPA 903.1	249326		
40145002001	MW-302	EPA 904.0	249327		
40145002002	MW-305	EPA 904.0	249327		
40145002003	MW-4R	EPA 904.0	249327		
40145002004	MW-33AR	EPA 904.0	249327		
40145002005	MW-34A	EPA 904.0	249327		
40145002006	MW-84A	EPA 904.0	249327		
40145002007	MW-301	EPA 904.0	249327		
40145002008	MW-303	EPA 904.0	249327		
40145002009	MW-304	EPA 904.0	249327		
40145002010	MW-307	EPA 904.0	249327		
40145002011	MW-308	EPA 904.0	249327		
40145002012	MW-306	EPA 904.0	249327		
40145002013	FIELD BLANK	EPA 904.0	249327		
40145002001	MW-302	Total Radium Calculation	250140		
40145002002	MW-305	Total Radium Calculation	250140		
40145002003	MW-4R	Total Radium Calculation	250140		
40145002004	MW-33AR	Total Radium Calculation	250140		
40145002005	MW-34A	Total Radium Calculation	250140		
40145002006	MW-84A	Total Radium Calculation	250140		
40145002007	MW-301	Total Radium Calculation	250140		
40145002008	MW-303	Total Radium Calculation	250140		
40145002009	MW-304	Total Radium Calculation	250140		
40145002010	MW-307	Total Radium Calculation	250140		
40145002011	MW-308	Total Radium Calculation	250140		
40145002012	MW-306	Total Radium Calculation	250140		
40145002013	FIELD BLANK	Total Radium Calculation	250140		
40145002001	MW-302	SM 2540C	247495		
40145002002	MW-305	SM 2540C	247495		
40145002003	MW-4R	SM 2540C	247495		
40145002004	MW-33AR	SM 2540C	247495		
40145002005	MW-34A	SM 2540C	247495		
40145002006	MW-84A	SM 2540C	247495		
40145002007	MW-301	SM 2540C	247495		
40145002008	MW-303	SM 2540C	247495		
40145002009	MW-304	SM 2540C	247495		
40145002010	MW-307	SM 2540C	247495		
40145002011	MW-308	SM 2540C	247495		
40145002012	MW-306	SM 2540C	247495		
40145002013	FIELD BLANK	SM 2540C	247495		
40145002001	MW-302	EPA 9040	247324		
40145002002	MW-305	EPA 9040	247324		
40145002003	MW-4R	EPA 9040	247413		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067 ALLIANT-COLUMBIA

Pace Project No.: 40145002

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40145002004	MW-33AR	EPA 9040	247413		
40145002005	MW-34A	EPA 9040	247413		
40145002006	MW-84A	EPA 9040	247413		
40145002007	MW-301	EPA 9040	247413		
40145002008	MW-303	EPA 9040	247413		
40145002009	MW-304	EPA 9040	247413		
40145002010	MW-307	EPA 9040	247413		
40145002011	MW-308	EPA 9040	247413		
40145002012	MW-306	EPA 9040	247413		
40145002013	FIELD BLANK	EPA 9040	247413		
40145002001	MW-302	EPA 300.0	247899		
40145002002	MW-305	EPA 300.0	247899		
40145002003	MW-4R	EPA 300.0	247277		
40145002004	MW-33AR	EPA 300.0	247277		
40145002005	MW-34A	EPA 300.0	247277		
40145002006	MW-84A	EPA 300.0	247277		
40145002007	MW-301	EPA 300.0	247277		
40145002008	MW-303	EPA 300.0	247277		
40145002009	MW-304	EPA 300.0	247277		
40145002010	MW-307	EPA 300.0	247277		
40145002011	MW-308	EPA 300.0	247277		
40145002012	MW-306	EPA 300.0	247277		
40145002013	FIELD BLANK	EPA 300.0	247899		

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(Please Print Clearly)

Company Name: *SCS Engineers*  
 Branch/Location: *Madison, WI*  
 Project Contact: *Meg Blodgett*  
 Phone: *608-216-7362*  
 Project Number: *25216067*  
 Project Name: *Alliant-Columbia*  
 Project State: *WI*  
 Sampled By (Print): *PAG + UJH*  
 Sampled By (Sign): *[Signature]*  
 PO #:  
 Regulatory Program:



UPPER MIDWEST REGION

MN: 612-607-1700 WI: 920-469-2436

40145002

### CHAIN OF CUSTODY

**Preservation Codes**  
 A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?  
(YES/NO)  
 PRESERVATION  
(CODE)\*

Y/N	Pick Letter	Analyses Requested	PH	TDS <sub>CL</sub> , F <sub>504</sub>	Mercury	Metals (see attached)	Radium 228	Radium 226
N	A		X	X	X	X	X	X
	A							
	D							
	D							
	D							
	D							

Quote #:  
 Mail To Contact: *Meg Blodgett*  
 Mail To Company: *SCS Engineers*  
 Mail To Address: *2830 Dairy Drive Madison, WI 53718*  
 Invoice To Contact:  
 Invoice To Company: *SAME*  
 Invoice To Address:  
 Invoice To Phone:

**Data Package Options** (billable)  
 EPA Level III  
 EPA Level IV

**MS/MSD**  
 On your sample (billable)  
 NOT needed on your sample

**Matrix Codes**  
 A = Air W = Water  
 B = Biota DW = Drinking Water  
 C = Charcoal GW = Ground Water  
 O = Oil SW = Surface Water  
 S = Soil WW = Waste Water  
 Sl = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX	PH	TDS <sub>CL</sub> , F <sub>504</sub>	Mercury	Metals (see attached)	Radium 228	Radium 226	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
		DATE	TIME										
001	MW-302	1-25-17	16:20	BW	X	X	X	X	X	X	1-11 PD	1-500mip <sup>D</sup>	4-250
002	MW-305		16:10										
003	MW-4R		15:25										
004	MW-33AR		14:40										
005	MW-34A		13:25										
006	MW-84A		12:25										
007	MW-301		11:45										
008	MW-303	1-26-17	8:55	BW									
009	MW-304		10:40										
010	MW-307		13:40										
011	MW-308		16:00										
012	MW-306		17:30										
013	Field Blank		1800										

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)  
 Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Relinquished By: *Wade Harms* Date/Time: *1-27-16 10:30*  
 Relinquished By: *[Signature]* Date/Time: *1-28-17 08:15*  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: *[Signature]* Date/Time: *08:15*  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

PACE Project No. *40145002*  
 Receipt Temp = *RO1* °C  
 Sample Receipt pH *OK / Adjusted*  
 Cooler Custody Seal *Present / Not Present*  
 Intact *Not Intact*

Samples on HOLD are subject to special pricing and release of liability

**Table 3. Parameters for Groundwater Monitoring to meet Federal Requirements**

<b>Appendix III</b>	Boron
	Calcium
	Chloride
	Fluoride
	pH
	Sulfate
	TDS
<b>Appendix IV</b>	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Fluoride
	Lead
	Lithium
	Mercury
	Molybdenum
	Selenium
	Thallium
Radium	

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302



Project # **WO# : 40145002**

Client Name: SCS

Courier:  Fed Ex  UPS  Client  Pace Other: C.S. LOGINICE

Tracking #: 242-012717



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 no    Type of Ice:  Wet  Blue Dry None  Samples on ice, cooling process has begun

Cooler Temperature    Uncorr: RDL /Corr: \_\_\_\_\_    Biological Tissue is Frozen:  yes

Temp Blank Present:  yes  no     no

Temp should be above freezing to 6°C.

Biota Samples may be received at ≤ 0°C.

Person examining contents:  
Date: 1-28-17  
Initials: mm

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>TDS</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>mm</u> Lab Std #ID of preservative    Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

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

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: Amelia for DM

Date: 1/28/17

## A7 Round 7 Background Sampling, Analytical Laboratory Report

May 04, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on April 12, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
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 Certification  
Wyoming Certification #: 8TMS-L

---

### Green Bay Certification IDs

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

Virginia VELAP ID: 460263  
South Carolina Certification #: 83006001  
Texas Certification #: T104704529-14-1  
Wisconsin Certification #: 405132750  
Wisconsin DATCP Certification #: 105-444  
USDA Soil Permit #: P330-16-00157  
Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40148168001	MW-306	Water	04/10/17 14:30	04/12/17 10:30
40148168002	MW-307	Water	04/10/17 15:25	04/12/17 10:30
40148168003	MW-305	Water	04/10/17 17:20	04/12/17 10:30
40148168004	MW-308	Water	04/10/17 18:00	04/12/17 10:30
40148168005	MW-304	Water	04/10/17 18:50	04/12/17 10:30
40148168006	MW-303	Water	04/10/17 19:35	04/12/17 10:30
40148168007	M-4R	Water	04/11/17 11:15	04/12/17 10:30
40148168008	MW-33AR	Water	04/11/17 12:45	04/12/17 10:30
40148168009	FIELD BLANK	Water	04/11/17 14:15	04/12/17 10:30
40148168010	MW-34A	Water	04/11/17 14:30	04/12/17 10:30
40148168011	MW-302	Water	04/11/17 15:30	04/12/17 10:30
40148168012	MW-301	Water	04/11/17 16:15	04/12/17 10:30
40148168013	MW-84A	Water	04/11/17 17:15	04/12/17 10:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40148168001	MW-306	EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40148168002	MW-307	EPA 6020	SDW
EPA 7470	AJT			1	PASI-G
	AMH			7	PASI-G
EPA 903.1	KAC			1	PASI-PA
EPA 904.0	JJY			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40148168003	MW-305			EPA 6020	SDW
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40148168004	MW-308	EPA 6020	SDW
EPA 7470	AJT			1	PASI-G
	AMH			7	PASI-G
EPA 903.1	KAC			1	PASI-PA
EPA 904.0	JJY			1	PASI-PA
Total Radium Calculation	RMK			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40148168005	MW-304			EPA 6020	SDW

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40148168006	MW-303	EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40148168007	M-4R	SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
40148168008	MW-33AR		AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
40148168009	FIELD BLANK	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40148168010	MW-34A	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
40148168011	MW-302	Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40148168012	MW-301	SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
40148168013	MW-84A	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AMH	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-306**      **Lab ID: 40148168001**      Collected: 04/10/17 14:30      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.21J</b>	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 01:06	7440-36-0	
Arsenic	<b>0.25J</b>	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 01:06	7440-38-2	1q
Barium	<b>14.9</b>	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 01:06	7440-39-3	
Beryllium	<b>0.14J</b>	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 01:06	7440-41-7	
Boron	<b>128</b>	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 01:06	7440-42-8	
Cadmium	<b>0.11J</b>	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 01:06	7440-43-9	
Calcium	<b>83500</b>	ug/L	2500	736	10	04/13/17 08:49	04/18/17 00:39	7440-70-2	P6
Chromium	<b>2.2</b>	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 01:06	7440-47-3	
Cobalt	<b>0.15J</b>	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 01:06	7440-48-4	
Lead	<b>0.15J</b>	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 01:06	7439-92-1	
Lithium	<b>6.8</b>	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 01:06	7439-93-2	
Molybdenum	<b>8.4</b>	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 01:06	7439-98-7	
Selenium	<b>0.77J</b>	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 01:06	7782-49-2	
Thallium	<b>0.28J</b>	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 01:06	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:00	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.56</b>	Std. Units			1		04/10/17 14:30		
Field Specific Conductance	<b>899</b>	umhos/cm			1		04/10/17 14:30		
Oxygen, Dissolved	<b>7.81</b>	mg/L			1		04/10/17 14:30	7782-44-7	
REDOX	<b>97.6</b>	mV			1		04/10/17 14:30		
Turbidity	<b>0.34</b>	NTU			1		04/10/17 14:30		
Static Water Level	<b>786.22</b>	feet			1		04/10/17 14:30		
Temperature, Water (C)	<b>9.8</b>	deg C			1		04/10/17 14:30		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>326</b>	mg/L	20.0	8.7	1		04/13/17 17:42		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>1.1J</b>	mg/L	2.0	0.50	1		04/24/17 15:24	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		04/24/17 15:24	16984-48-8	
Sulfate	<b>6.8</b>	mg/L	3.0	1.0	1		04/24/17 15:24	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-307**      **Lab ID: 40148168002**      Collected: 04/10/17 15:25      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.29J</b>	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 01:47	7440-36-0	
Arsenic	<b>0.73J</b>	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 01:47	7440-38-2	1q
Barium	<b>9.3</b>	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 01:47	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 01:47	7440-41-7	
Boron	<b>175</b>	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 01:47	7440-42-8	
Cadmium	<b>0.27J</b>	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 01:47	7440-43-9	
Calcium	<b>68300</b>	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 01:47	7440-70-2	
Chromium	<b>1.6</b>	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 01:47	7440-47-3	
Cobalt	<b>0.58J</b>	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 01:47	7440-48-4	
Lead	<b>0.41J</b>	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 01:47	7439-92-1	
Lithium	<b>0.30J</b>	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 01:47	7439-93-2	
Molybdenum	<b>0.80J</b>	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 01:47	7439-98-7	
Selenium	<b>0.40J</b>	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 01:47	7782-49-2	
Thallium	<b>0.37J</b>	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 01:47	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:07	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.52</b>	Std. Units			1		04/10/17 15:25		
Field Specific Conductance	<b>898</b>	umhos/cm			1		04/10/17 15:25		
Oxygen, Dissolved	<b>0.28</b>	mg/L			1		04/10/17 15:25	7782-44-7	
REDOX	<b>-19.6</b>	mV			1		04/10/17 15:25		
Turbidity	<b>1.28</b>	NTU			1		04/10/17 15:25		
Static Water Level	<b>785.64</b>	feet			1		04/10/17 15:25		
Temperature, Water (C)	<b>9.2</b>	deg C			1		04/10/17 15:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>324</b>	mg/L	20.0	8.7	1		04/13/17 17:42		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.1</b>	mg/L	2.0	0.50	1		04/24/17 15:35	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		04/24/17 15:35	16984-48-8	
Sulfate	<b>33.1</b>	mg/L	3.0	1.0	1		04/24/17 15:35	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-305**      **Lab ID: 40148168003**      Collected: 04/10/17 17:20      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.30J</b>	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:01	7440-36-0	
Arsenic	<b>0.20J</b>	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:01	7440-38-2	1q
Barium	<b>7.1</b>	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:01	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:01	7440-41-7	
Boron	<b>782</b>	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:01	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:01	7440-43-9	
Calcium	<b>67100</b>	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:01	7440-70-2	
Chromium	<b>1.9</b>	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:01	7440-47-3	
Cobalt	<b>0.16J</b>	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:01	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:01	7439-92-1	
Lithium	<b>&lt;0.11</b>	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:01	7439-93-2	
Molybdenum	<b>42.8</b>	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:01	7439-98-7	
Selenium	<b>3.4</b>	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:01	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:01	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:09	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.62</b>	Std. Units			1		04/10/17 17:20		
Field Specific Conductance	<b>1007</b>	umhos/cm			1		04/10/17 17:20		
Oxygen, Dissolved	<b>3.11</b>	mg/L			1		04/10/17 17:20	7782-44-7	
REDOX	<b>32.9</b>	mV			1		04/10/17 17:20		
Turbidity	<b>0.40</b>	NTU			1		04/10/17 17:20		
Static Water Level	<b>789.57</b>	feet			1		04/10/17 17:20		
Temperature, Water (C)	<b>10.9</b>	deg C			1		04/10/17 17:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>410</b>	mg/L	20.0	8.7	1		04/13/17 17:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>8.2</b>	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>43.1</b>	mg/L	2.0	0.50	1		04/24/17 15:46	16887-00-6	
Fluoride	<b>0.39</b>	mg/L	0.30	0.10	1		04/24/17 15:46	16984-48-8	
Sulfate	<b>182</b>	mg/L	30.0	10.0	10		04/24/17 19:04	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-308**      **Lab ID: 40148168004**      Collected: 04/10/17 18:00      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.12J</b>	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:07	7440-36-0	
Arsenic	<b>3.5</b>	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:07	7440-38-2	
Barium	<b>95.1</b>	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:07	7440-39-3	
Beryllium	<b>0.17J</b>	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:07	7440-41-7	
Boron	<b>614</b>	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:07	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:07	7440-43-9	
Calcium	<b>129000</b>	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:07	7440-70-2	
Chromium	<b>9.3</b>	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:07	7440-47-3	
Cobalt	<b>1.6</b>	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:07	7440-48-4	
Lead	<b>2.5</b>	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:07	7439-92-1	
Lithium	<b>2.2</b>	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:07	7439-93-2	
Molybdenum	<b>1.4</b>	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:07	7439-98-7	
Selenium	<b>0.72J</b>	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:07	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:07	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:11	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.56</b>	Std. Units			1		04/10/17 18:00		
Field Specific Conductance	<b>1457</b>	umhos/cm			1		04/10/17 18:00		
Oxygen, Dissolved	<b>0.19</b>	mg/L			1		04/10/17 18:00	7782-44-7	
REDOX	<b>-106.4</b>	mV			1		04/10/17 18:00		
Turbidity	<b>113.1</b>	NTU			1		04/10/17 18:00		
Static Water Level	<b>786.51</b>	feet			1		04/10/17 18:00		
Temperature, Water (C)	<b>9.0</b>	deg C			1		04/10/17 18:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>526</b>	mg/L	20.0	8.7	1		04/13/17 17:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>5.8J</b>	mg/L	10.0	2.5	5		04/24/17 15:56	16887-00-6	D3
Fluoride	<b>&lt;0.50</b>	mg/L	1.5	0.50	5		04/24/17 15:56	16984-48-8	D3
Sulfate	<b>5.5J</b>	mg/L	15.0	5.0	5		04/24/17 15:56	14808-79-8	D3

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-304**      **Lab ID: 40148168005**      Collected: 04/10/17 18:50      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:14	7440-36-0	
Arsenic	0.98J	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:14	7440-38-2	1q
Barium	30.9	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:14	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:14	7440-41-7	
Boron	496	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:14	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:14	7440-43-9	
Calcium	79100	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:14	7440-70-2	
Chromium	0.65J	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:14	7440-47-3	
Cobalt	0.62J	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:14	7440-48-4	
Lead	0.16J	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:14	7439-92-1	
Lithium	0.16J	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:14	7439-93-2	
Molybdenum	10.1	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:14	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:14	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:14	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:14	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.64	Std. Units			1		04/10/17 18:50		
Field Specific Conductance	1.105	umhos/cm			1		04/10/17 18:50		
Oxygen, Dissolved	0.58	mg/L			1		04/10/17 18:50	7782-44-7	
REDOX	-22.20	mV			1		04/10/17 18:50		
Turbidity	5.43	NTU			1		04/10/17 18:50		
Static Water Level	788.22	feet			1		04/10/17 18:50		
Temperature, Water (C)	10.4	deg C			1		04/10/17 18:50		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	422	mg/L	20.0	8.7	1		04/13/17 17:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.6	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	23.5	mg/L	2.0	0.50	1		04/24/17 16:07	16887-00-6	
Fluoride	0.10J	mg/L	0.30	0.10	1		04/24/17 16:07	16984-48-8	
Sulfate	63.6	mg/L	15.0	5.0	5		04/25/17 11:35	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-303**      **Lab ID: 40148168006**      Collected: 04/10/17 19:35      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.14J</b>	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:21	7440-36-0	
Arsenic	<b>12.1</b>	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:21	7440-38-2	
Barium	<b>16.0</b>	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:21	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:21	7440-41-7	
Boron	<b>1990</b>	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:21	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:21	7440-43-9	
Calcium	<b>33700</b>	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:21	7440-70-2	
Chromium	<b>71.0</b>	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:21	7440-47-3	
Cobalt	<b>0.48J</b>	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:21	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:21	7439-92-1	
Lithium	<b>1.2</b>	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:21	7439-93-2	
Molybdenum	<b>103</b>	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:21	7439-98-7	
Selenium	<b>25.9</b>	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:21	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:21	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:16	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>9.85</b>	Std. Units			1		04/10/17 19:35		
Field Specific Conductance	<b>1826</b>	umhos/cm			1		04/10/17 19:35		
Oxygen, Dissolved	<b>6.88</b>	mg/L			1		04/10/17 19:35	7782-44-7	
REDOX	<b>3.90</b>	mV			1		04/10/17 19:35		
Turbidity	<b>0.74</b>	NTU			1		04/10/17 19:35		
Static Water Level	<b>786.00</b>	feet			1		04/10/17 19:35		
Temperature, Water (C)	<b>10.7</b>	deg C			1		04/10/17 19:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>778</b>	mg/L	20.0	8.7	1		04/13/17 17:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>9.1</b>	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>16.7J</b>	mg/L	40.0	10.0	20		04/24/17 19:15	16887-00-6	D3
Fluoride	<b>&lt;2.0</b>	mg/L	6.0	2.0	20		04/24/17 19:15	16984-48-8	D3
Sulfate	<b>506</b>	mg/L	60.0	20.0	20		04/24/17 19:15	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: M-4R**      **Lab ID: 40148168007**      Collected: 04/11/17 11:15      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.14J</b>	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:28	7440-36-0	
Arsenic	<b>&lt;0.099</b>	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:28	7440-38-2	1q
Barium	<b>22.5</b>	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:28	7440-39-3	
Beryllium	<b>&lt;0.13</b>	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:28	7440-41-7	
Boron	<b>512</b>	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:28	7440-42-8	
Cadmium	<b>&lt;0.089</b>	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:28	7440-43-9	
Calcium	<b>84800</b>	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:28	7440-70-2	
Chromium	<b>0.70J</b>	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:28	7440-47-3	
Cobalt	<b>0.32J</b>	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:28	7440-48-4	
Lead	<b>&lt;0.040</b>	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:28	7439-92-1	
Lithium	<b>3.2</b>	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:28	7439-93-2	
Molybdenum	<b>14.5</b>	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:28	7439-98-7	
Selenium	<b>13.3</b>	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:28	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:28	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:23	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.55</b>	Std. Units			1		04/11/17 11:15		
Field Specific Conductance	<b>1212</b>	umhos/cm			1		04/11/17 11:15		
Oxygen, Dissolved	<b>0.92</b>	mg/L			1		04/11/17 11:15	7782-44-7	
REDOX	<b>46</b>	mV			1		04/11/17 11:15		
Turbidity	<b>0.23</b>	NTU			1		04/11/17 11:15		
Static Water Level	<b>787.95</b>	feet			1		04/11/17 11:15		
Temperature, Water (C)	<b>11.7</b>	deg C			1		04/11/17 11:15		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>484</b>	mg/L	20.0	8.7	1		04/17/17 16:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.5</b>	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>44.0</b>	mg/L	2.0	0.50	1		04/24/17 16:29	16887-00-6	
Fluoride	<b>0.18J</b>	mg/L	0.30	0.10	1		04/24/17 16:29	16984-48-8	
Sulfate	<b>127</b>	mg/L	15.0	5.0	5		04/24/17 19:25	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-33AR**      **Lab ID: 40148168008**      Collected: 04/11/17 12:45      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:35	7440-36-0	
Arsenic	0.31J	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:35	7440-38-2	1q
Barium	35.1	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:35	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:35	7440-41-7	
Boron	760	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:35	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:35	7440-43-9	
Calcium	66800	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:35	7440-70-2	
Chromium	2.4	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:35	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:35	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:35	7439-92-1	
Lithium	1.2	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:35	7439-93-2	
Molybdenum	3.0	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:35	7439-98-7	
Selenium	2.3	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:35	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:35	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:25	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	8.19	Std. Units			1		04/11/17 12:45		
Field Specific Conductance	1165	umhos/cm			1		04/11/17 12:45		
Oxygen, Dissolved	9.98	mg/L			1		04/11/17 12:45	7782-44-7	
REDOX	833.0	mV			1		04/11/17 12:45		
Turbidity	0.45	NTU			1		04/11/17 12:45		
Static Water Level	786.39	feet			1		04/11/17 12:45		
Temperature, Water (C)	10.3	deg C			1		04/11/17 12:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	446	mg/L	20.0	8.7	1		04/17/17 16:44		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	8.0	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	47.1	mg/L	2.0	0.50	1		04/24/17 16:40	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		04/24/17 16:40	16984-48-8	
Sulfate	139	mg/L	15.0	5.0	5		04/24/17 19:36	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Sample: **FIELD BLANK** Lab ID: **40148168009** Collected: 04/11/17 14:15 Received: 04/12/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 00:26	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 00:26	7440-38-2	1q
Barium	<0.062	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 00:26	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 00:26	7440-41-7	
Boron	<2.0	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 00:26	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 00:26	7440-43-9	
Calcium	<73.6	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 00:26	7440-70-2	
Chromium	0.56J	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 00:26	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 00:26	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 00:26	7439-92-1	
Lithium	<0.11	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 00:26	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 00:26	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 00:26	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 00:26	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470									
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:28	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		04/17/17 16:44		
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<0.50	mg/L	2.0	0.50	1		04/24/17 16:50	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		04/24/17 16:50	16984-48-8	
Sulfate	<1.0	mg/L	3.0	1.0	1		04/24/17 16:50	14808-79-8	

Sample: **MW-34A** Lab ID: **40148168010** Collected: 04/11/17 14:30 Received: 04/12/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 02:41	7440-36-0	
Arsenic	0.29J	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 02:41	7440-38-2	1q
Barium	11.6	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 02:41	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 02:41	7440-41-7	
Boron	214	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 02:41	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 02:41	7440-43-9	
Calcium	66300	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 02:41	7440-70-2	
Chromium	2.4	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 02:41	7440-47-3	
Cobalt	0.18J	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 02:41	7440-48-4	
Lead	0.18J	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 02:41	7439-92-1	
Lithium	0.57J	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 02:41	7439-93-2	
Molybdenum	1.1	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 02:41	7439-98-7	
Selenium	1.2	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 02:41	7782-49-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-34A**      **Lab ID: 40148168010**      Collected: 04/11/17 14:30      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 02:41	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:30	7439-97-6	
<b>Field Data</b> Analytical Method:									
Field pH	8.03	Std. Units			1		04/11/17 14:30		
Field Specific Conductance	843	umhos/cm			1		04/11/17 14:30		
Oxygen, Dissolved	9.96	mg/L			1		04/11/17 14:30	7782-44-7	
REDOX	82.5	mV			1		04/11/17 14:30		
Turbidity	15.96	NTU			1		04/11/17 14:30		
Static Water Level	786.30	feet			1		04/11/17 14:30		
Temperature, Water (C)	11.0	deg C			1		04/11/17 14:30		
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	330	mg/L	20.0	8.7	1		04/17/17 16:44		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	7.9	Std. Units	0.10	0.010	1		04/13/17 09:30		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	6.2	mg/L	2.0	0.50	1		04/24/17 17:01	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		04/24/17 17:01	16984-48-8	
Sulfate	87.6	mg/L	15.0	5.0	5		04/24/17 20:19	14808-79-8	

