Annual Groundwater Monitoring and Corrective Action Report

Columbia Water & Light Department

Columbia Municipal Power Plant
Former Inactive CCR Surface Impoundment – More's Lake
Project No. 93647

7/29/2020

Annual Groundwater Monitoring and Corrective Action Report

prepared for

Columbia Water & Light Department
Columbia Municipal Power Plant
Former Inactive CCR Surface Impoundment – More's Lake
Columbia, Missouri

Project No. 93647

7/29/2020

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

INDEX AND CERTIFICATION

Columbia Water & Light Department
Annual Groundwater Monitoring and Corrective Action Report
Project No. 93647

Report Index

Certification

I hereby certify, as a Professional Engineer in the state of Missouri, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by the Columbia Water & Light Department or others without specific verification or adaptation by the Engineer.

Brian C. Weis, PE, Missouri PE-2011000962

Date: July 29, 2019

Jul 31 2020 9:39 AM

TABLE OF CONTENTS

Page No.

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
amsl	above mean sea level
CCR	coal combustion residuals
CFR	Code of Federal Regulations
CMPP or Site	City of Columbia Municipal Power Plant
CWLD	Columbia Water & Light Department
GMP	*Groundwater Monitoring Plan for More's Lake*
GWPS	Groundwater Protection Standard
MCL	maximum contaminant level
MDNR	Missouri Department of Natural Resources
Report	*2019 Annual Groundwater Monitoring and Corrective Action Report*
SAP	*Groundwater Sampling and Analysis Plan for More's Lake*
SSI	statistically significant increase
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This *2019 Annual Groundwater Monitoring and Corrective Action Report* (Report) was prepared by Burns & McDonnell on behalf of Columbia Water & Light Department (CWLD) to present groundwater monitoring activities performed in 2019 at the existing utility's former inactive coal combustion residuals (CCR) surface impoundment (known locally, and hereinafter referred to as, "More's Lake") located at CWLD's City of Columbia Municipal Power Plant (CMPP or Site) in Columbia, Missouri. The former inactive CCR surface impoundment was certified as closed in February of 2020 (discussed further in Section 6).

This Report has been prepared to support compliance with the groundwater monitoring requirements of United States Environmental Protection Agency's (USEPA's) published *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities; Final Rule*, 40 Code of Federal Regulations (CFR) § 257 and 261, dated April 17, 2015 (USEPA, 2015) (Final Rule), and the updated Final Rule *Extension of Compliance Deadlines for Certain Inactive Surface Impoundments; Response to Partial Vacatur* published August 5, 2016 (USEPA, 2016) with new provisions for inactive CCR surface impoundments under 40 CFR 257.90(a) and 40 CFR 257.100(e). The updated Final Rule (USEPA, 2016), removed the effects of "early closure" provisions for inactive CCR surface impoundments. With this rule change, inactive CCR surface impoundments must comply with groundwater monitoring and reporting requirements set forth in the Final Rule that were previously applicable to only existing/active CCR surface impoundments.

This Report follows the initial *Annual Groundwater Monitoring Report* prepared by Burns & McDonnell dated July 29, 2019 (Burns & McDonnell, 2019c) that presented groundwater monitoring activities at the Site in 2017 through March 2019. This 2019 Report will present groundwater monitoring activities in 2019.

Groundwater monitoring activities completed to date at the Site from 2017 through 2019 included:

- The establishment of a groundwater monitoring well network in accordance with Final Rule requirements;
- Hydraulic conductivity testing at each of the wells included in the More's Lake monitoring well network;

- Routine gauging of Site monitoring wells to assess the direction of groundwater flow beneath the More's Lake;

- Collecting and analyzing at least eight rounds of groundwater samples from each of the nine wells included in the More's Lake well network prior to April 17, 2019 for analysis of Appendix III and Appendix IV parameters in accordance with 40 CFR §257.94(b) and additional Missouri Department of Natural Resources (MDNR) water quality parameters to establish background concentrations;

- Initiating evaluation of groundwater monitoring data for statistically significant increases (SSIs) over background levels for constituents listed in Appendix III of 40 CFR §257, as required by 40 CFR §257.94 and include the additional MDNR water quality parameters (Burns & McDonnell, 2019c); and

- Establishing and implementing an Assessment Monitoring Program (Burns & McDonnell, 2019d); and

- Developing Groundwater Protection Standards (GWPSs) for Assessment Monitoring constituents (Burns & McDonnell, 2019e).

- Collecting and analyzing groundwater samples for Assessment Monitoring events in August 2019 and December 2019.

1.1 Purpose and Scope

This Report presents groundwater monitoring activities and results for 2019 at More's Lake and has been prepared in accordance with the annual groundwater monitoring and corrective action report requirements presented in 40 CFR §257.100(e)(5) and §257.90(e), which states:

"For [inactive] CCR surface impoundments, no later than [August 1, 2019], and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report."

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

This Report provides an account of 2019 groundwater monitoring activities performed in accordance with the *Groundwater Monitoring Plan for More's Lake* (Burns & McDonnell, 2019f) (GMP) that includes the *Groundwater Sampling and Analysis Plan for More's Lake* (Burns & McDonnell, 2018a) (SAP) as Appendix A to the GMP.

1.2 Facility Description and History

The CMPP facility is owned and operated by the CWLD. The CMPP is located at 1501 Business Loop 70 East, Columbia, Missouri in Boone County, Missouri, illustrated in Figures 1-1 and 1-2. The CMPP facility occupies approximately 25.4 acres and is situated in the Southeast ¼, of the Southwest ¼, of Section 6, in Township 48 North, Range 12 West, at a latitude of 38.964917° N and longitude of 92.317027° W.

Land use adjacent to the CMPP is residential to the east and is mixed industrial, commercial, and residential to the north, west, and south (Figure 1-2). The CMPP is located approximately 950 feet (0.18 miles) east of an unnamed intermittent tributary of Bear Creek, about 2,150 feet (0.41 miles) northwest of an unnamed intermittent tributary of Hinkson Creek, and approximately 5,750 feet (1.09 miles) northeast of Flat Branch Creek. Bear Creek and Hinkson Creek are approximately 4,100 feet (0.78 miles) northwest and 4,500 feet (0.85 miles) southeast of the CMPP, respectively.

The CMPP has one CCR unit that is comprised of an inactive surface impoundment that formerly received CCR from facility operations. The original surface impoundment, known locally as More's Lake, was constructed as a farm pond no later than 1896, prior to being used for CCR disposal. The first power production at the CMPP occurred around 1914. Through the years, the impoundment received sluiced bottom ash, fly ash, boiler blow-down, cooling tower blow-down, and storm water runoff from the CMPP. The impoundment ceased receipt of CCR in 2015, in accordance with the Federal CCR Final Rule (40 CFR §257.53), allowing it to be classified as an inactive surface impoundment.

The inactive surface impoundment area is situated at the northern portion of the CMPP facility, within the property boundary, as shown on Figures 1-1 and 1-2. The impoundment covers about seven (7) acres and was not constructed with an engineered liner. The impoundment is operated under MDNR Permit No. 0004979. The base elevation of the inactive surface impoundment is around 745 feet above mean sea level (amsl) based on test pits dug in the fall of 2016 (Burns & McDonnell, 2016).

The CWLD began removal of CCR material in late 2017, with the intent of working towards closure by removal of the inactive CCR surface impoundment, as defined in the Final Rule. A final inspection of the impoundment on May 31st, 2019 determined that all CCR material had been removed from the facility.

1.3 Overview

This Report is organized in sections as summarized below:

- **Section 1.0 Introduction**
- **Section 2.0 Monitoring Well Installation Activities** - Section 2.0 describes monitoring well installation activities and a description of the More's Lake monitoring well network.
- **Section 3.0 Groundwater Monitoring –** Section 3.0 presents a narrative of the background and detection monitoring activities that have been performed during the reporting period.
- **Section 4.0 Assessment Monitoring Results –** Section 4.0 discusses the groundwater monitoring results under Assessment Monitoring program.
- **Section 5.0 Certifications and Notifications to the Operating Record –** Section 5.0 presents certifications and notifications that were prepared during the reporting period and placed in the operating record.
- **Section 6.0 – Key Activities for the Upcoming Year** – Section 6.0 presents an account of anticipated activities for August 2020 through July 2021.
- **Section 7.0 References** - Section 7.0 includes a full bibliography for references made within this report.

2.0 MONITORING WELL INSTALLATION

2.1 Scope of Well Installation Activities

To meet the requirements presented in the Final Rule, eight new monitoring wells (MW-1 through MW-8) were installed around More's Lake in May 2017 to supplement the existing monitoring well network (PZ-1 through PZ-6). These new wells were installed to provide both upgradient and down-gradient monitoring locations. The established monitoring well network was certified in April 15, 2019 to fulfill the Final Rule requirements presented in 40 CFR §257.91(f). Figure 2-1 presents the More's Lake monitoring well network relative to the inactive CCR surface impoundment.

No monitoring wells were installed in 2019.

3.0 GROUNDWATER MONITORING

Groundwater samples were collected using low-flow purging and sampling techniques following the procedures presented in the SAP and in accordance with the requirements of the GMP and the Final Rule.

3.1 Description of the Groundwater Monitoring Program

A total of eight background monitoring events were completed at More's Lake beginning in December 2017 and ending in March 2019 to provide a minimum of eight independent groundwater samples for each of the parameters listed in 40 CFR §257 Appendix III and IV and the additional MDNR water quality parameters listed in the MDNR CCR Storage and Disposal Sites in Missouri White Paper (MDNR, 2016).

As reported in the initial Annual Groundwater Monitoring and Corrective Action Report (Burns & McDonnell, 2019c). The background groundwater monitoring data (December 2017 through March 2019) was evaluated for statistically significant increases (SSIs) over background levels for the constituents listed in Appendix III of 40 CFR § 257, per 40 CFR § 257.93(h) and § 257.94(a) with SSIs over background identified in one or more down-gradient monitoring wells. Statistical analysis was also performed on additional MDNR water quality parameters and identified SSIs over background in one or more down-gradient monitoring wells. Due to SSIs above background levels observed in Final Rule Appendix III detection monitoring parameters, per 40 CFR §257.94(e), CWLD established an assessment monitoring program on July 29, 2019. Notification of the establishment of an Assessment Monitoring Program (Burns & McDonnell, 2019d) was prepared and placed in the facility operating record and on the publicly available website in accordance with 40 CFR § 257.106(h), § 257.105(h), and § 257.107(h), respectively. Results of the assessment monitoring program implementation are provided in this report, in accordance with 40 CFR § 257.90(e).

3.2 Groundwater Sampling Activities

A summary of the assessment groundwater monitoring events that occurred during the reporting period is as follows:

- August 2019 – Initial Assessment Monitoring performed on August 26-27, 2019.
- December 2019 – Assessment Monitoring performed on December 3-4, 2019.

During each monitoring event, the depth to groundwater was gauged prior to sampling using a decontaminated water level probe. The measured depth to groundwater and calculated water level

elevations for each event are presented in Tables 3-1 and 3-2. Potentiometric surface maps were then generated based on calculated groundwater elevations and are presented as Figures 3-1 and 3-2. As shown on Figures 3-1 and 3-2, the primary groundwater gradients observed during the reporting period predominantly indicate flow towards the north-northwest.

Following water level gauging, monitoring wells were purged with dedicated bladder pumps using low-flow procedures until stabilization criteria were met and the turbidity was below 5 Nephelometric Turbidity Units (NTUs). With the exception of turbidity, no issues were encountered during the assessment monitoring events at More's Lake. Turbidity stabilized above 5 NTUs at Monitoring Wells MW-6 (14.2 NTU), MW-7 (14.8 NTU), and MW-8 (11.8 NTU) during the August 2019 sampling event and at Monitoring Wells MW-6 (12.15 NTU) and MW-7 (11.1 NTU) during the December 2019 sampling event.

Once groundwater stabilized, the monitoring wells were sampled for the complete list of parameters listed in 40 CFR §257 Appendix III and IV and the additional MDNR water quality parameters (MDNR, 2016) using analytical methods presented in Table 3-3.

Samples were collected in accordance with the SAP included in the GMP and were submitted to Pace Analytical Services, Inc. located in Lenexa, Kansas for analysis. Field sampling forms are included in Appendix A, copies of laboratory analytical reports are included as Appendix B, copies of data validation reports prepared by Burns & McDonnell are provided in Appendix C (all data are considered valid for use in reporting as qualified), and a table summarizing the analytical results collected from each monitoring well is included in Table 3-3.

4.0 ASSESSMENT MONITORING RESULTS

In response to the findings that an SSI above background for an Appendix III constituent had been observed in groundwater monitoring data collected as part of the detection monitoring program implemented at More's Lake, an assessment monitoring program was established in accordance with 40 CFR §257.95 with notification provided to MDNR (Burns & McDonnell, 2019d) on July 29, 2019 and placed in the facility operating record in accordance with 40 CFR §257.94(e)(3).

GWPSs were established in accordance with §257.95(h) for Appendix IV constituents that were detected in one or more monitoring well during an initial assessment groundwater monitoring event performed in August 2019 in accordance with §257.95(b). When establishing GWPSs, established background concentrations were compared to USEPA maximum concentration limits (MCLs) in §257.95(h)(1) and the health-based levels presented for cobalt, lithium, and molybdenum in §257.95(h)(2). Background limits were calculated using prediction interval analysis consistent with § 257.93(f)(3). The prediction interval assessment was performed using historic data from upgradient monitoring wells MW-2 through MW-7 as the background dataset (data from December 2017 through March 2019). The calculated background limits were compared to the levels identified in §257.95(h)(1) [MCLs] and §257.95(h)(2) [health-based levels presented for cobalt, lithium, and molybdenum] and the higher of the two values was selected as the GWPS in accordance with §257.95(h)(3). The notification of establishment of GWPSs for More's Lake was presented in an *Establishment of Groundwater Protection Standards and Initial Assessment Monitoring Event* letter (Burns & McDonnell, 2019e) dated December 3, 2019 and placed in the facility operating record and on the publicly available website. The established GWPSs are summarized in Table 4-1.

Groundwater analytical results from 2017 through 2019 are summarized in Table 3-3 and compares detected constituents to their respective GWPS. None of the detected Appendix IV parameters from the August 2019 and December 2019 assessment monitoring sampling events exceeded their respective GWPS. GWPS exceedances were observed in Appendix III and MDNR Water Quality parameters from August 2019 and December 2019 and included the following:

Appendix III Parameters: total dissolved solids, calcium, and sulfate

MDNR Water Quality Parameters: magnesium, iron, total organic carbon, total hardness, and sodium.

No exceedances of Appendix IV parameters for two consecutive events, together with the removal of all CCR material, qualified the facility for closure by removal as discussed in Section 6.

5.0 CERTIFICATIONS AND NOTIFICATIONS TO THE OPERATING RECORD

The following certifications and notifications regarding the groundwater monitoring activities were made to the operating record and/or were posted to the CWLD's publicly accessible CCR website during the reporting period:

- Certification of the Inactive Surface Impoundment Groundwater Monitoring Network - *Groundwater Monitoring System Certification for City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake)* (Burns & McDonnell, 2019a)
- Selection of Statistical Method – *Statistical Method for Evaluating Groundwater at City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake)* (Burns & McDonnell, 2019b)
- Initial Annual Groundwater Monitoring and Corrective Action Report - *Annual Groundwater Monitoring and Corrective Action Report*; City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake) (Burns & McDonnell, 2019c)
- Notification of Assessment Monitoring Program – *Notification of the Establishment of Assessment Monitoring Program at City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake)* (Burns & McDonnell, 2019d)
- Establishment of Groundwater Protection Standards and Initial Assessment Monitoring Event – *Re: Establishment of Groundwater Protection Standards and Initial Assessment Monitoring Event* (Burns & McDonnell, 2019e)
- Notification of Closure by Removal - *Re: Notification of Closure by Removal – City of Columbia Water & Light Department, Inactive CCR Surface Impoundment (More's Lake)* (Burns & McDonnell, 2020).

6.0 KEY ACTIVITIES FOR THE UPCOMING YEAR

6.1 Closure By Removal Criteria

The closure of More's Lake by removal of CCR is considered complete by satisfying the criteria in 40 CFR 40 §257.102(c) which states the following:

> *(c) Closure by removal of CCR. An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to § 257.95(h) for constituents listed in appendix IV to this part.*

In 2019, the Final Rule's criteria for conducting the closure by removal of CCR is considered satisfied and complete for More's Lake as summarized below:

6.1.1 CCR Removal

The CWLD began the closure by removal process in the summer of 2017, hauling the CCR material to the Columbia, Missouri Sanitary Landfill for final disposal. The CCR material was substantially removed from the impoundment in late summer of 2018 with the exception of small isolated areas, stockpiles, and submerged portion in the pond sump area (southwest corner of pond). The CWLD continued to remove residual CCR material and underlying soil through spring of 2019 with periodic removal inspections performed by Burns & McDonnell in accordance with the *Closure by Removal Verification Plan* (Burns & McDonnell, 2018b) that was conditionally approved by MDNR Solid Waste Management Program (SWMP) in September 17, 2018.

The CWLD completed final removal of the residual CCR material and the final inspection was made on May 31, 2019 to visually verify all CCR material within the historical impoundment footprint had been removed. A *Notification of Closure by Removal* letter (Burns & McDonnell, 2020) was submitted to the SWMP as required by 40 CFR §257.102(h) on February 6, 2020 and included a certification statement that the removal of CCR was completed at More's Lake, in general accordance with 40 CFR §257.102(c) and the *Closure by Removal Verification Plan*. The notification of completion of closure of More's Lake was placed in the facility operating record and posted on the publicly accessible website to satisfy the §257.105(i)(8), §257.106(i)(8), and §257.107(i)(8), respectively.

6.1.2 Groundwater Quality

Groundwater concentrations from assessment monitoring events in August 2019 and December 2019 did not exceed the GWPS established pursuant to §257.95(h) for constituents listed in Appendix IV. These assessment groundwater monitoring results showing no Appendix IV constituents detected at concentrations above the GWPS were provided in the Notification of Closure by Removal letter.

6.2 Closure of More's Lake

Based on the notification letter that included a certification statement that the removal of CCR was completed at More's Lake and groundwater concentrations did not exceed the GWPS for constituents listed in Appendix IV, More's Lake satisfies the Final Rule's criteria for closure.

Following review of the notification letter, the SWMP determined that the closure activities have been completed in a letter dated April 24, 2020.

6.3 Post-Closure Care Requirements

In accordance with 40 CFR 40 §257.104(a)(2), the closure by CCR removal as provided by §257.102(c) is not subject to the post-closure care criteria under the Final Rule.

Following MDNR-approved notification of completion of closure of More's Lake, no further post-closure care activities will be performed, including no further groundwater monitoring events or subsequent groundwater monitoring reports.

7.0 REFERENCES

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell), 2016, Re: Technical Memorandum – Additional Stability Considerations, December 14.

Burns & McDonnell, 2018a, *Groundwater Sampling and Analysis Plan for More's Lake, Columbia Municipal Power Plant*, August 2017, revised February 2018.

Burns & McDonnell, 2018b, *Columbia Municipal Power Plant CCR Surface Impoundment Closure by Removal Verification Plan*, August 2018.

Burns & McDonnell, 2019a, *Groundwater Monitoring System Certification for City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake)*, April 15.

Burns & McDonnell, 2019b, *Statistical Method for Evaluating Groundwater at City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake)*, April 15.

Burns & McDonnell, 2019c, *Annual Groundwater Monitoring and Corrective Action Report*; City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake), July 29.

Burns & McDonnell, 2019d, *Notification of the Establishment of Assessment Monitoring Program at City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake),* July 29.

Burns & McDonnell, 2019e, *Establishment of Groundwater Protection Standards and Initial Assessment Monitoring Event*; City of Columbia Water & Light Department Inactive Surface Impoundment (More's Lake), December 3.

Burns & McDonnell, 2019f, *Groundwater Monitoring Program for More's Lake, Columbia Municipal Power Plant*, August 2017, revised December 2019.

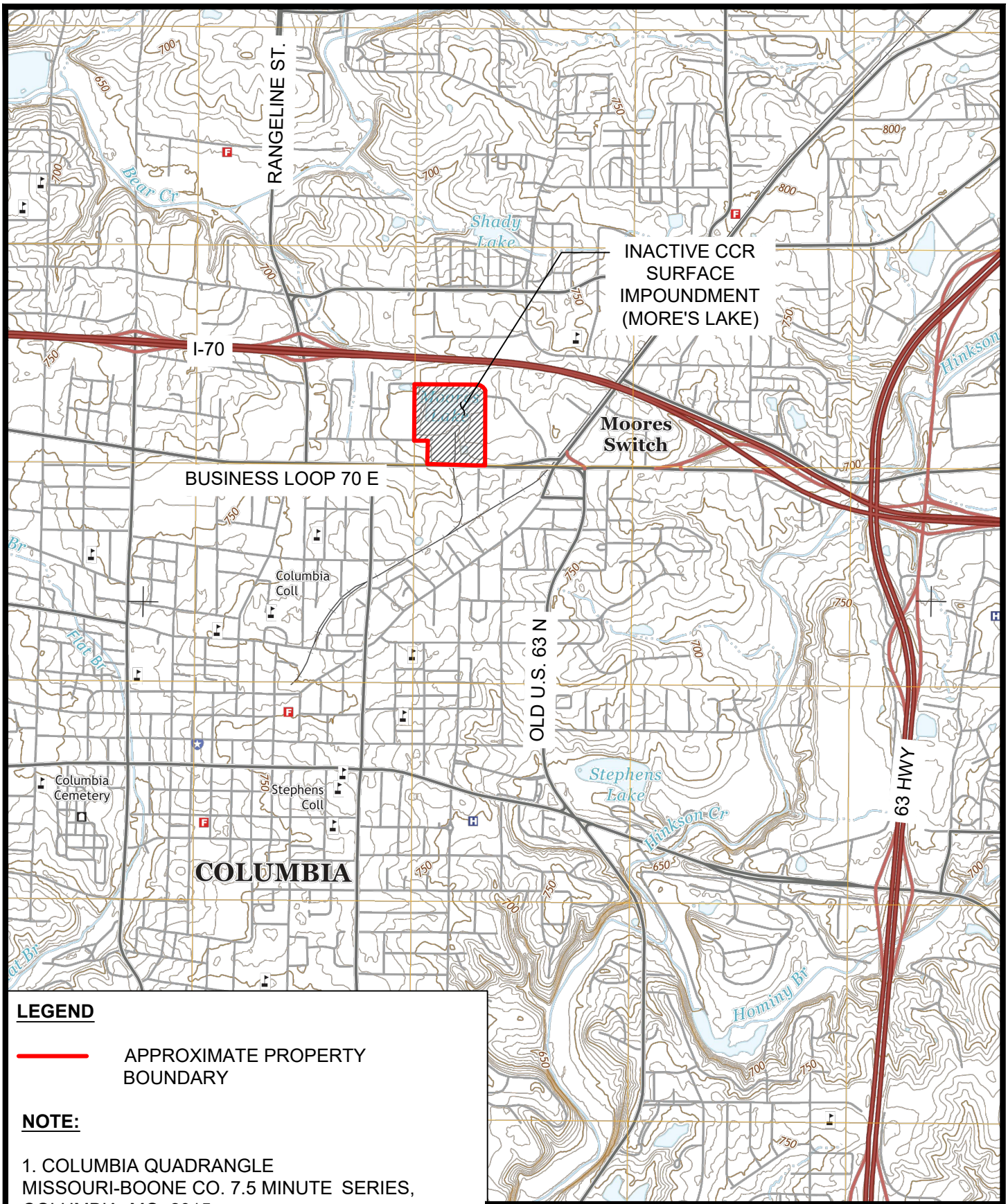
Burns & McDonnell, 2020, *Notification of Closure by Removal of Coal Combustion Residuals Certification*, City of Columbia, Missouri, Water & Light Department, More's Lake Inactive Surface Impoundment, February 6.

MDNR, 2016, Coal Combustion Residual Storage and Disposal Sites in Missouri, Division of Environmental Quality, CCR White Paper, http://dnr.mo.gov/env/swmp/ccr.htm, July 29, 2016, pp. 27.

United States Environmental Protection Agency, 2015, *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*, 40 CFR Parts 257 and 261, Federal Register, Vol. 80, No. 74, April 17, 2015, http://www.gpo.gov/fdsys/pkg/FR-2015-04-17/pdf/2015-00257.pdf.

United States Environmental Protection Agency, 2016, *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule; Extension of Compliance Deadlines for Certain Inactive Surface Impoundments; Response to Partial Vacatur;* 40 CFR Part 257, Federal Register, Vol. 81, No. 151, August 5, 2016, https://www.govinfo.gov/content/pkg/FR-2016-08-05/pdf/2016-18353.pdf.

FIGURES



LEGEND

APPROXIMATE PROPERTY BOUNDARY

NOTE:

1. COLUMBIA QUADRANGLE MISSOURI-BOONE CO. 7.5 MINUTE SERIES, COLUMBIA, MO, 2015.
2. CONTOUR INTERVAL 10 FEET.

N

0 2000' 4000'

SCALE IN FEET

BURNS McDONNELL

FIGURE 1-1
SITE VICINITY TOPOGRAPHIC MAP
COLUMBIA MUNICIPAL POWER PLANT
COLUMBIA, MO

Z:\Clients\ENS\ColumbiaMO\93647_MoresLake\Design\CADD\Dwgs\Groundwater Work Plan\2018 GW and CA Report\FIG1-Site Map.dwgDMKILBURN

LEGEND

APPROXIMATE PROPERTY BOUNDARY

NOTE:

1. COLUMBIA QUADRANGLE MISSOURI-BOONE CO. 7.5 MINUTE SERIES, COLUMBIA, MO, 2015.

N

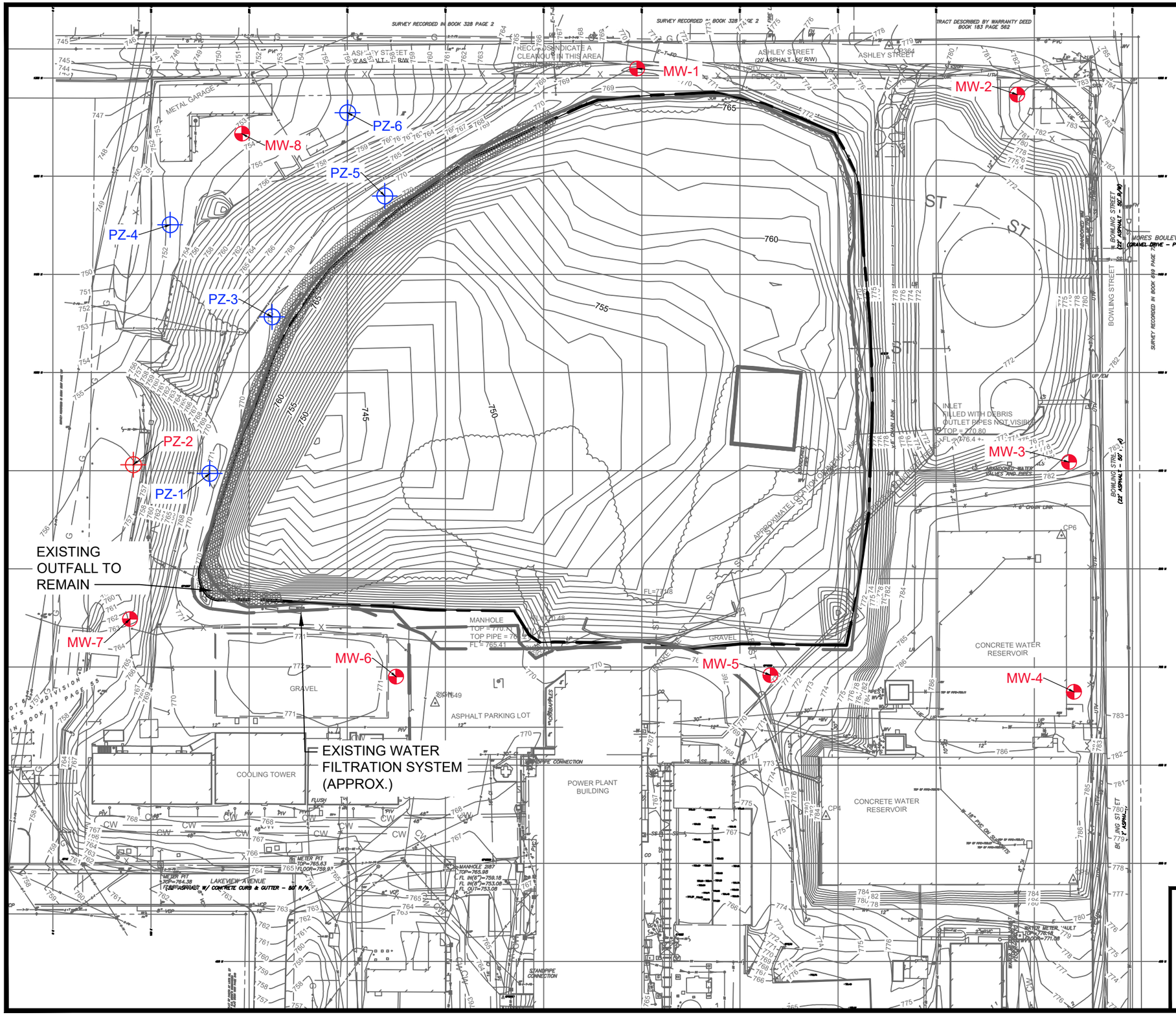
0 2000' 4000'

SCALE IN FEET

BURNS McDONNELL

FIGURE 1-2
SITE VICINITY AERIAL MAP
COLUMBIA MUNICIPAL POWER PLANT
COLUMBIA, MO

Z:\Clients\ENS\ColumbiaMO\93647_MoresLake\Design\CADD\Dwgs\Groundwater Work Plan\2018 GW and CA Report\FIG2-Map.dwg DMKILBURN



LEGEND

- PIEZOMETER
- MONITORING WELL
- USED FOR WATER LEVEL OR TOTAL DEPTH ONLY
- APPROXIMATE PROPERTY BOUNDARY

NOTE:

1. COLUMBIA QUADRANGLE MISSOURI-BOONE CO. 7.5 MINUTE SERIES, COLUMBIA, MO, 2015.
2. CONTOUR INTERVAL 1 FEET.
3. WELLS COLORED IN RED ARE INCLUDED IN THE SAMPLING NETWORK.

N

0 100' 200'

SCALE IN FEET

BURNS McDONNELL

FIGURE 2-1
MONITORING WELL NETWORK
COLUMBIA MUNICIPAL POWER PLANT
COLUMBIA, MISSOURI

Z:\CLIENTS\ENS\COLUMBIAMO\93647_MORESLAKE\DESIGN\CADD\DWGS\GROUNDWATER WORK PLAN\2018 GW AND CA REPORT\FIG3-MONITORING WELL LOCATIONS.DWG DMKILBURN

MW-1
741.32

MW-2
763.98

MW-8
744.58

PZ-6
749.08

PZ-5
754.06 *

PZ-4
744.64

PZ-3
758.20 *

PZ-2
747.34

PZ-1
DRY *

MW-7
752.83

MW-6
754.79

MW-5
757.51

MW-4
762.88

MW-3
764.58

745

750

755

760

765

EXISTING OUTFALL TO REMAIN

EXISTING WATER FILTRATION SYSTEM (APPROX.)

LAKEVIEW AVENUE (28' ASPHALT W/ CONCRETE CURB & GUTTER - 80' R/W)

BOWLING STREET (22' ASPHALT - 80' R/W)

COOLING TOWER

POWER PLANT BUILDING

CONCRETE WATER RESERVOIR

ASPHALT PARKING LOT

GRAVEL

MANHOLE

INLET FILLED WITH DEBRIS OUTLET PIPES NOT VISIBLE

LEGEND

- PIEZOMETER
- MONITORING WELL
- APPROXIMATE PROPERTY BOUNDARY
- 757.51 GROUNDWATER ELEVATION
- GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- * GROUNDWATER ELEVATIONS NOT USED IN CONTOURING

NOTE:

1. MONITORING WELL AND PIEZOMETER LOCATIONS AND ELEVATIONS SURVEYED BY ENGINEERING SURVEYS AND SERVICES OF COLUMBIA, MO ON JUNE 23, 2017.
2. WELLS COLORED IN RED ARE INCLUDED IN THE SAMPLING NETWORK.
3. GROUNDWATER ELEVATIONS WERE COLLECTED ON AUGUST 26, 2019.
4. BERM PIEZOMETERS PZ-1, PZ-3 AND PZ-5 ARE NOT INCLUDED IN CONTOURING.

N

0 100' 200'

SCALE IN FEET

BURNS McDONNELL

FIGURE 3-1
POTENTIOMETRIC SURFACE MAP
AUGUST 26, 2019
COLUMBIA MUNICIPAL POWER PLANT
COLUMBIA, MO

Z:\CLIENTS\ENS\COLUMBIAMO\93647_MORESLAKE\DESIGN\CADD\DWGS\2019 GW REPORT\FIG3-1-POTENTIOMETIC SURFACE MAP_AUGUST 2019.DWG DMKILBURN

MW-1
741.12

MW-2
763.01

MW-8
744.17

PZ-6
748.68

PZ-4
744.28

PZ-5
DRY*

PZ-3
754.11*

PZ-2
747.44

PZ-1
DRY*

MW-3
763.33

MW-7
752.28

MW-6
754.85

MW-5
757.15

MW-4
762.18

EXISTING
OUTFALL TO
REMAIN

EXISTING WATER
FILTRATION SYSTEM
(APPROX.)

LEGEND

- PIEZOMETER
- MONITORING WELL
- APPROXIMATE PROPERTY BOUNDARY
- 741.12 GROUNDWATER ELEVATION
- GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- * GROUNDWATER ELEVATIONS NOT USED IN CONTOURING

NOTE:

1. MONITORING WELL AND PIEZOMETER LOCATIONS AND ELEVATIONS SURVEYED BY ENGINEERING SURVEYS AND SERVICES OF COLUMBIA, MO ON JUNE 23, 2017.
2. WELLS COLORED IN RED ARE INCLUDED IN THE SAMPLING NETWORK.
3. GROUNDWATER ELEVATIONS WERE COLLECTED ON DECEMBER 3, 2019.
4. BERM PIEZOMETERS PZ-1, PZ-3 AND PZ-5 ARE NOT INCLUDED IN CONTOURING.