**Sample: MW-302**      **Lab ID: 40148168011**      Collected: 04/11/17 15:30      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 03:02	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 03:02	7440-38-2	1q
Barium	20.3	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 03:02	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 03:02	7440-41-7	
Boron	322	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 03:02	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 03:02	7440-43-9	
Calcium	79600	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 03:02	7440-70-2	
Chromium	2.7	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 03:02	7440-47-3	
Cobalt	0.080J	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 03:02	7440-48-4	
Lead	0.047J	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 03:02	7439-92-1	
Lithium	2.7	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 03:02	7439-93-2	
Molybdenum	1.5	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 03:02	7439-98-7	
Selenium	2.5	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 03:02	7782-49-2	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-302**      **Lab ID: 40148168011**      Collected: 04/11/17 15:30      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 03:02	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:32	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.63	Std. Units			1		04/11/17 15:30		
Field Specific Conductance	1114	umhos/cm			1		04/11/17 15:30		
Oxygen, Dissolved	9.53	mg/L			1		04/11/17 15:30	7782-44-7	
REDOX	107.40	mV			1		04/11/17 15:30		
Turbidity	1.68	NTU			1		04/11/17 15:30		
Static Water Level	787.55	feet			1		04/11/17 15:30		
Temperature, Water (C)	9.5	deg C			1		04/11/17 15:30		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	436	mg/L	20.0	8.7	1		04/17/17 16:44		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.6	Std. Units	0.10	0.010	1		04/13/17 09:50		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	1.6J	mg/L	2.0	0.50	1		04/24/17 17:45	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		04/24/17 17:45	16984-48-8	
Sulfate	81.3	mg/L	15.0	5.0	5		04/24/17 20:30	14808-79-8	

**Sample: MW-301**      **Lab ID: 40148168012**      Collected: 04/11/17 16:15      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 03:08	7440-36-0	
Arsenic	0.18J	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 03:08	7440-38-2	1q
Barium	13.2	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 03:08	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 03:08	7440-41-7	
Boron	28.8	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 03:08	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 03:08	7440-43-9	
Calcium	120000	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 03:08	7440-70-2	
Chromium	0.70J	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 03:08	7440-47-3	
Cobalt	0.064J	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 03:08	7440-48-4	
Lead	<0.040	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 03:08	7439-92-1	
Lithium	0.68J	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 03:08	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 03:08	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 03:08	7782-49-2	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-301**      **Lab ID: 40148168012**      Collected: 04/11/17 16:15      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 03:08	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:35	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.11	Std. Units			1		04/11/17 16:15		
Field Specific Conductance	1354	umhos/cm			1		04/11/17 16:15		
Oxygen, Dissolved	1.44	mg/L			1		04/11/17 16:15	7782-44-7	
REDOX	100.9	mV			1		04/11/17 16:15		
Turbidity	0.10	NTU			1		04/11/17 16:15		
Static Water Level	787.89	feet			1		04/11/17 16:15		
Temperature, Water (C)	7.7	deg C			1		04/11/17 16:15		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	502	mg/L	20.0	8.7	1		04/17/17 16:45		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.1	Std. Units	0.10	0.010	1		04/13/17 09:50		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	2.0	mg/L	2.0	0.50	1		04/24/17 17:55	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		04/24/17 17:55	16984-48-8	
Sulfate	10.3	mg/L	3.0	1.0	1		04/24/17 17:55	14808-79-8	

**Sample: MW-84A**      **Lab ID: 40148168013**      Collected: 04/11/17 17:15      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.073	ug/L	1.0	0.073	1	04/13/17 08:49	04/18/17 03:15	7440-36-0	
Arsenic	<0.099	ug/L	1.0	0.099	1	04/13/17 08:49	04/18/17 03:15	7440-38-2	1q
Barium	14.1	ug/L	1.0	0.062	1	04/13/17 08:49	04/18/17 03:15	7440-39-3	
Beryllium	<0.13	ug/L	1.0	0.13	1	04/13/17 08:49	04/18/17 03:15	7440-41-7	
Boron	12.9	ug/L	10.0	2.0	1	04/13/17 08:49	04/18/17 03:15	7440-42-8	
Cadmium	<0.089	ug/L	1.0	0.089	1	04/13/17 08:49	04/18/17 03:15	7440-43-9	
Calcium	73200	ug/L	250	73.6	1	04/13/17 08:49	04/18/17 03:15	7440-70-2	
Chromium	2.4	ug/L	1.0	0.39	1	04/13/17 08:49	04/18/17 03:15	7440-47-3	
Cobalt	<0.036	ug/L	1.0	0.036	1	04/13/17 08:49	04/18/17 03:15	7440-48-4	
Lead	0.041J	ug/L	1.0	0.040	1	04/13/17 08:49	04/18/17 03:15	7439-92-1	
Lithium	0.55J	ug/L	1.0	0.11	1	04/13/17 08:49	04/18/17 03:15	7439-93-2	
Molybdenum	<0.070	ug/L	1.0	0.070	1	04/13/17 08:49	04/18/17 03:15	7439-98-7	
Selenium	<0.21	ug/L	1.0	0.21	1	04/13/17 08:49	04/18/17 03:15	7782-49-2	

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### ANALYTICAL RESULTS

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

**Sample: MW-84A**      **Lab ID: 40148168013**      Collected: 04/11/17 17:15      Received: 04/12/17 10:30      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>									
Analytical Method: EPA 6020    Preparation Method: EPA 3010									
Thallium	<0.14	ug/L	1.0	0.14	1	04/13/17 08:49	04/18/17 03:15	7440-28-0	
<b>7470 Mercury</b>									
Analytical Method: EPA 7470    Preparation Method: EPA 7470									
Mercury	<0.13	ug/L	0.42	0.13	1	04/20/17 13:30	04/21/17 08:37	7439-97-6	
<b>Field Data</b>									
Analytical Method:									
Field pH	7.80	Std. Units			1		04/11/17 17:15		
Field Specific Conductance	948	umhos/cm			1		04/11/17 17:15		
Oxygen, Dissolved	9.28	mg/L			1		04/11/17 17:15	7782-44-7	
REDOX	102.0	mV			1		04/11/17 17:15		
Turbidity	0.04	NTU			1		04/11/17 17:15		
Static Water Level	787.16	feet			1		04/11/17 17:15		
Temperature, Water (C)	10.6	deg C			1		04/11/17 17:15		
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Total Dissolved Solids	342	mg/L	20.0	8.7	1		04/17/17 16:45		
<b>9040 pH</b>									
Analytical Method: EPA 9040									
pH	7.7	Std. Units	0.10	0.010	1		04/13/17 09:50		H6
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0									
Chloride	4.9	mg/L	2.0	0.50	1		04/24/17 18:06	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		04/24/17 18:06	16984-48-8	
Sulfate	2.8J	mg/L	3.0	1.0	1		04/24/17 18:06	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

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QC Batch: 253376 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007,  
 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

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METHOD BLANK: 1494649 Matrix: Water  
 Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007,  
 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	04/21/17 07:55	

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LABORATORY CONTROL SAMPLE: 1494650

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

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MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1494651 1494652

Parameter	Units	40148168001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.13	5	5	5.1	5.2	102	105	85-115	3	20	

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

QC Batch: 252615 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007,  
 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

METHOD BLANK: 1490470 Matrix: Water  
 Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007,  
 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.073	1.0	04/18/17 00:19	
Arsenic	ug/L	<0.099	1.0	04/18/17 00:19	
Barium	ug/L	<0.062	1.0	04/18/17 00:19	
Beryllium	ug/L	<0.13	1.0	04/18/17 00:19	
Boron	ug/L	<2.0	10.0	04/18/17 00:19	
Cadmium	ug/L	<0.089	1.0	04/18/17 00:19	
Calcium	ug/L	<73.6	250	04/18/17 00:19	
Chromium	ug/L	<0.39	1.0	04/18/17 00:19	
Cobalt	ug/L	<0.036	1.0	04/18/17 00:19	
Lead	ug/L	<0.040	1.0	04/18/17 00:19	
Lithium	ug/L	<0.11	1.0	04/18/17 00:19	
Molybdenum	ug/L	<0.070	1.0	04/18/17 00:19	
Selenium	ug/L	<0.21	1.0	04/18/17 00:19	
Thallium	ug/L	<0.14	1.0	04/18/17 00:19	

LABORATORY CONTROL SAMPLE: 1490471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	537	107	80-120	
Arsenic	ug/L	500	513	103	80-120	
Barium	ug/L	500	525	105	80-120	
Beryllium	ug/L	500	521	104	80-120	
Boron	ug/L	500	495	99	80-120	
Cadmium	ug/L	500	537	107	80-120	
Calcium	ug/L	5000	4900	98	80-120	
Chromium	ug/L	500	516	103	80-120	
Cobalt	ug/L	500	518	104	80-120	
Lead	ug/L	500	509	102	80-120	
Lithium	ug/L	500	502	100	80-120	
Molybdenum	ug/L	500	540	108	80-120	
Selenium	ug/L	500	552	110	80-120	
Thallium	ug/L	500	513	103	80-120	

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Parameter	Units	40148168001		1490472		1490473		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Antimony	ug/L	0.21J	500	500	533	551	107	110	75-125	3	20			
Arsenic	ug/L	0.25J	500	500	512	530	102	106	75-125	3	20			
Barium	ug/L	14.9	500	500	536	556	104	108	75-125	4	20			
Beryllium	ug/L	0.14J	500	500	515	526	103	105	75-125	2	20			
Boron	ug/L	128	500	500	614	643	97	103	75-125	5	20			
Cadmium	ug/L	0.11J	500	500	527	547	105	109	75-125	4	20			
Calcium	ug/L	83500	5000	5000	85500	89000	40	109	75-125	4	20	P6		
Chromium	ug/L	2.2	500	500	515	529	103	105	75-125	3	20			
Cobalt	ug/L	0.15J	500	500	508	524	101	105	75-125	3	20			
Lead	ug/L	0.15J	500	500	510	529	102	106	75-125	4	20			
Lithium	ug/L	6.8	500	500	513	526	101	104	75-125	2	20			
Molybdenum	ug/L	8.4	500	500	548	567	108	112	75-125	3	20			
Selenium	ug/L	0.77J	500	500	547	570	109	114	75-125	4	20			
Thallium	ug/L	0.28J	500	500	518	537	104	107	75-125	3	20			

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

QC Batch: 252707

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006

METHOD BLANK: 1490962

Matrix: Water

Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	04/13/17 17:39	

LABORATORY CONTROL SAMPLE: 1490963

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	557	574	103	80-120	

SAMPLE DUPLICATE: 1490964

Parameter	Units	40148227001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	214	212	1	5	

SAMPLE DUPLICATE: 1490965

Parameter	Units	40148168001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	326	318	2	5	

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

QC Batch: 252972

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

METHOD BLANK: 1492635

Matrix: Water

Associated Lab Samples: 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	04/17/17 16:41	

LABORATORY CONTROL SAMPLE: 1492636

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	557	578	104	80-120	

SAMPLE DUPLICATE: 1492637

Parameter	Units	40148169001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	438	464	6	5	R1

SAMPLE DUPLICATE: 1492638

Parameter	Units	40148263009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	358	368	3	5	

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

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QC Batch:	252688	Analysis Method:	EPA 9040
QC Batch Method:	EPA 9040	Analysis Description:	9040 pH
Associated Lab Samples:	40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168010, 40148168011, 40148168012, 40148168013		

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SAMPLE DUPLICATE: 1490783

Parameter	Units	40147608013 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	6.9	7.0	1	20	H6

SAMPLE DUPLICATE: 1490784

Parameter	Units	40148067001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.7	7.6	1	20	H6

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### QUALITY CONTROL DATA

Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

QC Batch: 253402 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

METHOD BLANK: 1494899 Matrix: Water  
Associated Lab Samples: 40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	04/24/17 13:03	
Fluoride	mg/L	<0.10	0.30	04/24/17 13:03	
Sulfate	mg/L	<1.0	3.0	04/24/17 13:03	

LABORATORY CONTROL SAMPLE: 1494900

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	21.3	107	90-110	
Fluoride	mg/L	2	2.1	105	90-110	
Sulfate	mg/L	20	21.3	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1494901 1494902

Parameter	Units	40148146001		40148146002		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Chloride	mg/L	519	400	400	887	866	92	87	90-110	2	15	M0
Fluoride	mg/L	<2.0	40	40	44.0	42.6	110	106	90-110	3	15	
Sulfate	mg/L	218	400	400	627	610	102	98	90-110	3	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1494903 1494904

Parameter	Units	40148180001		40148180002		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Chloride	mg/L	111	100	100	210	211	99	100	90-110	0	15	
Fluoride	mg/L	<0.50	10	10	10.9	11.0	108	109	90-110	1	15	
Sulfate	mg/L	44.2	100	100	149	150	105	106	90-110	0	15	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 WPL-COLUMBIA

Project No.: 40148168

Sample: MW-306		Lab ID: 40148168001	Collected: 04/10/17 14:30	Received: 04/12/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.567 ± 0.618 (0.973)</b>		pCi/L	04/28/17 20:30	13982-63-3	
		<b>C:NA T:89%</b>					
Radium-228	EPA 904.0	<b>0.319 ± 0.338 (0.703)</b>		pCi/L	04/28/17 10:45	15262-20-1	
		<b>C:78% T:84%</b>					
Total Radium	Total Radium Calculation	<b>0.886 ± 0.956 (1.68)</b>		pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-307		Lab ID: 40148168002	Collected: 04/10/17 15:25	Received: 04/12/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.233 ± 0.355 (0.571)</b>		pCi/L	04/28/17 20:30	13982-63-3	
		<b>C:NA T:93%</b>					
Radium-228	EPA 904.0	<b>1.16 ± 0.463 (0.714)</b>		pCi/L	04/28/17 10:45	15262-20-1	
		<b>C:75% T:88%</b>					
Total Radium	Total Radium Calculation	<b>1.39 ± 0.818 (1.29)</b>		pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-305		Lab ID: 40148168003	Collected: 04/10/17 17:20	Received: 04/12/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0822 ± 0.426 (0.885)</b>		pCi/L	04/28/17 20:30	13982-63-3	
		<b>C:NA T:91%</b>					
Radium-228	EPA 904.0	<b>0.0598 ± 0.355 (0.812)</b>		pCi/L	04/28/17 10:45	15262-20-1	
		<b>C:77% T:75%</b>					
Total Radium	Total Radium Calculation	<b>0.142 ± 0.781 (1.70)</b>		pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-308		Lab ID: 40148168004	Collected: 04/10/17 18:00	Received: 04/12/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.295 ± 0.580 (1.04)</b>		pCi/L	04/28/17 20:30	13982-63-3	
		<b>C:NA T:98%</b>					
Radium-228	EPA 904.0	<b>0.485 ± 0.298 (0.547)</b>		pCi/L	04/28/17 10:45	15262-20-1	
		<b>C:80% T:90%</b>					
Total Radium	Total Radium Calculation	<b>0.780 ± 0.878 (1.59)</b>		pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-304		Lab ID: 40148168005	Collected: 04/10/17 18:50	Received: 04/12/17 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.413 ± 0.539 (0.889)</b>		pCi/L	04/28/17 20:30	13982-63-3	
		<b>C:NA T:90%</b>					
Radium-228	EPA 904.0	<b>0.327 ± 0.360 (0.755)</b>		pCi/L	04/28/17 10:45	15262-20-1	
		<b>C:79% T:88%</b>					

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-304</b> Lab ID: 40148168005 Collected: 04/10/17 18:50 Received: 04/12/17 10:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Total Radium	Total Radium Calculation	<b>0.740 ± 0.899 (1.64)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-303</b> Lab ID: 40148168006 Collected: 04/10/17 19:35 Received: 04/12/17 10:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Radium-226	EPA 903.1	<b>-0.162 ± 0.389 (0.972)</b> C:NA T:91%	pCi/L	04/28/17 20:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.0160 ± 0.269 (0.624)</b> C:79% T:89%	pCi/L	04/28/17 10:45	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.0160 ± 0.658 (1.60)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: M-4R</b> Lab ID: 40148168007 Collected: 04/11/17 11:15 Received: 04/12/17 10:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Radium-226	EPA 903.1	<b>0.933 ± 0.694 (0.913)</b> C:NA T:90%	pCi/L	04/28/17 20:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.274 ± 0.344 (0.729)</b> C:78% T:80%	pCi/L	04/28/17 10:45	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.21 ± 1.04 (1.64)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-33AR</b> Lab ID: 40148168008 Collected: 04/11/17 12:45 Received: 04/12/17 10:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Radium-226	EPA 903.1	<b>0.166 ± 0.515 (0.998)</b> C:NA T:92%	pCi/L	04/28/17 20:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.147 ± 0.294 (0.648)</b> C:76% T:86%	pCi/L	04/28/17 10:45	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.313 ± 0.809 (1.65)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: FIELD BLANK</b> Lab ID: 40148168009 Collected: 04/11/17 14:15 Received: 04/12/17 10:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Radium-226	EPA 903.1	<b>0.170 ± 0.529 (1.02)</b> C:NA T:91%	pCi/L	04/28/17 20:45	13982-63-3	
Radium-228	EPA 904.0	<b>-0.129 ± 0.298 (0.727)</b> C:73% T:84%	pCi/L	04/28/17 10:51	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.170 ± 0.827 (1.75)</b>	pCi/L	05/04/17 13:38	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

Sample: MW-34A		Lab ID: 40148168010	Collected: 04/11/17 14:30	Received: 04/12/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.000 ± 0.511 (1.08)</b> C:NA T:88%	pCi/L	04/28/17 20:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.215 ± 0.302 (0.647)</b> C:78% T:81%	pCi/L	04/28/17 10:46	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.215 ± 0.813 (1.73)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-302		Lab ID: 40148168011	Collected: 04/11/17 15:30	Received: 04/12/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0770 ± 0.351 (0.209)</b> C:NA T:92%	pCi/L	04/28/17 20:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.478 ± 0.315 (0.598)</b> C:80% T:89%	pCi/L	04/28/17 10:46	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.555 ± 0.666 (0.807)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-301		Lab ID: 40148168012	Collected: 04/11/17 16:15	Received: 04/12/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.513 ± 0.521 (0.789)</b> C:NA T:101%	pCi/L	04/28/17 21:00	13982-63-3	
Radium-228	EPA 904.0	<b>0.833 ± 0.374 (0.602)</b> C:76% T:84%	pCi/L	04/28/17 10:46	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.35 ± 0.895 (1.39)</b>	pCi/L	05/04/17 13:38	7440-14-4	

Sample: MW-84A		Lab ID: 40148168013	Collected: 04/11/17 17:15	Received: 04/12/17 10:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0768 ± 0.398 (0.826)</b> C:NA T:92%	pCi/L	04/28/17 21:00	13982-63-3	
Radium-228	EPA 904.0	<b>0.0161 ± 0.314 (0.729)</b> C:81% T:90%	pCi/L	04/28/17 12:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.0929 ± 0.712 (1.56)</b>	pCi/L	05/04/17 13:38	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

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QC Batch:	255861	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013		

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METHOD BLANK:	1260080	Matrix:	Water
Associated Lab Samples:	40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.187 ± 0.333 (0.729) C:79% T:80%	pCi/L	04/28/17 10:43	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

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QC Batch:	255860	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013		

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METHOD BLANK:	1260077	Matrix:	Water
Associated Lab Samples:	40148168001, 40148168002, 40148168003, 40148168004, 40148168005, 40148168006, 40148168007, 40148168008, 40148168009, 40148168010, 40148168011, 40148168012, 40148168013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.221 ± 0.480 (0.886) C:NA T:96%	pCi/L	04/28/17 20:30	

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

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## QUALIFIERS

Project: 25216067.17 WPL-COLUMBIA  
Pace Project No.: 40148168

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

1q Analyte was measured in the associated method blank at -0.111 ug/L.

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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148168001	MW-306	EPA 3010	252615	EPA 6020	252709
40148168002	MW-307	EPA 3010	252615	EPA 6020	252709
40148168003	MW-305	EPA 3010	252615	EPA 6020	252709
40148168004	MW-308	EPA 3010	252615	EPA 6020	252709
40148168005	MW-304	EPA 3010	252615	EPA 6020	252709
40148168006	MW-303	EPA 3010	252615	EPA 6020	252709
40148168007	M-4R	EPA 3010	252615	EPA 6020	252709
40148168008	MW-33AR	EPA 3010	252615	EPA 6020	252709
40148168009	FIELD BLANK	EPA 3010	252615	EPA 6020	252709
40148168010	MW-34A	EPA 3010	252615	EPA 6020	252709
40148168011	MW-302	EPA 3010	252615	EPA 6020	252709
40148168012	MW-301	EPA 3010	252615	EPA 6020	252709
40148168013	MW-84A	EPA 3010	252615	EPA 6020	252709
40148168001	MW-306	EPA 7470	253376	EPA 7470	253397
40148168002	MW-307	EPA 7470	253376	EPA 7470	253397
40148168003	MW-305	EPA 7470	253376	EPA 7470	253397
40148168004	MW-308	EPA 7470	253376	EPA 7470	253397
40148168005	MW-304	EPA 7470	253376	EPA 7470	253397
40148168006	MW-303	EPA 7470	253376	EPA 7470	253397
40148168007	M-4R	EPA 7470	253376	EPA 7470	253397
40148168008	MW-33AR	EPA 7470	253376	EPA 7470	253397
40148168009	FIELD BLANK	EPA 7470	253376	EPA 7470	253397
40148168010	MW-34A	EPA 7470	253376	EPA 7470	253397
40148168011	MW-302	EPA 7470	253376	EPA 7470	253397
40148168012	MW-301	EPA 7470	253376	EPA 7470	253397
40148168013	MW-84A	EPA 7470	253376	EPA 7470	253397
40148168001	MW-306				
40148168002	MW-307				
40148168003	MW-305				
40148168004	MW-308				
40148168005	MW-304				
40148168006	MW-303				
40148168007	M-4R				
40148168008	MW-33AR				
40148168010	MW-34A				
40148168011	MW-302				
40148168012	MW-301				
40148168013	MW-84A				
40148168001	MW-306	EPA 903.1	255860		
40148168002	MW-307	EPA 903.1	255860		
40148168003	MW-305	EPA 903.1	255860		
40148168004	MW-308	EPA 903.1	255860		
40148168005	MW-304	EPA 903.1	255860		
40148168006	MW-303	EPA 903.1	255860		
40148168007	M-4R	EPA 903.1	255860		
40148168008	MW-33AR	EPA 903.1	255860		
40148168009	FIELD BLANK	EPA 903.1	255860		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148168010	MW-34A	EPA 903.1	255860		
40148168011	MW-302	EPA 903.1	255860		
40148168012	MW-301	EPA 903.1	255860		
40148168013	MW-84A	EPA 903.1	255860		
40148168001	MW-306	EPA 904.0	255861		
40148168002	MW-307	EPA 904.0	255861		
40148168003	MW-305	EPA 904.0	255861		
40148168004	MW-308	EPA 904.0	255861		
40148168005	MW-304	EPA 904.0	255861		
40148168006	MW-303	EPA 904.0	255861		
40148168007	M-4R	EPA 904.0	255861		
40148168008	MW-33AR	EPA 904.0	255861		
40148168009	FIELD BLANK	EPA 904.0	255861		
40148168010	MW-34A	EPA 904.0	255861		
40148168011	MW-302	EPA 904.0	255861		
40148168012	MW-301	EPA 904.0	255861		
40148168013	MW-84A	EPA 904.0	255861		
40148168001	MW-306	Total Radium Calculation	257426		
40148168002	MW-307	Total Radium Calculation	257426		
40148168003	MW-305	Total Radium Calculation	257426		
40148168004	MW-308	Total Radium Calculation	257426		
40148168005	MW-304	Total Radium Calculation	257426		
40148168006	MW-303	Total Radium Calculation	257426		
40148168007	M-4R	Total Radium Calculation	257426		
40148168008	MW-33AR	Total Radium Calculation	257426		
40148168009	FIELD BLANK	Total Radium Calculation	257426		
40148168010	MW-34A	Total Radium Calculation	257426		
40148168011	MW-302	Total Radium Calculation	257426		
40148168012	MW-301	Total Radium Calculation	257426		
40148168013	MW-84A	Total Radium Calculation	257426		
40148168001	MW-306	SM 2540C	252707		
40148168002	MW-307	SM 2540C	252707		
40148168003	MW-305	SM 2540C	252707		
40148168004	MW-308	SM 2540C	252707		
40148168005	MW-304	SM 2540C	252707		
40148168006	MW-303	SM 2540C	252707		
40148168007	M-4R	SM 2540C	252972		
40148168008	MW-33AR	SM 2540C	252972		
40148168009	FIELD BLANK	SM 2540C	252972		
40148168010	MW-34A	SM 2540C	252972		
40148168011	MW-302	SM 2540C	252972		
40148168012	MW-301	SM 2540C	252972		
40148168013	MW-84A	SM 2540C	252972		
40148168001	MW-306	EPA 9040	252688		
40148168002	MW-307	EPA 9040	252688		
40148168003	MW-305	EPA 9040	252688		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 WPL-COLUMBIA

Pace Project No.: 40148168

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148168004	MW-308	EPA 9040	252688		
40148168005	MW-304	EPA 9040	252688		
40148168006	MW-303	EPA 9040	252688		
40148168007	M-4R	EPA 9040	252688		
40148168008	MW-33AR	EPA 9040	252688		
40148168010	MW-34A	EPA 9040	252688		
40148168011	MW-302	EPA 9040	252688		
40148168012	MW-301	EPA 9040	252688		
40148168013	MW-84A	EPA 9040	252688		
40148168001	MW-306	EPA 300.0	253402		
40148168002	MW-307	EPA 300.0	253402		
40148168003	MW-305	EPA 300.0	253402		
40148168004	MW-308	EPA 300.0	253402		
40148168005	MW-304	EPA 300.0	253402		
40148168006	MW-303	EPA 300.0	253402		
40148168007	M-4R	EPA 300.0	253402		
40148168008	MW-33AR	EPA 300.0	253402		
40148168009	FIELD BLANK	EPA 300.0	253402		
40148168010	MW-34A	EPA 300.0	253402		
40148168011	MW-302	EPA 300.0	253402		
40148168012	MW-301	EPA 300.0	253402		
40148168013	MW-84A	EPA 300.0	253402		

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(Please Print Clearly)