N

0 100' 200'

SCALE IN FEET

BURNS McDONNELL

FIGURE 3-2
POTENTIOMETRIC SURFACE MAP
DECEMBER 3, 2019
COLUMBIA MUNICIPAL POWER PLANT
COLUMBIA, MO

Z:\CLIENTS\ENS\COLUMBIAMO\93647_MORESLAKE\DESIGN\CADD\DWGS\2019 GW REPORT\FIG3-2-POTENTIOMETIC SURFACE MAP_DECEMBER 2019.DWG DMKILBURN

TABLES

Table 3-1
Summary of Groundwater Depths and Elevations - August 26, 2019
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, Missouri

Well ID	Top of Casing Elevation (ft amsl)	Depth to Water (ft bTOC)	Water Elevation (ft amsl)
MW-1	769.82	28.50	741.32
MW-2	781.03	17.05	763.98
MW-3	781.13	16.55	764.58
MW-4	785.02	22.14	762.88
MW-5	769.61	12.10	757.51
MW-6	770.07	15.28	754.79
MW-7	762.23	9.40	752.83
MW-8	753.09	8.51	744.58
PZ-1	770.78	Dry	na
PZ-2	755.91	8.57	747.34
PZ-3	769.94	11.74	758.20
PZ-4	752.06	7.42	744.64
PZ-5	770.02	15.96	754.06
PZ-6	755.60	6.52	749.08

ft - feet

ft bTOC - feet below top of casing

ft amsl - feet above mean sea level.

na - not available (dry)

Notes:

PZ-1 TD = 16.54 ft bTOC (Dry)

Table 3-2
Summary of Groundwater Depths and Elevations - December 3, 2019
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, Missouri

Well ID	Top of Casing Elevation (ft amls)	Depth to Water (ft bTOC)	Water Elevation (ft amsl)
MW-1	769.82	28.70	741.12
MW-2	781.03	18.02	763.01
MW-3	781.13	17.80	763.33
MW-4	785.02	22.84	762.18
MW-5	769.61	12.46	757.15
MW-6	770.07	15.22	754.85
MW-7	762.23	9.95	752.28
MW-8	753.09	8.92	744.17
PZ-1	770.78	Dry	na
PZ-2	755.91	8.47	747.44
PZ-3	769.94	15.83	754.11
PZ-4	752.06	7.78	744.28
PZ-5	770.02	Dry	na
PZ-6	755.60	6.92	748.68

ft - feet

ft bTOC - feet below top of casing

ft amsl - feet above mean sea level.

na - not available (dry)

Notes:

PZ-1 TD = 16.47 ft bTOC (Dry)

PZ-5 TD = 16.11 ft bTOC (Dry)

Table 3-3
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-1 12/21/2017 60260936001	MW-1 2/23/2018 60264569001	MW-1 4/26/2018 60269085011	MW-1 6/29/2018 60273890009	MW-1 8/23/2018 60278591006	MW-1 10/25/2018 60284830001	MW-1 12/20/2018 60290219010	MW-1 3/14/2019 60296854009	MW-1 8/26/2019 60313018002	MW-1 12/03/2019 60322982002
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	°C	**15.84**	**13.85**	**16.63**	**17.86**	**17.46**	**15.98**	**14.70**	**14.96**	**17.20**	**15.45**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.862**	**1.09**	**1.11**	**1.09**	**1.03**	**1.16**	**1.02**	**1.05**	**1.219**	**1.01**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.67**	**6.78**	**7.66**	**6.87**	**7.97**	**7.16**	**6.66**	**6.83**	**6.93**	**6.97**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**58**	**92**	**64**	**114**	**126**	**137**	**106**	**94**	**-38.5**	**-40.5**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.43**	**0.47**	**0.0**	**0.27**	**0.30**	**0.19**	**0.00**	**0.59**	**1.07**	**0.37**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**0.0**	**0.0**	**1.2**	**0.0**	**0.0**	**0.0**	**0.3**	**1.44**	**1.92**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	**2.01**	**2.09**	**2.15**	**2.25**	**2.42**	**2.11**	**2.31**	**2.25**	**2.17**	**2.52**
6010	Calcium	196	196	mg/l	**146**	**158**	**164**	**152**	**164**	**163**	**172**	**163**	**162**	**159**
300	Chloride	73.2	250	mg/l	**81.7**	**81.1**	**47.3**	**63.5**	**67.6**	**70.6**	**66.3**	**71.8**	**87.1**	**79**
300	Fluoride	0.6833	4	mg/l	**0.53**	**0.47**	**0.46**	**0.55**	**0.56 J**	**0.53**	**0.45**	**0.54**	**0.43**	**0.12 J**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.7 J**	**7.2 J**	**7.5 J**	**7.6 J**	**7.1 J**	**7.2 J**	**7.0 J**	**7.5 J**	**7.1 J**	**7.2 J**
300	Sulfate	283	283	mg/l	**239**	**247**	**662**	**205**	**230**	**226**	**234**	**235**	**277**	**272**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**783**	**832**	**811**	**824**	**828**	**871**	**816**	**833**	**949**	**910**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	0.0010 U	0.001 U	0.001 U	0.001 U	**0.000086 J**	**0.000085 J**
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	**0.005 J**	0.01 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.0063 J**
6010	Barium	0.657	2	mg/l	**0.0603**	**0.0628**	**0.067**	**0.0667**	**0.0576**	**0.0754 J+**	**0.0581**	**0.0585**	**0.052**	**0.0497**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.0010 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.0050 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.0013 J**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	**0.0012 J**	**0.0017 J**	**0.0017 J**	0.005 U	0.005 U	**0.0012 J**	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.53**	**0.47**	**0.46**	**0.55**	**0.56 J**	**0.53**	**0.45**	**0.54**	**0.43**	**0.12 J**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.010 U	0.01 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0487**	0.02 U	**0.0749**	**0.0452**	**0.0432**	**0.0368**	**0.0403**	**0.0455**	**0.0408**	**0.0416**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00020 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.005 J**	**0.0037 J**	**0.0035 J**	**0.0044 J**	**0.0037 J**	**0.0039 J**	0.02 U	**0.0035 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.0010 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.34 ± 0.989 J**	**0.965 ± 0.830 J**	**1.02 ± 0.730 J**	**0.620 ± 0.800**	**1.51 ± 0.880 J**	**0.579 ± 0.948 J**	**1.56 ± 1.01 J**	**0.951 ± 1.01 J**	**1.14 ± 0.841 J**	**0.949 ± 0.746 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-1 12/21/2017 60260936001	MW-1 2/23/2018 60264569001	MW-1 4/26/2018 60269085011	MW-1 6/29/2018 60273890009	MW-1 8/23/2018 60278591006	MW-1 10/25/2018 60284830001	MW-1 12/20/2018 60290219010	MW-1 3/14/2019 60296854009	MW-1 8/26/2019 60313018002	MW-1 12/03/2019 60322982002
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	0.075 U	0.075 U	0.075 U	**0.0212 J**	0.050 U	**0.0055 J+**	0.0121 JU	0.0095 JU	0.05 U	0.05 U
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	10 U	10.00 U	10.0 U	10 U	10 U	10 U	10 U
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 UJ	0.010 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	0.01 UJ	0.01 UJ	0.010 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.010 U	0.01 U	0.010 U	0.010 U	0.01 U	0.0071 JU	0.01 U	0.01 U
6010	Iron	1.506	1.506	mg/l	**0.13**	**0.20**	**0.163**	**0.107**	**0.0866**	**0.0478 J**	**0.0608**	**0.0932**	**0.0331 J**	**0.0389 J**
6010	Magnesium	43	43	mg/l	**38.5**	**41.7**	**42.8**	**42.2**	**45**	**42.1**	**43.6**	**42.9**	**42.2**	**43.6**
6010	Manganese	0.9526	0.9526	mg/l	**0.242**	**0.253**	**0.266**	**0.254**	**0.249**	**0.241**	**0.207**	**0.234**	**0.17**	**0.183**
6010	Nickel	0.0317	0.0317	mg/l	**0.006**	**0.0053**	**0.005**	**0.0054**	**0.0056**	**0.0055**	**0.0055**	**0.0058**	**0.0056**	**0.0064**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.0070 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**69.1**	**70.4**	**73.0**	**72**	**71.1**	**63.7**	**71.4**	**78.4**	**68.2**	**72.1**
2340B	Total Hardness	659	659	mg/l	**522**	**566**	**585.0**	**553**	**593**	**559**	**599**	**578**	**578**	**595**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	1.0 U	1.0 U	**0.470 J**	**0.49 J**	**0.75 J**	1.0 U	1.0 U	**0.81 J**	**0.8 UJ**	**0.6 J**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.0223 J**	**0.0239 J**	**0.041 J**	**0.049 J**	**0.129**	**0.0144 J**	0.1 U	0.1 U	0.1 UJ	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard

J = Result as an estimated value

J+ = Result qualified as estimated; biased high

JU = Result qualified as nondetect during data validation

mg/l = milligram per liter

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not available

NTU - Nephelometric Turbidity Unit

pCi/L = picocuries per liter

s.u. - standard unit

U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-2 12/21/2017 60260933004	DUP-1 12/21/2017 60260933005	MW-2 2/22/2018 60264569003	DUP-1 2/22/2018 60264569004	MW-2 4/25/2018 60269085007	DUP-1 4/25/2018 60269085008	MW-2 6/28/2018 60273890007	DUP-1 6/28/2018 60273890008	MW-2 8/22/2018 60278591003	DUP-1 8/22/2018 60278591004	MW-2 10/24/2018 60284690004	DUP-1 10/24/2018 60284690005
Analytical Method	**Analyte**			**Unit**	*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*	
Field Water Quality Parameters																
In Situ (Field)	Temperature	NA	NA	˚C	**16.27**	**16.27**	**13.24**	**13.24**	**16.01**	**16.01**	**18.17**	**18.17**	**17.65**	**17.65**	**15.68**	**15.68**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.693**	**0.693**	**0.853**	**0.853**	**0.8**	**0.8**	**0.725**	**0.725**	**0.687**	**0.687**	**0.806**	**0.806**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.86**	**6.86**	**6.39**	**6.39**	**7.60**	**7.60**	**6.73**	**6.73**	**8.08**	**8.08**	**7.61**	**7.61**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**61**	**61**	**67**	**67**	**18**	**18**	**-3**	**-3**	**24**	**24**	**78**	**78**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.07**	**0.00**	**0.00**	**0.01**	**0.01**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**0.0**	**1.3**	**1.3**	**0.0**	**0.0**	**0.6**	**0.6**	**1.8**	**1.8**	**0.0**	**0.0**
Appendix III - Detection Monitoring																
6010	Boron	0.415	4	mg/l	0.1 U	0.1 U	0.1 U	0.1 U	**0.0891 J**	**0.0892 J**	**0.0889 J**	**0.0891 J**	**0.0972 J**	**0.0889 J**	**0.0847 J**	**0.0916 J**
6010	Calcium	196	196	mg/l	**115**	**113**	**117**	**118**	**118**	**117**	**106**	**105**	**112**	**111**	**111**	**112**
300	Chloride	73.2	250	mg/l	**4.0**	**4.2**	**3.7**	**3.7**	**3.5**	**3.5**	**3.5**	**3.5**	**3.4**	**3.3**	3.3 U	3.3 U
300	Fluoride	0.6833	4	mg/l	**0.63**	**0.59**	**0.60**	**0.57**	**0.57**	**0.58**	**0.59**	**0.58**	**0.74**	**0.62**	**0.57**	**0.57**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.6 J**	**7.9 J**	**7.2 J**	**7.2 J**	**7.3 J**	**7.4 J**	**7.4 J**	**7.6 J**	**7.1 J**	**7.1 J**	**7.2 J**	**7.3 J**
300	Sulfate	283	283	mg/l	**57.7**	**57.6**	**56.4**	**56.4**	**56.6**	**56.6**	**58.3**	**57.6**	**58.5**	**58.8**	**58.6**	**58.2**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**498**	**508**	**520**	**524**	**521**	**541**	**551**	**470**	**536**	**534**	**328 J**	**530 J**
Appendix IV - Assessment Monitoring																
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.015 U	0.015 U	0.015 U	0.015 U	0.001 U	0.001 U	0.001 U	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	**0.0058 J**	**0.0055 J**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Barium	0.657	2	mg/l	**0.157**	**0.154**	**0.158**	**0.158**	**0.162**	**0.16**	**0.152**	**0.152**	**0.142**	**0.146**	**0.156**	**0.16**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00017 JU	0.00038 JU
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.0011 J**	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.001 J**	**0.0011 J**	**0.0016 J**	**0.0019 J**	**0.00091 J**	**0.0011 J**	**0.0011 J**	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.63**	**0.59**	**0.60**	**0.57**	**0.57**	**0.58**	**0.59**	**0.58**	**0.74**	**0.62**	**0.57**	**0.57**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0379**	**0.0384**	**0.0342**	**0.0334**	**0.0607**	**0.0581**	**0.0401**	**0.0421**	**0.0394**	**0.0416**	**0.0372**	**0.0359**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	0.02 U	0.02 U	**0.0069 J**	**0.0071** J	**0.0068 J**	**0.0064 J**	**0.0061 J**	**0.0061 J**	**0.0062 J**	**0.0063 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.0005 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.14 ± 0.885 J**	**0.806 ± 0.804 J**	**2.17 ± 1.09**	**1.07 ± 1.05 J**	**0.529 ± 0.855 J**	**1.06 ± 1.06 J**	**1.12 ± 0.848**	**0.506 ± 0.786**	**1.69 ± 0.913 J**	**1.04 ± 0.802 J**	**1.30 ± 1.16 J**	**13 ± 0.877 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-2 12/21/2017 60260933004	DUP-1 12/21/2017 60260933005	MW-2 2/22/2018 60264569003	DUP-1 2/22/2018 60264569004	MW-2 4/25/2018 60269085007	DUP-1 4/25/2018 60269085008	MW-2 6/28/2018 60273890007	DUP-1 6/28/2018 60273890008	MW-2 8/22/2018 60278591003	DUP-1 8/22/2018 60278591004	MW-2 10/24/2018 60284690004	DUP-1 10/24/2018 60284690005
Analytical Method	**Analyte**			**Unit**	*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*	
MDNR Water Quality Parameters																
6010	Aluminum	1.878	1.878	mg/l	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	**0.103**	**0.0934**	**0.0101 J**	**0.0112 J**	0.1 U	0.1 U
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.01 U	0.005 U	0.005 U	0.01 U	0.01 U	**0.003**	**0.003 J**	0.010 U	0.01 U	**0.005 J**	**0.005**
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Iron	1.506	1.506	mg/l	**0.122**	**0.124**	**0.105**	**0.0968**	**0.101**	**0.162**	**0.105**	**0.1**	**0.106**	**0.111**	**0.51 J**	**0.146 J**
6010	Magnesium	43	43	mg/l	**41.4**	**41.0**	**42.1**	**42.3**	**42.4**	**42.0**	**40.1**	**40**	**43**	**43.8**	**40.2**	**40**
6010	Manganese	0.9526	0.9526	mg/l	**0.492**	**0.487**	**0.471**	**0.473**	**0.467**	**0.461**	**0.407**	**0.407**	**0.394**	**0.409**	**0.362**	**0.358**
6010	Nickel	0.0317	0.0317	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.0015 J**	**0.0017 J**	**0.0018 J**	0.005 U	**0.002 J**	**0.0019 J**	**0.0317 J**	**0.0015 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**30**	**29.5**	**29.6**	**29.8**	**30.5**	**30.2**	**29.4**	**29.2**	**28.8**	**29.5**	**30.3**	**30.1**
2340B	Total Hardness	659	659	mg/l	**458**	**451**	**467**	**468**	**471**	**466**	**431**	**428**	**468**	**473**	**456**	**454**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**1.0**	1.0 U	**1.1**	**1.0**	**0.83 J**	**0.81 J**	**0.85 J**	**0.85 J**	**0.7 J**	**0.73 J**	**0.68 J**	**0.66 J**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	0.1 U	0.0189	0.1 U	0.1 U	**0.026 J+**	**0.0124 J**	**0.0235 J**	0.1 U	0.0237 JU	0.0458 JU	**0.0356 J**	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.0227 J**	**0.0211 J**	**0.039 J**	**0.0402 J**	0.05 U	**0.0044 J**

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-2 12/19/2018 60290219007	DUP-1 12/19/2018 60290219008	MW-2 3/13/2019 60296854006	DUP-1 3/13/2019 60296854007	MW-2 8/26/2019 60313018003	DUP-1 8/26/2019 60313018004	MW-2 12/03/2019 60322982003	DUP-1 12/03/2019 60322982004
Analytical Method	**Analyte**			**Unit**	*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*	
Field Water Quality Parameters												
In Situ (Field)	Temperature	NA	NA	°C	**15.2**	**15.2**	**14.32**	**14.32**	**16.52**	**16.52**	**15.01**	**15.01**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.7**	**0.7**	**0.782**	**0.782**	**0.892**	**0.892**	**0.773**	**0.773**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.76**	**6.76**	**7**	**7**	**6.99**	**6.99**	**7.1**	**7.1**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**51**	**51**	**70**	**70**	**-44.5**	**-44.5**	**-162.6**	**-162.6**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.00**	**0.00**	**0.08**	**0.08**	**1.30**	**1.30**	**0.48**	**0.48**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**0.0**	**0.5**	**0.5**	**1.50**	**1.50**	**2.72**	**2.72**
Appendix III - Detection Monitoring												
6010	Boron	0.415	4	mg/l	**0.0804 J**	**0.0789 J**	**0.0774 J**	**0.0745 J**	**0.082 J**	**0.0788 J**	**0.093 J**	**0.0857 J**
6010	Calcium	196	196	mg/l	**118**	**117**	**114**	**113**	**119**	**120**	**107**	**108**
300	Chloride	73.2	250	mg/l	**3.0**	**3.1**	**3.6**	**3.5**	**4.1**	**4.1**	**3.8**	**3.8**
300	Fluoride	0.6833	4	mg/l	**0.55**	**0.54**	**0.57**	**0.58**	**0.52**	**0.51**	**0.55**	**0.57**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.1 J**	**7.1 J**	**7.3 J**	**7.1 J**	**7.1 J**	**7.2 J**	**7.1 J**	**7.1 J**
300	Sulfate	283	283	mg/l	**61.5**	**58.5**	**56.1**	**55.4**	**58.9**	**59.5**	**58.3**	**58.5**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**521**	**520**	**528**	**530**	**548**	**539**	**553**	**546**
Appendix IV - Assessment Monitoring												
6010	Antimony	0.0005	0.006	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	**0.0055 J**	0.01 U	**0.006 J**	0.01 U	0.01 U
6010	Barium	0.657	2	mg/l	**0.139**	**0.141**	**0.138**	**0.138**	**0.132**	**0.135**	**0.135**	**0.134**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	**0.00029 J**	0.001 U	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	**0.00094 J**	**0.0011 J**	0.005 U	0.005 U	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.55**	**0.54**	**0.57**	**0.58**	**0.52**	**0.51**	**0.55**	**0.57**
6010	Lead	0.0056	0.015	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0394**	**0.0415**	**0.0461**	**0.0406**	**0.0357**	**0.036**	**0.0354**	**0.0351**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	**0.0063 J**	**0.0061 J**	**0.0063 J**	**0.0063 J**	**0.0063 J**	**0.0049 J**	**0.0074 J**	**0.0057 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.31 ± 1.07 J**	**1.08 ± 0.884 J**	**0.788 ± 1.17 J**	**1.04 ± 1.27 J**	**1.20 ± 0.993 J**	**0.858 ± 0.914 J**	**1.24 ± 0.963 J**	**1.29 ± 0.906 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-2 12/19/2018 60290219007	DUP-1 12/19/2018 60290219008	MW-2 3/13/2019 60296854006	DUP-1 3/13/2019 60296854007	MW-2 8/26/2019 60313018003	DUP-1 8/26/2019 60313018004	MW-2 12/03/2019 60322982003	DUP-1 12/03/2019 60322982004
Analytical Method	**Analyte**			**Unit**	*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*		*Duplicate Pair*	
MDNR Water Quality Parameters												
6010	Aluminum	1.878	1.878	mg/l	0.012 JU	0.0103 JU	0.0205 JU	0.0169 JU	**0.0096 J**	**0.0104 J**	**0.0991**	**0.0143 J**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	10 U	**4.7 J**	**8.4 J**	10 U	10 U
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.0046 JU	0.0058 JU	0.01 U	0.01 U	**0.0039 J**	**0.0037 J**
6010	Iron	1.506	1.506	mg/l	**0.0405 J**	**0.0492 J**	**0.0512**	**0.0491 J**	**0.0694**	**0.0758**	**0.478 J**	**0.321**
6010	Magnesium	43	43	mg/l	**41.2**	**41.6**	**39.8**	**40.8**	**42.5**	**42.8**	**41.8**	**41.1**
6010	Manganese	0.9526	0.9526	mg/l	**0.351**	**0.353**	**0.381**	**0.394**	**0.315**	**0.319**	**0.326**	**0.316**
6010	Nickel	0.0317	0.0317	mg/l	**0.002 J**	**0.0016 J**	0.005 U	**0.0019 J**	**0.0013 J**	**0.0017 J**	**0.0025 J**	**0.0025 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**29.2**	**29.5**	**31.3**	**32**	**29.2**	**29.3**	**34.9**	**28.6**
2340B	Total Hardness	659	659	mg/l	**458**	**462**	**435**	**448**	**472**	**476**	**462**	**450**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**0.8 J**	**0.77 J**	**1.7**	**0.88 J**	**0.99 UJ**	**1.2** U	**0.78 J**	**0.89 J**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	**0.031 UJ**	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.0284 JU	0.0288 JU	**0.0303 J**	**0.0288 J**	**0.0124 J**	**0.0127 J**	**0.029 J**	**0.0269 J**