Company Name: SCS Engineers  
 Branch/Location: Madison WI  
 Project Contact: Tom K  
 Phone: 608-224-2830  
 Project Number: 25216067.17  
 Project Name: WPL - Columbia  
 Project State: WI  
 Sampled By (Print): Kyle Krueger  
 Sampled By (Sign): *Kyle Krueger*  
 PO #:   
 Regulatory Program:   
 Data Package Options (billable):  
 EPA Level III  
 EPA Level IV  
 On your sample (billable)  
 NOT needed on your sample  
 Matrix Codes:  
 A = Air, B = Biota, C = Charcoal, D = Oil, S = Soil, SI = Sludge  
 W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

# CHAIN OF CUSTODY



Preparation Codes:  
 A=Name, B=HCL, C=H2SO4, D=HNO3, E=DI Water, F=Methanol, G=NaOH  
 H= Sodium Bisulfate Solution, I= Sodium Thiosulfate, J= Other

UPPER MIDWEST REGION  
 MN: 612-607-1700 WI: 920-469-2436

Quote #:	
Mail To Contact:	Tom K
Mail To Company:	SCS Engineers
Mail To Address:	2830 Dairy Drive Madison, WI
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	608-224-2830
CLIENT COMMENTS:	LAB COMMENTS (Lab Use Only) Profile #

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX	Analyses Requested					CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
					Y/N	Pick Letter					
001	MW-306	4-07	1430	GW							
002	MW-307		1525		X	X	X	X	X		
003	MW-305		1720		X	X	X	X	X		
004	MW-308		1800		X	X	X	X	X		
005	MW-304		1850		X	X	X	X	X		
006	MW-303		1935		X	X	X	X	X		
007	M-4R	4-11	1115		X	X	X	X	X		
008	MW-33AR		1245		X	X	X	X	X		
009	Field Blank		1415	W/D	X	X	X	X	X		
010	MW-34A		1430	GW	X	X	X	X	X		
011	MW-302		1530		X	X	X	X	X		
012	MW-301		1615		X	X	X	X	X		
013	MW-54A		1715		X	X	X	X	X		

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)  
 Date Needed:   
 Transmit Prelim Rush Results by (complete what you want):  
 Email #1:   
 Email #2:   
 Telephone:   
 Fax:   
 Samples on HOLD are subject to special pricing and release of liability  
 Relinquished By: *Kyle Krueger* Date/Time: 4/11/17 1840  
 Relinquished By: *Ed Ex* Date/Time: 4/12/17 1030  
 Relinquished By: *Matthew* Date/Time: 4/12/17 1030  
 Received By: *Matthew* Date/Time: 4/12/17 1030  
 Received By: *Matthew* Date/Time: 4/12/17 1030  
 Receipt Temp = 20.1 °C  
 Sample Receipt pH:   
 Cooler Custody Seal:   
 Present / Not Present  
 Intact / Not Intact

401481108

Sample Condition Upon Receipt

Pace Analytical Services, Inc.  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302



Project #: **WO# : 40148168**

Client Name: SCS ENGINEERS

Courier:  Fed Ex  UPS  Client  Pace Other: \_\_\_\_\_

Tracking #: 7862 1417 1790



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 na    Type of Ice:  Wet  Blue  Dry  None  Samples on ice, cooling process has begun

Cooler Temperature    Uncorr: ROI / Corr: \_\_\_\_\_    Biological Tissue is Frozen:  yes

Temp Blank Present:  yes  no     no

Person examining contents:  
Date: 4.12.17  
Initials: mm

Temp should be above freezing to 6°C for all sample except Biota.  
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Date/Time: <u>4/12/17</u>
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis    Matrix: <u>W</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics,    OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	initial when completed <u>mm</u> Lab Std #ID of preservative    Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

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

Person Contacted: \_\_\_\_\_    Date/Time: \_\_\_\_\_  
Comments/ Resolution: 2nd cooler 7862 1417 1789    mm 4/12/17  
3rd 7862 1417 1778    mm 4/12/17

Project Manager Review: Amst for DM    Date: 4/12/17

A8 Round 8 Background Sampling, Analytical Laboratory Report

June 27, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 52516067-17 ALLIANT-COLUMBIA  
Pace Project No.: 40151159

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on June 07, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

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### Green Bay Certification IDs

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

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 52516067-17 ALLIANT-COLUMBIA  
Pace Project No.: 40151159

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40151159001	MW-305	Water	06/05/17 11:45	06/07/17 09:15
40151159002	M4R	Water	06/05/17 12:35	06/07/17 09:15
40151159003	MW-308	Water	06/05/17 15:00	06/07/17 09:15
40151159004	MW-307	Water	06/05/17 15:45	06/07/17 09:15
40151159005	MW-306	Water	06/05/17 16:30	06/07/17 09:15
40151159006	MW-304	Water	06/05/17 17:45	06/07/17 09:15
40151159007	MW303	Water	06/06/17 09:00	06/07/17 09:15
40151159008	MW-33AR	Water	06/06/17 10:00	06/07/17 09:15
40151159009	MW-34A	Water	06/06/17 10:55	06/07/17 09:15
40151159010	FIELD BLANK	Water	06/06/17 11:15	06/07/17 09:15
40151159011	MW-302	Water	06/06/17 11:40	06/07/17 09:15
40151159012	MW-84A	Water	06/06/17 12:25	06/07/17 09:15
40151159013	MW-301	Water	06/06/17 13:15	06/07/17 09:15

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40151159001	MW-305	EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
40151159002	M4R	EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
40151159003	MW-308	EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
40151159004	MW-307	EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
40151159005	MW-306	EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
40151159006	MW-304	EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
40151159007	MW303	EPA 6020	SDW	14

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### SAMPLE ANALYTE COUNT

Project: 52516067-17 ALLIANT-COLUMBIA  
Pace Project No.: 40151159

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40151159008	MW-33AR	EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
40151159009	MW-34A	EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
40151159010	FIELD BLANK	SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
	RMW	7		
40151159011	MW-302	SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
EPA 7470	AJT	1		
	RMW	7		
40151159012	MW-84A	SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3
		EPA 6020	SDW	14
EPA 7470	AJT	1		
	RMW	7		
40151159013	MW-301	EPA 300.0	HMB	3
		EPA 6020	SDW	14
		EPA 7470	AJT	1
			RMW	7

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### SAMPLE ANALYTE COUNT

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		SM 2540C	TMK	1
		EPA 9040	ALY	1
		EPA 300.0	HMB	3

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-305**      **Lab ID: 40151159001**      Collected: 06/05/17 11:45      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<b>0.55J</b>	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 02:28	7440-36-0	
Arsenic	<b>0.37J</b>	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 02:28	7440-38-2	
Barium	<b>8.2</b>	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 02:28	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 02:28	7440-41-7	
Boron	<b>1240</b>	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 02:28	7440-42-8	
Cadmium	<b>0.18J</b>	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 02:01	7440-43-9	
Calcium	<b>75500</b>	ug/L	2500	698	10	06/08/17 08:43	06/09/17 02:01	7440-70-2	P6
Chromium	<b>1.5J</b>	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 02:28	7440-47-3	
Cobalt	<b>0.26J</b>	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 02:28	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 16:31	7439-92-1	
Lithium	<b>0.17J</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 02:28	7439-93-2	
Molybdenum	<b>41.3</b>	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 02:28	7439-98-7	
Selenium	<b>3.9</b>	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 02:28	7782-49-2	
Thallium	<b>0.15J</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 16:31	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:13	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.72</b>	Std. Units			1		06/05/17 11:45		
Field Specific Conductance	<b>558.4</b>	umhos/cm			1		06/05/17 11:45		
Oxygen, Dissolved	<b>3.06</b>	mg/L			1		06/05/17 11:45	7782-44-7	
REDOX	<b>73.6</b>	mV			1		06/05/17 11:45		
Turbidity	<b>N</b>	NTU			1		06/05/17 11:45		
Static Water Level	<b>789.79</b>	feet			1		06/05/17 11:45		
Temperature, Water (C)	<b>12.8</b>	deg C			1		06/05/17 11:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>408</b>	mg/L	20.0	8.7	1		06/08/17 14:59		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.9</b>	Std. Units	0.10	0.010	1		06/12/17 10:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>37.1</b>	mg/L	2.0	0.50	1		06/16/17 21:38	16887-00-6	
Fluoride	<b>0.41</b>	mg/L	0.30	0.10	1		06/16/17 21:38	16984-48-8	
Sulfate	<b>185</b>	mg/L	30.0	10.0	10		06/16/17 22:32	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: M4R**      **Lab ID: 40151159002**      Collected: 06/05/17 12:35      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.26J</b>	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:09	7440-36-0	
Arsenic	<b>0.33J</b>	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:09	7440-38-2	
Barium	<b>22.3</b>	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:09	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:09	7440-41-7	
Boron	<b>464</b>	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:09	7440-42-8	SD
Cadmium	<b>0.084J</b>	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:09	7440-43-9	
Calcium	<b>90300</b>	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:09	7440-70-2	
Chromium	<b>&lt;1.0</b>	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:09	7440-47-3	
Cobalt	<b>0.27J</b>	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:09	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 16:58	7439-92-1	
Lithium	<b>1.2</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:09	7439-93-2	
Molybdenum	<b>11.9</b>	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:09	7439-98-7	
Selenium	<b>9.7</b>	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:09	7782-49-2	
Thallium	<b>0.18J</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 16:58	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:20	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.07</b>	Std. Units			1		06/05/17 12:35		
Field Specific Conductance	<b>660.4</b>	umhos/cm			1		06/05/17 12:35		
Oxygen, Dissolved	<b>1.71</b>	mg/L			1		06/05/17 12:35	7782-44-7	
REDOX	<b>82.2</b>	mV			1		06/05/17 12:35		
Turbidity	<b>0.39</b>	NTU			1		06/05/17 12:35		
Static Water Level	<b>787.83</b>	feet			1		06/05/17 12:35		
Temperature, Water (C)	<b>12.1</b>	deg C			1		06/05/17 12:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>494</b>	mg/L	20.0	8.7	1		06/08/17 14:59		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		06/12/17 10:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>37.1</b>	mg/L	2.0	0.50	1		06/16/17 21:48	16887-00-6	
Fluoride	<b>0.20J</b>	mg/L	0.30	0.10	1		06/16/17 21:48	16984-48-8	
Sulfate	<b>131</b>	mg/L	30.0	10.0	10		06/16/17 22:42	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-308**      **Lab ID: 40151159003**      Collected: 06/05/17 15:00      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:23	7440-36-0	
Arsenic	2.3	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:23	7440-38-2	
Barium	66.7	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:23	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:23	7440-41-7	
Boron	565	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:23	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:23	7440-43-9	
Calcium	140000	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:23	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:23	7440-47-3	
Cobalt	0.21J	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:23	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 17:12	7439-92-1	
Lithium	0.18J	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:23	7439-93-2	
Molybdenum	2.2	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:23	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:23	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 17:12	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:22	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.09	Std. Units			1		06/05/17 15:00		
Field Specific Conductance	819	umhos/cm			1		06/05/17 15:00		
Oxygen, Dissolved	0.16	mg/L			1		06/05/17 15:00	7782-44-7	
REDOX	-76.1	mV			1		06/05/17 15:00		
Turbidity	9.85	NTU			1		06/05/17 15:00		
Static Water Level	786.46	feet			1		06/05/17 15:00		
Temperature, Water (C)	10.6	deg C			1		06/05/17 15:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	508	mg/L	20.0	8.7	1		06/08/17 14:59		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.2	Std. Units	0.10	0.010	1		06/12/17 10:30		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	5.8J	mg/L	10.0	2.5	5		06/16/17 21:59	16887-00-6	D3
Fluoride	<0.50	mg/L	1.5	0.50	5		06/16/17 21:59	16984-48-8	D3,M0
Sulfate	14.8J	mg/L	15.0	5.0	5		06/16/17 21:59	14808-79-8	D3

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-307**      **Lab ID: 40151159004**      Collected: 06/05/17 15:45      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:30	7440-36-0	
Arsenic	0.42J	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:30	7440-38-2	
Barium	7.8	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:30	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:30	7440-41-7	
Boron	178	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:30	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:30	7440-43-9	
Calcium	70600	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:30	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:30	7440-47-3	
Cobalt	0.19J	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:30	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 17:32	7439-92-1	
Lithium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:30	7439-93-2	
Molybdenum	0.44J	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:30	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:30	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 17:32	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:29	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.26	Std. Units			1		06/05/17 15:45		
Field Specific Conductance	503.9	umhos/cm			1		06/05/17 15:45		
Oxygen, Dissolved	0.19	mg/L			1		06/05/17 15:45	7782-44-7	
REDOX	-12.9	mV			1		06/05/17 15:45		
Turbidity	1.85	NTU			1		06/05/17 15:45		
Static Water Level	786.07	feet			1		06/05/17 15:45		
Temperature, Water (C)	10.5	deg C			1		06/05/17 15:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	324	mg/L	20.0	8.7	1		06/08/17 14:59		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	5.4	mg/L	2.0	0.50	1		06/16/17 22:53	16887-00-6	M0
Fluoride	<0.10	mg/L	0.30	0.10	1		06/16/17 22:53	16984-48-8	
Sulfate	32.6	mg/L	3.0	1.0	1		06/16/17 22:53	14808-79-8	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-306**      **Lab ID: 40151159005**      Collected: 06/05/17 16:30      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:37	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:37	7440-38-2	
Barium	8.2	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:37	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:37	7440-41-7	
Boron	129	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:37	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:37	7440-43-9	
Calcium	85200	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:37	7440-70-2	
Chromium	1.8J	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:37	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:37	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 17:39	7439-92-1	
Lithium	1.6	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:37	7439-93-2	
Molybdenum	5.0	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:37	7439-98-7	
Selenium	0.48J	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:37	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 17:39	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:31	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.22	Std. Units			1		06/05/17 16:30		
Field Specific Conductance	495.7	umhos/cm			1		06/05/17 16:30		
Oxygen, Dissolved	9.6	mg/L			1		06/05/17 16:30	7782-44-7	
REDOX	84.3	mV			1		06/05/17 16:30		
Turbidity	0.55	NTU			1		06/05/17 16:30		
Static Water Level	786.85	feet			1		06/05/17 16:30		
Temperature, Water (C)	10	deg C			1		06/05/17 16:30		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	324	mg/L	20.0	8.7	1		06/08/17 15:00		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	2.3	mg/L	2.0	0.50	1		06/16/17 23:58	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		06/16/17 23:58	16984-48-8	
Sulfate	10.1	mg/L	3.0	1.0	1		06/16/17 23:58	14808-79-8	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-304**      **Lab ID: 40151159006**      Collected: 06/05/17 17:45      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:43	7440-36-0	
Arsenic	1.1	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:43	7440-38-2	
Barium	30.9	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:43	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:43	7440-41-7	
Boron	486	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:43	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:43	7440-43-9	
Calcium	75200	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:43	7440-70-2	
Chromium	1.9J	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:43	7440-47-3	
Cobalt	0.76J	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:43	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 17:46	7439-92-1	
Lithium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:43	7439-93-2	
Molybdenum	15.6	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:43	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:43	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 17:46	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:34	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.2	Std. Units			1		06/05/17 17:45		
Field Specific Conductance	660	umhos/cm			1		06/05/17 17:45		
Oxygen, Dissolved	1.37	mg/L			1		06/05/17 17:45	7782-44-7	
REDOX	-15.3	mV			1		06/05/17 17:45		
Turbidity	12.84	NTU			1		06/05/17 17:45		
Static Water Level	788.58	feet			1		06/05/17 17:45		
Temperature, Water (C)	13.4	deg C			1		06/05/17 17:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	500	mg/L	20.0	8.7	1		06/08/17 15:00		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	42.3	mg/L	2.0	0.50	1		06/17/17 00:09	16887-00-6	
Fluoride	0.19J	mg/L	0.30	0.10	1		06/17/17 00:09	16984-48-8	
Sulfate	97.1	mg/L	15.0	5.0	5		06/17/17 17:14	14808-79-8	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW303**      **Lab ID: 40151159007**      Collected: 06/06/17 09:00      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:50	7440-36-0	
Arsenic	9.1	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:50	7440-38-2	
Barium	14.5	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:50	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:50	7440-41-7	
Boron	1970	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:50	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:50	7440-43-9	
Calcium	35500	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:50	7440-70-2	
Chromium	65.1	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:50	7440-47-3	
Cobalt	0.42J	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:50	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 17:53	7439-92-1	
Lithium	1.1	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:50	7439-93-2	
Molybdenum	87.0	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:50	7439-98-7	
Selenium	18.3	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:50	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 17:53	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:36	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	9.1	Std. Units			1		06/06/17 09:00		
Field Specific Conductance	931	umhos/cm			1		06/06/17 09:00		
Oxygen, Dissolved	6.9	mg/L			1		06/06/17 09:00	7782-44-7	
REDOX	57.5	mV			1		06/06/17 09:00		
Turbidity	0.41	NTU			1		06/06/17 09:00		
Static Water Level	786.49	feet			1		06/06/17 09:00		
Temperature, Water (C)	11.3	deg C			1		06/06/17 09:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	686	mg/L	20.0	8.7	1		06/08/17 15:00		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	8.9	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	8.1	mg/L	2.0	0.50	1		06/17/17 00:20	16887-00-6	
Fluoride	0.30J	mg/L	0.30	0.10	1		06/17/17 00:20	16984-48-8	
Sulfate	445	mg/L	30.0	10.0	10		06/17/17 17:57	14808-79-8	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-33AR**      **Lab ID: 40151159008**      Collected: 06/06/17 10:00      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 03:57	7440-36-0	
Arsenic	0.36J	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 03:57	7440-38-2	
Barium	37.7	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 03:57	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 03:57	7440-41-7	
Boron	692	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 03:57	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 03:57	7440-43-9	
Calcium	80700	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 03:57	7440-70-2	
Chromium	1.5J	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 03:57	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 03:57	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 18:00	7439-92-1	
Lithium	1.4	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 03:57	7439-93-2	
Molybdenum	1.3J	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 03:57	7439-98-7	
Selenium	1.9	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 03:57	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 18:00	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:38	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.78	Std. Units			1		06/06/17 10:00		
Field Specific Conductance	689	umhos/cm			1		06/06/17 10:00		
Oxygen, Dissolved	10.7	mg/L			1		06/06/17 10:00	7782-44-7	
REDOX	101.5	mV			1		06/06/17 10:00		
Turbidity	0.68	NTU			1		06/06/17 10:00		
Static Water Level	787.27	feet			1		06/06/17 10:00		
Temperature, Water (C)	10.9	deg C			1		06/06/17 10:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	492	mg/L	20.0	8.7	1		06/12/17 15:00		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.8	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	68.1	mg/L	10.0	2.5	5		06/17/17 18:08	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		06/17/17 00:30	16984-48-8	
Sulfate	151	mg/L	15.0	5.0	5		06/17/17 18:08	14808-79-8	

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## ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-34A**      **Lab ID: 40151159009**      Collected: 06/06/17 10:55      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 04:04	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 04:04	7440-38-2	
Barium	9.9	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 04:04	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 04:04	7440-41-7	
Boron	201	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 04:04	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 04:04	7440-43-9	
Calcium	66900	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 04:04	7440-70-2	
Chromium	1.7J	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 04:04	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 04:04	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 18:06	7439-92-1	
Lithium	0.45J	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 04:04	7439-93-2	
Molybdenum	0.93J	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 04:04	7439-98-7	
Selenium	0.77J	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 04:04	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 18:06	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:40	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.57	Std. Units			1		06/06/17 10:55		
Field Specific Conductance	499.1	umhos/cm			1		06/06/17 10:55		
Oxygen, Dissolved	10.27	mg/L			1		06/06/17 10:55	7782-44-7	
REDOX	109.3	mV			1		06/06/17 10:55		
Turbidity	3.7	NTU			1		06/06/17 10:55		
Static Water Level	786.66	feet			1		06/06/17 10:55		
Temperature, Water (C)	11.0	deg C			1		06/06/17 10:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	366	mg/L	20.0	8.7	1		06/12/17 15:00		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.7	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	7.8	mg/L	2.0	0.50	1		06/17/17 00:41	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		06/17/17 00:41	16984-48-8	
Sulfate	106	mg/L	15.0	5.0	5		06/19/17 12:00	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Sample Project No.: 40151159

Sample: **FIELD BLANK** Lab ID: **40151159010** Collected: 06/06/17 11:15 Received: 06/07/17 09:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 01:47	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 01:47	7440-38-2	
Barium	<0.34	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 01:47	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 01:47	7440-41-7	
Boron	<3.3	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 01:47	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 01:47	7440-43-9	
Calcium	<69.8	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 01:47	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 01:47	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 01:47	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 16:17	7439-92-1	
Lithium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 01:47	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 01:47	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 01:47	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 16:17	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:43	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		06/12/17 15:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	5.9	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<0.50	mg/L	2.0	0.50	1		06/17/17 00:52	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		06/17/17 00:52	16984-48-8	
Sulfate	<1.0	mg/L	3.0	1.0	1		06/17/17 00:52	14808-79-8	

Sample: **MW-302** Lab ID: **40151159011** Collected: 06/06/17 11:40 Received: 06/07/17 09:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 04:24	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 04:24	7440-38-2	
Barium	22.0	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 04:24	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 04:24	7440-41-7	
Boron	671	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 04:24	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 04:24	7440-43-9	
Calcium	88900	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 04:24	7440-70-2	
Chromium	2.3J	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 04:24	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 04:24	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 18:13	7439-92-1	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-302**      **Lab ID: 40151159011**      Collected: 06/06/17 11:40      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	2.2	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 04:24	7439-93-2	
Molybdenum	1.3J	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 04:24	7439-98-7	
Selenium	2.0	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 04:24	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 18:13	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:45	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.16	Std. Units			1		06/06/17 11:40		
Field Specific Conductance	641.8	umhos/cm			1		06/06/17 11:40		
Oxygen, Dissolved	9.91	mg/L			1		06/06/17 11:40	7782-44-7	
REDOX	130.4	mV			1		06/06/17 11:40		
Turbidity	1.90	NTU			1		06/06/17 11:40		
Static Water Level	788.37	feet			1		06/06/17 11:40		
Temperature, Water (C)	10.1	deg C			1		06/06/17 11:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	466	mg/L	20.0	8.7	1		06/12/17 15:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.5	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	3.5	mg/L	2.0	0.50	1		06/17/17 01:03	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		06/17/17 01:03	16984-48-8	
Sulfate	84.6	mg/L	15.0	5.0	5		06/17/17 18:18	14808-79-8	

**Sample: MW-84A**      **Lab ID: 40151159012**      Collected: 06/06/17 12:25      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 04:31	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 04:31	7440-38-2	
Barium	13.4	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 04:31	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 04:31	7440-41-7	
Boron	14.8	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 04:31	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 04:31	7440-43-9	
Calcium	76100	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 04:31	7440-70-2	
Chromium	2.0J	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 04:31	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 04:31	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 18:20	7439-92-1	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-84A**      **Lab ID: 40151159012**      Collected: 06/06/17 12:25      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Lithium	<b>0.46J</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 04:31	7439-93-2	
Molybdenum	<b>&lt;0.44</b>	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 04:31	7439-98-7	
Selenium	<b>&lt;0.32</b>	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 04:31	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 18:20	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470      Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:47	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.28</b>	Std. Units			1		06/06/17 12:25		
Field Specific Conductance	<b>535.3</b>	umhos/cm			1		06/06/17 12:25		
Oxygen, Dissolved	<b>9.46</b>	mg/L			1		06/06/17 12:25	7782-44-7	
REDOX	<b>123.6</b>	mV			1		06/06/17 12:25		
Turbidity	<b>0.56</b>	NTU			1		06/06/17 12:25		
Static Water Level	<b>787.63</b>	feet			1		06/06/17 12:25		
Temperature, Water (C)	<b>11.3</b>	deg C			1		06/06/17 12:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>344</b>	mg/L	20.0	8.7	1		06/12/17 15:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>5.5</b>	mg/L	2.0	0.50	1		06/17/17 01:14	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		06/17/17 01:14	16984-48-8	
Sulfate	<b>2.7J</b>	mg/L	3.0	1.0	1		06/17/17 01:14	14808-79-8	

**Sample: MW-301**      **Lab ID: 40151159013**      Collected: 06/06/17 13:15      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Antimony	<b>&lt;0.15</b>	ug/L	1.0	0.15	1	06/08/17 08:43	06/09/17 04:38	7440-36-0	
Arsenic	<b>&lt;0.28</b>	ug/L	1.0	0.28	1	06/08/17 08:43	06/09/17 04:38	7440-38-2	
Barium	<b>11.3</b>	ug/L	1.1	0.34	1	06/08/17 08:43	06/09/17 04:38	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	06/08/17 08:43	06/09/17 04:38	7440-41-7	
Boron	<b>21.3</b>	ug/L	11.0	3.3	1	06/08/17 08:43	06/09/17 04:38	7440-42-8	
Cadmium	<b>&lt;0.081</b>	ug/L	1.0	0.081	1	06/08/17 08:43	06/09/17 04:38	7440-43-9	
Calcium	<b>111000</b>	ug/L	250	69.8	1	06/08/17 08:43	06/09/17 04:38	7440-70-2	
Chromium	<b>2.3J</b>	ug/L	3.4	1.0	1	06/08/17 08:43	06/09/17 04:38	7440-47-3	
Cobalt	<b>0.13J</b>	ug/L	1.0	0.085	1	06/08/17 08:43	06/09/17 04:38	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	06/08/17 08:43	06/09/17 18:27	7439-92-1	

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### ANALYTICAL RESULTS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

**Sample: MW-301**      **Lab ID: 40151159013**      Collected: 06/06/17 13:15      Received: 06/07/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Lithium	<b>0.62J</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 04:38	7439-93-2	
Molybdenum	<b>&lt;0.44</b>	ug/L	1.5	0.44	1	06/08/17 08:43	06/09/17 04:38	7439-98-7	
Selenium	<b>&lt;0.32</b>	ug/L	1.1	0.32	1	06/08/17 08:43	06/09/17 04:38	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	06/08/17 08:43	06/09/17 18:27	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	06/15/17 12:30	06/16/17 08:50	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>6.7</b>	Std. Units			1		06/06/17 13:15		
Field Specific Conductance	<b>698.4</b>	umhos/cm			1		06/06/17 13:15		
Oxygen, Dissolved	<b>1.81</b>	mg/L			1		06/06/17 13:15	7782-44-7	
REDOX	<b>115.1</b>	mV			1		06/06/17 13:15		
Turbidity	<b>0.22</b>	NTU			1		06/06/17 13:15		
Static Water Level	<b>788.25</b>	feet			1		06/06/17 13:15		
Temperature, Water (C)	<b>8.9</b>	deg C			1		06/06/17 13:15		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>458</b>	mg/L	20.0	8.7	1		06/12/17 15:02		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.0</b>	Std. Units	0.10	0.010	1		06/12/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>3.5</b>	mg/L	2.0	0.50	1		06/17/17 01:24	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		06/17/17 01:24	16984-48-8	
Sulfate	<b>17.1</b>	mg/L	3.0	1.0	1		06/17/17 01:24	14808-79-8	