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

°C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-3 12/21/2017 60260933003	MW-3 2/22/2018 60264511007	MW-3 4/25/2018 60269085006	MW-3 6/28/2018 60273890006	MW-3 8/22/2018 60278591002	MW-3 10/24/2018 60284690003	MW-3 12/19/2018 60290219006	MW-3 3/13/2019 60296854005	MW-3 8/27/2019 60313169003	MW-3 12/04/2019 60323115002
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	˚C	**14.01**	**12.39**	**15.20**	**16.55**	**16.07**	**14.78**	**13.89**	**13.59**	**16.1**	**13.64**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.702**	**0.867**	**0.81**	**0.73**	**0.695**	**0.808**	**0.717**	**0.787**	**0.853**	**0.759**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.79**	**6.93**	**7.75**	**6.82**	**8.09**	**7.6**	**6.76**	**7.02**	**7.11**	**7.01**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**68**	**60**	**18**	**89**	**130**	**99**	**94**	**70**	**-77.8**	**-350.2**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.04**	**4.39**	**0.00**	**2.09**	**0.00**	**0.05**	**3.87**	**0.42**	**1.20**	**0.43**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**1.0**	**0.0**	**2.9**	**1.4**	**0.0**	**0.0**	**0.2**	**1.30**	**0.50**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	0.1 U	0.1 U	**0.0648 J**	**0.0665 J**	**0.0742 J**	**0.0606 J**	**0.049 J**	**0.0517 J**	**0.0506 J**	**0.0525 J**
6010	Calcium	196	196	mg/l	**114**	**117**	**117**	**105**	**118**	**112**	**112**	**110**	**104**	**96.9**
300	Chloride	73.2	250	mg/l	**9.0**	**8.0**	**8.1**	**8.1**	**8 J+**	**8.1**	**7.8**	**8.3**	**8.5**	**7.2**
300	Fluoride	0.6833	4	mg/l	**0.62**	**0.54**	**0.58**	**0.57**	**0.67 J+**	**0.61**	**0.51**	**0.53**	**0.55**	**0.57**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.7 J**	**7.2 J**	**7.3 J**	**7.5 J**	**7.3 J**	**7.3 J**	**7.1 J**	**7.3 J**	**7.2 J**	**7.2 J**
300	Sulfate	283	283	mg/l	**48.1**	**46.1**	**43.9**	**55.8**	**44.8**	**40.2**	**35.8**	**34.7**	**37.3**	**36.7**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**516**	**398**	**533**	**542**	**531**	**509**	**493**	**519**	**522**	**545**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	**0.00016 J**	**0.0001 J**	**0.00009 J**	0.001 U	**0.00011 J**	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Barium	0.657	2	mg/l	**0.215**	**0.202**	**0.22**	**0.208**	**0.19**	**0.207**	**0.205**	**0.212**	**0.176**	**0.183**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	0.005 U	**0.00092 J**	0.005 U	0.005 U	0.005 U	**0.0013 J**	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.62**	**0.54**	**0.58**	**0.57**	**0.67 J+**	**0.61**	**0.51**	**0.53**	**0.55**	**0.57**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	**0.004 J**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0361**	**0.0342**	**0.0664**	**0.046**	**0.0369**	**0.0338**	**0.032**	**0.0313**	**0.0298**	**0.031**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.0072 J**	**0.0067 J**	**0.0063 J**	**0.0073 J**	**0.0059 J**	**0.0065 J**	**0.0061 J**	**0.0056 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.51 ± 1.07 J**	**1.76 ± 0.922 J**	**0.708± 0.996 J**	**1.07 ± 0.871**	**1.41 ± 0.834 J**	**1.61 ± 1.05 J**	**1.34 ± 0.989 J**	**3.65 ± 1.99**	**0.681 ± 0.946 J**	**1.56 ± 1.00 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-3 12/21/2017 60260933003	MW-3 2/22/2018 60264511007	MW-3 4/25/2018 60269085006	MW-3 6/28/2018 60273890006	MW-3 8/22/2018 60278591002	MW-3 10/24/2018 60284690003	MW-3 12/19/2018 60290219006	MW-3 3/13/2019 60296854005	MW-3 8/27/2019 60313169003	MW-3 12/04/2019 60323115002
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	0.075 U	0.075 U	**0.0282 J**	**0.0995**	**0.0286 J**	0.1 U	0.05 U	0.05 U	**0.0184 U**	0.05 U
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	10 U	10 U	**7.7 J**	10 U	10 U	10 U	10 U
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	**0.003 J**	0.01 U	0.010 U	**0.004 J**	0.010 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0058 JU	0.01 U	0.01 U
6010	Iron	1.506	1.506	mg/l	**0.15**	**0.144**	**0.149**	**0.0706**	**0.0514**	0.05 U	**0.017 J**	0.0264 JU	**0.0146 J**	**0.0986**
6010	Magnesium	43	43	mg/l	**39.6**	**40.8**	**40.6**	**38.6**	**40.9**	**38.7**	**38**	**37.1**	**36.2**	**39.5**
6010	Manganese	0.9526	0.9526	mg/l	**0.371**	**0.341**	**0.302**	**0.0933**	**0.103**	**0.229**	**0.302**	**0.427**	**0.106**	**0.3**
6010	Nickel	0.0317	0.0317	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.002 J**	0.005 U	**0.0024 J**	**0.004 J**	0.005 U	**0.0024 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**32.8**	**33.3**	**38.1**	**34.7**	**36.3**	**39.4**	**42.6**	**45**	**35.8**	**35.5**
2340B	Total Hardness	659	659	mg/l	**448**	**461**	**459**	**422**	**453**	**449**	**434**	**414**	**408**	**448**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**1.1**	1.0 U	**0.93 J**	**0.89 J**	**0.8 J**	**0.7 J**	**0.8 J**	**0.85 J**	**0.95 J**	**0.69 J**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	0.1 U	**0.016 J**	**0.0235 J**	**0.0332 J**	**0.0642 J**	**0.0404 J**	0.1 U	0.1 U	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	**0.0041 J**	**0.0035 J**	**0.0037 J**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-4 12/21/2017 60260933001	MW-4 2/22/2018 60264511006	MW-4 4/25/2018 60269085005	MW-4 6/28/2018 60273890005	MW-4 8/22/2018 60278591001	MW-4 10/24/2018 60284690001	MW-4 12/19/2018 60290219005	MW-4 3/14/2019 60296854012	MW-4 8/27/2019 60313169002	MW-4 12/04/2019 60323115003
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	˚C	**14.66**	**13.30**	**15.77**	**16.54**	**16.4**	**15.29**	**13.98**	**12.85**	**16.67**	**15.21**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.776**	**0.934**	**0.886**	**0.818**	**0.776**	**0.891**	**0.783**	**0.18**	**0.654**	**0.638**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.62**	**6.82**	**7.7**	**6.59**	**7.79**	**7.25**	**6.68**	**6.68**	**7.15**	**7.13**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**34**	**15**	**-29**	**-1**	**137**	**53**	**24**	**1**	**-108.6**	**-332.8**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.44**	**1.15**	**0.00**	**0.20**	**1.11**	**0.15**	**0.00**	**0.00**	**1.47**	**0.41**
In Situ (Field)	Turbidity	NA	NA	NTUs	**2.4**	**0.9**	**0.1**	**4.9**	**0.3**	**0.0**	**0.0**	**20.4**	**1.76**	**1.18**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	0.1 U	0.1 U	**0.0508 J**	**0.0553 J**	**0.0687 J**	**0.0512 J**	**0.0445 J**	0.1 U	**0.0283 J**	**0.0362 J**
6010	Calcium	196	196	mg/l	**124**	**123**	**122**	**112**	**129**	**118**	**120**	**31**	**63.9**	**58**
300	Chloride	73.2	250	mg/l	**24.0**	**24.9**	**26.4**	**26.3**	**26.3**	**29.4**	**29.7**	**1.8**	**8.8**	**8.9**
300	Fluoride	0.6833	4	mg/l	**0.58**	**0.51**	**0.53**	**0.58**	**0.53**	**0.56**	**0.42**	**0.081 J**	**0.27**	**0.35**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.4 J**	**7.0 J**	**7.1 J**	**7.4 J**	**7.1 J**	**7.6 J**	**7.0 J**	**7.0 J**	**7.2 J**	**7.3 J**
300	Sulfate	283	283	mg/l	**92.3**	**85.5**	**83.1**	**89.1**	**92.7**	**84.1**	**83.9**	**4.1**	**27.4**	**25.3**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**593**	**419**	**600**	**618**	**610**	**576**	**565**	**160**	**334**	**334**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	0.001 U	0.001 U	0.001 U	0.00026 JU	**0.00009 J**	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	**0.006 J**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Barium	0.657	2	mg/l	**0.106**	**0.0936**	**0.09**	**0.111**	**0.08**	**0.0824**	**0.0754**	**0.0514**	**0.106**	**0.112**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00028 J**	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00051 JU	0.005 U	**0.00073 J**	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.58**	**0.51**	**0.53**	**0.58**	**0.53**	**0.56**	**0.42**	**0.081 J**	**0.27**	**0.35**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.0056 J**	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0386**	**0.0336**	**0.0592**	**0.034**	**0.0594**	**0.0478**	**0.0415**	**0.0092 J**	**0.0472**	**0.0489**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.0036 J**	**0.0033 J**	**0.0033 J**	**0.0037 J**	**0.0032 J**	**0.0017 J**	0.02 U	0.02 U
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.00015 JU	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**0.755 ± 0.923 J**	**1.04 ± 0.784 J**	**0.593 ± 0.851 J**	**0.724 ± 0.836**	**0.887 ± 0.879 J**	**1.73 ± 1.12 J**	**1.16 ± 1.05 J**	**1.69 ± 1.39 J**	**0.403 ± 0.779 J**	**0.000 ± 0.833 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-4 12/21/2017 60260933001	MW-4 2/22/2018 60264511006	MW-4 4/25/2018 60269085005	MW-4 6/28/2018 60273890005	MW-4 8/22/2018 60278591001	MW-4 10/24/2018 60284690001	MW-4 12/19/2018 60290219005	MW-4 3/14/2019 60296854012	MW-4 8/27/2019 60313169002	MW-4 12/04/2019 60323115003
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	**0.0821**	**0.075 U**	**0.075 U**	**0.099**	**0.0139 J**	0.1 U	0.0152 JU	**0.642**	**0.0401 U**	**0.0697**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	**60.8**	**16.9**	**23.2**
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	0.01 UJ	0.01 U	0.010 U	**0.004 J**	0.010 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.0039 J**
6010	Iron	1.506	1.506	mg/l	**0.426**	**0.449**	**0.402**	**0.492**	**0.101**	**0.244**	**0.175**	**0.5**	**1.76**	**1.54**
6010	Magnesium	43	43	mg/l	**39.9**	**39.6**	**39.2**	**38.3**	**40.3**	**37.4**	**38.2**	**4.44**	**14.9**	**15.7**
6010	Manganese	0.9526	0.9526	mg/l	**0.266**	**0.215**	**0.178**	**0.213**	**0.0764**	**0.1**	**0.106**	**0.0826**	**0.183**	**0.18**
6010	Nickel	0.0317	0.0317	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.0018 J**	**0.0016 J**	**0.0022 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**44.8**	**45.5**	**49**	**47.3**	**48**	**49.9**	**50**	**2.99**	**29.5**	**39.3**
2340B	Total Hardness	659	659	mg/l	**473**	**469**	**467**	**439**	**469**	**451**	**458**	**96.4**	**221**	**226**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	1.0 U	1.0 U	**0.7 J**	**0.8 J**	**0.8 J**	1.0 U	**0.8 J**	**16.3**	**7.2**	**6.6**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.0162**	**0.0174 J**	**0.0289 J**	**0.0453 J**	**0.16**	**0.0807 J**	0.1 U	0.1 U	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	**0.0046 J**	**0.0036 J**	0.05 U	**0.172**	**0.0985**	**0.11**

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

°C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-5 12/20/2017 60260827003	MW-5 2/22/2018 60264511005	MW-5 4/24/2018 60269085004	MW-5 6/27/2018 60273890004	MW-5 8/21/2018 60278444004	MW-5 10/23/2018 60284534004	MW-5 12/18/2018 60290219004	MW-5 3/12/2019 60296854004	MW-5 8/27/2019 60313169004	MW-5 12/04/2019 60323115004
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	°C	**15.37**	**12.83**	**18.10**	**18.34**	**18.53**	**17.21**	**15.72**	**14.25**	**17.64**	**15.49**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.633**	**1.09**	**0.939**	**0.808**	**0.959**	**0.915**	**0.767**	**0.892**	**0.904**	**0.788**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.24**	**6.97**	**7.76**	**6.21**	**8.08**	**7.26**	**6.86**	**7.11**	**7.22**	**7.16**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**120**	**109**	**78**	**82**	**90**	**62**	**51**	**95**	**-85.0**	**-356.5**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.41**	**0.76**	**0.44**	**0.54**	**0.59**	**0.14**	**0.00**	**2.08**	**1.13**	**0.36**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**1.9**	**0.0**	**0.0**	**22.6**	**1.7**	**1.0**	**1.6**	**1.48**	**3.34**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	**0.292**	**0.284**	**0.24**	**0.226**	**0.415**	**0.28**	**0.236**	**0.255**	**0.204**	**0.205**
6010	Calcium	196	196	mg/l	**85.6**	**113**	**108**	**99**	**136**	**116**	**114**	**118**	**112**	**98.4**
300	Chloride	73.2	250	mg/l	**19.5**	**73.2**	**67.9**	**52.2**	**69.4**	**42.1**	**35.4**	**35.5**	**30.2**	**24.3**
300	Fluoride	0.6833	4	mg/l	**0.51**	**0.39**	**0.54**	**0.57**	**0.12 J**	**0.56**	**0.47**	**0.46**	**0.45**	**0.54**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**8.0 J**	**7.4 J**	**7.5 J**	**7.7 J**	**7.4 J**	**7.4 J**	**7.3 J**	**7.4 J**	**7.4 J**	**7.6 J**
300	Sulfate	283	283	mg/l	**95.8**	**185**	**152**	**141**	**277**	**157**	**114**	**125**	**106**	**97.5**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**542**	**541**	**657**	**625**	**806**	**1340**	**586**	**628**	**599**	**576**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	**0.00027 J**	**0.00015 J**	0.001 U	0.001 U	0.001 U	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.005 J**	**0.0052 J**	**0.0041 J**
6010	Barium	0.657	2	mg/l	**0.657**	**0.198**	**0.215**	**0.227**	**0.209**	**0.254**	**0.197**	**0.184**	**0.22**	**0.212**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.0003 JU	0.001 U	0.001 U	0.001 U	**0.00027 J**	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.00068 J**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.51**	**0.39**	**0.54**	**0.57**	**0.12 J**	**0.56**	**0.47**	**0.46**	**0.45**	**0.54**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.01 U	0.01 U	**0.0052 J**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0443**	**0.0468**	**0.0642**	**0.0426**	**0.0839**	**0.0456**	**0.0429**	**0.0422**	**0.0376**	**0.0369**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.0072 J**	**0.0053 J**	**0.0193 J**	**0.0073 J**	**0.0057 J**	**0.004 J**	**0.0034 J**	**0.0037 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.36 ± 1.09 J**	**1.20 ± 0.789 J**	**1.18 ± 0.825 J**	**0.812 ± 0.788**	**1.23 ± 0.900 J**	**1.08 ± 0.980 J**	**1.34 ± 0.991 J**	**0.218 ± 1.15 J**	**1.52 ± 1.04 J**	**0.124 ± 1.05 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-5 12/20/2017 60260827003	MW-5 2/22/2018 60264511005	MW-5 4/24/2018 60269085004	MW-5 6/27/2018 60273890004	MW-5 8/21/2018 60278444004	MW-5 10/23/2018 60284534004	MW-5 12/18/2018 60290219004	MW-5 3/12/2019 60296854004	MW-5 8/27/2019 60313169004	MW-5 12/04/2019 60323115004
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	**0.075 U**	**0.084**	**0.075 U**	**0.106**	**0.207**	0.1 U	0.0191 JU	0.0488 JU	**0.0217 UJ**	**0.0539**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	10 U	**4.2 J**	10 U	10 U	10 U	10 U	10 U
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	0.01 U	0.01 U	0.010 U	**0.007 J**	0.010 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	**0.0051 J**	0.01 U	0.01 U	0.0053 JU	0.01 U	0.01 U
6010	Iron	1.506	1.506	mg/l	**0.299**	**0.131**	**0.0698**	**0.0538**	**0.375**	**0.28**	**0.0643**	**0.171**	**0.238**	**0.695**
6010	Magnesium	43	43	mg/l	**23.8**	**27.6**	**28.1**	**28.9**	**29.6**	**30.3**	**30.7**	**30.1**	**31.9**	**31.6**
6010	Manganese	0.9526	0.9526	mg/l	**0.112**	**0.0292**	**0.0563**	**0.0313**	**0.0728**	**0.058**	**0.0467**	**0.0296**	**0.169**	**0.111**
6010	Nickel	0.0317	0.0317	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.0029 J**	0.005 U	0.005 U	**0.0015 J**	**0.0019 J**	**0.0017 J J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**31.5**	**107**	**87.6**	**72.2**	**74.4**	**64.4**	**60.5**	**64**	**56.4**	**55.7**
2340B	Total Hardness	659	659	mg/l	**312**	**397**	**385**	**366**	**445**	**414**	**410**	**409**	**411**	**407**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**1.8**	**1.6**	**1.2**	**1.2**	**1.9**	**1.2**	**1.2**	**1.5**	**1.2**	**1.2**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.0196**	**0.1 U**	**0.045 J**	**0.0327 J**	**0.310**	**0.255**	**0.015 J**	0.1 U	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	**0.141**	**0.0196 J**	0.0102 JU	**0.017 J**	**0.014 J**	**0.0131 J**