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**QUALITY CONTROL DATA**

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

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QC Batch: 258671 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007,  
 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

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METHOD BLANK: 1523991 Matrix: Water  
 Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007,  
 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	06/16/17 08:08	

LABORATORY CONTROL SAMPLE: 1523992

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1523993 1523994

Parameter	Units	40151159001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.13	5	5	4.8	5.0	96	99	85-115	3	20	

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

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### QUALITY CONTROL DATA

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

QC Batch: 257984 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007,  
 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

METHOD BLANK: 1519695 Matrix: Water  
 Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007,  
 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	06/09/17 01:41	
Arsenic	ug/L	<0.28	1.0	06/09/17 01:41	
Barium	ug/L	<0.34	1.1	06/09/17 01:41	
Beryllium	ug/L	<0.18	1.0	06/09/17 01:41	
Boron	ug/L	<3.3	11.0	06/09/17 01:41	
Cadmium	ug/L	<0.081	1.0	06/09/17 01:41	
Calcium	ug/L	<69.8	250	06/09/17 01:41	
Chromium	ug/L	<1.0	3.4	06/09/17 01:41	
Cobalt	ug/L	<0.085	1.0	06/09/17 01:41	
Lead	ug/L	<0.20	1.0	06/09/17 16:10	
Lithium	ug/L	<0.14	1.0	06/09/17 01:41	
Molybdenum	ug/L	<0.44	1.5	06/09/17 01:41	
Selenium	ug/L	<0.32	1.1	06/09/17 01:41	
Thallium	ug/L	<0.14	1.0	06/09/17 16:10	

LABORATORY CONTROL SAMPLE: 1519696

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	525	105	80-120	
Arsenic	ug/L	500	504	101	80-120	
Barium	ug/L	500	507	101	80-120	
Beryllium	ug/L	500	549	110	80-120	
Boron	ug/L	500	508	102	80-120	
Cadmium	ug/L	500	532	106	80-120	
Calcium	ug/L	5000	5030	101	80-120	
Chromium	ug/L	500	494	99	80-120	
Cobalt	ug/L	500	502	100	80-120	
Lead	ug/L	500	498	100	80-120	
Lithium	ug/L	500	524	105	80-120	
Molybdenum	ug/L	500	506	101	80-120	
Selenium	ug/L	500	523	105	80-120	
Thallium	ug/L	500	505	101	80-120	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

Parameter	Units	1519697		1519698		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40151159001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Antimony	ug/L	0.55J	500	500	546	529	109	106	75-125	3	20
Arsenic	ug/L	0.37J	500	500	522	515	104	103	75-125	1	20
Barium	ug/L	8.2	500	500	548	525	108	103	75-125	4	20
Beryllium	ug/L	<0.18	500	500	550	534	110	107	75-125	3	20
Boron	ug/L	1240	500	500	1800	1750	111	102	75-125	2	20
Cadmium	ug/L	0.18J	500	500	539	533	108	107	75-125	1	20
Calcium	ug/L	75500	5000	5000	82400	80300	139	96	75-125	3	20 P6
Chromium	ug/L	1.5J	500	500	501	501	100	100	75-125	0	20
Cobalt	ug/L	0.26J	500	500	505	504	101	101	75-125	0	20
Lead	ug/L	<0.20	500	500	515	506	103	101	75-125	2	20
Lithium	ug/L	0.17J	500	500	531	514	106	103	75-125	3	20
Molybdenum	ug/L	41.3	500	500	565	561	105	104	75-125	1	20
Selenium	ug/L	3.9	500	500	539	532	107	106	75-125	1	20
Thallium	ug/L	0.15J	500	500	525	518	105	104	75-125	1	20

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### QUALITY CONTROL DATA

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

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QC Batch: 258038	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007	

---

METHOD BLANK: 1519994 Matrix: Water  
Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	06/08/17 14:55	

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LABORATORY CONTROL SAMPLE: 1519995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	585	576	98	80-120	

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SAMPLE DUPLICATE: 1519996

Parameter	Units	40151015001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	454	452	0	5	

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SAMPLE DUPLICATE: 1519997

Parameter	Units	40151093001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	270	256	5	5	

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### QUALITY CONTROL DATA

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

QC Batch: 258309

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

METHOD BLANK: 1521898

Matrix: Water

Associated Lab Samples: 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	06/12/17 14:59	

LABORATORY CONTROL SAMPLE: 1521899

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	585	580	99	80-120	

SAMPLE DUPLICATE: 1521900

Parameter	Units	40151159008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	492	496	1	5	

SAMPLE DUPLICATE: 1521901

Parameter	Units	40151149001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	302	280	8	5	R1

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**QUALITY CONTROL DATA**

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

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QC Batch: 258305 Analysis Method: EPA 9040  
 QC Batch Method: EPA 9040 Analysis Description: 9040 pH  
 Associated Lab Samples: 40151159001, 40151159002, 40151159003, 40151159004, 40151159005, 40151159006, 40151159007,  
 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

---

SAMPLE DUPLICATE: 1521894

Parameter	Units	40151064002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	6.4	6.4	1	20	H6

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SAMPLE DUPLICATE: 1521895

Parameter	Units	40151084001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.3	7.3	0	20	H6

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: 52516067-17 ALLIANT-COLUMBIA  
Pace Project No.: 40151159

QC Batch: 258747 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40151159001, 40151159002, 40151159003

METHOD BLANK: 1524389 Matrix: Water  
Associated Lab Samples: 40151159001, 40151159002, 40151159003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	06/16/17 15:00	
Fluoride	mg/L	<0.10	0.30	06/16/17 15:00	
Sulfate	mg/L	<1.0	3.0	06/16/17 15:00	

LABORATORY CONTROL SAMPLE: 1524390

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1524391 1524392

Parameter	Units	40151179001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	Spike Conc.	Result	MS Result	MSD Result	% Rec	% Rec				
Chloride	mg/L	506	400	400	882	948	94	110	90-110	7	15		
Fluoride	mg/L	<2.0	40	40	39.1	43.1	98	108	90-110	10	15		
Sulfate	mg/L	247	400	400	627	684	95	109	90-110	9	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1524393 1524394

Parameter	Units	40151159003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	Spike Conc.	Result	MS Result	MSD Result	% Rec	% Rec				
Chloride	mg/L	5.8J	100	100	114	113	108	107	90-110	0	15		
Fluoride	mg/L	<0.50	10	10	11.1	11.1	111	111	90-110	1	15 M0		
Sulfate	mg/L	14.8J	100	100	122	122	108	107	90-110	0	15		

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### QUALITY CONTROL DATA

Project: 52516067-17 ALLIANT-COLUMBIA  
Pace Project No.: 40151159

QC Batch: 258760 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40151159004, 40151159005, 40151159006, 40151159007, 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

METHOD BLANK: 1524619 Matrix: Water  
Associated Lab Samples: 40151159004, 40151159005, 40151159006, 40151159007, 40151159008, 40151159009, 40151159010, 40151159011, 40151159012, 40151159013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	06/16/17 13:45	
Fluoride	mg/L	<0.10	0.30	06/16/17 13:45	
Sulfate	mg/L	<1.0	3.0	06/16/17 13:45	

LABORATORY CONTROL SAMPLE: 1524620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.9	104	90-110	
Fluoride	mg/L	2	2.1	103	90-110	
Sulfate	mg/L	20	20.5	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1524621 1524622

Parameter	Units	40151159004		1524622		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	5.4	20	27.4	27.5	110	111	90-110	0	15	M0
Fluoride	mg/L	<0.10	2	2.2	2.3	109	110	90-110	0	15	
Sulfate	mg/L	32.6	20	53.7	53.7	105	106	90-110	0	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1524623 1524624

Parameter	Units	40151164003		1524624		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	148	200	359	352	106	102	90-110	2	15	
Fluoride	mg/L	0.40	2	2.5	2.6	107	108	90-110	1	15	
Sulfate	mg/L	<1.0	20	22.2	22.6	108	110	90-110	2	15	

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## QUALIFIERS

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

---

### DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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.

SD The serial dilution and the original analysis did not agree within  $\pm 10\%$ . The concentration is estimated due to a suspected chemical or physical interference.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40151159001	MW-305	EPA 3010	257984	EPA 6020	258081
40151159002	M4R	EPA 3010	257984	EPA 6020	258081
40151159003	MW-308	EPA 3010	257984	EPA 6020	258081
40151159004	MW-307	EPA 3010	257984	EPA 6020	258081
40151159005	MW-306	EPA 3010	257984	EPA 6020	258081
40151159006	MW-304	EPA 3010	257984	EPA 6020	258081
40151159007	MW303	EPA 3010	257984	EPA 6020	258081
40151159008	MW-33AR	EPA 3010	257984	EPA 6020	258081
40151159009	MW-34A	EPA 3010	257984	EPA 6020	258081
40151159010	FIELD BLANK	EPA 3010	257984	EPA 6020	258081
40151159011	MW-302	EPA 3010	257984	EPA 6020	258081
40151159012	MW-84A	EPA 3010	257984	EPA 6020	258081
40151159013	MW-301	EPA 3010	257984	EPA 6020	258081
40151159001	MW-305	EPA 7470	258671	EPA 7470	258717
40151159002	M4R	EPA 7470	258671	EPA 7470	258717
40151159003	MW-308	EPA 7470	258671	EPA 7470	258717
40151159004	MW-307	EPA 7470	258671	EPA 7470	258717
40151159005	MW-306	EPA 7470	258671	EPA 7470	258717
40151159006	MW-304	EPA 7470	258671	EPA 7470	258717
40151159007	MW303	EPA 7470	258671	EPA 7470	258717
40151159008	MW-33AR	EPA 7470	258671	EPA 7470	258717
40151159009	MW-34A	EPA 7470	258671	EPA 7470	258717
40151159010	FIELD BLANK	EPA 7470	258671	EPA 7470	258717
40151159011	MW-302	EPA 7470	258671	EPA 7470	258717
40151159012	MW-84A	EPA 7470	258671	EPA 7470	258717
40151159013	MW-301	EPA 7470	258671	EPA 7470	258717
40151159001	MW-305				
40151159002	M4R				
40151159003	MW-308				
40151159004	MW-307				
40151159005	MW-306				
40151159006	MW-304				
40151159007	MW303				
40151159008	MW-33AR				
40151159009	MW-34A				
40151159011	MW-302				
40151159012	MW-84A				
40151159013	MW-301				
40151159001	MW-305	SM 2540C	258038		
40151159002	M4R	SM 2540C	258038		
40151159003	MW-308	SM 2540C	258038		
40151159004	MW-307	SM 2540C	258038		
40151159005	MW-306	SM 2540C	258038		
40151159006	MW-304	SM 2540C	258038		
40151159007	MW303	SM 2540C	258038		
40151159008	MW-33AR	SM 2540C	258309		
40151159009	MW-34A	SM 2540C	258309		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 52516067-17 ALLIANT-COLUMBIA

Pace Project No.: 40151159

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40151159010	FIELD BLANK	SM 2540C	258309		
40151159011	MW-302	SM 2540C	258309		
40151159012	MW-84A	SM 2540C	258309		
40151159013	MW-301	SM 2540C	258309		
40151159001	MW-305	EPA 9040	258305		
40151159002	M4R	EPA 9040	258305		
40151159003	MW-308	EPA 9040	258305		
40151159004	MW-307	EPA 9040	258305		
40151159005	MW-306	EPA 9040	258305		
40151159006	MW-304	EPA 9040	258305		
40151159007	MW303	EPA 9040	258305		
40151159008	MW-33AR	EPA 9040	258305		
40151159009	MW-34A	EPA 9040	258305		
40151159010	FIELD BLANK	EPA 9040	258305		
40151159011	MW-302	EPA 9040	258305		
40151159012	MW-84A	EPA 9040	258305		
40151159013	MW-301	EPA 9040	258305		
40151159001	MW-305	EPA 300.0	258747		
40151159002	M4R	EPA 300.0	258747		
40151159003	MW-308	EPA 300.0	258747		
40151159004	MW-307	EPA 300.0	258760		
40151159005	MW-306	EPA 300.0	258760		
40151159006	MW-304	EPA 300.0	258760		
40151159007	MW303	EPA 300.0	258760		
40151159008	MW-33AR	EPA 300.0	258760		
40151159009	MW-34A	EPA 300.0	258760		
40151159010	FIELD BLANK	EPA 300.0	258760		
40151159011	MW-302	EPA 300.0	258760		
40151159012	MW-84A	EPA 300.0	258760		
40151159013	MW-301	EPA 300.0	258760		

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(Please Print Clearly)



# CHAIN OF CUSTODY

A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H= Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

UPPER MIDWEST REGION  
 MN: 612-607-1700 WI: 920-469-2436

Company Name: **SES Engineers**

Branch/Location: **85-Madison**

Project Contact: **Tom Karwaski**

Phone: **608-224-8300**

Project Number: **25216067-17**

Project Name: **Alliant-Columbia**

Project State: **WI**

Sampled By (Print): **Not Home**

Sampled By (Sign): *[Signature]*

PO #: \_\_\_\_\_

Regulatory Program: \_\_\_\_\_

**Data Package Options**

(billable)

EPA Level III

EPA Level IV

On your sample (billable)

NOT needed on your sample

**Matrix Codes**

A = Air  
B = Bioa  
C = Charcoal  
O = Oil  
S = Soil  
Sl = Sludge  
W = Water  
DW = Drinking Water  
GW = Ground Water  
SW = Surface Water  
WW = Waste Water  
WP = Wipe

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX
001	MU-505	6-5-17	145	GW
002	MUR		135	
003	MU-308		1520	
004	MU-307		1545	
005	MU-306		1630	
006	MU-304		1745	
007	MU-303	6-6-17	920	
008	MU-33AR		1000	
009	MU-34A		1055	
010	Field Blank		1115	
011	MU-302		1140	
012	MU-84A		1225	
013	MU-301		1315	

### Analyses Requested

V/I/N	Pick Letter	Analysis	Request
X	A	Protein 226	X
X	A	Protein 228	X
X	A	PH	X
X	A	TDS, Cl, F, SO4	X
X	D	Metals	X

**FILED?** (YES/NO)

**PRESERVATION** (CODE)

**Quote #:** \_\_\_\_\_

**Mail To Contact:** **Tom Karwaski**

**Mail To Company:** **SES Engineers**

**Mail To Address:** **830 Dairy Drive  
Madison, WI 53718**

**Invoice To Contact:** \_\_\_\_\_

**Invoice To Company:** \_\_\_\_\_

**Invoice To Address:** \_\_\_\_\_

**Invoice To Phone:** \_\_\_\_\_

**CLIENT COMMENTS:** \_\_\_\_\_

**LAB COMMENTS (Lab Use Only):** **3-250 only DATA**

**Rush Turnaround Time Requested - Prelims**  
(Rush TAT subject to approval/surcharge)

Date Needed: \_\_\_\_\_

Transmit Prelim Rush Results by (complete what you want):

Email #1: \_\_\_\_\_

Email #2: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Samples on HOLD are subject to special pricing and release of liability

Relinquished By: **Not Home** Date/Time: **6-6-17 1520**

Relinquished By: **Tom Karwaski** Date/Time: **6-7-17 0915**

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: **Tom Karwaski** Date/Time: **6-7-17 0915**

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**PACE Project No.** **40151159**

Receipt Temp = **ROT-c**

Sample Receipt pH **OK/Adjusted**

Cooler Custody Seal **Present / Not Present**

Intact / Not Intact

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302

**Pace Analytical**

Client Name: SCS Engineers

Project #: **WO#: 40151159**

Courier:  Fed Ex  UPS  Client  Pace Other \_\_\_\_\_  
Tracking #: 7868 1253 7148



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 N/A Type of Ice:  Wet  Blue Dry None  Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROT /Corr: \_\_\_\_\_ Biological Tissue is Frozen:  yes  no

Temp Blank Present:  yes  no

Person examining contents:  
Date: 6-7-17  
Initials: SKW

Temp should be above freezing to 6°C.  
Biota Samples may be received at ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. Original and a copy 6-7-17
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. 002 1-250ml <sup>A</sup> date 6/15
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	<u>KA 6/7/17</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with ERA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
(HNO3, H2SO4, NaOH+ZnAct ≥9, NaOH ≥12) exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>SKW</u> Lab Std #/ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	_____	

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: pmw for am

Date: 6/7/17

June 26, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067.17 ALLIANT-COLUMBIA  
Pace Project No.: 40151176

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on June 07, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the June 26, 2017 report. This report has been reissued on June 26, 2017 to report the Total Radium Sum Calculation as per client request.

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: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

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 Certification

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40151176001	MW-305	Water	06/05/17 11:45	06/07/17 09:15
40151176002	MW-4R	Water	06/05/17 12:35	06/07/17 09:15
40151176003	MW-308	Water	06/05/17 15:00	06/07/17 09:15
40151176004	MW-307	Water	06/05/17 15:45	06/07/17 09:15
40151176005	MW-306	Water	06/05/17 16:30	06/07/17 09:15
40151176006	MW-304	Water	06/05/17 17:45	06/07/17 09:15
40151176007	MW-303	Water	06/06/17 09:00	06/07/17 09:15
40151176008	MW-33AR	Water	06/06/17 10:00	06/07/17 09:15
40151176009	MW-34A	Water	06/06/17 10:55	06/07/17 09:15
40151176010	FIELD BLANK	Water	06/06/17 11:15	06/07/17 09:15
40151176011	MW-302	Water	06/06/17 11:40	06/07/17 09:15
40151176012	MW-84A	Water	06/06/17 12:25	06/07/17 09:15
40151176013	MW-301	Water	06/06/17 13:15	06/07/17 09:15

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40151176001	MW-305	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176002	MW-4R	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176003	MW-308	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176004	MW-307	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176005	MW-306	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176006	MW-304	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176007	MW-303	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176008	MW-33AR	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176009	MW-34A	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176010	FIELD BLANK	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176011	MW-302	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176012	MW-84A	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
40151176013	MW-301	EPA 903.1	WRR	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

Sample: MW-305		Lab ID: 40151176001	Collected: 06/05/17 11:45	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.128 ± 0.433 (0.836)</b> C:NA T:84%	pCi/L	06/20/17 12:34	13982-63-3	
Radium-228	EPA 904.0	<b>0.711 ± 0.354 (0.611)</b> C:91% T:79%	pCi/L	06/22/17 11:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.839 ± 0.787 (1.45)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-4R		Lab ID: 40151176002	Collected: 06/05/17 12:35	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.168 ± 0.331 (0.604)</b> C:NA T:94%	pCi/L	06/20/17 12:34	13982-63-3	
Radium-228	EPA 904.0	<b>0.768 ± 0.378 (0.645)</b> C:73% T:88%	pCi/L	06/22/17 11:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.936 ± 0.709 (1.25)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-308		Lab ID: 40151176003	Collected: 06/05/17 15:00	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.000 ± 0.379 (0.822)</b> C:NA T:76%	pCi/L	06/20/17 12:52	13982-63-3	
Radium-228	EPA 904.0	<b>1.44 ± 0.507 (0.702)</b> C:75% T:79%	pCi/L	06/22/17 11:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.44 ± 0.886 (1.52)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-307		Lab ID: 40151176004	Collected: 06/05/17 15:45	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.914 ± 0.582 (0.732)</b> C:NA T:87%	pCi/L	06/20/17 12:52	13982-63-3	
Radium-228	EPA 904.0	<b>1.35 ± 0.511 (0.754)</b> C:70% T:81%	pCi/L	06/22/17 11:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.26 ± 1.09 (1.49)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-306		Lab ID: 40151176005	Collected: 06/05/17 16:30	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.329 ± 0.306 (0.403)</b> C:NA T:102%	pCi/L	06/20/17 12:52	13982-63-3	
Radium-228	EPA 904.0	<b>1.07 ± 0.416 (0.621)</b> C:74% T:88%	pCi/L	06/22/17 11:32	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

<b>Sample: MW-306</b>		<b>Lab ID: 40151176005</b>	Collected: 06/05/17 16:30	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	<b>1.40 ± 0.722 (1.02)</b>	pCi/L	06/26/17 12:35	7440-14-4	

<b>Sample: MW-304</b>		<b>Lab ID: 40151176006</b>	Collected: 06/05/17 17:45	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.437 ± 0.409 (0.580)</b> C:NA T:87%	pCi/L	06/20/17 12:52	13982-63-3	
Radium-228	EPA 904.0	<b>1.44 ± 0.458 (0.546)</b> C:75% T:88%	pCi/L	06/22/17 11:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.88 ± 0.867 (1.13)</b>	pCi/L	06/26/17 12:35	7440-14-4	

<b>Sample: MW-303</b>		<b>Lab ID: 40151176007</b>	Collected: 06/06/17 09:00	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.145 ± 0.331 (0.534)</b> C:NA T:75%	pCi/L	06/20/17 12:52	13982-63-3	
Radium-228	EPA 904.0	<b>2.26 ± 0.667 (0.782)</b> C:76% T:73%	pCi/L	06/22/17 11:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.41 ± 0.998 (1.32)</b>	pCi/L	06/26/17 12:35	7440-14-4	

<b>Sample: MW-33AR</b>		<b>Lab ID: 40151176008</b>	Collected: 06/06/17 10:00	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.300 ± 0.313 (0.441)</b> C:NA T:85%	pCi/L	06/20/17 12:52	13982-63-3	
Radium-228	EPA 904.0	<b>0.529 ± 0.483 (0.980)</b> C:73% T:62%	pCi/L	06/22/17 11:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.829 ± 0.796 (1.42)</b>	pCi/L	06/26/17 12:35	7440-14-4	

<b>Sample: MW-34A</b>		<b>Lab ID: 40151176009</b>	Collected: 06/06/17 10:55	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.290 ± 0.411 (0.966)</b> C:NA T:89%	pCi/L	06/20/17 14:05	13982-63-3	
Radium-228	EPA 904.0	<b>0.373 ± 0.311 (0.618)</b> C:74% T:88%	pCi/L	06/22/17 11:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.373 ± 0.722 (1.58)</b>	pCi/L	06/26/17 12:35	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

Sample: FIELD BLANK		Lab ID: 40151176010	Collected: 06/06/17 11:15	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.000 ± 0.280 (0.570)</b> C:NA T:87%	pCi/L	06/20/17 14:05	13982-63-3	
Radium-228	EPA 904.0	<b>0.547 ± 0.393 (0.772)</b> C:73% T:94%	pCi/L	06/22/17 11:34	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.547 ± 0.673 (1.34)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-302		Lab ID: 40151176011	Collected: 06/06/17 11:40	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.649 ± 0.431 (0.195)</b> C:NA T:73%	pCi/L	06/20/17 14:05	13982-63-3	
Radium-228	EPA 904.0	<b>0.802 ± 0.517 (1.000)</b> C:72% T:81%	pCi/L	06/22/17 11:34	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.45 ± 0.948 (1.20)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-84A		Lab ID: 40151176012	Collected: 06/06/17 12:25	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.270 ± 0.420 (0.727)</b> C:NA T:86%	pCi/L	06/20/17 14:05	13982-63-3	
Radium-228	EPA 904.0	<b>0.406 ± 0.523 (1.12)</b> C:78% T:73%	pCi/L	06/22/17 11:34	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.676 ± 0.943 (1.85)</b>	pCi/L	06/26/17 12:35	7440-14-4	

Sample: MW-301		Lab ID: 40151176013	Collected: 06/06/17 13:15	Received: 06/07/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.287 ± 0.466 (0.810)</b> C:NA T:92%	pCi/L	06/20/17 14:05	13982-63-3	
Radium-228	EPA 904.0	<b>1.01 ± 0.478 (0.845)</b> C:72% T:97%	pCi/L	06/22/17 11:34	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.30 ± 0.944 (1.66)</b>	pCi/L	06/26/17 12:35	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

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QC Batch:	261522	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40151176001, 40151176002, 40151176003, 40151176004, 40151176005, 40151176006, 40151176007, 40151176008, 40151176009, 40151176010, 40151176011, 40151176012, 40151176013		

---

METHOD BLANK:	1287929	Matrix:	Water
Associated Lab Samples:	40151176001, 40151176002, 40151176003, 40151176004, 40151176005, 40151176006, 40151176007, 40151176008, 40151176009, 40151176010, 40151176011, 40151176012, 40151176013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.142 ± 0.464 (0.955) C:NA T:73%	pCi/L	06/20/17 12:16	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

---

QC Batch:	261753	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40151176001, 40151176002, 40151176003, 40151176004, 40151176005, 40151176006, 40151176007, 40151176008, 40151176009, 40151176010, 40151176011, 40151176012, 40151176013		

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METHOD BLANK:	1288827	Matrix:	Water
Associated Lab Samples:	40151176001, 40151176002, 40151176003, 40151176004, 40151176005, 40151176006, 40151176007, 40151176008, 40151176009, 40151176010, 40151176011, 40151176012, 40151176013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.740 ± 0.409 (0.744) C:73% T:87%	pCi/L	06/22/17 11:30	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 25216067.17 ALLIANT-COLUMBIA

Pace Project No.: 40151176

---

### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 ALLIANT-COLUMBIA  
Pace Project No.: 40151176

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40151176001	MW-305	EPA 903.1	261522		
40151176002	MW-4R	EPA 903.1	261522		
40151176003	MW-308	EPA 903.1	261522		
40151176004	MW-307	EPA 903.1	261522		
40151176005	MW-306	EPA 903.1	261522		
40151176006	MW-304	EPA 903.1	261522		
40151176007	MW-303	EPA 903.1	261522		
40151176008	MW-33AR	EPA 903.1	261522		
40151176009	MW-34A	EPA 903.1	261522		
40151176010	FIELD BLANK	EPA 903.1	261522		
40151176011	MW-302	EPA 903.1	261522		
40151176012	MW-84A	EPA 903.1	261522		
40151176013	MW-301	EPA 903.1	261522		
40151176001	MW-305	EPA 904.0	261753		
40151176002	MW-4R	EPA 904.0	261753		
40151176003	MW-308	EPA 904.0	261753		
40151176004	MW-307	EPA 904.0	261753		
40151176005	MW-306	EPA 904.0	261753		
40151176006	MW-304	EPA 904.0	261753		
40151176007	MW-303	EPA 904.0	261753		
40151176008	MW-33AR	EPA 904.0	261753		
40151176009	MW-34A	EPA 904.0	261753		
40151176010	FIELD BLANK	EPA 904.0	261753		
40151176011	MW-302	EPA 904.0	261753		
40151176012	MW-84A	EPA 904.0	261753		
40151176013	MW-301	EPA 904.0	261753		
40151176001	MW-305	Total Radium Calculation	263135		
40151176002	MW-4R	Total Radium Calculation	263135		
40151176003	MW-308	Total Radium Calculation	263135		
40151176004	MW-307	Total Radium Calculation	263135		
40151176005	MW-306	Total Radium Calculation	263135		
40151176006	MW-304	Total Radium Calculation	263135		
40151176007	MW-303	Total Radium Calculation	263135		
40151176008	MW-33AR	Total Radium Calculation	263135		
40151176009	MW-34A	Total Radium Calculation	263135		
40151176010	FIELD BLANK	Total Radium Calculation	263135		
40151176011	MW-302	Total Radium Calculation	263135		
40151176012	MW-84A	Total Radium Calculation	263135		
40151176013	MW-301	Total Radium Calculation	263135		

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(Please Print Clearly)

UPPER MIDWEST REGION

MN: 612-607-1700 WI: 920-469-2436

Page 1 of 14



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# CHAIN OF CUSTODY

A=None B=HCl C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

90151176

Page 13 of 14

Company Name: **SCS Engineers**

Branch/Location: **25-Madison**

Project Contact: **Tom Kawascki**

Phone: **608-224-3830**

Project Number: **25Z16067.17**

Project Name: **Alliant - Denmark**

Project State: **WI**

Sampled By (Print): **Jack Hawkins**

Sampled By (Sign): *[Signature]*

PO #: **Regulatory**

EPA Level III  
 EPA Level IV

On your sample (billable)  
 NOT needed on your sample

A = Air B = Bids C = Charcoal O = Oil S = Soil  
 W = Water DW = Drinking Water GW = Ground Water SW = Surface Water  
 WP = Waste Water

Matrix Codes: W=Water, DW=Drinking Water, GW=Ground Water, SW=Surface Water, WP=Waste Water

FILTERED? (YES/NO)  
 PRESERVATION (CODE)\*

Data Package Options (billable)

EPA Level III  
 EPA Level IV

Y/N	Pick Letter	Analyses Requested
		Radium 226
		Radium 228

Quote #: **Tom Kawascki**

Mail To Contact: **SCS Engineer**

Mail To Company: **2830 Dairy Dr.**

Mail To Address: **Madison, WI 53718**

Invoice To Contact: **JAHME**

Invoice To Company:

Invoice To Address:

Invoice To Phone:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only): **2-1p D**

Profile #

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX	COLLECTION	DATE	TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME
001	MW-305	6-5-17	1145	GW											
002	MW-412														
003	MW-308														
004	MW-307														
005	MW-306														
006	MW-304														
007	MW-303	6-6-17	900												
008	MW-33AR														
009	MW-344A														
010	FIELD Blank														
011	MW-302														
012	MW-844														
013	MW-301														

Rush Turnaround Time Requested - Prelims

(Rush TAT subject to approval/surcharge)

Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Relinquished By: **Jack Hawkins** Date/Time: **6-6-17 1520**  
 Relinquished By: **Jack Hawkins** Date/Time: **6-7-17 0915**  
 Relinquished By: **Jack Hawkins** Date/Time: **6-7-17 0915**  
 Relinquished By: **Jack Hawkins** Date/Time: **6-7-17 0915**

Received By: **Susan Tugue** Date/Time: **6-7-17 0915**  
 Received By: **Jack Hawkins** Date/Time: **6-7-17 0915**  
 Received By: **Jack Hawkins** Date/Time: **6-7-17 0915**  
 Received By: **Jack Hawkins** Date/Time: **6-7-17 0915**

Cooler Custody Seal Present / Not Present  
 Intact / Not Intact

Receipt Temp = **ROT**  
 Sample Receipt pH **OK/Adjusted**

PACE Project No. **40151176**  
 Receipt Temp = **ROT**

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302

Pace Analytical™

Client Name:

SCS Engineers

Project #

WO#: **40151176**

Courier:  Fed Ex  UPS  Client  Pace Other:

Tracking #: 786812537137



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: N/A Type of Ice:  Wet  Blue  Dry  None

Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: ROT / Corr:

Biological Tissue is Frozen:  yes  no

Temp Blank Present:  yes  no

Person examining contents:

Date: 6-7-17

Initials: SW

Temp should be above freezing to 6°C.  
Biota Samples may be received at ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		<u>001 - 1-1LpD time rubbed off</u> <u>002 - 2-1LpD time rubbed off</u> <u>006 - 1-1LpD ID rubbed off 6-7-17</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> ≥ 2, NaOH+ZnAct ≥ 9, NaOH ≥ 12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed: <u>SW</u> Lab Std #/ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: 2nd cooler - 786812537159

Project Manager Review: RNW for DM

Date: 6/7/17

A9 Round 9 Background Sampling, Analytical Laboratory Report

September 01, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on August 10, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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: Tom Karwoski, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
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 Certification  
Wyoming Certification #: 8TMS-L

---

### Green Bay Certification IDs

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

Virginia VELAP ID: 460263  
South Carolina Certification #: 83006001  
Texas Certification #: T104704529-14-1  
Wisconsin Certification #: 405132750  
Wisconsin DATCP Certification #: 105-444  
USDA Soil Permit #: P330-16-00157  
Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40154817001	MW-34A	Water	08/07/17 15:45	08/10/17 09:15
40154817002	MW-33AR	Water	08/07/17 16:40	08/10/17 09:15
40154817003	MW-305	Water	08/07/17 18:10	08/10/17 09:15
40154817004	MW-84A	Water	08/08/17 10:05	08/10/17 09:15
40154817005	MW-301	Water	08/08/17 11:00	08/10/17 09:15
40154817006	MW-302	Water	08/08/17 12:15	08/10/17 09:15
40154817007	MW-306	Water	08/08/17 14:10	08/10/17 09:15
40154817008	MW-307	Water	08/08/17 15:20	08/10/17 09:15
40154817009	MW-303	Water	08/08/17 16:35	08/10/17 09:15
40154817010	MW-304	Water	08/08/17 18:00	08/10/17 09:15
40154817011	MW-308	Water	08/09/17 12:30	08/10/17 09:15
40154817012	M-4R	Water	08/09/17 13:35	08/10/17 09:15
40154817013	FIELD BLANK	Water	08/09/17 14:00	08/10/17 09:15

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40154817001	MW-34A	EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40154817002	MW-33AR	EPA 6020	SDW
EPA 7470	AJT			1	PASI-G
	AXL			7	PASI-G
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	JLW			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	TMK			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40154817003	MW-305			EPA 6020	SDW
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		40154817004	MW-84A	EPA 6020	SDW
EPA 7470	AJT			1	PASI-G
	AXL			7	PASI-G
EPA 903.1	WRR			1	PASI-PA
EPA 904.0	JLW			1	PASI-PA
Total Radium Calculation	JAL			1	PASI-PA
SM 2540C	JMN			1	PASI-G
EPA 9040	ALY			1	PASI-G
EPA 300.0	HMB			3	PASI-G
40154817005	MW-301			EPA 6020	SDW

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40154817006	MW-302	EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JMN	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
40154817007	MW-306	SM 2540C	JMN	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JMN	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
40154817008	MW-307		AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JMN	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JMN	1	PASI-G
40154817009	MW-303	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40154817010	MW-304		AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JMN	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	JMN	1	PASI-G
40154817011	MW-308	EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
40154817012	M-4R	EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			AXL	7	PASI-G
		EPA 903.1	WRR	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
40154817013	FIELD BLANK	EPA 300.0	HMB	3	PASI-G
		EPA 6020	SDW	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	WRR	1	PASI-PA

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

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## ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

**Sample: MW-34A**      **Lab ID: 40154817001**      Collected: 08/07/17 15:45      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 00:04	7440-36-0	
Arsenic	0.36J	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 00:04	7440-38-2	
Barium	10.2	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 00:04	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 00:04	7440-41-7	
Boron	205	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 13:47	7440-42-8	
Cadmium	0.089J	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 00:04	7440-43-9	
Calcium	67300	ug/L	2500	698	10	08/17/17 08:59	08/22/17 23:37	7440-70-2	
Chromium	1.5J	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 00:04	7440-47-3	
Cobalt	0.13J	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 00:04	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 00:04	7439-92-1	
Lithium	0.62J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 00:04	7439-93-2	
Molybdenum	1.1J	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 00:04	7439-98-7	
Selenium	1.2	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 00:04	7782-49-2	
Thallium	0.24J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 00:04	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:23	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.39	Std. Units			1		08/07/17 15:45		
Field Specific Conductance	510.6	umhos/cm			1		08/07/17 15:45		
Oxygen, Dissolved	8.02	mg/L			1		08/07/17 15:45	7782-44-7	
REDOX	144.8	mV			1		08/07/17 15:45		
Turbidity	2.68	NTU			1		08/07/17 15:45		
Static Water Level	785.81	feet			1		08/07/17 15:45		
Temperature, Water (C)	11.5	deg C			1		08/07/17 15:45		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	358	mg/L	20.0	8.7	1		08/11/17 16:04		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.8	Std. Units	0.10	0.010	1		08/14/17 09:52		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	7.4	mg/L	2.0	0.50	1		08/18/17 15:11	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 15:11	16984-48-8	
Sulfate	105	mg/L	15.0	5.0	5		08/18/17 19:23	14808-79-8	

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## ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-33AR**      **Lab ID: 40154817002**      Collected: 08/07/17 16:40      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.35J</b>	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 00:45	7440-36-0	
Arsenic	<b>0.59J</b>	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 00:45	7440-38-2	
Barium	<b>42.4</b>	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 00:45	7440-39-3	
Beryllium	<b>0.19J</b>	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 00:45	7440-41-7	
Boron	<b>697</b>	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 14:14	7440-42-8	
Cadmium	<b>0.22J</b>	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 00:45	7440-43-9	
Calcium	<b>84800</b>	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 00:45	7440-70-2	
Chromium	<b>1.7J</b>	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 00:45	7440-47-3	
Cobalt	<b>0.23J</b>	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 00:45	7440-48-4	
Lead	<b>0.35J</b>	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 00:45	7439-92-1	
Lithium	<b>1.4</b>	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 00:45	7439-93-2	
Molybdenum	<b>2.1</b>	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 00:45	7439-98-7	
Selenium	<b>2.4</b>	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 00:45	7782-49-2	
Thallium	<b>0.31J</b>	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 00:45	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:25	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.47</b>	Std. Units			1		08/07/17 16:40		
Field Specific Conductance	<b>823</b>	umhos/cm			1		08/07/17 16:40		
Oxygen, Dissolved	<b>8.1</b>	mg/L			1		08/07/17 16:40	7782-44-7	
REDOX	<b>152.1</b>	mV			1		08/07/17 16:40		
Turbidity	<b>0.32</b>	NTU			1		08/07/17 16:40		
Static Water Level	<b>786.11</b>	feet			1		08/07/17 16:40		
Temperature, Water (C)	<b>12.3</b>	deg C			1		08/07/17 16:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>598</b>	mg/L	20.0	8.7	1		08/11/17 16:04		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.4</b>	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>105</b>	mg/L	10.0	2.5	5		08/18/17 19:55	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		08/18/17 16:16	16984-48-8	
Sulfate	<b>164</b>	mg/L	15.0	5.0	5		08/18/17 19:55	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-305**      **Lab ID: 40154817003**      Collected: 08/07/17 18:10      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.68J</b>	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 00:58	7440-36-0	
Arsenic	<b>0.43J</b>	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 00:58	7440-38-2	
Barium	<b>12.9</b>	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 00:58	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 00:58	7440-41-7	
Boron	<b>2470</b>	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 14:28	7440-42-8	
Cadmium	<b>0.13J</b>	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 00:58	7440-43-9	
Calcium	<b>80200</b>	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 00:58	7440-70-2	
Chromium	<b>&lt;1.0</b>	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 00:58	7440-47-3	
Cobalt	<b>0.20J</b>	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 00:58	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 00:58	7439-92-1	
Lithium	<b>0.15J</b>	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 00:58	7439-93-2	
Molybdenum	<b>68.7</b>	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 00:58	7439-98-7	
Selenium	<b>5.2</b>	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 00:58	7782-49-2	
Thallium	<b>0.20J</b>	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 00:58	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:27	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.82</b>	Std. Units			1		08/07/17 18:10		
Field Specific Conductance	<b>689.0</b>	umhos/cm			1		08/07/17 18:10		
Oxygen, Dissolved	<b>0.55</b>	mg/L			1		08/07/17 18:10	7782-44-7	
REDOX	<b>99.5</b>	mV			1		08/07/17 18:10		
Turbidity	<b>0.56</b>	NTU			1		08/07/17 18:10		
Static Water Level	<b>789.3</b>	feet			1		08/07/17 18:10		
Temperature, Water (C)	<b>21.8</b>	deg C			1		08/07/17 18:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>490</b>	mg/L	20.0	8.7	1		08/11/17 16:04		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.8</b>	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>46.9</b>	mg/L	2.0	0.50	1		08/18/17 16:29	16887-00-6	
Fluoride	<b>0.46</b>	mg/L	0.30	0.10	1		08/18/17 16:29	16984-48-8	
Sulfate	<b>243</b>	mg/L	30.0	10.0	10		08/18/17 20:06	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-84A**      **Lab ID: 40154817004**      Collected: 08/08/17 10:05      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 01:05	7440-36-0	
Arsenic	0.28J	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 01:05	7440-38-2	
Barium	14.0	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 01:05	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 01:05	7440-41-7	
Boron	22.9	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 14:34	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 01:05	7440-43-9	
Calcium	74900	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 01:05	7440-70-2	
Chromium	1.6J	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 01:05	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 01:05	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 01:05	7439-92-1	
Lithium	0.58J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:05	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 01:05	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 01:05	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:05	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:30	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.23	Std. Units			1		08/23/17 17:52		
Field Specific Conductance	557.2	umhos/cm			1		08/23/17 17:52		
Oxygen, Dissolved	7.5	mg/L			1		08/23/17 17:52	7782-44-7	
REDOX	204.7	mV			1		08/23/17 17:52		
Turbidity	0.08	NTU			1		08/23/17 17:52		
Static Water Level	786.68	feet			1		08/23/17 17:52		
Temperature, Water (C)	11.2	deg C			1		08/23/17 17:52		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	342	mg/L	20.0	8.7	1		08/14/17 12:31		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	5.5	mg/L	2.0	0.50	1		08/18/17 16:40	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 16:40	16984-48-8	
Sulfate	2.0J	mg/L	3.0	1.0	1		08/18/17 16:40	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-301**      **Lab ID: 40154817005**      Collected: 08/08/17 11:00      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 01:12	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 01:12	7440-38-2	
Barium	11.8	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 01:12	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 01:12	7440-41-7	
Boron	30.6	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 14:41	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 01:12	7440-43-9	
Calcium	108000	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 01:12	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 01:12	7440-47-3	
Cobalt	0.12J	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 01:12	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 01:12	7439-92-1	
Lithium	0.60J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:12	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 01:12	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 01:12	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:12	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:37	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	6.75	Std. Units			1		08/08/17 11:00		
Field Specific Conductance	691.7	umhos/cm			1		08/08/17 11:00		
Oxygen, Dissolved	1.43	mg/L			1		08/08/17 11:00	7782-44-7	
REDOX	187.4	mV			1		08/08/17 11:00		
Turbidity	0.18	NTU			1		08/08/17 11:00		
Static Water Level	787.34	feet			1		08/08/17 11:00		
Temperature, Water (C)	10.2	deg C			1		08/08/17 11:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	462	mg/L	20.0	8.7	1		08/14/17 12:32		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.0	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	5.5	mg/L	2.0	0.50	1		08/18/17 16:51	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 16:51	16984-48-8	
Sulfate	31.6	mg/L	3.0	1.0	1		08/18/17 16:51	14808-79-8	

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## ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-302**      **Lab ID: 40154817006**      Collected: 08/08/17 12:15      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 01:19	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 01:19	7440-38-2	
Barium	22.2	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 01:19	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 01:19	7440-41-7	
Boron	833	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 14:48	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 01:19	7440-43-9	
Calcium	87100	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 01:19	7440-70-2	
Chromium	2.0J	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 01:19	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 01:19	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 01:19	7439-92-1	
Lithium	2.4	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:19	7439-93-2	
Molybdenum	1.6	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 01:19	7439-98-7	
Selenium	2.4	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 01:19	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:19	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:39	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.04	Std. Units			1		08/08/17 12:15		
Field Specific Conductance	679	umhos/cm			1		08/08/17 12:15		
Oxygen, Dissolved	7.40	mg/L			1		08/08/17 12:15	7782-44-7	
REDOX	191.1	mV			1		08/08/17 12:15		
Turbidity	0.83	NTU			1		08/08/17 12:15		
Static Water Level	787.55	feet			1		08/08/17 12:15		
Temperature, Water (C)	11.4	deg C			1		08/08/17 12:15		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	470	mg/L	20.0	8.7	1		08/14/17 12:32		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	4.5	mg/L	2.0	0.50	1		08/18/17 17:02	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 17:02	16984-48-8	
Sulfate	79.0	mg/L	15.0	5.0	5		08/21/17 11:54	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-306**      **Lab ID: 40154817007**      Collected: 08/08/17 14:10      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 01:26	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 01:26	7440-38-2	
Barium	11.8	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 01:26	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 01:26	7440-41-7	
Boron	136	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 15:46	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 01:26	7440-43-9	
Calcium	84800	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 01:26	7440-70-2	
Chromium	2.0J	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 01:26	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 01:26	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 01:26	7439-92-1	
Lithium	5.7	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:26	7439-93-2	
Molybdenum	6.7	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 01:26	7439-98-7	
Selenium	0.58J	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 01:26	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:26	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:41	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	6.96	Std. Units			1		08/08/17 14:10		
Field Specific Conductance	524.4	umhos/cm			1		08/08/17 14:10		
Oxygen, Dissolved	6.27	mg/L			1		08/08/17 14:10	7782-44-7	
REDOX	196.2	mV			1		08/08/17 14:10		
Turbidity	0.34	NTU			1		08/08/17 14:10		
Static Water Level	785.69	feet			1		08/08/17 14:10		
Temperature, Water (C)	12.1	deg C			1		08/08/17 14:10		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	338	mg/L	20.0	8.7	1		08/14/17 12:32		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	1.7J	mg/L	2.0	0.50	1		08/18/17 17:13	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 17:13	16984-48-8	
Sulfate	7.3	mg/L	3.0	1.0	1		08/18/17 17:13	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-307**      **Lab ID: 40154817008**      Collected: 08/08/17 15:20      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 01:32	7440-36-0	
Arsenic	1.5	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 01:32	7440-38-2	
Barium	13.7	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 01:32	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 01:32	7440-41-7	
Boron	373	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 15:11	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 01:32	7440-43-9	
Calcium	72500	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 01:32	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 01:32	7440-47-3	
Cobalt	0.60J	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 01:32	7440-48-4	
Lead	0.21J	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 01:32	7439-92-1	
Lithium	0.21J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:32	7439-93-2	
Molybdenum	0.74J	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 01:32	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 01:32	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:32	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:44	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	6.90	Std. Units			1		08/08/17 15:20		
Field Specific Conductance	589.9	umhos/cm			1		08/08/17 15:20		
Oxygen, Dissolved	0.14	mg/L			1		08/08/17 15:20	7782-44-7	
REDOX	-51.1	mV			1		08/08/17 15:20		
Turbidity	1.78	NTU			1		08/08/17 15:20		
Static Water Level	785.19	feet			1		08/08/17 15:20		
Temperature, Water (C)	15.0	deg C			1		08/08/17 15:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	350	mg/L	20.0	8.7	1		08/14/17 12:33		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	8.3	mg/L	2.0	0.50	1		08/18/17 17:24	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 17:24	16984-48-8	
Sulfate	6.7	mg/L	3.0	1.0	1		08/18/17 17:24	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

**Sample: MW-303**      **Lab ID: 40154817009**      Collected: 08/08/17 16:35      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 01:39	7440-36-0	
Arsenic	12.0	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 01:39	7440-38-2	
Barium	10.5	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 01:39	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 01:39	7440-41-7	
Boron	2080	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 15:18	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 01:39	7440-43-9	
Calcium	20700	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 01:39	7440-70-2	
Chromium	65.3	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 01:39	7440-47-3	
Cobalt	0.37J	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 01:39	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 01:39	7439-92-1	
Lithium	0.86J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:39	7439-93-2	
Molybdenum	81.6	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 01:39	7439-98-7	
Selenium	19.7	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 01:39	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 01:39	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:46	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	9.00	Std. Units			1		08/08/17 16:35		
Field Specific Conductance	936	umhos/cm			1		08/08/17 16:35		
Oxygen, Dissolved	5.53	mg/L			1		08/08/17 16:35	7782-44-7	
REDOX	-22.0	mV			1		08/08/17 16:35		
Turbidity	2.09	NTU			1		08/08/17 16:35		
Static Water Level	785.42	feet			1		08/08/17 16:35		
Temperature, Water (C)	12.5	deg C			1		08/08/17 16:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	678	mg/L	20.0	8.7	1		08/14/17 12:33		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	9.1	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	11.7J	mg/L	20.0	5.0	10		08/21/17 12:05	16887-00-6	D3
Fluoride	<1.0	mg/L	3.0	1.0	10		08/23/17 00:01	16984-48-8	D3
Sulfate	356	mg/L	30.0	10.0	10		08/21/17 12:05	14808-79-8	

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## ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-304**      **Lab ID: 40154817010**      Collected: 08/08/17 18:00      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 02:00	7440-36-0	
Arsenic	1.0	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 02:00	7440-38-2	
Barium	33.3	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 02:00	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 02:00	7440-41-7	
Boron	570	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 15:25	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 02:00	7440-43-9	
Calcium	79700	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 02:00	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 02:00	7440-47-3	
Cobalt	0.80J	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 02:00	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 02:00	7439-92-1	
Lithium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 02:00	7439-93-2	
Molybdenum	11.8	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 02:00	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 02:00	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 02:00	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:48	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.13	Std. Units			1		08/08/17 18:00		
Field Specific Conductance	704	umhos/cm			1		08/08/17 18:00		
Oxygen, Dissolved	0.69	mg/L			1		08/08/17 18:00	7782-44-7	
REDOX	-43.70	mV			1		08/08/17 18:00		
Turbidity	1.54	NTU			1		08/08/17 18:00		
Static Water Level	789.52	feet			1		08/08/17 18:00		
Temperature, Water (C)	17.9	deg C			1		08/08/17 18:00		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	454	mg/L	20.0	8.7	1		08/14/17 12:33		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.4	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	37.5	mg/L	2.0	0.50	1		08/18/17 17:45	16887-00-6	
Fluoride	0.12J	mg/L	0.30	0.10	1		08/18/17 17:45	16984-48-8	
Sulfate	68.5	mg/L	15.0	5.0	5		08/21/17 12:16	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: MW-308**      **Lab ID: 40154817011**      Collected: 08/09/17 12:30      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 02:06	7440-36-0	
Arsenic	2.6	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 02:06	7440-38-2	
Barium	75.0	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 02:06	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 02:06	7440-41-7	
Boron	644	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 15:32	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 02:06	7440-43-9	
Calcium	131000	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 02:06	7440-70-2	
Chromium	1.1J	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 02:06	7440-47-3	
Cobalt	0.26J	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 02:06	7440-48-4	
Lead	0.37J	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 02:06	7439-92-1	
Lithium	0.26J	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 02:06	7439-93-2	
Molybdenum	0.91J	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 02:06	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 02:06	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 02:06	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:50	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	7.25	Std. Units			1		08/09/17 12:30		
Field Specific Conductance	864	umhos/cm			1		08/09/17 12:30		
Oxygen, Dissolved	0.08	mg/L			1		08/09/17 12:30	7782-44-7	
REDOX	-71.4	mV			1		08/09/17 12:30		
Turbidity	16.81	NTU			1		08/09/17 12:30		
Static Water Level	785.37	feet			1		08/09/17 12:30		
Temperature, Water (C)	14.9	deg C			1		08/09/17 12:30		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	546	mg/L	20.0	8.7	1		08/16/17 17:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	7.3	Std. Units	0.10	0.010	1		08/14/17 10:15		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	3.7	mg/L	2.0	0.50	1		08/18/17 18:29	16887-00-6	
Fluoride	0.11J	mg/L	0.30	0.10	1		08/18/17 18:29	16984-48-8	
Sulfate	1.7J	mg/L	3.0	1.0	1		08/18/17 18:29	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: M-4R**      **Lab ID: 40154817012**      Collected: 08/09/17 13:35      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Antimony	<b>0.15J</b>	ug/L	1.0	0.15	1	08/17/17 08:59	08/23/17 02:13	7440-36-0	
Arsenic	<b>&lt;0.28</b>	ug/L	1.0	0.28	1	08/17/17 08:59	08/23/17 02:13	7440-38-2	
Barium	<b>23.8</b>	ug/L	1.1	0.34	1	08/17/17 08:59	08/23/17 02:13	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	08/17/17 08:59	08/23/17 02:13	7440-41-7	
Boron	<b>973</b>	ug/L	11.0	3.3	1	08/17/17 08:59	08/23/17 15:39	7440-42-8	
Cadmium	<b>&lt;0.081</b>	ug/L	1.0	0.081	1	08/17/17 08:59	08/23/17 02:13	7440-43-9	
Calcium	<b>91600</b>	ug/L	250	69.8	1	08/17/17 08:59	08/23/17 02:13	7440-70-2	
Chromium	<b>&lt;1.0</b>	ug/L	3.4	1.0	1	08/17/17 08:59	08/23/17 02:13	7440-47-3	
Cobalt	<b>0.21J</b>	ug/L	1.0	0.085	1	08/17/17 08:59	08/23/17 02:13	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	08/17/17 08:59	08/23/17 02:13	7439-92-1	
Lithium	<b>3.7</b>	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 02:13	7439-93-2	
Molybdenum	<b>15.8</b>	ug/L	1.5	0.44	1	08/17/17 08:59	08/23/17 02:13	7439-98-7	
Selenium	<b>15.0</b>	ug/L	1.1	0.32	1	08/17/17 08:59	08/23/17 02:13	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	08/17/17 08:59	08/23/17 02:13	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:53	7439-97-6	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.13</b>	Std. Units			1		08/09/17 13:35		
Field Specific Conductance	<b>751.0</b>	umhos/cm			1		08/09/17 13:35		
Oxygen, Dissolved	<b>0.10</b>	mg/L			1		08/09/17 13:35	7782-44-7	
REDOX	<b>-53.6</b>	mV			1		08/09/17 13:35		
Turbidity	<b>0.47</b>	NTU			1		08/09/17 13:35		
Static Water Level	<b>788.54</b>	feet			1		08/09/17 13:35		
Temperature, Water (C)	<b>15.0</b>	deg C			1		08/09/17 13:35		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>544</b>	mg/L	20.0	8.7	1		08/16/17 17:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		08/14/17 10:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>40.8</b>	mg/L	2.0	0.50	1		08/18/17 18:40	16887-00-6	
Fluoride	<b>0.23J</b>	mg/L	0.30	0.10	1		08/18/17 18:40	16984-48-8	
Sulfate	<b>139</b>	mg/L	30.0	10.0	10		08/21/17 12:27	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