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-6 12/20/2017 60260827001	MW-6 2/21/2018 60264511002	MW-6 4/24/2018 60269085001	MW-6 6/27/2018 60273890001	MW-6 8/21/2018 60278444001	MW-6 10/23/2018 60284534001	MW-6 12/18/2018 60290219001	MW-6 3/12/2019 60296854001	MW-6 8/27/2019 60313169005	MW-6 12/04/2019 60323115005
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	˚C	**15.50**	**14.15**	**18.36**	**17.76**	**17.91**	**16.97**	**15.78**	**14.45**	**18.55**	**16.27**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.879**	**1.11**	**1.08**	**0.587**	**0.86**	**1.08**	**0.861**	**0.753**	**1.178**	**1.089**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.62**	**6.74**	**7.38**	**6.97**	**7.63**	**6.72**	**6.87**	**7.1**	**6.77**	**6.77**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**99**	**46**	**56**	**141**	**30**	**50**	**-27**	**48**	**-79.6**	**-375.0**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.25**	**0**	**0.00**	**2.07**	**0.59**	**1.80**	**0**	**0.78**	**0.88**	**0.35**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**5.0**	**0.0**	**162.0**	**17.4**	**4.7**	**35.5**	**130.0**	**14.20**	**12.15**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	0.1 U	**0.11**	**0.0941 J**	**0.0466 J**	**0.0813 J**	**0.087 J**	**0.0727 J**	**0.0559 J**	**0.0613 J**	**0.0713 J**
6010	Calcium	196	196	mg/l	**180**	**196**	**195**	**104**	**182**	**191**	**162**	**130**	**171**	**160**
300	Chloride	73.2	250	mg/l	**22.8**	**23.3**	**23.8**	**10.8**	**24.5**	**31.0**	**34.1**	**29.9**	**30.5**	**30.1**
300	Fluoride	0.6833	4	mg/l	**0.42**	**0.32**	**0.42**	**0.25**	**0.42**	**0.32**	**0.37**	**0.29**	**0.29**	**0.34**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.7 J**	**6.8 J**	**7.3 J**	**7.6 J**	**6.9 J**	**7.2 J**	**6.8 J**	**6.9 J**	**7.1 J**	**7.1 J**
300	Sulfate	283	283	mg/l	**207**	**201**	**203**	**96.2**	**197**	**219**	**196**	**139**	**97.2**	**207**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**854**	**852**	**841**	**465**	**813**	**884**	**1500**	**608**	**848**	**896**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	0.001 U	0.001 U	**0.00017 J**	0.00017 JU	0.001 U	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.007 J**	0.01 U	0.01 U	0.01 U	**0.005 J**
6010	Barium	0.657	2	mg/l	**0.0867**	**0.085**	**0.0841**	**0.0825**	**0.081**	**0.076**	**0.0698**	**0.0711**	**0.063**	**0.0617**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.00042 JU	0.00062 JU	0.001 U	0.001 U	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.00072** J	0.00064 JU	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	**0.0046 J**	0.005 U	0.005 U	**0.0011 J**	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	0.005 U	**0.003 J**	**0.0043 J**	**0.0025 J**	**0.0018 J**	**0.0019 J**	**0.001 J**	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.42**	**0.32**	**0.42**	**0.25**	**0.42**	**0.32**	**0.37**	**0.29**	**0.29**	**0.34**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.01 U	**0.0047 J**	**0.0032 J**	0.01 U	0.01 U	**0.0045 J**	**0.0048 J**	**0.0038 J**
6010	Lithium	0.07261	0.07261	mg/l	**0.056**	**0.0551**	**0.0913**	**0.0227**	**0.0541 J**	**0.0544**	**0.0457**	**0.0376**	**0.0477**	**0.0512**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.003 J**	**0.0025 J**	0.0032 JU	**0.002 J**	**0.0027 J**	**0.0016 J**	0.02 U	0.02 U
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.82 ± 1.104 J**	**2.66 ± 1.28 J**	**1.72 ± 1.05 J**	**2.14 ± 1.34**	**2.39 ± 1.31 J**	**2.06 ± 1.20 J**	**1.82 ± 1.16 J**	**1.33 ± 1.68 J**	**1.20 ± 1.01 J**	**0.849 ± 0.956 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-6 12/20/2017 60260827001	MW-6 2/21/2018 60264511002	MW-6 4/24/2018 60269085001	MW-6 6/27/2018 60273890001	MW-6 8/21/2018 60278444001	MW-6 10/23/2018 60284534001	MW-6 12/18/2018 60290219001	MW-6 3/12/2019 60296854001	MW-6 8/27/2019 60313169005	MW-6 12/04/2019 60323115005
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	0.075 U	0.075 U	0.075 U	**1.7**	**0.112**	**0.0427 J**	**0.568**	**1.83**	**0.171**	**0.0994**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	**11.9**	10 U	10 U	**8.5 J**	**5.4 J**	**6.2 J**	10 U	**6.2 J**	**10.6**	**8.7 J**
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	0.01 U	0.01 U	0.010 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	**0.0052 J**	**0.0045 J**	0.01 U	0.01 U	0.0079 JU	0.01 U	**0.0037 J**
6010	Iron	1.506	1.506	mg/l	**0.24**	**0.447**	**0.112**	**2.25**	**0.565**	**1.06**	**0.684**	**0.496**	**0.842**	**1.01**
6010	Magnesium	43	43	mg/l	**37.0**	**41.5**	**41.2**	**18.2**	**36**	**37.8**	**32.1**	**25.1**	**34.9**	**37**
6010	Manganese	0.9526	0.9526	mg/l	**0.938**	**1.03**	**0.673**	**0.398**	**0.921**	**0.796**	**0.672**	**0.56**	**0.627**	**0.69**
6010	Nickel	0.0317	0.0317	mg/l	**0.0108**	**0.0073**	**0.0087**	**0.0071**	**0.0067**	**0.005**	**0.0048 J**	**0.0046 J**	**0.0035 J**	**0.0047 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**44.2**	**47.5**	**49.2**	**18.5**	**49.1**	**51.5**	**43.7**	**42**	**48.9**	**55.4**
2340B	Total Hardness	659	659	mg/l	**602**	**659**	**656**	**336**	**585**	**621**	**542**	**422**	**571**	**595**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**2.0**	**1.8**	**2.0**	**1.7**	**2.8**	**2.7**	**2.8**	**2.1**	**2.8**	**2.7**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.0277**	**0.0161 J**	0.1 U	**0.0192 J**	**0.30**	**0.066 J**	**0.016 J**	0.1 U	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	**0.0043 J**	**0.0855**	**0.0155 J**	**0.0124 J**	0.0269 JU	**0.0287 J**	**0.0092 J**	**0.0117 J**

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-7 12/20/2017 60260827002	MW-7 2/21/2018 60264511004	MW-7 4/24/2018 60269085002	MW-7 6/27/2018 60273890002	MW-7 8/21/2018 60278444002	MW-7 10/23/2018 60284534002	MW-7 12/18/2018 60290219002	MW-7 3/12/2019 60296854002	MW-7 8/27/2019 60313169006	MW-7 12/04/2019 60323115006
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	°C	**15.93**	**13.29**	**17.35**	**17.67**	**17.96**	**16.22**	**16.5**	**13.66**	**17.72**	**15.74**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**0.821**	**1.22**	**0.898**	**0.839**	**0.856**	**0.964**	**0.822**	**0.887**	**0.885**	**0.807**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.93**	**7.11**	**7.65**	**6.95**	**7.99**	**7.15**	**6.9**	**7.3**	**7.08**	**7.01**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**101**	**92**	**-16**	**-7**	**10**	**17**	**-53**	**-22**	**-77.4**	**-318.1**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.52**	**1.44**	**0.00**	**0.34**	**0.00**	**0.04**	**3.21**	**0.00**	**0.93**	**0.34**
In Situ (Field)	Turbidity	NA	NA	NTUs	**53.2**	**22.2**	**16.9**	**10.2**	**6.8**	**0.0**	**2.2**	**15.9**	**14.80**	**11.10**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	0.1 U	**0.145**	**0.184**	**0.206**	**0.248**	**0.221**	**0.221**	**0.184**	**0.16**	**0.176**
6010	Calcium	196	196	mg/l	**153**	**97.9**	**123**	**129**	**145**	**141**	**145**	**127**	**92.4**	**83**
300	Chloride	73.2	250	mg/l	**42.2**	**22.2**	**33.1**	**30.6**	**71**	**47.1**	**43.9**	**48.7**	**30**	**24.6**
300	Fluoride	0.6833	4	mg/l	**0.48**	**0.29**	**0.52**	**0.53**	**0.082 J**	**0.48**	**0.54**	**0.49**	**0.42**	**0.46**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.8 J**	**7.0 J**	**7.3 J**	**7.5 J**	**7.2 J**	**7.3 J**	**7.1 J**	**7.1 J**	**7.3 J**	**7.4 J**
300	Sulfate	283	283	mg/l	**285**	**144**	**211**	**246**	**217**	**182**	**193**	**179**	**96.8**	**92.3**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**810**	**478**	**731**	**714**	**779**	**746**	**449**	**720**	**520**	**494**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	**0.00021 J**	**0.000082 J**	**0.000096 J**	0.000098 JU	**0.00032 J**	**0.00013 J**
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.0093 J**	**0.0062 J**
6010	Barium	0.657	2	mg/l	0.005 U	**0.0805**	**0.0823**	**0.079**	**0.0878**	**0.0876**	**0.0819**	**0.0811**	**0.111**	**0.0865**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.00061 JU	0.00054 JU	0.001 U	0.001 U	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	**0.00062 J**	0.00073 JU	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.0059**	**0.0019 J**
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	**0.0017 J**	**0.0015 J**	0.005 U	**0.00095 J**	0.005 U	0.005 U	**0.003 J**	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.48**	**0.29**	**0.52**	**0.53**	**0.082 J**	**0.48**	**0.00054**	**0.49**	**0.42**	**0.46**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0483**	**0.0392**	**0.0703**	**0.0466**	**0.0601**	**0.0462**	**0.045**	**0.0456**	**0.037**	**0.0404**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.007 J**	**0.0079 J**	**0.0094 J**	**0.0093 J**	**0.0081 J**	**0.0067 J**	**0.0051 J**	**0.0052 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**1.16 ± 1.03 J**	**0.918 ± 0.830 J**	**1.13 ± 0.848 J**	**0.922 ± 0.870**	**1.55 ± 1.04 J**	**1.07 ± 0.964 J**	**1.30 ± 0.952 J**	**0.387 ± 1.13 J**	**0.527 ± 0.843 J**	**0.448 ± 0.660 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-7 12/20/2017 60260827002	MW-7 2/21/2018 60264511004	MW-7 4/24/2018 60269085002	MW-7 6/27/2018 60273890002	MW-7 8/21/2018 60278444002	MW-7 10/23/2018 60284534002	MW-7 12/18/2018 60290219002	MW-7 3/12/2019 60296854002	MW-7 8/27/2019 60313169006	MW-7 12/04/2019 60323115006
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	0.075 U	**0.319**	**0.0556 J**	**0.101**	**0.0244 J**	0.1 U	0.0305 JU	**0.18**	**1.09**	**0.165**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	**10.5**	10 U	**3.2 J**	10 U	10 U	10 U	10 U	**7 J**	**9.9 J**	**4.9 J**
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	0.01 U	0.01 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.008 JU	**0.0068 J**	**0.0041 J**
6010	Iron	1.506	1.506	mg/l	**1.33**	**0.946**	**0.836**	**0.922**	**0.885**	**1.08**	**1.18**	**1.64**	**17.3**	**2.62**
6010	Magnesium	43	43	mg/l	**38.2**	**23.4**	**29.3**	**33.7**	**32.7**	**35**	**35.8**	**31.4**	**22.5**	**22.6**
6010	Manganese	0.9526	0.9526	mg/l	**0.876**	**0.450**	**0.43**	**0.356**	**0.289**	**0.568**	**0.47**	**0.282**	**0.919**	**0.341**
6010	Nickel	0.0317	0.0317	mg/l	**0.0134**	**0.0052**	**0.0044 J**	**0.0042 J**	**0.0045 J**	**0.0072**	**0.0054**	**0.0035 J**	**0.0083**	**0.0031 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	0.5 U	**35.3**	**44.4**	**50.8**	**75.1**	**61.2**	**58.5**	**57.2**	**35.6**	**34.1**
2340B	Total Hardness	659	659	mg/l	**539**	**341**	**428**	**461**	**475**	**504**	**505**	**434**	**323**	**323**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**1.4**	**1.6**	**1.4**	**1.2**	**1.2**	**0.9 J**	**1.0**	**1.3**	**1.4**	**1.4**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.237**	**0.0194 J**	**0.0239 J**	**0.028 J**	**0.399**	**0.189**	0.1 U	0.1 U	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	**0.0823**	**0.603**	**0.131**	**0.166**	**0.0874**	**0.0558**	**0.0654**	**0.662**	**0.07**

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-8 12/21/2017 60260936002	MW-8 2/23/2018 60264569002	MW-8 4/25/2018 60269085009	MW-8 6/29/2018 60273890010	MW-8 8/22/2018 60278591005	MW-8 10/24/2018 60284690006	MW-8 12/19/2018 60290219009	MW-8 3/13/2019 60296854008	MW-8 8/27/2019 60313169001	MW-8 12/04/2019 60323115001
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	°C	**14.81**	**12.86**	**15.03**	**18.52**	**18.64**	**17.6**	**15.86**	**14.01**	**16.99**	**15.19**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**3.09**	**3.39**	**3.28**	**2.92**	**1.69**	**2.92**	**1.58**	**1.02**	**1.610**	**1.365**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.33**	**6.61**	**6.96**	**6.57**	**6.38**	**6.65**	**6.87**	**6.62**	**6.74**	**6.74**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**51**	**37**	**-11**	**-2**	**19**	**32**	**3**	**42**	**-68.3**	**-273.0**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.61**	**0.00**	**0.00**	**0.16**	**0.00**	**8.75**	**0.23**	**6.04**	**1.24**	**1.33**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**0.0**	**0.0**	**3.2**	**0.0**	**0.0**	**0.0**	**279.0**	**11.80**	**3.98**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	**0.455**	**0.390**	**0.308**	**0.384**	**0.418**	**0.386**	**0.422**	**0.213**	**0.354**	**0.499**
6010	Calcium	196	196	mg/l	**255**	**268**	**288**	**248**	**270**	**272**	**261**	**210**	**253**	**218**
300	Chloride	73.2	250	mg/l	**74.9**	**70.6**	**12.9**	**68.6**	**71.2**	**68.3**	**75.4**	**43.2**	**80.7**	**77.8**
300	Fluoride	0.6833	4	mg/l	**0.29**	**0.22**	**0.21**	**0.26**	**0.31**	**0.39**	0.2 U	**0.16 J**	**0.17 J**	**0.21 J**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.6 J**	**7.0 J**	**7.4 J**	**7.8 J**	**6.9 J**	**6.9 J**	**7 J**	**6.9 J**	**7.1 J**	**7.1 J**
300	Sulfate	283	283	mg/l	**495**	**453**	**174**	**807**	**529**	**1100**	**532**	**390**	**474**	**409**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**1180**	**1160**	**1570**	**1870**	**1300**	**1420**	**1240**	**896**	**1170**	**1260**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	0.001 U	0.001 U	0.001 U	0.00011 JU	**0.000096 J**	0.001 U
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	**0.0063 J**	0.01 U	0.01 U	0.01 U	0.01 U	**0.0077 J**
6010	Barium	0.657	2	mg/l	**0.025**	**0.0224**	**0.0214**	**0.022**	**0.0211**	**0.0223**	**0.0219**	**0.0412**	**0.0203**	**0.0229**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00033 JU	0.001 U	0.001 U	**0.00032 J**	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.0013 J**	**0.0013 J**
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	**0.0011 J**	**0.001 J**	0.005 U	0.005 U	0.005 U	**0.0014 J**	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.29**	**0.22**	**0.21**	**0.26**	**0.31**	**0.39**	0.20 U	**0.16 J**	**0.17 J**	**0.21 J**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.0047 J**	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0313**	**0.025**	**0.0807**	**0.0272**	**0.0283**	**0.0282**	**0.0243**	**0.0239**	**0.0245**	**0.0238**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.0012 J**	**0.0016 J**	0.02 U	**0.0013 J**	0.02 U	**0.0012 J**	0.02 U	0.02 U
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**0.607 ± 0.904 J**	**1.16 ± 0.903 J**	**0.742 ± 0.871 J**	**0.291 ± 0.702**	**1.83 ± 1.02 J**	**1.24 ± 0.925 J**	**1.51 ± 0.969 J**	**1.30 ± 1.16 J**	**1.44 ± 0.908 J**	**0.262 ± 0.912 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	MW-8 12/21/2017 60260936002	MW-8 2/23/2018 60264569002	MW-8 4/25/2018 60269085009	MW-8 6/29/2018 60273890010	MW-8 8/22/2018 60278591005	MW-8 10/24/2018 60284690006	MW-8 12/19/2018 60290219009	MW-8 3/13/2019 60296854008	MW-8 8/27/2019 60313169001	MW-8 12/04/2019 60323115001
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	0.075 U	0.075 U	0.075 U	**0.0726 J**	0.05 U	0.1 U	0.0108 JU	**1.91**	**0.0853 U**	**0.0925**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	10 U	10 U	10 U	**3.8 J**	10 U	10 U	10 U	**8.2 J**	10 U	**4.2 J**
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	**0.004 J**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 U	**0.004 J**	0.01 U	0.01 U	**0.008 J**	0.01 U	0.01 U	0.01 UJ	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0089 JU	0.01 U	0.01 U
6010	Iron	1.506	1.506	mg/l	**0.549**	**0.686**	**0.925**	**0.718**	**0.959**	**0.959**	**0.85**	**2.12**	**0.931**	**0.758**
6010	Magnesium	43	43	mg/l	**37**	**39.4**	**42.7**	**38.8**	**41**	**39.3**	**38**	**28.8**	**36.3**	**33.2**
6010	Manganese	0.9526	0.9526	mg/l	**1.05**	**0.95**	**1.22**	**0.987**	**0.996**	**1.08**	**0.888**	**1.04**	**0.864**	**0.684**
6010	Nickel	0.0317	0.0317	mg/l	**0.0073**	**0.0057**	**0.0054**	**0.0054**	**0.0055**	**0.005**	**0.0052**	**0.0069**	**0.0059**	**0.0055**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**77.5**	**76.3**	**76.3**	**77.4**	**76.3**	**78.4**	**76**	**50.5**	**71.8**	**78.2**
2340B	Total Hardness	659	659	mg/l	**790**	**883**	**894**	**778**	**829**	**853**	**807**	**629**	**781**	**732**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**1.2**	**1.3**	**0.86 J**	**0.80 J**	**1.4**	**0.8 J**	**0.9 J**	**0.87 J**	**0.63 J**	**0.75 J**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.0471**	**0.0303 J**	**0.0489 J**	**0.0659 J**	**0.147**	**0.0527 J**	**0.0202 J**	0.1 U	0.1 U	0.1 U
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.0409 J**	0.05 U	0.05 U

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

°C = degree Celsius

GWPS = Groundwater Protection Standard

J = Result as an estimated value

J+ = Result qualified as estimated; biased high

JU = Result qualified as nondetect during data validation

mg/l = milligram per liter

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not available

NTU - Nephelometric Turbidity Unit

pCi/L = picocuries per liter

s.u. - standard unit

U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	PZ-2 12/21/2017 60260933006	PZ-2 2/21/2018 60264511003	PZ-2 4/24/2018 60269085003	PZ-2 6/27/2018 60273890003	PZ-2 8/21/2018 60278444003	PZ-2 10/23/2018 60284534003	PZ-2 12/18/2018 60290219003	PZ-2 3/12/2019 60296854003	PZ-2 8/26/2019 60313018001	PZ-2 12/03/2019 60322982001
Analytical Method	**Analyte**			**Unit**										
Field Water Quality Parameters														
In Situ (Field)	Temperature	NA	NA	°C	**16.32**	**11.88**	**15.69**	**18.38**	**19.51**	**18.55**	**16.03**	**12.45**	**18.09**	**15.46**
In Situ (Field)	Conductivity	NA	NA	mS/cm	**1.55**	**1.62**	**1.53**	**1.59**	**1.76**	**1.8**	**1.64**	**1.67**	**1.674**	**1.446**
In Situ (Field)	pH	7.734 - 6.853	6.5-8.5	s.u.	**6.29**	**6.90**	**7.12**	**5.64**	**7.44**	**6.48**	**6.54**	**6.54**	**6.64**	**6.91**
In Situ (Field)	Oxidation-Reduction Potential (ORP)	NA	NA	mV	**78**	**100**	**40**	**50**	**57**	**70**	**37**	**33**	**18.8**	**29.1**
In Situ (Field)	Dissolved Oxygen (DO)	NA	NA	mg/l	**0.52**	**0.23**	**6.25**	**3.5**	**4.60**	**0.15**	**0.40**	**1.60**	**3.39**	**2.79**
In Situ (Field)	Turbidity	NA	NA	NTUs	**0.0**	**1.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**1.20**	**1.35**
Appendix III - Detection Monitoring														
6010	Boron	0.415	4	mg/l	**0.811**	**0.732**	**0.622**	**0.627**	**0.737**	**0.809**	**0.702**	**0.578**	**0.434**	**0.43**
6010	Calcium	196	196	mg/l	**196**	**196**	**219**	**202**	**227**	**221**	**216**	**216**	**185**	**163**
300	Chloride	73.2	250	mg/l	**129**	**101**	**118**	**207**	**460**	**187**	**178**	**177**	**227**	**197**
300	Fluoride	0.6833	4	mg/l	**0.49**	**0.35**	**0.44**	**0.49**	**0.13 J**	**0.5**	**0.36**	**0.37**	**0.53**	**0.55**
SM4500-H+B	pH	7.734 - 6.853	6.5-8.5	s.u.	**7.9 J**	**6.8 J**	**6.8 J**	**7.2 J**	**6.8 J**	**6.9 J**	**6.8 J**	**6.8 J**	**7.0 J**	**7.0 J**
300	Sulfate	283	283	mg/l	**318**	**294**	**317**	**351**	**828**	**335**	**326**	**329**	**243**	**243**
2540 C	Total Dissolved Solids	869.6	869.6	mg/l	**987**	**975**	**1120**	**1240**	**1810**	**1180**	**1220**	**1160**	**1090**	**1100**
Appendix IV - Assessment Monitoring														
6010	Antimony	0.0005	0.006	mg/l	0.01 U	0.01 U	0.015 U	0.015 U	**0.00023 J**	**0.00011 J**	**0.000079 J**	0.001 U	**0.00019 J**	**0.00021 J**
6010	Arsenic	0.0070	0.01	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Barium	0.657	2	mg/l	**0.0525**	**0.0454**	**0.0476**	**0.0582**	**0.0615**	**0.0566**	**0.0528**	**0.0463**	**0.0669**	**0.07**
6010	Beryllium	0.00062	0.004	mg/l	0.001 U	0.001 U	0.001 U	0.001 U	0.00059 JU	0.00044 JU	0.001 U	0.001 U	0.001 U	0.001 U
6010	Cadmium	0.003007	0.005	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00084 JU	0.005 U	0.005 U	0.005 U	0.005 U
6010	Chromium	0.0046	0.1	mg/l	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
6010	Cobalt	0.0043	0.006	mg/l	0.005 U	0.005 U	0.005 U	**0.0014 J**	0.005 U	**0.0011 J**	0.005 U	0.005 U	0.005 U	0.005 U
300	Fluoride	0.6833	4	mg/l	**0.49**	**0.35**	**0.44**	**0.49**	**0.13 J**	**0.5**	**0.36**	**0.37**	**0.53**	**0.55**
6010	Lead	0.0056	0.015	mg/l	0.005 U	0.005 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
6010	Lithium	0.07261	0.07261	mg/l	**0.0116**	0.01 U	**0.05**	**0.0076 J**	**0.0125**	**0.013**	**0.0097 J**	**0.0124**	**0.0148**	**0.0086 J**
7470	Mercury	0.0002	0.002	mg/l	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
6010	Molybdenum	0.01515	0.1	mg/l	0.02 U	0.02 U	**0.0012 J**	**0.0015 J**	0.0028 JU	**0.0017 J**	**0.0015 J**	**0.0016 J**	0.02 U	**0.0033 J**
6010	Selenium	0.015	0.05	mg/l	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	**0.0071 J**	0.015 U	0.015 U	0.015 U
6010	Thallium	0.0005	0.002	mg/l	0.02 U	0.02 U	0.001 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U
Calculated 903.1/904	Radium 226/228 Combined	2.651	5	pCi/L	**0.666 ± 0.893 J**	**0.201 ± 0.747 J**	**0.000 ± 0.743 J**	**0.391 ± 0.740**	**1.12 ± 0.923 J**	**1.87 ± 1.10 J**	**1.12 ± 0.968 J**	**0.0874 ± 1.14 J**	**0.486 ± 0.955 J**	**2.80 ± 1.08 J**

Table 3-3 (continued)
Summary of 2017-2019 Groundwater Analytical Results
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, MO

		Calculated Background Limit	GWPS	Sample Location Sample Date Lab ID	PZ-2 12/21/2017 60260933006	PZ-2 2/21/2018 60264511003	PZ-2 4/24/2018 60269085003	PZ-2 6/27/2018 60273890003	PZ-2 8/21/2018 60278444003	PZ-2 10/23/2018 60284534003	PZ-2 12/18/2018 60290219003	PZ-2 3/12/2019 60296854003	PZ-2 8/26/2019 60313018001	PZ-2 12/03/2019 60322982001
Analytical Method	**Analyte**			**Unit**										
MDNR Water Quality Parameters														
6010	Aluminum	1.878	1.878	mg/l	0.075 U	0.075 U	0.075 U	**0.074 J**	**0.0227 J**	0.1 U	0.03 JU	0.0291 JU	**0.0213 J**	**0.0119 J**
410.4	Chemical Oxygen Demand (COD)	60.8	60.8	mg/l	**12.8**	**10 U**	**7.7 J**	**17.4**	**22.1**	**17**	**13.8**	**8.6 J**	**34 J-**	**28.6**
Calculate 6010/7196	Chromium III	0.01	22	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
7196 / 3500-Cr B	Chromium VI	7.00E-03	0.008	mg/l	0.01 U	0.005 UJ	0.01 U	0.01 U	0.010 U	**0.006 J**	0.01 U	0.01 U	0.01 U	0.01 U
6010	Copper	0.008	1.3	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0074 JU	0.01 U	**0.0042 J**
6010	Iron	1.506	1.506	mg/l	**0.158**	**0.218**	**0.342**	**0.38**	**0.401**	**0.431**	**0.318**	**0.437**	**0.504**	**0.337**
6010	Magnesium	43	43	mg/l	**42.7**	**41.2**	**43.1**	**42.1**	**43**	**41.6**	**43**	**42.5**	**34.8**	**34.6**
6010	Manganese	0.9526	0.9526	mg/l	**1.11**	**0.412**	**0.419**	**0.403**	**0.48**	**0.511**	**0.384**	**0.378**	**0.514**	**0.435**
6010	Nickel	0.0317	0.0317	mg/l	**0.0074**	**0.0056**	**0.0046 J**	**0.0039 J**	**0.0046 J**	**0.0052**	**0.0051**	**0.0042 J**	**0.0043 J**	**0.0041 J**
6010	Silver	0.007	0.1	mg/l	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
6010	Sodium	80.37	80.37	mg/l	**99.7**	**91.1**	**97.9**	**127**	**136**	**127**	**122**	**120**	**137**	**130**
2340B	Total Hardness	659	659	mg/l	**665**	**658**	**725**	**678**	**725**	**719**	**716**	**702**	**606**	**581**
5310C	Total Organic Carbon (TOC)	2.479	2.479	mg/l	**2.6**	**2.2**	**1.8**	**1.8**	**4.7**	**2.5**	**2.3**	**2.2**	**4.9**	**6**
9020B	Total Organic Halogens (TOX)	0.3946	0.3946	mg/l	**0.0593**	**0.0451 J**	**0.075 J**	**0.0965 J**	**0.645**	**0.452**	**0.0606 J**	49.8 JU	**0.09 UJ**	**0.0752 J**
6010	Zinc	0.603	5	mg/l	0.05 U	0.05 U	**0.0064 J**	0.05 U	**0.0059 J**	**0.0077 J**	0.0056 JU	**0.0054 J**	0.05 U	0.05 U

Notes:

Samples were collected when More's Lake was in a Detection Monitoring Program

Samples were collected when More's Lake was in an Assessment Monitoring Program

˚C = degree Celsius

GWPS = Groundwater Protection Standard
J = Result as an estimated value
J+ = Result qualified as estimated; biased high
JU = Result qualified as nondetect during data validation
mg/l = milligram per liter
mS/cm - millisiemens per centimeter
mV - millivolts
NA - not available
NTU - Nephelometric Turbidity Unit
pCi/L = picocuries per liter
s.u. - standard unit
U - compound analyzed but not detected above laboratory reporting limit.

Orange Shading indicates the detected parameter exceeds the GWPS (may be equivalent to background if background > MCL or RSL).

Table 4-1
Groundwater Protection Standard Determination
Inactive CCR Ash Pond (More's Lake)
Columbia Municipal Power Plant - Columbia, Missouri

Detection Constituents (Appendix III)	Units	§257.95(h)(2) Interwell PL Background Level* calculated on data ranges 12/2017-03/2019	§257.95(h)(1) MCL or SMCL	§257.95(h)(2) Health-Based Level	Groundwater Protection Standard (GWPS)	GWPS Source
Boron	mg/L	0.415	NA	**4**	4	RSL (tap water; see note 3)
Calcium	mg/L	196	NA	--	196	Background
pH at 25 degrees C (field)	s.u.	6.853 - 7.734	**6.5-8.5**	--	6.5-8.5	Secondary MCL (see note 1)
pH at 25 degrees C (lab)	s.u.	6.853 - 7.734	**6.5-8.5**	--	6.5-8.5	Secondary MCL (see note 1)
TDS	mg/L	**869.6**	500	--	869.6	Background
Chloride	mg/L	73.2	**250**	--	250	Secondary MCL (see note 1)
Fluoride	mg/L	0.6833	**4**	--	4	MCL (Secondary MCL of 2)
Sulfate	mg/L	**283**	250	--	283	Background
Assessment Constituents (Appendix IV)						
Antimony	mg/L	0.005	**0.006**	**--**	0.006	MCL
Arsenic	mg/L	0.007	**0.01**	--	0.01	MCL
Barium	mg/L	0.657	**2**	--	2	MCL
Beryllium	mg/L	0.00062	**0.004**	--	0.004	MCL
Cadmium	mg/L	0.003007	**0.005**	--	0.005	MCL
Chromium	mg/L	0.0046	**0.1**	--	0.1	MCL
Cobalt	mg/L	0.0043	na	**0.006**	0.006	Health-based level (see note 2)
Fluoride	mg/L	0.6833	**4**	--	4	MCL (Secondary MCL of 2)
Lead	mg/L	0.0056	**0.015**	--	0.015	TT MCL
Lithium	mg/L	**0.07261**	na	0.040	0.07261	Background
Mercury	mg/L	0.002	**0.002**	--	0.002	MCL
Molybdenum	mg/L	0.01515	na	**0.100**	0.100	Health-based level (see note 2)
Selenium	mg/L	0.015	**0.05**	--	0.05	MCL
Thallium	mg/L	0.0005	**0.002**	--	0.002	MCL
Total Radium (226+228)**	pCi/L	2.651**	**5**	--	5	MCL
MDNR Water Quality						
Aluminum	mg/L	**1.878**	0.05 to 0.2	**--**	1.878	Secondary MCL (see note 1)
Chemical Oxygen Demand	mg/L	**60.8**	NA	--	60.8	Background
Copper	mg/L	0.01	**1.3**	--	1.3	TT MCL (Secondary MCL 1)
Chromium III (trivalent)	mg/L	0.007	NA	**22**	22	RSL (tap water; see note 3)
Chromium VI (hexavalent)	mg/L	**0.008**	3.50E-05	--	0.008	Background
Iron	mg/L	**1.506**	0.3	--	1.506	Background
Magnesium	mg/L	**43**	NA	--	43	Background
Manganese	mg/L	**0.9526**	0.05	--	0.9526	Background
Nickel	mg/L	**0.0317**	NA	--	0.0317	Background
Silver	mg/L	0.007	**0.1**	--	0.1	Secondary MCL (see note 1)
Sodium	mg/L	**80.37**	NA	--	80.37	Background
Total Hardness	mg/L	**659**	NA	--	659	Background
Total Organic Carbon	mg/L	**2.479**	NA	--	2.479	Background
Total Organic Halides	mg/L	**0.3946**	NA	--	0.3946	Background
Zinc	mg/L	0.603	**5**	--	5	Secondary MCL (see note 1)

*Background concentrations were determined utilizing interwell prediction limits. Upgradient wells MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 were used to determine these background concentrations. Wells MW-1, MW-8, and PZ-2 served as the downgradient/compliance data. Data included in these statistics included data ranging from December 2017 through March 2019.

**Combined radium is reported with an uncertainty. However, this uncertainty cannot be incorporated into statistical calculations as it varies per result and is not a standard value. Therefore, to maintain consistency in reporting these results, the reported laboratory concentration was used for the statistical analyses. Certainty values can be found in the analytical data reports.