**Sample: FIELD BLANK**      **Lab ID: 40154817013**      Collected: 08/09/17 14:00      Received: 08/10/17 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Antimony	<0.15	ug/L	1.0	0.15	1	08/17/17 08:59	08/22/17 23:23	7440-36-0	
Arsenic	<0.28	ug/L	1.0	0.28	1	08/17/17 08:59	08/22/17 23:23	7440-38-2	
Barium	<0.34	ug/L	1.1	0.34	1	08/17/17 08:59	08/22/17 23:23	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	08/17/17 08:59	08/22/17 23:23	7440-41-7	
Boron	<3.3	ug/L	11.0	3.3	1	08/17/17 08:59	08/22/17 23:23	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	08/17/17 08:59	08/22/17 23:23	7440-43-9	
Calcium	<69.8	ug/L	250	69.8	1	08/17/17 08:59	08/22/17 23:23	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	08/17/17 08:59	08/22/17 23:23	7440-47-3	
Cobalt	<0.085	ug/L	1.0	0.085	1	08/17/17 08:59	08/22/17 23:23	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	08/17/17 08:59	08/22/17 23:23	7439-92-1	
Lithium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/22/17 23:23	7439-93-2	
Molybdenum	<0.44	ug/L	1.5	0.44	1	08/17/17 08:59	08/22/17 23:23	7439-98-7	
Selenium	<0.32	ug/L	1.1	0.32	1	08/17/17 08:59	08/22/17 23:23	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	08/17/17 08:59	08/22/17 23:23	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470    Preparation Method: EPA 7470							
Mercury	<0.13	ug/L	0.42	0.13	1	08/18/17 10:55	08/21/17 13:55	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<8.7	mg/L	20.0	8.7	1		08/16/17 17:01		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	6.8	Std. Units	0.10	0.010	1		08/18/17 09:35		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<0.50	mg/L	2.0	0.50	1		08/18/17 18:50	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		08/18/17 18:50	16984-48-8	
Sulfate	<1.0	mg/L	3.0	1.0	1		08/18/17 18:50	14808-79-8	

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**QUALITY CONTROL DATA**

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

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QC Batch: 264857 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013

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METHOD BLANK: 1558223 Matrix: Water  
 Associated Lab Samples: 40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	<0.15	1.0	08/22/17 23:16	
Arsenic	ug/L	<0.28	1.0	08/22/17 23:16	
Barium	ug/L	<0.34	1.1	08/22/17 23:16	
Beryllium	ug/L	<0.18	1.0	08/22/17 23:16	
Boron	ug/L	<3.3	11.0	08/22/17 23:16	
Cadmium	ug/L	<0.081	1.0	08/22/17 23:16	
Calcium	ug/L	<69.8	250	08/22/17 23:16	
Chromium	ug/L	<1.0	3.4	08/22/17 23:16	
Cobalt	ug/L	<0.085	1.0	08/22/17 23:16	
Lead	ug/L	<0.20	1.0	08/22/17 23:16	
Lithium	ug/L	<0.14	1.0	08/22/17 23:16	
Molybdenum	ug/L	<0.44	1.5	08/22/17 23:16	
Selenium	ug/L	<0.32	1.1	08/22/17 23:16	
Thallium	ug/L	<0.14	1.0	08/22/17 23:16	

LABORATORY CONTROL SAMPLE: 1558224

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	555	111	80-120	
Arsenic	ug/L	500	524	105	80-120	
Barium	ug/L	500	532	106	80-120	
Beryllium	ug/L	500	559	112	80-120	
Boron	ug/L	500	526	105	80-120	
Cadmium	ug/L	500	543	109	80-120	
Calcium	ug/L	5000	5520	110	80-120	
Chromium	ug/L	500	528	106	80-120	
Cobalt	ug/L	500	518	104	80-120	
Lead	ug/L	500	507	101	80-120	
Lithium	ug/L	500	532	106	80-120	
Molybdenum	ug/L	500	540	108	80-120	
Selenium	ug/L	500	556	111	80-120	
Thallium	ug/L	500	522	104	80-120	

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### QUALITY CONTROL DATA

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1558225		1558226		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40154817001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result										
Antimony	ug/L	<0.15	500	500	556	547	111	109	75-125	2	20				
Arsenic	ug/L	0.36J	500	500	530	521	106	104	75-125	2	20				
Barium	ug/L	10.2	500	500	550	538	108	106	75-125	2	20				
Beryllium	ug/L	<0.18	500	500	558	548	112	110	75-125	2	20				
Boron	ug/L	205	500	500	785	723	116	104	75-125	8	20				
Cadmium	ug/L	0.089J	500	500	544	531	109	106	75-125	2	20				
Calcium	ug/L	67300	5000	5000	73200	71400	117	82	75-125	2	20				
Chromium	ug/L	1.5J	500	500	531	520	106	104	75-125	2	20				
Cobalt	ug/L	0.13J	500	500	518	506	104	101	75-125	2	20				
Lead	ug/L	<0.20	500	500	524	508	105	102	75-125	3	20				
Lithium	ug/L	0.62J	500	500	558	558	111	111	75-125	0	20				
Molybdenum	ug/L	1.1J	500	500	555	538	111	107	75-125	3	20				
Selenium	ug/L	1.2	500	500	555	554	111	111	75-125	0	20				
Thallium	ug/L	0.24J	500	500	538	528	108	106	75-125	2	20				

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### QUALITY CONTROL DATA

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

QC Batch: 264369 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 40154817001, 40154817002, 40154817003

METHOD BLANK: 1555754 Matrix: Water  
Associated Lab Samples: 40154817001, 40154817002, 40154817003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	08/11/17 16:03	

LABORATORY CONTROL SAMPLE: 1555755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	553	604	109	80-120	

SAMPLE DUPLICATE: 1555756

Parameter	Units	40154687011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	840	842	0	5	

SAMPLE DUPLICATE: 1555757

Parameter	Units	40154698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	62.0	58.0	7	5	R1

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### QUALITY CONTROL DATA

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

QC Batch: 264504

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010

METHOD BLANK: 1556520

Matrix: Water

Associated Lab Samples: 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	08/14/17 12:27	

LABORATORY CONTROL SAMPLE: 1556521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	553	578	105	80-120	

SAMPLE DUPLICATE: 1556523

Parameter	Units	40154700009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	166	168	1	5	

SAMPLE DUPLICATE: 1556542

Parameter	Units	40154700005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	50.0	48.0	4	5	

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### QUALITY CONTROL DATA

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

QC Batch: 264778 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 40154817011, 40154817012, 40154817013

METHOD BLANK: 1557678 Matrix: Water  
Associated Lab Samples: 40154817011, 40154817012, 40154817013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	08/16/17 17:00	

LABORATORY CONTROL SAMPLE: 1557679

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	553	628	114	80-120	

SAMPLE DUPLICATE: 1557680

Parameter	Units	40154754016 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1470	1450	2	5	

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### QUALITY CONTROL DATA

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

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QC Batch:	264488	Analysis Method:	EPA 9040
QC Batch Method:	EPA 9040	Analysis Description:	9040 pH
Associated Lab Samples:	40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012		

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SAMPLE DUPLICATE: 1556486

Parameter	Units	40154568001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.4	7.4	0	20	H6

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SAMPLE DUPLICATE: 1556487

Parameter	Units	40154653001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.5	7.6	1	20	H6

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**QUALITY CONTROL DATA**

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

QC Batch: 265022 Analysis Method: EPA 9040

QC Batch Method: EPA 9040 Analysis Description: 9040 pH

Associated Lab Samples: 40154817013

SAMPLE DUPLICATE: 1559000

Parameter	Units	40154878001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.6	7.7	1	20	H6

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### QUALITY CONTROL DATA

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

QC Batch: 264732 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013

METHOD BLANK: 1557449 Matrix: Water  
Associated Lab Samples: 40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	08/18/17 11:24	
Fluoride	mg/L	<0.10	0.30	08/18/17 11:24	
Sulfate	mg/L	<1.0	3.0	08/18/17 11:24	

LABORATORY CONTROL SAMPLE: 1557450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	20.9	105	90-110	
Fluoride	mg/L	2	2.0	102	90-110	
Sulfate	mg/L	20	20.7	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1557451 1557452

Parameter	Units	40154994001		1557452		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	4.8	20	25.5	23.9	103	96	90-110	6	15	
Fluoride	mg/L	0.84	2	2.8	2.6	98	90	90-110	6	15	
Sulfate	mg/L	19.5	20	39.3	37.2	99	88	90-110	6	15 MO	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1557453 1557454

Parameter	Units	40154817001		1557454		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	7.4	20	28.4	28.6	105	106	90-110	0	15	
Fluoride	mg/L	<0.10	2	2.0	2.1	101	102	90-110	1	15	
Sulfate	mg/L	105	100	206	206	101	101	90-110	0	15	

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### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLLUMBIA

Project No.: 40154817

Sample: MW-34A		Lab ID: 40154817001	Collected: 08/07/17 15:45	Received: 08/10/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0539 ± 0.350 (0.706)</b> C:NA T:105%	pCi/L	08/24/17 10:12	13982-63-3	
Radium-228	EPA 904.0	<b>0.294 ± 0.378 (0.805)</b> C:77% T:77%	pCi/L	08/28/17 15:30	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.348 ± 0.728 (1.51)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Sample: MW-33AR		Lab ID: 40154817002	Collected: 08/07/17 16:40	Received: 08/10/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.426 ± 0.320 (0.165)</b> C:NA T:96%	pCi/L	08/24/17 10:30	13982-63-3	
Radium-228	EPA 904.0	<b>0.698 ± 0.435 (0.812)</b> C:75% T:75%	pCi/L	08/28/17 15:30	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.12 ± 0.755 (0.977)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Sample: MW-305		Lab ID: 40154817003	Collected: 08/07/17 18:10	Received: 08/10/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.121 ± 0.291 (0.726)</b> C:NA T:96%	pCi/L	08/24/17 10:44	13982-63-3	
Radium-228	EPA 904.0	<b>0.103 ± 0.300 (0.675)</b> C:81% T:84%	pCi/L	08/28/17 15:30	15262-20-1	1q
Total Radium	Total Radium Calculation	<b>0.103 ± 0.591 (1.40)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Sample: MW-84A		Lab ID: 40154817004	Collected: 08/08/17 10:05	Received: 08/10/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.242 ± 0.375 (0.650)</b> C:NA T:93%	pCi/L	08/24/17 10:44	13982-63-3	
Radium-228	EPA 904.0	<b>0.267 ± 0.272 (0.559)</b> C:80% T:93%	pCi/L	08/28/17 15:30	15262-20-1	1q
Total Radium	Total Radium Calculation	<b>0.509 ± 0.647 (1.21)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Sample: MW-301		Lab ID: 40154817005	Collected: 08/08/17 11:00	Received: 08/10/17 09:15	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.09 ± 0.608 (0.630)</b> C:NA T:88%	pCi/L	08/24/17 10:44	13982-63-3	
Radium-228	EPA 904.0	<b>0.647 ± 0.356 (0.635)</b> C:78% T:90%	pCi/L	08/28/17 15:30	15262-20-1	1q

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

<b>Sample:</b> MW-301	<b>Lab ID:</b> 40154817005	Collected: 08/08/17 11:00	Received: 08/10/17 09:15	Matrix: Water		
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	<b>1.74 ± 0.964 (1.27)</b>	pCi/L	09/01/17 09:09	7440-14-4	

<b>Sample:</b> MW-302	<b>Lab ID:</b> 40154817006	Collected: 08/08/17 12:15	Received: 08/10/17 09:15	Matrix: Water		
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.193 ± 0.418 (0.771)</b> C:NA T:90%	pCi/L	08/24/17 10:46	13982-63-3	
Radium-228	EPA 904.0	<b>0.538 ± 0.344 (0.636)</b> C:79% T:82%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium	Total Radium Calculation	<b>0.731 ± 0.762 (1.41)</b>	pCi/L	09/01/17 09:09	7440-14-4	

<b>Sample:</b> MW-306	<b>Lab ID:</b> 40154817007	Collected: 08/08/17 14:10	Received: 08/10/17 09:15	Matrix: Water		
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0606 ± 0.394 (0.794)</b> C:NA T:92%	pCi/L	08/24/17 10:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.374 ± 0.301 (0.593)</b> C:81% T:91%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium	Total Radium Calculation	<b>0.435 ± 0.695 (1.39)</b>	pCi/L	09/01/17 09:09	7440-14-4	

<b>Sample:</b> MW-307	<b>Lab ID:</b> 40154817008	Collected: 08/08/17 15:20	Received: 08/10/17 09:15	Matrix: Water		
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.309 ± 0.365 (0.573)</b> C:NA T:92%	pCi/L	08/24/17 10:45	13982-63-3	
Radium-228	EPA 904.0	<b>0.367 ± 0.308 (0.612)</b> C:79% T:90%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium	Total Radium Calculation	<b>0.676 ± 0.673 (1.19)</b>	pCi/L	09/01/17 09:09	7440-14-4	

<b>Sample:</b> MW-303	<b>Lab ID:</b> 40154817009	Collected: 08/08/17 16:35	Received: 08/10/17 09:15	Matrix: Water		
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.459 ± 0.466 (0.705)</b> C:NA T:86%	pCi/L	08/24/17 10:46	13982-63-3	
Radium-228	EPA 904.0	<b>0.336 ± 0.327 (0.669)</b> C:78% T:85%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium	Total Radium Calculation	<b>0.795 ± 0.793 (1.37)</b>	pCi/L	09/01/17 09:09	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-304</b> <b>Lab ID: 40154817010</b> Collected: 08/08/17 18:00      Received: 08/10/17 09:15      Matrix: Water PWS:      Site ID:      Sample Type:							
Radium-226		EPA 903.1	<b>0.266 ± 0.304 (0.180)</b> C:NA T:89%	pCi/L	08/24/17 10:46	13982-63-3	
Radium-228		EPA 904.0	<b>0.511 ± 0.292 (0.514)</b> C:83% T:90%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium		Total Radium Calculation	<b>0.777 ± 0.596 (0.694)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW-308</b> <b>Lab ID: 40154817011</b> Collected: 08/09/17 12:30      Received: 08/10/17 09:15      Matrix: Water PWS:      Site ID:      Sample Type:							
Radium-226		EPA 903.1	<b>0.454 ± 0.340 (0.176)</b> C:NA T:99%	pCi/L	08/24/17 11:04	13982-63-3	
Radium-228		EPA 904.0	<b>0.722 ± 0.382 (0.662)</b> C:74% T:84%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium		Total Radium Calculation	<b>1.18 ± 0.722 (0.838)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: M-4R</b> <b>Lab ID: 40154817012</b> Collected: 08/09/17 13:35      Received: 08/10/17 09:15      Matrix: Water PWS:      Site ID:      Sample Type:							
Radium-226		EPA 903.1	<b>0.439 ± 0.446 (0.675)</b> C:NA T:93%	pCi/L	08/24/17 11:04	13982-63-3	
Radium-228		EPA 904.0	<b>0.250 ± 0.298 (0.627)</b> C:79% T:88%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium		Total Radium Calculation	<b>0.689 ± 0.744 (1.30)</b>	pCi/L	09/01/17 09:09	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: FIELD BLANK</b> <b>Lab ID: 40154817013</b> Collected: 08/09/17 14:00      Received: 08/10/17 09:15      Matrix: Water PWS:      Site ID:      Sample Type:							
Radium-226		EPA 903.1	<b>-0.124 ± 0.456 (0.985)</b> C:NA T:88%	pCi/L	08/24/17 11:04	13982-63-3	
Radium-228		EPA 904.0	<b>0.278 ± 0.370 (0.790)</b> C:76% T:81%	pCi/L	08/28/17 15:32	15262-20-1	1q
Total Radium		Total Radium Calculation	<b>0.278 ± 0.826 (1.78)</b>	pCi/L	09/01/17 09:09	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

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QC Batch:	268900	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013		

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METHOD BLANK:	1323966	Matrix:	Water
Associated Lab Samples:	40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.180 ± 0.266 (0.572) C:79% T:90%	pCi/L	08/28/17 12:04	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

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QC Batch:	268536	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013		

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METHOD BLANK:	1321791	Matrix:	Water
Associated Lab Samples:	40154817001, 40154817002, 40154817003, 40154817004, 40154817005, 40154817006, 40154817007, 40154817008, 40154817009, 40154817010, 40154817011, 40154817012, 40154817013		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.545 ± 0.466 (0.632) C:NA T:87%	pCi/L	08/24/17 10:12	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

QC Batch: 268756

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 40154817001, 40154817002

METHOD BLANK: 1322998

Matrix: Water

Associated Lab Samples: 40154817001, 40154817002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.00208 ± 0.379 (0.884) C:78% T:69%	pCi/L	08/28/17 15:27	

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## QUALIFIERS

Project: 25216067.17 ALLIANT-COLLUMBIA  
Pace Project No.: 40154817

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

1q	The Ra-228 LCS recovery was high and outside of the default acceptance criteria for LCS recovery at 150.91%. Samples with Ra-228 activity results below their associated MDC or the MRL are reportable without additional qualification.
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.
R1	RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40154817001	MW-34A	EPA 3010	264857	EPA 6020	264978
40154817002	MW-33AR	EPA 3010	264857	EPA 6020	264978
40154817003	MW-305	EPA 3010	264857	EPA 6020	264978
40154817004	MW-84A	EPA 3010	264857	EPA 6020	264978
40154817005	MW-301	EPA 3010	264857	EPA 6020	264978
40154817006	MW-302	EPA 3010	264857	EPA 6020	264978
40154817007	MW-306	EPA 3010	264857	EPA 6020	264978
40154817008	MW-307	EPA 3010	264857	EPA 6020	264978
40154817009	MW-303	EPA 3010	264857	EPA 6020	264978
40154817010	MW-304	EPA 3010	264857	EPA 6020	264978
40154817011	MW-308	EPA 3010	264857	EPA 6020	264978
40154817012	M-4R	EPA 3010	264857	EPA 6020	264978
40154817013	FIELD BLANK	EPA 3010	264857	EPA 6020	264978
40154817001	MW-34A	EPA 7470	265024	EPA 7470	265083
40154817002	MW-33AR	EPA 7470	265024	EPA 7470	265083
40154817003	MW-305	EPA 7470	265024	EPA 7470	265083
40154817004	MW-84A	EPA 7470	265024	EPA 7470	265083
40154817005	MW-301	EPA 7470	265024	EPA 7470	265083
40154817006	MW-302	EPA 7470	265024	EPA 7470	265083
40154817007	MW-306	EPA 7470	265024	EPA 7470	265083
40154817008	MW-307	EPA 7470	265024	EPA 7470	265083
40154817009	MW-303	EPA 7470	265024	EPA 7470	265083
40154817010	MW-304	EPA 7470	265024	EPA 7470	265083
40154817011	MW-308	EPA 7470	265024	EPA 7470	265083
40154817012	M-4R	EPA 7470	265024	EPA 7470	265083
40154817013	FIELD BLANK	EPA 7470	265024	EPA 7470	265083
40154817001	MW-34A				
40154817002	MW-33AR				
40154817003	MW-305				
40154817004	MW-84A				
40154817005	MW-301				
40154817006	MW-302				
40154817007	MW-306				
40154817008	MW-307				
40154817009	MW-303				
40154817010	MW-304				
40154817011	MW-308				
40154817012	M-4R				
40154817001	MW-34A	EPA 903.1	268536		
40154817002	MW-33AR	EPA 903.1	268536		
40154817003	MW-305	EPA 903.1	268536		
40154817004	MW-84A	EPA 903.1	268536		
40154817005	MW-301	EPA 903.1	268536		
40154817006	MW-302	EPA 903.1	268536		
40154817007	MW-306	EPA 903.1	268536		
40154817008	MW-307	EPA 903.1	268536		
40154817009	MW-303	EPA 903.1	268536		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40154817010	MW-304	EPA 903.1	268536		
40154817011	MW-308	EPA 903.1	268536		
40154817012	M-4R	EPA 903.1	268536		
40154817013	FIELD BLANK	EPA 903.1	268536		
40154817001	MW-34A	EPA 904.0	268756		
40154817002	MW-33AR	EPA 904.0	268756		
40154817003	MW-305	EPA 904.0	268900		
40154817004	MW-84A	EPA 904.0	268900		
40154817005	MW-301	EPA 904.0	268900		
40154817006	MW-302	EPA 904.0	268900		
40154817007	MW-306	EPA 904.0	268900		
40154817008	MW-307	EPA 904.0	268900		
40154817009	MW-303	EPA 904.0	268900		
40154817010	MW-304	EPA 904.0	268900		
40154817011	MW-308	EPA 904.0	268900		
40154817012	M-4R	EPA 904.0	268900		
40154817013	FIELD BLANK	EPA 904.0	268900		
40154817001	MW-34A	Total Radium Calculation	270299		
40154817002	MW-33AR	Total Radium Calculation	270299		
40154817003	MW-305	Total Radium Calculation	270299		
40154817004	MW-84A	Total Radium Calculation	270299		
40154817005	MW-301	Total Radium Calculation	270299		
40154817006	MW-302	Total Radium Calculation	270299		
40154817007	MW-306	Total Radium Calculation	270299		
40154817008	MW-307	Total Radium Calculation	270299		
40154817009	MW-303	Total Radium Calculation	270299		
40154817010	MW-304	Total Radium Calculation	270299		
40154817011	MW-308	Total Radium Calculation	270299		
40154817012	M-4R	Total Radium Calculation	270299		
40154817013	FIELD BLANK	Total Radium Calculation	270299		
40154817001	MW-34A	SM 2540C	264369		
40154817002	MW-33AR	SM 2540C	264369		
40154817003	MW-305	SM 2540C	264369		
40154817004	MW-84A	SM 2540C	264504		
40154817005	MW-301	SM 2540C	264504		
40154817006	MW-302	SM 2540C	264504		
40154817007	MW-306	SM 2540C	264504		
40154817008	MW-307	SM 2540C	264504		
40154817009	MW-303	SM 2540C	264504		
40154817010	MW-304	SM 2540C	264504		
40154817011	MW-308	SM 2540C	264778		
40154817012	M-4R	SM 2540C	264778		
40154817013	FIELD BLANK	SM 2540C	264778		
40154817001	MW-34A	EPA 9040	264488		
40154817002	MW-33AR	EPA 9040	264488		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 ALLIANT-COLLUMBIA

Pace Project No.: 40154817

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40154817003	MW-305	EPA 9040	264488		
40154817004	MW-84A	EPA 9040	264488		
40154817005	MW-301	EPA 9040	264488		
40154817006	MW-302	EPA 9040	264488		
40154817007	MW-306	EPA 9040	264488		
40154817008	MW-307	EPA 9040	264488		
40154817009	MW-303	EPA 9040	264488		
40154817010	MW-304	EPA 9040	264488		
40154817011	MW-308	EPA 9040	264488		
40154817012	M-4R	EPA 9040	264488		
40154817013	FIELD BLANK	EPA 9040	265022		
40154817001	MW-34A	EPA 300.0	264732		
40154817002	MW-33AR	EPA 300.0	264732		
40154817003	MW-305	EPA 300.0	264732		
40154817004	MW-84A	EPA 300.0	264732		
40154817005	MW-301	EPA 300.0	264732		
40154817006	MW-302	EPA 300.0	264732		
40154817007	MW-306	EPA 300.0	264732		
40154817008	MW-307	EPA 300.0	264732		
40154817009	MW-303	EPA 300.0	264732		
40154817010	MW-304	EPA 300.0	264732		
40154817011	MW-308	EPA 300.0	264732		
40154817012	M-4R	EPA 300.0	264732		
40154817013	FIELD BLANK	EPA 300.0	264732		

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(Please Print Clearly)



www.faceanals.com

# CHAIN OF CUSTODY

*[Handwritten Signature]*

UPPER MIDWEST REGION  
MN: 612-607-1700 WI: 920-469-2436

8151817

A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?  
(YES/NO)  
PRESERVATION  
(CODE)\*

Company Name: SCS  
 Branch/Location: Madison, WI  
 Project Contact: Mrs. Blodgett  
 Phone: 608 216-9369  
 Project Number: 25216067.17  
 Project Name: Alliant - Columbia  
 Project State: WI  
 Sampled By (Print): Paul A. Gruber  
 Sampled By (Sign): [Signature]  
 PO #: \_\_\_\_\_

Data Package Options  
 EPA Level III  
 EPA Level IV

MS/MSD  
 On your sample (billable)  
 NOT needed on your sample

Matrix Codes  
 A = Air B = Biota C = Charcoal O = Oil S = Soil SI = Sludge  
 W = Water DW = Drinking Water GW = Ground Water SW = Surface Water WP = Waste Water

FACE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX
001	MMW-344	8-7-16	15:45	GUW
002	MMW-333AR	16:44		
003	MMW-325	18:10		
004	MMW-84A	8-8-16	10:05	
005	MMW-301	11:00		
006	MMW-302	12:15		
007	MMW-306	14:10		
008	MMW-307	15:30		
009	MMW-303	16:35		
010	MMW-304	18:00		
011	MMW-308	8-9-17	12:30	
012	M-4	13:35		
013	Field Blank	14:10	01E	

Y/N	Pick Letter	Analyses Requested
D	N/A	Radium 226
D		Radium 228
D		B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Ki, Hg, Mo, Se, Th,
D		Ph, CL, SO4, F, TO5

Relinquished By: Paul A. Gruber Date/Time: 8-9-17 14:00  
 Relinquished By: EDT Date/Time: 8/10/17 0915  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: \_\_\_\_\_  
 Mail To Address: \_\_\_\_\_  
 Invoice To Contact: \_\_\_\_\_  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_

CLIENT COMMENTS: 3-250mlp ADD 2-11p

LAB COMMENTS (Lab Use Only): \_\_\_\_\_  
 Profile #: \_\_\_\_\_

Received By: [Signature] Date/Time: 8/15/17 0915  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

FACE Project No. 40152817  
 Receipt Temp = RO1 °C  
 Sample Receipt pH OK/Adjusted  
 Cooler Custody Seal Present / Not Present Intact / Not Intact