Notes:

1. Unless otherwise noted, all GWPS concentrations are based on USEPA's Maximum Contaminant Level (MCL). In some instances, a Secondary MCL may be noted. National Primary Drinking Water Regulation Table (May 2009) can be found: https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulation-table. Secondary Drinking Water Standards can be found: https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals.
2. Health-based level - CCR based GWPS for those analytes without an established MCL. See 40 CFR §257.95(h)(2) (July 2018).
3. USEPA Regional Screening Level (RSL) - health-based screening level used as GWPS for those analytes without an MCL (USEPA, April 2019). RSLs can be found: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

Abbreviations:

GWPS - Groundwater Protection Standard
Interwell PL - interwell prediction limits (Sanitas®)
MCL - Maximum Contaminant Level
mg/L - milligrams per Liter
pCi/L - picocuries per Liter
RSL - USEPA Regional Screening Level
SMCL = Secondary Maximum Contaminant Level
TT - Treatment technique MCL (see link above for MCLs)

APPENDIX A – MONITORING WELL SAMPLING FORMS

AUGUST 2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-26-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5 mph W, Rain

WELL NUMBER

MW-1

DEPTH TO WATER (ft): 28.50

TOTAL DEPTH (ft): 42.74 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1405	1	100	7.03	17.91	1.212	2.67	19.3	4.72	28.50
1410	0.13	100	7.04	17.77	1.214	2.82	7.2	3.50	28.72
1415	0.26	100	6.96	17.64	1.210	4.32	-7.6	2.30	28.72
1420	0.40	100	6.91	17.30	1.208	3.51	-14.8	1.70	28.72
1425	0.53	100	6.91	17.23	1.208	2.03	-26.0	1.19	28.72
1430	0.67	100	6.92	17.18	1.216	1.72	-34.8	1.10	28.72
1435	0.80	100	6.93	17.20	1.219	1.44	-38.5	1.07	28.72

Continued on back (circle one) yes (no)

SAMPLING Equipment Used: (Same as above) Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1430	0.80	6.93	17.20	1.219	1.44	-38.5	1.07	28.72	—

FINAL DEPTH TO WATER (ft TOC): 28.72 TIME FINAL DEPTH TAKEN: 1440

SAMPLE ID: MW-1 SAMPLE ID FOR QC: MW-1/MS, MW-1/MSD

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jon Hermanson	8-26-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-26-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5mph W, overcast

WELL NUMBER

MW-2

DEPTH TO WATER (ft): 16.97

TOTAL DEPTH (ft): 52.92 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/foot = ____ total gallons/casing volume
in casing

Equipment Used: (Dedicated Bladder Pump) Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1615	I	100	7.26	17.80	0.783	1.49	-19.8	6.40	16.97
1620	0.13	100	7.06	16.86	0.857	3.33	-34.3	3.35	17.15
1625	0.26	100	6.94	16.58	0.885	1.33	-37.5	1.96	17.25
1630	0.40	100	6.96	16.55	0.894	1.45	-41.9	1.45	17.28
1635	0.53	100	6.97	16.50	0.892	1.46	-43.9	1.35	17.29
1640	0.67	100	6.99	16.52	0.892	1.50	-44.5	1.30	17.30

Continued on back (circle one) yes / (no)

SAMPLING Equipment Used: (Same as above) Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1645	0.67	6.99	16.52	0.892	1.50	-44.5	1.30	17.30	-

FINAL DEPTH TO WATER (ft TOC): 17.30 TIME FINAL DEPTH TAKEN: 1645

SAMPLE ID: MW-2 SAMPLE ID FOR QC: Dup-1

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.67

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-26-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-27-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5-10 mph W, overcast

WELL NUMBER

MW-3

DEPTH TO WATER (ft): 16.82

TOTAL DEPTH (ft): 49.50 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1020	I	100	7.22	16.56	0.818	4.45	-69.7	1.02	16.82
1025	0.13	100	7.15	16.45	0.830	6.52	-73.2	3.79	17.76
1030	0.26	100	7.04	16.40	0.844	7.03	-71.3	2.23	17.94
1035	0.40	100	7.09	16.23	0.851	3.08	-74.3	1.57	18.18
1040	0.53	100	7.10	16.12	0.853	1.97	-75.2	1.40	18.25
1045	0.67	100	7.12	16.07	0.854	2.57	-77.1	1.27	18.25
1050	0.80	100	7.11	16.16	0.853	1.30	-77.8	1.20	18.31

Continued on back (circle one) yes (no)

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1055	0.80	7.11	16.10	0.853	1.30	-77.8	1.20	18.31	—

FINAL DEPTH TO WATER (ft TOC): 18.31 TIME FINAL DEPTH TAKEN: 1055

SAMPLE ID: MW-3 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-27-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-27-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, S mphw, overcast

WELL NUMBER

MW-4

DEPTH TO WATER (ft): 22.31

TOTAL DEPTH (ft): 57.05 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
0900	I	100	7.17	17.75	0.398	3.37	-59.2	7.10	22.31
0905	0.13	100	7.11	16.75	0.570	4.05	-95.2	2.01	23.63
0910	0.26	100	7.10	16.90	0.609	6.23	-97.5	1.62	24.10
0915	0.40	100	7.14	16.78	0.639	2.51	-103.4	1.34	24.70
0920	0.53	100	7.15	16.72	0.657	4.91	-102.2	1.99	25.15
0925	0.67	100	7.15	16.71	0.660	4.42	-103.9	1.42	25.45
0930	0.80	100	7.15	16.67	0.654	1.76	-108.6	1.47	25.87

Continued on back (circle one) yes / no

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
0935	0.80	7.15	16.67	0.654	1.76	-108.6	1.47	25.87	—

FINAL DEPTH TO WATER (ft TOC): ~~0935~~ 25.87 TIME FINAL DEPTH TAKEN: 0935

SAMPLE ID: MW-4 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80 gal

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: [X] COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-27-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-27-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5mph W, cloudy

WELL NUMBER

MW-5

DEPTH TO WATER (ft): 12.15

TOTAL DEPTH (ft): 41.09 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1155	1	100	7.43	17.43	0.905	4.10	-61.4	3.02	12.15
1200	0.13	100	7.36	17.60	0.905	3.25	-79.6	2.23	13.75
1205	0.26	100	7.33	17.72	0.904	2.55	-81.7	1.64	14.29
1210	0.40	100	7.32	17.90	0.904	1.63	-84.7	1.45	14.68
1215	0.53	100	7.28	17.85	0.904	1.71	-84.9	1.30	15.03
1220	0.67	100	7.24	17.73	0.904	1.56	-84.9	1.21	15.41
1225	0.80	100	7.22	17.69	0.904	1.48	-85.0	1.13	15.77

Continued on back (circle one) yes / no

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1230	0.80	7.22	17.69	0.904	1.48	-85.0	1.13	15.77	—

FINAL DEPTH TO WATER (ft TOC): 15.77 TIME FINAL DEPTH TAKEN: 1230

SAMPLE ID: MW-5 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-27-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-27-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5 mph W, partly cloudy

WELL NUMBER

MW-6

DEPTH TO WATER (ft): 15.51

TOTAL DEPTH (ft): 41.75 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1315	I	100	6.89	18.63	1.003	59.1	0.0	1.48	15.51
1320	0.13	100	6.88	18.26	1.105	65.6	-35.8	1.01	16.60
1325	0.26	100	6.86	18.90	1.016	59.4	-60.0	1.29	16.99
1330	0.40	100	6.84	18.89	1.168	48.1	-66.9	1.14	17.30
1335	0.53	100	6.83	18.82	1.177	35.0	-70.5	1.03	17.53
1340	0.67	100	6.82	18.75	1.179	24.5	-73.9	0.98	17.40
1345	0.80	100	6.81	18.68	1.179	20.9	-77.1	0.97	18.11
1350	0.93	100	6.80	18.62	1.178	17.8	-77.5	0.94	18.35
1355	1.07	100	6.79	18.55	1.178	15.6	-80.0	0.94	18.46

Continued on back (circle one) (yes) / no

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1410	1.33	6.77	18.55	1.178	14.2	-79.6	0.88	19.12	—

FINAL DEPTH TO WATER (ft TOC): 19.12 TIME FINAL DEPTH TAKEN: 1410

SAMPLE ID: MW-6 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 1.33 gal

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: [X] COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-27-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

WELL NUMBER

MW-6

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1400	1.20	100	6.78	18.57	1.178	15.0	-78.6	0.90	18.81
1405	1.33	100	6.77	18.55	1.178	14.2	-79.6	0.88	19.12

COMMENTS

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-27-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5mph W, partly cloudy

WELL NUMBER

MW-7

DEPTH TO WATER (ft): 8.70

TOTAL DEPTH (ft): 33.43 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other _____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1455	I	100	7.39	18.84	0.864	26.7	-11.1	4.66	8.70
1500	0.13	100	7.21	18.81	0.893	35.8	-57.5	1.81	10.33
1505	0.26	100	7.17	18.43	0.911	35.8	-71.8	1.29	10.80
1510	0.40	100	7.17	18.56	0.915	59.5	-80.0	1.12	11.18
1515	0.53	100	7.16	18.65	0.908	46.8	-80.7	1.03	11.40
1520	0.67	100	7.14	18.05	0.908	37.0	-81.9	1.10	11.96
1525	0.80	100	7.13	17.99	0.890	26.0	-81.7	1.06	12.29
1530	0.93	100	7.10	17.98	0.885	21.2	-82.0	1.01	12.74
1535	1.07	100	7.10	17.91	0.885	17.1	-82.4	0.98	13.10

Continued on back (circle one) (yes) / no

SAMPLING Equipment Used: ~~Same as above~~ Other _____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1555	1.146	7.08	17.70	0.885	14.8	-77.4	0.93	14.35	—

FINAL DEPTH TO WATER (ft TOC): 14.35 TIME FINAL DEPTH TAKEN: 1555

SAMPLE ID: MW-7 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 1.46 gal

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-27-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

WELL NUMBER

MW-7

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1540	1.20	100	7.08	17.85	0.884	15.2	-83.1	0.98	13.61
1545	1.33	100	7.08	17.76	0.885	150	-83.0	0.94	14.02
1550	1.46	100	7.08	17.72	0.885	14.8	-77.4	0.93	14.35

COMMENTS

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-27-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 60s, 5mph, W, overcast

WELL NUMBER

MW-8

DEPTH TO WATER (ft): 8.50

TOTAL DEPTH (ft): 27.90 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
0715	I	100	6.33	16.35	2.512	81.3	-30.4	2.76	8.50
0720	0.13	100	6.37	16.77	2.720	35.8	-53.4	1.89	10.59
0725	0.26	100	6.46	17.02	2.684	24.9	-59.2	1.72	10.61
0730	0.40	100	6.57	16.93	2.182	15.5	-63.5	1.63	11.27
0735	0.53	100	6.64	16.84	1.982	14.3	-65.3	1.55	11.55
0740	0.67	100	6.69	17.18	1.713	14.6	-66.8	1.46	11.55
0745	0.80	100	6.70	17.04	1.678	13.2	-68.2	1.40	11.65
0750	0.93	100	6.72	17.00	1.637	12.9	-68.0	1.35	11.73
0755	1.07	100	6.73	16.98	1.624	12.2	-68.8	1.29	11.75

Continued on back (circle one) yes / no

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
0805	1.20	6.74	16.99	1.610		-68.3	1.24	11.78	—

FINAL DEPTH TO WATER (ft TOC): 11.78 TIME FINAL DEPTH TAKEN: 0805

SAMPLE ID: MW-8 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 1.20 gal

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-27-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

WELL NUMBER

MW-8

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
0800	1.20	100	6.74	16.99	1.610	11.8	-68.3	1.24	11.78

COMMENTS

FIELD GROUND-WATER SAMPLING REPORT

DATE: 8-26-19 SITE: More's Lake PID READING at WELL HEAD (ppm): --

PROJECT NUMBER: 93647 WEATHER: 70s, 5-10mph, overcast

WELL NUMBER

PZ-2

DEPTH TO WATER (ft): 8.60

TOTAL DEPTH (ft): 19.80 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1235	I	100	6.75	17.87	2.290	1.82	81.9	7.16	8.60
1240	0.13	100	6.29	17.62	1.976	1.20	55.0	1.74	9.30
1245	0.26	100	6.45	17.66	1.781	1.32	51.0	1.59	9.65
1250	0.40	100	6.56	17.96	1.696	1.09	35.0	2.23	9.85
1255	0.53	100	6.60	17.93	1.677	1.27	26.6	3.29	10.08
1300	0.67	100	6.63	17.91	1.664	1.13	11.5	3.33	10.24
1305	0.80	100	6.64	18.09	1.674	1.20	18.8	3.39	10.32

Continued on back (circle one) yes / (no)

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1310	0.80	6.64	18.09	1.674	1.20	18.8	3.39	10.32	-

FINAL DEPTH TO WATER (ft TOC): ____ TIME FINAL DEPTH TAKEN: 1

SAMPLE ID: PZ-2 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Metals/hardness, Cr6+, COD, TDS, TOC, TOX, Radium 226/228

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80

METER MODEL No.: YSI 556 MPS

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	8-26-19
REVIEWED:	Chris Hoglund	Chris Hoglund	8-29-2019

DECEMBER 2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-3-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 40s, 10 mph W, clear sky

WELL NUMBER

MW-1

DEPTH TO WATER (ft): 28.70

TOTAL DEPTH (ft): 42.75 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other _____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1325	I	100	7.04	15.70	1.080	7.53	-76.1	3.53	28.70
1330	0.13	200	6.99	15.58	1.073	8.24	-55.5	2.18	29.05
1335	0.26	100	6.94	15.47	1.067	11.89	2.6	0.89	29.10
1340	0.40	100	6.96	15.42	1.064	7.89	2.9	0.66	29.10
1345	0.83	100	6.97	15.43	1.063	4.30	-21.1	0.51	29.10
1350	0.66	100	6.97	15.45	1.079	3.05	-22.1	0.43	29.10
1355	0.80	100	6.98	15.45	1.092	2.27	-35.4	0.40	29.10
1400	0.93	100	6.97	15.45	1.101	1.92	-40.5	0.37	29.10

Continued on back (circle one) yes / (no)

SAMPLING Equipment Used: Same as above Other _____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1400	~~0.80~~ 0.93	6.97	15.45	1.101	1.92	-40.5	0.37	29.10	—

FINAL DEPTH TO WATER (ft TOC): 29.10 TIME FINAL DEPTH TAKEN: 1400

SAMPLE ID: MW-1 SAMPLE ID FOR QC: MW-1/MS & MW-1/MSD

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: ~~0.80~~ 0.93 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-3-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-3-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 50s, 10 mph NW, clear sky

WELL NUMBER

MW-2

DEPTH TO WATER (ft): 17.99

TOTAL DEPTH (ft): 52.75 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1525	I	100	7.48	14.90	0.676	2.44	-89.0	8.11	17.99
1530	0.13	100	7.03	14.93	0.725	6.22	-115.0	3.67	18.11
1535	0.26	100	7.04	15.08	0.759	4.86	-126.0	1.12	18.21
1540	0.40	100	7.05	15.09	0.770	2.95	-136.5	0.74	18.25
1545	0.53	100	7.08	15.08	0.772	3.51	-147.6	0.58	18.32
1550	0.66	100	7.08	15.04	0.774	3.17	-155.8	0.55	18.33
1555	0.80	100	7.10	15.01	0.773	2.72	-162.6	0.48	18.36

Continued on back (circle one) yes / no

SAMPLING Equipment Used: ~~Same as above~~ Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1600	0.80	7.10	15.01	0.773	2.72	-162.6	0.48	18.36	—

FINAL DEPTH TO WATER (ft TOC): 18.36 TIME FINAL DEPTH TAKEN: 1600

SAMPLE ID: MW-2 SAMPLE ID FOR QC: Dup-2

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: [X] COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-3-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-4-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 40s, 5 mph W, clear sky

WELL NUMBER

MW-3

DEPTH TO WATER (ft): 17.80

TOTAL DEPTH (ft): 49.65 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
0855	I	100	6.88	13.68	0.757	5.35	-263.5	4.91	17.80
0900	0.13	100	6.89	13.46	0.765	4.43	-296.1	1.52	18.92
0905	0.26	100	6.96	13.45	0.764	2.51	-325.2	0.92	19.04
0910	0.40	100	7.01	13.53	0.762	1.38	-343.8	0.64	19.20
0915	0.53	100	7.02	13.61	0.761	2.38	-351.3	0.49	19.30
0920	0.66	100	7.02	13.69	0.759	2.14	-349.5	0.45	19.40
0925	0.80	100	7.01	13.64	0.759	0.50	-350.2	0.43	19.43

Continued on back (circle one) yes / ~~no~~

SAMPLING Equipment Used: ~~Same as above~~ Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
0930	0.80	7.01	13.64	0.759	0.50	-350.2	0.43	19.43	—

FINAL DEPTH TO WATER (ft TOC): 19.43 TIME FINAL DEPTH TAKEN: 0930

SAMPLE ID: MW-3 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-4-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-4-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 40s, 5mph W, clear sky

WELL NUMBER

MW-4

DEPTH TO WATER (ft): 23.75

TOTAL DEPTH (ft): 56.90 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1015	I	100	6.83	14.11	0.532	2.95	-279.8	4.28	23.75
1020	0.13	100	6.87	14.29	0.571	3.25	-275.9	2.83	24.33
1025	0.26	100	7.08	14.84	0.635	2.07	-318.5	1.22	25.12
1030	0.40	100	7.14	15.05	0.652	1.64	-327.4	0.72	25.71
1035	0.53	100	7.15	15.20	0.654	1.37	-325.0	0.54	26.26
1040	0.66	100	7.14	15.12	0.646	3.59	-321.4	0.46	26.69
1045	0.80	100	7.13	15.21	0.638	1.18	-332.8	0.41	27.05

Continued on back (circle one) yes (no)

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1050	0.80	7.13	15.21	0.638	1.18	-332.8	0.41	27.05	—

FINAL DEPTH TO WATER (ft TOC): 27.05 TIME FINAL DEPTH TAKEN: 1050

SAMPLE ID: MW-4 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: [X] COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-4-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-4-19 SITE: More's Lake PID READING at WELL HEAD (ppm): -

PROJECT NUMBER: 93647 WEATHER: 40s, 5 mph W, clear sky

WELL NUMBER

MW-5

DEPTH TO WATER (ft): 12.57

TOTAL DEPTH (ft): 41.11 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1140	1	100	6.90	15.15	0.765	11.7	-206.9	4.71	12.52
1145	0.13	100	6.92	15.14	0.791	14.3	-278.7	2.13	13.62
1150	0.26	100	7.05	15.26	0.792	11.38	-297.5	0.99	14.20
1155	0.40	100	7.15	15.52	0.794	4.55	-332.8	0.60	14.85
1200	0.53	100	7.17	15.49	0.791	3.03	-374.1	0.51	15.34
1205	0.66	100	7.17	15.49	0.789	2.26	-372.9	0.47	15.68
1210	1.80	100	7.16	15.49	0.788	3.34	-356.5	0.36	16.12