# Pace Container Order #265168

0154817

Addresses

Order By :	Ship To :	Return To:
Company <u>SCS ENGINEERS</u>	Company <u>SCS ENGINEERS (Pace Analytical)</u>	Company <u>Pace Analytical Green Bay</u>
Contact <u>Blodgett, Meghan</u>	Contact <u>Paul Grover</u>	Contact <u>Milewsky, Dan</u>
Email <u>mbloodgett@scsengineers.com</u>	Email <u>pgrover@scsengineers.com</u>	Email <u>dan.milewsky@pacelabs.com</u>
Address <u>2830 Dairy Drive</u>	Address <u>2830 Dairy Drive</u>	Address <u>1241 Bellevue Street</u>
Address 2 _____	Address 2 _____	Address 2 <u>Suite 9</u>
City <u>Madison</u>	City <u>Madison</u>	City <u>Green Bay</u>
State <u>WI</u> Zip <u>53718</u>	State <u>WI</u> Zip <u>53718</u>	State <u>WI</u> Zip <u>54302</u>
Phone <u>608-216-7362</u>	Phone <u>608-216-7362</u>	Phone <u>(920)469-2436</u>

Info

<b>Project Name</b> <u>CCR Rule Alliant Columbia (25216067)</u>	<b>Due Date</b> <u>08/01/2017</u>	<b>Profile</b> _____	<b>Quote</b> _____
<b>Project Manager</b> <u>Milewsky, Dan</u>	<b>Return</b> _____	<b>Carrier</b> <u>Most Economical</u>	<b>Location</b> _____

<p><b>Trip Blanks</b></p> <p><input type="checkbox"/> Include Trip Blanks</p>	<p><b>Bottle Labels</b></p> <p><input type="checkbox"/> Blank</p> <p><input type="checkbox"/> Pre-Printed No Sample IDs</p> <p><input checked="" type="checkbox"/> Pre-Printed With Sample IDs</p>	<p><b>Bottles</b></p> <p><input type="checkbox"/> Boxed Cases</p> <p><input type="checkbox"/> Individually Wrapped</p> <p><input checked="" type="checkbox"/> Grouped By Sample</p>										
<p><b>Return Shipping Labels</b></p> <p><input type="checkbox"/> No Shipper Number</p> <p><input type="checkbox"/> With Shipper Number</p>	<p><b>Misc</b></p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Sampling Instructions</td> <td><input type="checkbox"/> Extra Bubble Wrap</td> </tr> <tr> <td><input type="checkbox"/> Custody Seal</td> <td><input type="checkbox"/> Short Hold/Rush Stickers</td> </tr> <tr> <td><input type="checkbox"/> Temp. Blanks</td> <td><input checked="" type="checkbox"/> DI Water <u>3 Liter(s)</u></td> </tr> <tr> <td><input checked="" type="checkbox"/> Coolers _____</td> <td><input type="checkbox"/> USDA Regulated Soils</td> </tr> <tr> <td><input type="checkbox"/> Syringes _____</td> <td></td> </tr> </table>		<input type="checkbox"/> Sampling Instructions	<input type="checkbox"/> Extra Bubble Wrap	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Short Hold/Rush Stickers	<input type="checkbox"/> Temp. Blanks	<input checked="" type="checkbox"/> DI Water <u>3 Liter(s)</u>	<input checked="" type="checkbox"/> Coolers _____	<input type="checkbox"/> USDA Regulated Soils	<input type="checkbox"/> Syringes _____	
<input type="checkbox"/> Sampling Instructions	<input type="checkbox"/> Extra Bubble Wrap											
<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Short Hold/Rush Stickers											
<input type="checkbox"/> Temp. Blanks	<input checked="" type="checkbox"/> DI Water <u>3 Liter(s)</u>											
<input checked="" type="checkbox"/> Coolers _____	<input type="checkbox"/> USDA Regulated Soils											
<input type="checkbox"/> Syringes _____												
<p><b>COC Options</b></p> <p><input checked="" type="checkbox"/> Number of Blanks <u>2</u></p> <p><input type="checkbox"/> Pre-Printed _____</p>												

# of Samples	Matrix	Test	Container	Total	# of QC	Lot #	Notes
14	WT	Radium 226	1L plastic HNO3	14	0	061017-2AJN	
14	WT	Radium 228	1L plastic HNO3	14	0	061017-2AJN	
14	WT	pH	250mL plastic unpres	14	0	M-7-123-07BB	
14	WT	TDS, Cl, F, SO4	250mL plastic unpres	14	0	M-7-123-07BB	
14	WT	Metals	250mL plastic w/HNO3	14	0	M-7-095-03BB	

**Hazard Shipping Placard In Place : NA**

- \*Sample receiving hours are Monday through Friday 8:00 am to 6:00 pm and Saturday from 9:00 am to 12:00 pm unless special arrangements are made with your project manager.
- \*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.
- \*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage and disposal.
- \*Payment term are net 30 days.
- \*Please include the proposal number on the chain of custody to insure proper billing.

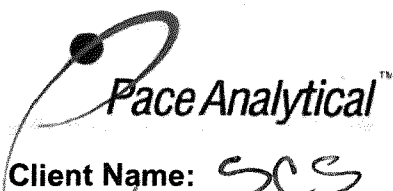
**Sample Notes**

Metals = B, Ca, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li Hg, Mo, Se, Ti, Hg  
 ALL SAMPLES UNFILTERED

**Ship Date :** 07/31/2017

**Prepared By:** Mai Yer Her

**Verified By:** \_\_\_\_\_



Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project #:

WO#: 40154817

Client Name: SCS

Courier: [x] Fed Ex [ ] UPS [ ] Client [ ] Pace Other:

Tracking #: 787425751484, 787425751473, 787425751490



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

Custody Seal on Samples Present: [ ] yes [x] no Seals intact: [ ] yes [ ] no

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [x] None [ ] Other

Thermometer Used: NA Type of Ice: [x] Wet [ ] Blue [ ] Dry [ ] None [x] Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: ICorr: ROI Biological Tissue is Frozen: [ ] yes [ ] no

Temp Blank Present: [ ] yes [x] no

Person examining contents:
Date: 8/10/17
Initials: KJ

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Comments:

Table with 15 rows of inspection items and checkboxes. Includes handwritten notes like '11/9 are not Pace containers' and '12. Old ID on samples is M-4R. Time matches'.

Client Notification/ Resolution:

If checked, see attached form for additional comments [ ]

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: [Signature]

Date: 8/10/17

A10 Fall 2017 Detection Sampling, Analytical Laboratory Report

November 13, 2017

Meghan Blodgett  
SCS ENGINEERS  
2830 Dairy Drive  
Madison, WI 53718

RE: Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

Dear Meghan Blodgett:

Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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: Tom Karwoski, SCS ENGINEERS  
Kyle Kramer, SCS ENGINEERS  
Jeff Maxted, ALLIANT ENERGY  
Marc Morandi, ALLIANT ENERGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
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 Certification  
Wyoming Certification #: 8TMS-L

---

### Green Bay Certification IDs

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

Virginia VELAP ID: 460263  
South Carolina Certification #: 83006001  
Texas Certification #: T104704529-14-1  
Wisconsin Certification #: 405132750  
Wisconsin DATCP Certification #: 105-444  
USDA Soil Permit #: P330-16-00157  
Federal Fish & Wildlife Permit #: LE51774A-0

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## SAMPLE SUMMARY

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40159490001	MW 301	Water	10/23/17 12:25	10/26/17 09:55
40159490002	MW 302	Water	10/24/17 16:20	10/26/17 09:55
40159490003	MW 303	Water	10/23/17 17:30	10/26/17 09:55
40159490004	MW 304	Water	10/23/17 16:30	10/26/17 09:55
40159490005	MW 305	Water	10/24/17 10:35	10/26/17 09:55
40159490006	MW 306	Water	10/23/17 13:40	10/26/17 09:55
40159490007	MW 307	Water	10/23/17 15:00	10/26/17 09:55
40159490008	MW 308	Water	10/23/17 15:40	10/26/17 09:55
40159490009	FIELD BLANK	Water	10/24/17 16:45	10/26/17 09:55
40159490010	M4R	Water	10/24/17 09:55	10/26/17 09:55
40159490011	MW33AR	Water	10/24/17 13:40	10/26/17 09:55
40159490012	MW34A	Water	10/24/17 15:25	10/26/17 09:55
40159490013	MW84A	Water	10/24/17 14:30	10/26/17 09:55

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40159490001	MW 301	EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490002	MW 302	EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490003	MW 303	EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490004	MW 304	EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490005	MW 305	EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490006	MW 306	EPA 6020	DS1	14	PASI-G
			EPA 7470	AJT	1
			RMW	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490007	MW 307	EPA 6020	DS1	14	PASI-G
			EPA 7470	AJT	1
			RMW	7	PASI-G

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40159490008	MW 308	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
			RMW	7	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
40159490009	FIELD BLANK	EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	14	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
40159490011	MW33AR	EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	2	PASI-G
40159490012	MW34A		RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40159490013	MW84A	EPA 300.0	HMB	3	PASI-G
		EPA 6020	DS1	2	PASI-G
			RMW	7	PASI-G
		SM 2540C	TMK	1	PASI-G
		EPA 9040	ALY	1	PASI-G
		EPA 300.0	HMB	3	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

**Sample: MW 301**      **Lab ID: 40159490001**      Collected: 10/23/17 12:25      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Boron	<b>34.3</b>	ug/L	11.0	3.3	1	10/31/17 10:40	11/04/17 04:43	7440-42-8	
Calcium	<b>87200</b>	ug/L	250	69.8	1	10/31/17 10:40	11/04/17 04:43	7440-70-2	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.37</b>	Std. Units			1		10/23/17 12:25		
Field Specific Conductance	<b>561</b>	umhos/cm			1		10/23/17 12:25		
Oxygen, Dissolved	<b>1.1</b>	mg/L			1		10/23/17 12:25	7782-44-7	
REDOX	<b>204</b>	mV			1		10/23/17 12:25		
Turbidity	<b>1.52</b>	NTU			1		10/23/17 12:25		
Static Water Level	<b>785.89</b>	feet			1		10/23/17 12:25		
Temperature, Water (C)	<b>11.1</b>	deg C			1		10/23/17 12:25		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>362</b>	mg/L	20.0	8.7	1		10/30/17 17:46		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		10/31/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.0</b>	mg/L	2.0	0.50	1		11/08/17 13:03	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/08/17 13:03	16984-48-8	
Sulfate	<b>27.5</b>	mg/L	3.0	1.0	1		11/08/17 13:03	14808-79-8	

**Sample: MW 302**      **Lab ID: 40159490002**      Collected: 10/24/17 16:20      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020    Preparation Method: EPA 3010							
Boron	<b>691</b>	ug/L	11.0	3.3	1	10/31/17 10:40	11/04/17 04:50	7440-42-8	
Calcium	<b>94400</b>	ug/L	250	69.8	1	10/31/17 10:40	11/04/17 04:50	7440-70-2	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>8.23</b>	Std. Units			1		10/24/17 16:20		
Field Specific Conductance	<b>596</b>	umhos/cm			1		10/24/17 16:20		
Oxygen, Dissolved	<b>8.7</b>	mg/L			1		10/24/17 16:20	7782-44-7	
REDOX	<b>220</b>	mV			1		10/24/17 16:20		
Turbidity	<b>2.61</b>	NTU			1		10/24/17 16:20		
Static Water Level	<b>785.94</b>	feet			1		10/24/17 16:20		
Temperature, Water (C)	<b>11.4</b>	deg C			1		10/24/17 16:20		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>446</b>	mg/L	20.0	8.7	1		10/31/17 14:43		

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Sample: MW 302									
Lab ID: 40159490002									
Collected: 10/24/17 16:20									
Received: 10/26/17 09:55									
Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>9040 pH</b>									
Analytical Method: EPA 9040									
pH	7.2	Std. Units	0.10	0.010	1		10/31/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0									
Chloride	6.9	mg/L	2.0	0.50	1		11/08/17 13:34	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		11/08/17 13:34	16984-48-8	
Sulfate	78.4	mg/L	15.0	5.0	5		11/08/17 18:09	14808-79-8	

Sample: MW 303									
Lab ID: 40159490003									
Collected: 10/23/17 17:30									
Received: 10/26/17 09:55									
Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Boron	1870	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 22:37	7440-42-8	
Calcium	8850	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 09:14	7440-70-2	
<b>Field Data</b>									
Analytical Method:									
Field pH	9.2	Std. Units			1		10/23/17 17:30		
Field Specific Conductance	1093	umhos/cm			1		10/23/17 17:30		
Oxygen, Dissolved	5.4	mg/L			1		10/23/17 17:30	7782-44-7	
REDOX	285	mV			1		10/23/17 17:30		
Turbidity	5.67	NTU			1		10/23/17 17:30		
Static Water Level	783.92	feet			1		10/23/17 17:30		
Temperature, Water (C)	12.3	deg C			1		10/23/17 17:30		
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Total Dissolved Solids	806	mg/L	20.0	8.7	1		10/30/17 17:46		
<b>9040 pH</b>									
Analytical Method: EPA 9040									
pH	9.3	Std. Units	0.10	0.010	1		10/31/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>									
Analytical Method: EPA 300.0									
Chloride	8.3J	mg/L	10.0	2.5	5		11/08/17 18:19	16887-00-6	D3
Fluoride	<0.50	mg/L	1.5	0.50	5		11/08/17 18:19	16984-48-8	D3
Sulfate	467	mg/L	60.0	20.0	20		11/09/17 13:28	14808-79-8	

Sample: MW 304									
Lab ID: 40159490004									
Collected: 10/23/17 16:30									
Received: 10/26/17 09:55									
Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Boron	732	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 22:45	7440-42-8	
Calcium	78300	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 09:22	7440-70-2	

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: MW 304</b> <b>Lab ID: 40159490004</b> Collected: 10/23/17 16:30      Received: 10/26/17 09:55      Matrix: Water									
<b>Field Data</b> Analytical Method:									
Field pH	7.78	Std. Units			1		10/23/17 16:30		
Field Specific Conductance	628	umhos/cm			1		10/23/17 16:30		
Oxygen, Dissolved	0.3	mg/L			1		10/23/17 16:30	7782-44-7	
REDOX	94	mV			1		10/23/17 16:30		
Turbidity	6.2	NTU			1		10/23/17 16:30		
Static Water Level	788.97	feet			1		10/23/17 16:30		
Temperature, Water (C)	17.4	deg C			1		10/23/17 16:30		
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	390	mg/L	20.0	8.7	1		10/30/17 17:46		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	7.5	Std. Units	0.10	0.010	1		10/31/17 10:55		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	39.5	mg/L	2.0	0.50	1		11/08/17 13:56	16887-00-6	
Fluoride	0.13J	mg/L	0.30	0.10	1		11/08/17 13:56	16984-48-8	
Sulfate	57.2	mg/L	3.0	1.0	1		11/08/17 13:56	14808-79-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: MW 305</b> <b>Lab ID: 40159490005</b> Collected: 10/24/17 10:35      Received: 10/26/17 09:55      Matrix: Water									
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Boron	2200	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 22:52	7440-42-8	
Calcium	94100	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 09:29	7440-70-2	
<b>Field Data</b> Analytical Method:									
Field pH	8.48	Std. Units			1		10/24/17 10:35		
Field Specific Conductance	630	umhos/cm			1		10/24/17 10:35		
Oxygen, Dissolved	1.3	mg/L			1		10/24/17 10:35	7782-44-7	
REDOX	115	mV			1		10/24/17 10:35		
Turbidity	2.67	NTU			1		10/24/17 10:35		
Static Water Level	788.14	feet			1		10/24/17 10:35		
Temperature, Water (C)	26.7	deg C			1		10/24/17 10:35		
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	490	mg/L	20.0	8.7	1		10/31/17 14:43		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	8.0	Std. Units	0.10	0.010	1		10/31/17 10:55		H6

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

**Sample: MW 305**      **Lab ID: 40159490005**      Collected: 10/24/17 10:35      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>50.2</b>	mg/L	2.0	0.50	1		11/08/17 14:06	16887-00-6	
Fluoride	<b>0.64</b>	mg/L	0.30	0.10	1		11/08/17 14:06	16984-48-8	
Sulfate	<b>252</b>	mg/L	15.0	5.0	5		11/08/17 18:30	14808-79-8	

**Sample: MW 306**      **Lab ID: 40159490006**      Collected: 10/23/17 13:40      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<b>0.17J</b>	ug/L	1.0	0.15	1	11/01/17 07:05	11/06/17 22:59	7440-36-0	B
Arsenic	<b>0.29J</b>	ug/L	1.0	0.28	1	11/01/17 07:05	11/06/17 22:59	7440-38-2	
Barium	<b>16.1</b>	ug/L	1.1	0.34	1	11/01/17 07:05	11/06/17 22:59	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	11/01/17 07:05	11/06/17 22:59	7440-41-7	
Boron	<b>145</b>	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 22:59	7440-42-8	
Cadmium	<b>&lt;0.081</b>	ug/L	1.0	0.081	1	11/01/17 07:05	11/06/17 22:59	7440-43-9	
Calcium	<b>90700</b>	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 09:37	7440-70-2	
Chromium	<b>2.9J</b>	ug/L	3.4	1.0	1	11/01/17 07:05	11/04/17 09:37	7440-47-3	
Cobalt	<b>0.20J</b>	ug/L	1.0	0.085	1	11/01/17 07:05	11/04/17 09:37	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	11/01/17 07:05	11/06/17 22:59	7439-92-1	
Lithium	<b>8.6</b>	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 22:59	7439-93-2	
Molybdenum	<b>9.6</b>	ug/L	1.5	0.44	1	11/01/17 07:05	11/06/17 22:59	7439-98-7	
Selenium	<b>0.84J</b>	ug/L	1.1	0.32	1	11/01/17 07:05	11/06/17 22:59	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 22:59	7440-28-0	

**7470 Mercury**      Analytical Method: EPA 7470      Preparation Method: EPA 7470

Mercury      **<0.13**      ug/L      0.42      0.13      1      11/03/17 10:45      11/06/17 09:13      7439-97-6

**Field Data**      Analytical Method:

Field pH	<b>7.7</b>	Std. Units			1		10/23/17 13:40		
Field Specific Conductance	<b>477</b>	umhos/cm			1		10/23/17 13:40		
Oxygen, Dissolved	<b>5</b>	mg/L			1		10/23/17 13:40	7782-44-7	
REDOX	<b>234</b>	mV			1		10/23/17 13:40		
Turbidity	<b>32.64</b>	NTU			1		10/23/17 13:40		
Static Water Level	<b>783.97</b>	feet			1		10/23/17 13:40		
Temperature, Water (C)	<b>13.4</b>	deg C			1		10/23/17 13:40		

**2540C Total Dissolved Solids**      Analytical Method: SM 2540C

Total Dissolved Solids      **310**      mg/L      20.0      8.7      1      10/30/17 17:46

**9040 pH**      Analytical Method: EPA 9040

pH      **7.4**      Std. Units      0.10      0.010      1      10/31/17 10:55      H6

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: MW 306</b> <b>Lab ID: 40159490006</b> Collected: 10/23/17 13:40      Received: 10/26/17 09:55      Matrix: Water									
Analytical Method: EPA 300.0									
Chloride	1.0J	mg/L	2.0	0.50	1		11/08/17 14:17	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		11/08/17 14:17	16984-48-8	
Sulfate	8.7	mg/L	3.0	1.0	1		11/08/17 14:17	14808-79-8	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: MW 307</b> <b>Lab ID: 40159490007</b> Collected: 10/23/17 15:00      Received: 10/26/17 09:55      Matrix: Water									
Analytical Method: EPA 6020      Preparation Method: EPA 3010									
Antimony	<0.15	ug/L	1.0	0.15	1	11/01/17 07:05	11/06/17 23:07	7440-36-0	
Arsenic	3.0	ug/L	1.0	0.28	1	11/01/17 07:05	11/06/17 23:07	7440-38-2	
Barium	15.1	ug/L	1.1	0.34	1	11/01/17 07:05	11/06/17 23:07	7440-39-3	
Beryllium	<0.18	ug/L	1.0	0.18	1	11/01/17 07:05	11/06/17 23:07	7440-41-7	
Boron	434	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 23:07	7440-42-8	
Cadmium	<0.081	ug/L	1.0	0.081	1	11/01/17 07:05	11/06/17 23:07	7440-43-9	
Calcium	83700	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 09:59	7440-70-2	
Chromium	<1.0	ug/L	3.4	1.0	1	11/01/17 07:05	11/04/17 09:59	7440-47-3	
Cobalt	0.43J	ug/L	1.0	0.085	1	11/01/17 07:05	11/04/17 09:59	7440-48-4	
Lead	<0.20	ug/L	1.0	0.20	1	11/01/17 07:05	11/06/17 23:07	7439-92-1	
Lithium	<0.14	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 23:07	7439-93-2	
Molybdenum	1.5J	ug/L	1.5	0.44	1	11/01/17 07:05	11/06/17 23:07	7439-98-7	B
Selenium	<0.32	ug/L	1.1	0.32	1	11/01/17 07:05	11/06/17 23:07	7782-49-2	
Thallium	<0.14	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 23:07	7440-28-0	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>7470 Mercury</b> Analytical Method: EPA 7470      Preparation Method: EPA 7470									
Mercury	<0.13	ug/L	0.42	0.13	1	11/03/17 10:45	11/06/17 09:15	7439-97-6	

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Field Data</b> Analytical Method:									
Field pH	7.75	Std. Units			1		10/23/17 15:00		
Field Specific Conductance	591	umhos/cm			1		10/23/17 15:00		
Oxygen, Dissolved	0.3	mg/L			1		10/23/17 15:00	7782-44-7	
REDOX	101	mV			1		10/23/17 15:00		
Turbidity	3.87	NTU			1		10/23/17 15:00		
Static Water Level	784.79	feet			1		10/23/17 15:00		
Temperature, Water (C)	14.5	deg C			1		10/23/17 15:00		

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	362	mg/L	20.0	8.7	1		10/30/17 17:47		

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	7.4	Std. Units	0.10	0.010	1		10/31/17 10:55		H6

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

**Sample: MW 307**      **Lab ID: 40159490007**      Collected: 10/23/17 15:00      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>12.9</b>	mg/L	10.0	2.5	5		11/09/17 10:29	16887-00-6	
Fluoride	<b>&lt;0.50</b>	mg/L	1.5	0.50	5		11/09/17 10:29	16984-48-8	D3
Sulfate	<b>10.7J</b>	mg/L	15.0	5.0	5		11/09/17 10:29	14808-79-8	D3

**Sample: MW 308**      **Lab ID: 40159490008**      Collected: 10/23/17 15:40      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Antimony	<b>&lt;0.15</b>	ug/L	1.0	0.15	1	11/01/17 07:05	11/06/17 23:14	7440-36-0	
Arsenic	<b>5.1</b>	ug/L	1.0	0.28	1	11/01/17 07:05	11/06/17 23:14	7440-38-2	
Barium	<b>86.6</b>	ug/L	1.1	0.34	1	11/01/17 07:05	11/06/17 23:14	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	11/01/17 07:05	11/06/17 23:14	7440-41-7	
Boron	<b>707</b>	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 23:14	7440-42-8	
Cadmium	<b>&lt;0.081</b>	ug/L	1.0	0.081	1	11/01/17 07:05	11/06/17 23:14	7440-43-9	
Calcium	<b>134000</b>	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 10:07	7440-70-2	
Chromium	<b>4.0</b>	ug/L	3.4	1.0	1	11/01/17 07:05	11/04/17 10:07	7440-47-3	
Cobalt	<b>0.85J</b>	ug/L	1.0	0.085	1	11/01/17 07:05	11/04/17 10:07	7440-48-4	
Lead	<b>1.2</b>	ug/L	1.0	0.20	1	11/01/17 07:05	11/06/17 23:14	7439-92-1	
Lithium	<b>0.96J</b>	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 23:14	7439-93-2	
Molybdenum	<b>1.2J</b>	ug/L	1.5	0.44	1	11/01/17 07:05	11/06/17 23:14	7439-98-7	B
Selenium	<b>0.35J</b>	ug/L	1.1	0.32	1	11/01/17 07:05	11/06/17 23:14	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 23:14	7440-28-0	

<b>7470 Mercury</b>		Analytical Method: EPA 7470      Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	11/03/17 10:45	11/06/17 09:22	7439-97-6	

<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.51</b>	Std. Units					10/23/17 15:40		
Field Specific Conductance	<b>810</b>	umhos/cm					10/23/17 15:40		
Oxygen, Dissolved	<b>0.2</b>	mg/L					10/23/17 15:40	7782-44-7	
REDOX	<b>100</b>	mV					10/23/17 15:40		
Turbidity	<b>38.62</b>	NTU					10/23/17 15:40		
Static Water Level	<b>784.17</b>	feet					10/23/17 15:40		
Temperature, Water (C)	<b>14.6</b>	deg C					10/23/17 15:40		

<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>486</b>	mg/L	20.0	8.7	1		10/30/17 17:47		

<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.3</b>	Std. Units	0.10	0.010	1		10/31/17 10:55		H6

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

**Sample: MW 308**      **Lab ID: 40159490008**      Collected: 10/23/17 15:40      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>5.6J</b>	mg/L	10.0	2.5	5		11/09/17 10:39	16887-00-6	D3
Fluoride	<b>&lt;0.50</b>	mg/L	1.5	0.50	5		11/09/17 10:39	16984-48-8	D3
Sulfate	<b>&lt;5.0</b>	mg/L	15.0	5.0	5		11/09/17 10:39	14808-79-8	D3

**Sample: FIELD BLANK**      **Lab ID: 40159490009**      Collected: 10/24/17 16:45      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Antimony	<b>0.17J</b>	ug/L	1.0	0.15	1	11/01/17 07:05	11/06/17 21:08	7440-36-0	B
Arsenic	<b>&lt;0.28</b>	ug/L	1.0	0.28	1	11/01/17 07:05	11/06/17 21:08	7440-38-2	
Barium	<b>&lt;0.34</b>	ug/L	1.1	0.34	1	11/01/17 07:05	11/06/17 21:08	7440-39-3	
Beryllium	<b>&lt;0.18</b>	ug/L	1.0	0.18	1	11/01/17 07:05	11/06/17 21:08	7440-41-7	
Boron	<b>&lt;3.3</b>	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 21:08	7440-42-8	
Cadmium	<b>&lt;0.081</b>	ug/L	1.0	0.081	1	11/01/17 07:05	11/06/17 21:08	7440-43-9	
Calcium	<b>&lt;69.8</b>	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 07:15	7440-70-2	
Chromium	<b>&lt;1.0</b>	ug/L	3.4	1.0	1	11/01/17 07:05	11/04/17 07:15	7440-47-3	
Cobalt	<b>&lt;0.085</b>	ug/L	1.0	0.085	1	11/01/17 07:05	11/04/17 07:15	7440-48-4	
Lead	<b>&lt;0.20</b>	ug/L	1.0	0.20	1	11/01/17 07:05	11/06/17 21:08	7439-92-1	
Lithium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 21:08	7439-93-2	
Molybdenum	<b>&lt;0.44</b>	ug/L	1.5	0.44	1	11/01/17 07:05	11/06/17 21:08	7439-98-7	
Selenium	<b>&lt;0.32</b>	ug/L	1.1	0.32	1	11/01/17 07:05	11/06/17 21:08	7782-49-2	
Thallium	<b>&lt;0.14</b>	ug/L	1.0	0.14	1	11/01/17 07:05	11/06/17 21:08	7440-28-0	

<b>7470 Mercury</b>		Analytical Method: EPA 7470      Preparation Method: EPA 7470							
Mercury	<b>&lt;0.13</b>	ug/L	0.42	0.13	1	11/03/17 10:45	11/06/17 09:24	7439-97-6	

<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>&lt;8.7</b>	mg/L	20.0	8.7	1		10/31/17 14:43		

<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>6.3</b>	Std. Units	0.10	0.010	1		10/31/17 10:55		H6

<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>&lt;0.50</b>	mg/L	2.0	0.50	1		11/09/17 10:50	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/09/17 10:50	16984-48-8	
Sulfate	<b>&lt;1.0</b>	mg/L	3.0	1.0	1		11/09/17 10:50	14808-79-8	

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

**Sample: M4R**      **Lab ID: 40159490010**      Collected: 10/24/17 09:55      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Boron	<b>1910</b>	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 23:22	7440-42-8	
Calcium	<b>67100</b>	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 10:14	7440-70-2	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.52</b>	Std. Units			1		10/24/17 09:55		
Field Specific Conductance	<b>612</b>	umhos/cm			1		10/24/17 09:55		
Oxygen, Dissolved	<b>0.6</b>	mg/L			1		10/24/17 09:55	7782-44-7	
REDOX	<b>170</b>	mV			1		10/24/17 09:55		
Turbidity	<b>2.71</b>	NTU			1		10/24/17 09:55		
Static Water Level	<b>788</b>	feet			1		10/24/17 09:55		
Temperature, Water (C)	<b>15.8</b>	deg C			1		10/24/17 09:55		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>474</b>	mg/L	20.0	8.7	1		10/31/17 14:43		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.5</b>	Std. Units	0.10	0.010	1		10/31/17 10:55		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>49.3</b>	mg/L	10.0	2.5	5		11/08/17 18:40	16887-00-6	
Fluoride	<b>&lt;0.50</b>	mg/L	1.5	0.50	5		11/08/17 18:40	16984-48-8	D3
Sulfate	<b>187</b>	mg/L	15.0	5.0	5		11/08/17 18:40	14808-79-8	

**Sample: MW33AR**      **Lab ID: 40159490011**      Collected: 10/24/17 13:40      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020      Preparation Method: EPA 3010							
Boron	<b>678</b>	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 23:29	7440-42-8	
Calcium	<b>98200</b>	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 10:22	7440-70-2	
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.81</b>	Std. Units			1		10/24/17 13:40		
Field Specific Conductance	<b>804</b>	umhos/cm			1		10/24/17 13:40		
Oxygen, Dissolved	<b>9.5</b>	mg/L			1		10/24/17 13:40	7782-44-7	
REDOX	<b>191</b>	mV			1		10/24/17 13:40		
Turbidity	<b>3.24</b>	NTU			1		10/24/17 13:40		
Static Water Level	<b>784.13</b>	feet			1		10/24/17 13:40		
Temperature, Water (C)	<b>12.5</b>	deg C			1		10/24/17 13:40		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>606</b>	mg/L	20.0	8.7	1		10/31/17 14:44		

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### ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

Sample: MW33AR Lab ID: 40159490011 Collected: 10/24/17 13:40 Received: 10/26/17 09:55 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	7.7	Std. Units	0.10	0.010	1		11/06/17 10:45		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	119	mg/L	10.0	2.5	5		11/09/17 11:43	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		11/09/17 11:11	16984-48-8	
Sulfate	175	mg/L	15.0	5.0	5		11/09/17 11:43	14808-79-8	

Sample: MW34A Lab ID: 40159490012 Collected: 10/24/17 15:25 Received: 10/26/17 09:55 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Boron	208	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 23:52	7440-42-8	
Calcium	69600	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 10:29	7440-70-2	
<b>Field Data</b> Analytical Method:									
Field pH	7.67	Std. Units			1		10/24/17 15:25		
Field Specific Conductance	454	umhos/cm			1		10/24/17 15:25		
Oxygen, Dissolved	9.9	mg/L			1		10/24/17 15:25	7782-44-7	
REDOX	207	mV			1		10/24/17 15:25		
Turbidity	14.34	NTU			1		10/24/17 15:25		
Static Water Level	784.50	feet			1		10/24/17 15:25		
Temperature, Water (C)	11.7	deg C			1		10/24/17 15:25		
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	340	mg/L	20.0	8.7	1		10/31/17 14:44		
<b>9040 pH</b> Analytical Method: EPA 9040									
pH	7.7	Std. Units	0.10	0.010	1		11/06/17 10:45		H6
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	7.6	mg/L	2.0	0.50	1		11/09/17 11:22	16887-00-6	
Fluoride	<0.10	mg/L	0.30	0.10	1		11/09/17 11:22	16984-48-8	
Sulfate	98.0	mg/L	15.0	5.0	5		11/10/17 05:25	14808-79-8	

Sample: MW84A Lab ID: 40159490013 Collected: 10/24/17 14:30 Received: 10/26/17 09:55 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Boron	13.8	ug/L	11.0	3.3	1	11/01/17 07:05	11/06/17 23:59	7440-42-8	
Calcium	77500	ug/L	250	69.8	1	11/01/17 07:05	11/04/17 10:37	7440-70-2	

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## ANALYTICAL RESULTS

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

**Sample: MW84A**      **Lab ID: 40159490013**      Collected: 10/24/17 14:30      Received: 10/26/17 09:55      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Field Data</b>		Analytical Method:							
Field pH	<b>7.68</b>	Std. Units			1		10/24/17 14:30		
Field Specific Conductance	<b>491</b>	umhos/cm			1		10/24/17 14:30		
Oxygen, Dissolved	<b>9.3</b>	mg/L			1		10/24/17 14:30	7782-44-7	
REDOX	<b>210</b>	mV			1		10/24/17 14:30		
Turbidity	<b>2.93</b>	NTU			1		10/24/17 14:30		
Static Water Level	<b>785.32</b>	feet			1		10/24/17 14:30		
Temperature, Water (C)	<b>11.1</b>	deg C			1		10/24/17 14:30		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>314</b>	mg/L	20.0	8.7	1		10/31/17 14:44		
<b>9040 pH</b>		Analytical Method: EPA 9040							
pH	<b>7.6</b>	Std. Units	0.10	0.010	1		11/06/17 11:05		H6
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>5.1</b>	mg/L	2.0	0.50	1		11/09/17 11:32	16887-00-6	
Fluoride	<b>&lt;0.10</b>	mg/L	0.30	0.10	1		11/09/17 11:32	16984-48-8	
Sulfate	<b>2.2J</b>	mg/L	3.0	1.0	1		11/09/17 11:32	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

QC Batch: 272937 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 40159490006, 40159490007, 40159490008, 40159490009

METHOD BLANK: 1605932 Matrix: Water  
Associated Lab Samples: 40159490006, 40159490007, 40159490008, 40159490009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.13	0.42	11/06/17 08:52	

LABORATORY CONTROL SAMPLE: 1605933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.3	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1605934 1605935

Parameter	Units	1605934		1605935		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40159478001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	<0.13	5	5	5.9	5.8	119	116	85-115	2	20 M0

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

QC Batch: 272475 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 40159490001, 40159490002

METHOD BLANK: 1602625 Matrix: Water

Associated Lab Samples: 40159490001, 40159490002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	ug/L	<3.3	11.0	11/04/17 00:43	
Calcium	ug/L	<69.8	250	11/04/17 00:43	

LABORATORY CONTROL SAMPLE: 1602626

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	500	448	90	80-120	
Calcium	ug/L	5000	4680	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1602627 1602628

Parameter	Units	40159197001		1602627		1602628		% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec					MSD % Rec
Boron	ug/L	159	500	500	620	625	92	93	75-125	1	20	
Calcium	ug/L	56200	5000	5000	55200	59100	-19	58	75-125	7	20	P6

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

Parameter	Units	40159682002		1603398		1603399		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Antimony	ug/L	0.00074J mg/L	500	500	530	519	106	104	75-125	2	20			
Arsenic	ug/L	0.0037 mg/L	500	500	481	484	95	96	75-125	1	20			
Barium	ug/L	0.091 mg/L	500	500	619	605	106	103	75-125	2	20			
Beryllium	ug/L	0.00037J mg/L	500	500	451	413	90	83	75-125	9	20			
Boron	ug/L	77.5	500	500	517	456	88	76	75-125	13	20			
Cadmium	ug/L	0.00059J mg/L	500	500	507	497	101	99	75-125	2	20			
Calcium	ug/L	79.9 mg/L	5000	5000	80800	79800	17	-1	75-125	1	20	P6		
Chromium	ug/L	0.0099 mg/L	500	500	494	483	97	95	75-125	2	20			
Cobalt	ug/L	0.0044 mg/L	500	500	480	472	95	93	75-125	2	20			
Lead	ug/L	0.0047 mg/L	500	500	473	465	94	92	75-125	2	20			
Lithium	ug/L	5.7	500	500	439	395	87	78	75-125	11	20			
Molybdenum	ug/L	6.0	500	500	482	472	95	93	75-125	2	20			
Selenium	ug/L	0.0035 mg/L	500	500	502	504	100	100	75-125	0	20			
Thallium	ug/L	0.00052J mg/L	500	500	484	471	97	94	75-125	3	20			

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

QC Batch: 272411 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 40159490001, 40159490003, 40159490004, 40159490006, 40159490007, 40159490008

METHOD BLANK: 1602166 Matrix: Water  
Associated Lab Samples: 40159490001, 40159490003, 40159490004, 40159490006, 40159490007, 40159490008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	10/30/17 17:43	

LABORATORY CONTROL SAMPLE: 1602167

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	635	548	86	80-120	

SAMPLE DUPLICATE: 1602168

Parameter	Units	40159477001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	508	508	0	5	

SAMPLE DUPLICATE: 1602169

Parameter	Units	40159478001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	538	0	5	

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

QC Batch: 272530 Analysis Method: EPA 9040

QC Batch Method: EPA 9040 Analysis Description: 9040 pH

Associated Lab Samples: 40159490001, 40159490002, 40159490003, 40159490004, 40159490005, 40159490006, 40159490007, 40159490008, 40159490009, 40159490010

SAMPLE DUPLICATE: 1602902

Parameter	Units	40159479003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.9	7.9	0	20	H6

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

QC Batch: 273140 Analysis Method: EPA 9040

QC Batch Method: EPA 9040 Analysis Description: 9040 pH

Associated Lab Samples: 40159490011, 40159490012, 40159490013

SAMPLE DUPLICATE: 1607353

Parameter	Units	40159286001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	5.0	5.0	1	20	H6

SAMPLE DUPLICATE: 1607354

Parameter	Units	40159490011 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	7.7	7.7	0	20	H6

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### QUALITY CONTROL DATA

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

QC Batch: 273181 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 40159490001, 40159490002, 40159490003, 40159490004, 40159490005, 40159490006, 40159490007, 40159490008, 40159490009, 40159490010, 40159490011, 40159490012, 40159490013

METHOD BLANK: 1607457 Matrix: Water  
Associated Lab Samples: 40159490001, 40159490002, 40159490003, 40159490004, 40159490005, 40159490006, 40159490007, 40159490008, 40159490009, 40159490010, 40159490011, 40159490012, 40159490013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	11/08/17 12:00	
Fluoride	mg/L	<0.10	0.30	11/08/17 12:00	
Sulfate	mg/L	<1.0	3.0	11/08/17 12:00	

LABORATORY CONTROL SAMPLE: 1607458

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	102	90-110	
Sulfate	mg/L	20	20.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1607459 1607460

Parameter	Units	40159490001		MSD		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec							
Chloride	mg/L	4.0	20	20	25.0	25.1	105	105	105	90-110	0	15		
Fluoride	mg/L	<0.10	2	2	2.1	2.1	105	105	105	90-110	0	15		
Sulfate	mg/L	27.5	20	20	48.2	49.6	103	110	110	90-110	3	15		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1607461 1607462

Parameter	Units	40159565001		MSD		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec							
Chloride	mg/L	5870	10000	10000	16600	16500	107	106	106	90-110	1	15		
Fluoride	mg/L	240	1000	1000	1310	1310	107	107	107	90-110	0	15		
Sulfate	mg/L	ND	10000	10000	10600	10500	105	104	104	90-110	1	15		

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### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW 306</b>		<b>Lab ID: 40159490006</b>	Collected: 10/23/17 13:40	Received: 10/26/17 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 903.1	<b>0.271 ± 0.376 (0.628)</b> C:NA T:90%	pCi/L	11/08/17 12:45	13982-63-3		
Radium-228	EPA 904.0	<b>0.231 ± 0.317 (0.679)</b> C:80% T:88%	pCi/L	11/06/17 11:54	15262-20-1		
Total Radium	Total Radium Calculation	<b>0.502 ± 0.693 (1.31)</b>	pCi/L	11/13/17 13:00	7440-14-4		

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW 307</b>		<b>Lab ID: 40159490007</b>	Collected: 10/23/17 15:00	Received: 10/26/17 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 903.1	<b>0.511 ± 0.478 (0.678)</b> C:NA T:85%	pCi/L	11/08/17 12:45	13982-63-3		
Radium-228	EPA 904.0	<b>0.231 ± 0.282 (0.595)</b> C:88% T:87%	pCi/L	11/06/17 11:54	15262-20-1		
Total Radium	Total Radium Calculation	<b>0.742 ± 0.760 (1.27)</b>	pCi/L	11/13/17 13:00	7440-14-4		

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: MW 308</b>		<b>Lab ID: 40159490008</b>	Collected: 10/23/17 15:40	Received: 10/26/17 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 903.1	<b>-0.077 ± 0.397 (0.919)</b> C:NA T:82%	pCi/L	11/08/17 12:45	13982-63-3		
Radium-228	EPA 904.0	<b>0.318 ± 0.312 (0.639)</b> C:81% T:94%	pCi/L	11/06/17 11:54	15262-20-1		
Total Radium	Total Radium Calculation	<b>0.318 ± 0.709 (1.56)</b>	pCi/L	11/13/17 13:00	7440-14-4		

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: FIELD BLANK</b>		<b>Lab ID: 40159490009</b>	Collected: 10/24/17 16:45	Received: 10/26/17 09:55	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 903.1	<b>0.249 ± 0.346 (0.578)</b> C:NA T:93%	pCi/L	11/08/17 12:45	13982-63-3		
Radium-228	EPA 904.0	<b>0.376 ± 0.368 (0.756)</b> C:83% T:74%	pCi/L	11/06/17 11:53	15262-20-1		
Total Radium	Total Radium Calculation	<b>0.625 ± 0.714 (1.33)</b>	pCi/L	11/13/17 13:00	7440-14-4		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

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QC Batch:	277632	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	40159490006, 40159490007, 40159490008, 40159490009		

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METHOD BLANK:	1364211	Matrix:	Water
Associated Lab Samples:	40159490006, 40159490007, 40159490008, 40159490009		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.153 ± 0.282 (0.619) C:84% T:94%	pCi/L	11/06/17 11:52	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

QC Batch: 277631 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Associated Lab Samples: 40159490006, 40159490007, 40159490008, 40159490009

METHOD BLANK: 1364209 Matrix: Water

Associated Lab Samples: 40159490006, 40159490007, 40159490008, 40159490009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.301 (0.612) C:NA T:90%	pCi/L	11/08/17 12:17	

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## QUALIFIERS

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

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### DEFINITIONS

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 COLUMBIA CCR  
Pace Project No.: 40159490

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40159490001	MW 301	EPA 3010	272475	EPA 6020	272659
40159490002	MW 302	EPA 3010	272475	EPA 6020	272659
40159490003	MW 303	EPA 3010	272592	EPA 6020	272717
40159490004	MW 304	EPA 3010	272592	EPA 6020	272717
40159490005	MW 305	EPA 3010	272592	EPA 6020	272717
40159490006	MW 306	EPA 3010	272592	EPA 6020	272717
40159490007	MW 307	EPA 3010	272592	EPA 6020	272717
40159490008	MW 308	EPA 3010	272592	EPA 6020	272717
40159490009	FIELD BLANK	EPA 3010	272592	EPA 6020	272717
40159490010	M4R	EPA 3010	272592	EPA 6020	272717
40159490011	MW33AR	EPA 3010	272592	EPA 6020	272717
40159490012	MW34A	EPA 3010	272592	EPA 6020	272717
40159490013	MW84A	EPA 3010	272592	EPA 6020	272717
40159490006	MW 306	EPA 7470	272937	EPA 7470	273089
40159490007	MW 307	EPA 7470	272937	EPA 7470	273089
40159490008	MW 308	EPA 7470	272937	EPA 7470	273089
40159490009	FIELD BLANK	EPA 7470	272937	EPA 7470	273089
40159490001	MW 301				
40159490002	MW 302				
40159490003	MW 303				
40159490004	MW 304				
40159490005	MW 305				
40159490006	MW 306				
40159490007	MW 307				
40159490008	MW 308				
40159490010	M4R				
40159490011	MW33AR				
40159490012	MW34A				
40159490013	MW84A				
40159490006	MW 306	EPA 903.1	277631		
40159490007	MW 307	EPA 903.1	277631		
40159490008	MW 308	EPA 903.1	277631		
40159490009	FIELD BLANK	EPA 903.1	277631		
40159490006	MW 306	EPA 904.0	277632		
40159490007	MW 307	EPA 904.0	277632		
40159490008	MW 308	EPA 904.0	277632		
40159490009	FIELD BLANK	EPA 904.0	277632		
40159490006	MW 306	Total Radium Calculation	278885		
40159490007	MW 307	Total Radium Calculation	278885		
40159490008	MW 308	Total Radium Calculation	278885		
40159490009	FIELD BLANK	Total Radium Calculation	278885		
40159490001	MW 301	SM 2540C	272411		
40159490002	MW 302	SM 2540C	272529		
40159490003	MW 303	SM 2540C	272411		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216067.17 COLUMBIA CCR

Pace Project No.: 40159490

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40159490004	MW 304	SM 2540C	272411		
40159490005	MW 305	SM 2540C	272529		
40159490006	MW 306	SM 2540C	272411		
40159490007	MW 307	SM 2540C	272411		
40159490008	MW 308	SM 2540C	272411		
40159490009	FIELD BLANK	SM 2540C	272529		
40159490010	M4R	SM 2540C	272529		
40159490011	MW33AR	SM 2540C	272529		
40159490012	MW34A	SM 2540C	272529		
40159490013	MW84A	SM 2540C	272529		
40159490001	MW 301	EPA 9040	272530		
40159490002	MW 302	EPA 9040	272530		
40159490003	MW 303	EPA 9040	272530		
40159490004	MW 304	EPA 9040	272530		
40159490005	MW 305	EPA 9040	272530		
40159490006	MW 306	EPA 9040	272530		
40159490007	MW 307	EPA 9040	272530		
40159490008	MW 308	EPA 9040	272530		
40159490009	FIELD BLANK	EPA 9040	272530		
40159490010	M4R	EPA 9040	272530		
40159490011	MW33AR	EPA 9040	273140		
40159490012	MW34A	EPA 9040	273140		
40159490013	MW84A	EPA 9040	273140		
40159490001	MW 301	EPA 300.0	273181		
40159490002	MW 302	EPA 300.0	273181		
40159490003	MW 303	EPA 300.0	273181		
40159490004	MW 304	EPA 300.0	273181		
40159490005	MW 305	EPA 300.0	273181		
40159490006	MW 306	EPA 300.0	273181		
40159490007	MW 307	EPA 300.0	273181		
40159490008	MW 308	EPA 300.0	273181		
40159490009	FIELD BLANK	EPA 300.0	273181		
40159490010	M4R	EPA 300.0	273181		
40159490011	MW33AR	EPA 300.0	273181		
40159490012	MW34A	EPA 300.0	273181		
40159490013	MW84A	EPA 300.0	273181		

### REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: SCS ENGINEERS  
Branch/Location: Madison  
Project Contact: Tom Krawowski  
Phone: 608 224 2830  
Project Number: 25216067  
Project Name: Columbia  
Project State: Wisconsin  
Sampled By (Print): ZACH WATSON  
Sampled By (Sign): [Signature]  
PO #: [Blank]



# CHAIN OF CUSTODY

Retention Codes: A=None, B=HCL, C=H2SO4, D=HNO3, E=DI Water, F=Methanol, G=NaOH, H=Sodium Bisulfate Solution, I=Sodium Thiosulfate, J=Other

UPPER MIDWEST REGION

WI: 612-607-1700 MN: 920-469-2436

40159490

Data Package Options (billable):  
 EPA Level III  
 EPA Level IV  
 On your sample (billable)  
 NOT needed on your sample

Matrix Codes:  
A=Air, B=Biota, C=Chemical, D=Oil, S=Soil, SI=Sludge, W=Water, DW=Drinking Water, GW=Ground Water, SW=Surface Water, WW=Waste Water

Y/N	Pick Letter	Analyses Requested
N	D	Metals
N	D	Radium 226 228
N	D	Boron
N	A	pH
N	A	TDS Cl F 804

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX
001	MW501	10/23	1225	GW
002	MW502	10/24	1620	GW
003	MW503	10/23	1730	GW
004	MW504	10/23	1630	GW
005	MW505	10/24	1635	GW
006	MW506	10/23	1340	GW
007	MW507	10/23	1520	GW
008	MW508	10/23	1540	GW
009	Field Blank	10/24	1645	GW
010	M4R	10/24	955	GW
011	MW399R	10/24	1340	GW
012	MW344A	10/24	1525	GW
013	MW844A	10/24	1430	GW

Relinquished By:	Date/Time:	Received By:	Date/Time:
Zach Watson	10 25 17 1000	[Signature]	10 26 17 0955
[Signature]	10 26 17 0955	[Signature]	10 26 17 1055

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-250mL PHAD	
	4-250mL PHAD	

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)  
Date Needed: [Blank]

Transmit Prelim Results by (complete what you want):  
Email #1: [Blank]  
Email #2: [Blank]  
Telephone: [Blank]  
Fax: [Blank]

PACE Project No. 40159490  
Receipt Temp = 22.0 °C  
Sample Receipt pH OK / Adjusted  
Cooler Custody Seal Present / Not Present Intact / Not Intact

# Pace Container Order #278773

40159440

## Addresses

Order By :	Ship To :	Return To:
Company <u>SCS ENGINEERS</u>	Company <u>SCS ENGINEERS (Pace Analytical)</u>	Company <u>Pace Analytical Green Bay</u>
Contact <u>Blodgett, Meghan</u>	Contact <u>Kyle Kramer</u>	Contact <u>Milewsky, Dan</u>
Email <u>mbloodgett@scsengineers.com</u>	Email <u>kkramer@scsengineers.com</u>	Email <u>dan.milewsky@pacelabs.com</u>
Address <u>2830 Dairy Drive</u>	Address <u>2830 Dairy Drive</u>	Address <u>1241 Bellevue Street</u>
Address 2 _____	Address 2 _____	Address 2 <u>Suite 9</u>
City <u>Madison</u>	City <u>Madison</u>	City <u>Green Bay</u>
State <u>WI</u> Zip <u>53718</u>	State <u>WI</u> Zip <u>53718</u>	State <u>WI</u> Zip <u>54302</u>
Phone <u>608-216-7362</u>	Phone <u>608-216-7362</u>	Phone <u>(920)469-2436</u>

## Info

Project Name <u>CCR Rule Alliant Columbia (25216067)</u>	Due Date <u>09/29/2017</u>	Profile _____	Quote _____
Project Manager <u>Milewsky, Dan</u>	Return _____	Carrier <u>Most Economical</u>	Location _____

### Trip Blanks

Include Trip Blanks

### Bottle Labels

- Blank  
 Pre-Printed No Sample IDs  
 Pre-Printed With Sample IDs

### Bottles

- Boxed Cases  
 Individually Wrapped  
 Grouped By Sample

### Return Shipping Labels

- No Shipper Number  
 With Shipper Number

### Misc

- |   |  |
|---|--|
| <input type="checkbox"/> Sampling Instructions    | <input type="checkbox"/> Extra Bubble Wrap                     |
| <input type="checkbox"/> Custody Seal             | <input type="checkbox"/> Short Hold/Rush Stickers              |
| <input type="checkbox"/> Temp. Blanks             | <input checked="" type="checkbox"/> DI Water <u>3</u> Liter(s) |
| <input checked="" type="checkbox"/> Coolers _____ | <input type="checkbox"/> USDA Regulated Soils                  |
| <input type="checkbox"/> Syringes _____           |  |

### COC Options

- Number of Blanks 1  
 Pre-Printed \_\_\_\_\_

# of Samples	Matrix	Test	Container	Total	# of QC	Lot #	Notes
4	WT	Radium 226	1-1L Plastic w/ HNO3	4	0	082117-2AJN	
4	WT	Radium 228	1-1L Plastic w/ HNO3	4	0	082117-2AJN	
4	WT	Metals	250mL plastic w/HNO3	4	0	M-7-240-03BB	
14	WT	Boron	250mL plastic HNO3	14	0	M-7-240-03BB	
14	WT	pH	250mL plastic unpres	14	0	M-7-123-07BB	
14	WT	TDS, Cl, F, SO4	250mL plastic unpres	14	0	M-7-123-07BB	

## Hazard Shipping Placard In Place : NA

- \*Sample receiving hours are Monday through Friday 8:00 am to 6:00 pm and Saturday from 9:00 am to 12:00 pm unless special arrangements are made with your project manager.
- \*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.
- \*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage and disposal.
- \*Payment term are net 30 days.
- \*Please include the proposal number on the chain of custody to insure proper billing.

### Sample Notes

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

Ship Date : 09/28/2017

Prepared By: Mai Yer Her

Verified By: \_\_\_\_\_



Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project #:

WO#: 40159490



40159490

Client Name: SCS

Courier: Fed Ex UPS Client Pace Other: CS Logistics

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 NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: I/Corr: RO Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Person examining contents:
Date: 10/26/17
Initials: [Signature]

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like 'Chain of Custody Present', 'Sufficient Volume', 'Containers Intact', etc. with handwritten notes and dates.

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: [Signature]

Date: 10/25/17