Continued on back (circle one) yes / no

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1215	0.80	7.16	15.49	0.788	3.34	-356.5	0.36	16.12	-

FINAL DEPTH TO WATER (ft TOC): 16.12 TIME FINAL DEPTH TAKEN: 1215

SAMPLE ID: MW-5 SAMPLE ID FOR QC: -

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.80 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: X COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-4-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-4-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 50s, 5 mph W, clear sky

WELL NUMBER

MW-6

DEPTH TO WATER (ft): 15.18

TOTAL DEPTH (ft): 41.80 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: ~~Dedicated Bladder Pump~~ Nondedicated Bladder Pump Bailer Other _____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1285	I	100	6.66	16.11	0.978	18.1	-161.9	4.77	15.18
1300	0.13	100	6.63	16.44	1.070	40.7	-222.7	1.14	16.87
1305	0.26	100	6.67	16.37	1.100	35.5	-254.9	0.70	17.18
1310	0.40	100	6.73	16.31	1.107	19.7	-336.9	0.46	17.80
1315	0.53	100	6.75	16.28	1.105	15.5	-357.5	0.43	18.27
1320	0.66	100	6.76	16.26	1.100	11.2	-363.6	0.35	18.86
1325	0.80	100	6.76	16.26	1.097	12.97	-368.1	0.39	9.30
1330	0.93	100	6.76	16.27	1.093	12.89	-372.6	0.35	19.70
1335	1.06	100	6.77	16.27	1.089	12.15	-375.0	0.35	20.12

Continued on back (circle one) yes / ~~no~~

SAMPLING Equipment Used: ~~Same as above~~ Other _____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1340	1.06	6.77	16.27	1.089	12.15	-375.0	0.35	20.12	—

FINAL DEPTH TO WATER (ft TOC): 20.12 TIME FINAL DEPTH TAKEN: 1340

SAMPLE ID: MW-6 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 1.06 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-4-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-4-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 50s, 5 mph W, clear sky

WELL NUMBER

MW-7

DEPTH TO WATER (ft): 9.92

TOTAL DEPTH (ft): 33.40 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other _____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1420	I	100	7.06	15.84	0.754	46.0	-182.8	5.37	9.92
1425	0.13	100	6.95	15.92	0.807	32.2	-221.9	1.50	11.76
1430	0.26	100	7.03	16.14	0.813	26.2	-297.6	0.64	12.35
1435	0.40	100	7.00	15.89	0.815	15.4	-287.4	0.44	12.95
1440	0.53	100	7.00	15.84	0.814	15.0	-315.0	0.36	13.42
1445	0.66	100	7.02	15.81	0.812	12.2	-319.0	0.35	13.90
1450	0.80	100	7.02	5.76	0.809	12.8	-322.9	0.36	14.38
1455	0.93	100	7.01	15.74	0.807	11.1	-318.1	0.34	14.82

Continued on back (circle one) yes no

SAMPLING Equipment Used: Same as above Other _____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1500	0.93	7.01	15.74	0.807	11.1	-318.1	0.34	14.82	—

FINAL DEPTH TO WATER (ft TOC): 14.82 TIME FINAL DEPTH TAKEN: 1500

SAMPLE ID: MW-7 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.93 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: ☒ COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-4-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-4-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 30s, 5 mph W, clear sky

WELL NUMBER: MW-8 DEPTH TO WATER (ft): 8.88

TOTAL DEPTH (ft): 27.90 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other ____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
0725	I	100	6.37	15.60	2.404	~~24.4~~ 8.88	-52.1	2.58	8.88
0730	0.13	100	6.40	15.60	2.422	39.9	-86.1	0.98	11.63
0735	0.26	100	6.55	15.30	2.122	20.4	-299.8	0.76	12.03
0740	0.40	100	6.65	15.23	1.754	10.57	-333.3	0.65	12.35
0745	0.53	100	6.72	15.18	1.488	7.98	-352.8	0.56	12.68
0750	0.66	100	6.73	15.16	1.420	6.86	-341.2	0.54	12.85
0755	0.80	100	6.73	15.15	1.385	6.77	-334.0	0.58	13.10
0800	0.93	100	6.73	15.06	1.371	5.44	-296.4	0.82	13.10
0805	1.06	100	6.75	15.31	1.367	4.52	-287.5	1.20	13.20

Continued on back (circle one) yes / no

SAMPLING Equipment Used: Same as above Other ____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
0820	1.33	6.74	15.19	1.365	3.98	-273.0	1.33	13.25	—

FINAL DEPTH TO WATER (ft TOC): 13.25 TIME FINAL DEPTH TAKEN: 0820

SAMPLE ID: MW-8 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6-, Radium

FERROUS IRON (mg/L): NA IDW TOTAL: 1.33 gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: [X] COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-4-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

WELL NUMBER

MW-8

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
0810	1.20	100	6.77	15.22	1.369	4.25	-278.1	1.28	13.23
0815	1.33	100	6.74	15.19	1.365	3.98	-273.0	1.33	13.25

COMMENTS

FIELD GROUND-WATER SAMPLING REPORT

DATE: 12-3-19 SITE: More's Lake PID READING at WELL HEAD (ppm): —

PROJECT NUMBER: 93647 WEATHER: 40s, 5mphW, partly cloudy

WELL NUMBER

~~MW~~- PZ-2

DEPTH TO WATER (ft): 8.47

TOTAL DEPTH (ft): 19.81 WELL DIAMETER (inches): 2

PURGING

CASING VOLUME CALCULATION: ____ ft of water X ____ gallons/ = ____ total gallons/casing volume
in casing foot

Equipment Used: Dedicated Bladder Pump Nondedicated Bladder Pump Bailer Other _____

Time (24 hr)	Amount Purged (gals)	Flow Rate (ml/min)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)
1200	I	100	6.54	15.40	1.960	3.77	183.0	3.72	8.47
1205	0.13	100	6.65	15.80	1.946	2.07	71.0	1.35	9.10
1210	0.26	100	6.72	15.63	1.782	1.45	51.4	1.08	9.40
1215	0.40	100	6.77	15.54	1.612	1.77	48.4	1.74	9.52
1220	0.53	100	6.85	15.52	1.499	1.67	44.6	2.60	9.78
1225	0.66	100	6.88	15.43	1.463	1.33	38.7	2.89	9.94
1230	0.80	100	6.90	15.46	1.451	1.70	33.4	2.84	10.13
1235	0.95	100	6.91	15.46	1.446	1.35	29.1	2.79	10.35

Continued on back (circle one) yes / ~~no~~

SAMPLING Equipment Used: ~~Same as above~~ Other _____

Sample Time (24 hr)	Total Purged (gals)	pH	Temp (C)	Conductivity (mmhos/cm)	Turbidity (NTUs)	ORP (mV)	D.O. (mg/L)	Depth to Water (ft TOC)	Obs.
1240	0.93	6.91	15.46	1.446	1.35	29.1	2.79	10.35	—

FINAL DEPTH TO WATER (ft TOC): 10.35 TIME FINAL DEPTH TAKEN: 1235

SAMPLE ID: PZ-2 SAMPLE ID FOR QC: —

PARAMETERS REQUESTED FOR ANALYSIS: Anions, TOC, COD, Tox, TDS, Metals, Hardness, Cr6+, Radium

FERROUS IRON (mg/L): -- NA IDW TOTAL: 0.93 ~~0.93~~ gal

METER MODEL No.: YSI MPS 556

CHECKED FLOW THROUGH CELL FOR LEAKS: X COMMENTS: N/A

	NAME	SIGNATURE	DATE
PREPARED:	Jonathan Hermanson	Jonathan Hermanson	12-3-19
REVIEWED:	Chris Hoglund	Chris Hoglund	12-6-2019

APPENDIX B – LABORATORY ANALYTICAL PACKAGES

AUGUST 2019

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

September 19, 2019

Brian Weis
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114

RE: Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Dear Brian Weis:
Enclosed are the analytical results for sample(s) received by the laboratory on August 27, 2019. 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,

Jeffrey Shopper
jeff.shopper@pacelabs.com
1(913)563-1408
Project Manager

Enclosures

cc: Carlyn Williams, Burns & McDonnell

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

Pace Analytical National Certification IDs

12065 Lebanon Road, Mt. Juliet, TN 37122
Alabama Certification #: 40660
Alaska Certification 17-026
Arizona Certification #: AZ0612
Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Pace Analytical National Certification IDs

Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975
New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60313018001	**PZ-2**	Water	08/26/19 13:10	08/27/19 06:25
60313018002	**MW-1**	Water	08/26/19 14:40	08/27/19 06:25
60313018003	**MW-2**	Water	08/26/19 16:45	08/27/19 06:25
60313018004	**DUP-1**	Water	08/26/19 08:00	08/27/19 06:25
60313018005	**MW-1 MS**	Water	08/26/19 14:40	08/27/19 06:25
60313018006	**MW-1 MSD**	Water	08/26/19 14:40	08/27/19 06:25

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60313018001	**PZ-2**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	EEM	1	PAN
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313018002	**MW-1**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	EEM	1	PAN
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313018003	**MW-2**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	EEM	1	PAN
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313018004	**DUP-1**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	EEM	1	PAN
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313018005	**MW-1 MS**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
60313018006	**MW-1 MSD**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Date: September 19, 2019

PZ-2 (Lab ID: 60313018001)

- Wet Chemistry by Method 9020B - Initial pH~7.0

MW-1 (Lab ID: 60313018002)

- Wet Chemistry by Method 9020B - Initial pH~7.0

MW-2 (Lab ID: 60313018003)

- Wet Chemistry by Method 9020B - Initial pH~7.0

DUP-1 (Lab ID: 60313018004)

- Wet Chemistry by Method 9020B - Initial pH~7.0

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 606161

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313018002,60313169002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2477519)
  - Calcium
- MSD (Lab ID: 2477520)
  - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 6010**
Description: 6010 MET ICP
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 606156

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313018002,60313169002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2477491)
  - Sodium
- MSD (Lab ID: 2477492)
  - Sodium

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 7470**
Description: 7470 Mercury
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
6 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
6 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- DUP-1 (Lab ID: 60313018004)
- MW-1 (Lab ID: 60313018002)
- MW-2 (Lab ID: 60313018003)
- PZ-2 (Lab ID: 60313018001)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **Trivalent Chromium Calculation**
Description: Trivalent Chromium Calculation
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 9020**
Description: Wet Chemistry 9020B
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 9020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

P4: Sample field preservation does not meet EPA or method recommendations for this analysis.
- DUP-1 (Lab ID: 60313018004)
- MW-1 (Lab ID: 60313018002)
- MW-2 (Lab ID: 60313018003)
- PZ-2 (Lab ID: 60313018001)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 1337619

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
- DUP (Lab ID: R3446158-4)
  - Total Organic Halides
- DUP (Lab ID: R3446621-5)
  - Total Organic Halides
- DUP (Lab ID: R3446621-8)
  - Total Organic Halides
- DUP (Lab ID: R3447039-3)
  - Total Organic Halides
- DUP (Lab ID: R3447039-8)
  - Total Organic Halides

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 410.4**
Description: 410.4 COD
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 609172

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313018001,60314120003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2488399)
  - Chemical Oxygen Demand
- MS (Lab ID: 2488401)
  - Chemical Oxygen Demand

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **SM 5310C**
Description: 5310C TOC
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 609458

B: Analyte was detected in the associated method blank.

- BLANK for HBN 609458 [WETA/615 (Lab ID: 2490102)
  - Total Organic Carbon

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Method: **EPA 7196**
Description: 7196 Chromium, Hexavalent
Client: BURNS & MCDONNELL
Date: September 19, 2019

General Information:
4 samples were analyzed for EPA 7196. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- DUP-1 (Lab ID: 60313018004)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: PZ-2 **Lab ID: 60313018001** Collected: 08/26/19 13:10 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**434**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:46	7440-42-8	
Calcium	**185000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:46	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:46	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:46	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:46	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:46	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:46	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:46	7440-50-8	
Iron	**504**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:46	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:46	7439-92-1	
Lithium	**14.8**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:46	7439-93-2	
Magnesium	**34800**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:46	7439-95-4	
Manganese	**514**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:46	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:46	7439-98-7	
Nickel	**4.3J**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:46	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:46	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:46	7440-22-4	
Sodium	**137000**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:46	7440-23-5	
Hardness, Total(SM 2340B)	**606000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:46		
Zinc	ND	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:46	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**21.3J**	ug/L	50.0	9.5	1	08/27/19 15:00	09/03/19 14:42	7429-90-5	
Antimony	**0.19J**	ug/L	1.0	0.078	1	08/27/19 15:00	09/03/19 14:42	7440-36-0	
Barium	**66.9**	ug/L	1.0	0.28	1	08/27/19 15:00	09/03/19 14:42	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/27/19 15:00	09/03/19 14:42	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:18	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1090**	mg/L	13.3	13.3	1		09/01/19 12:02		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		09/03/19 14:20		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/19/19 16:04	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	**90.0J**	ug/L	100	27.7	1	08/30/19 16:33	08/30/19 16:33		J,P4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: PZ-2 **Lab ID: 60313018001** Collected: 08/26/19 13:10 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**227**	mg/L	20.0	4.4	20		09/11/19 23:59	16887-00-6	
Fluoride	**0.53**	mg/L	0.20	0.085	1		09/11/19 23:43	16984-48-8	
Sulfate	**243**	mg/L	20.0	4.6	20		09/11/19 23:59	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**34.0**	mg/L	10.0	3.7	1	09/13/19 11:12	09/16/19 08:46		M1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.9**	mg/L	1.0	0.29	1		09/16/19 05:21	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/27/19 09:53	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-1 **Lab ID: 60313018002** Collected: 08/26/19 14:40 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**2170**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:48	7440-42-8	
Calcium	**162000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:48	7440-70-2	M1
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:48	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:48	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:48	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:48	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:48	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:48	7440-50-8	
Iron	**33.1J**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:48	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:48	7439-92-1	
Lithium	**40.8**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:48	7439-93-2	
Magnesium	**42200**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:48	7439-95-4	
Manganese	**170**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:48	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:48	7439-98-7	
Nickel	**5.6**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:48	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:48	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:48	7440-22-4	
Sodium	**68200**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:48	7440-23-5	M1
Hardness, Total(SM 2340B)	**578000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:48		
Zinc	ND	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:48	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	50.0	9.5	1	08/27/19 15:00	09/03/19 14:43	7429-90-5	
Antimony	**0.086J**	ug/L	1.0	0.078	1	08/27/19 15:00	09/03/19 14:43	7440-36-0	
Barium	**52.0**	ug/L	1.0	0.28	1	08/27/19 15:00	09/03/19 14:43	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/27/19 15:00	09/03/19 14:43	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:21	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**949**	mg/L	10.0	10.0	1		09/01/19 12:03		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/03/19 14:22		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/19/19 16:04	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	08/30/19 18:38	08/30/19 18:38		P4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-1 **Lab ID: 60313018002** Collected: 08/26/19 14:40 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**87.1**	mg/L	10.0	2.2	10		09/12/19 01:17	16887-00-6	
Fluoride	**0.43**	mg/L	0.20	0.085	1		09/12/19 00:30	16984-48-8	
Sulfate	**277**	mg/L	50.0	11.5	50		09/12/19 02:35	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	09/13/19 11:12	09/16/19 08:47		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.80J**	mg/L	1.0	0.29	1		09/14/19 12:20	7440-44-0	B,CH
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/27/19 09:56	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-2 **Lab ID: 60313018003** Collected: 08/26/19 16:45 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**82.0J**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:55	7440-42-8	
Calcium	**119000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:55	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:55	7440-38-2	
Beryllium	**0.29J**	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:55	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:55	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:55	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:55	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:55	7440-50-8	
Iron	**69.4**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:55	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:55	7439-92-1	
Lithium	**35.7**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:55	7439-93-2	
Magnesium	**42500**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:55	7439-95-4	
Manganese	**315**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:55	7439-96-5	
Molybdenum	**6.3J**	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:55	7439-98-7	
Nickel	**1.3J**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:55	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:55	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:55	7440-22-4	
Sodium	**29200**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:55	7440-23-5	
Hardness, Total(SM 2340B)	**472000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:55		
Zinc	**12.4J**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:55	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**9.6J**	ug/L	50.0	9.5	1	08/27/19 15:00	09/03/19 14:47	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	08/27/19 15:00	09/03/19 14:47	7440-36-0	
Barium	**132**	ug/L	1.0	0.28	1	08/27/19 15:00	09/03/19 14:47	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/27/19 15:00	09/03/19 14:47	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**548**	mg/L	10.0	10.0	1		09/01/19 12:03		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/03/19 14:24		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/19/19 16:04	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/03/19 09:58	09/03/19 09:58		P4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-2 **Lab ID: 60313018003** Collected: 08/26/19 16:45 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.1**	mg/L	1.0	0.22	1		09/12/19 03:22	16887-00-6	
Fluoride	**0.52**	mg/L	0.20	0.085	1		09/12/19 03:22	16984-48-8	
Sulfate	**58.9**	mg/L	5.0	1.2	5		09/12/19 03:37	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**4.7J**	mg/L	10.0	3.7	1	09/13/19 11:12	09/16/19 08:49		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.99J**	mg/L	1.0	0.29	1		09/14/19 12:46	7440-44-0	B,CH
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/27/19 10:02	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: DUP-1 **Lab ID: 60313018004** Collected: 08/26/19 08:00 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**78.8J**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:57	7440-42-8	
Calcium	**120000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:57	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**6.0J**	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:57	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:57	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:57	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:57	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:57	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:57	7440-50-8	
Iron	**75.8**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:57	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:57	7439-92-1	
Lithium	**36.0**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:57	7439-93-2	
Magnesium	**42800**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:57	7439-95-4	
Manganese	**319**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:57	7439-96-5	
Molybdenum	**4.9J**	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:57	7439-98-7	
Nickel	**1.7J**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:57	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:57	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:57	7440-22-4	
Sodium	**29300**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:57	7440-23-5	
Hardness, Total(SM 2340B)	**476000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:57		
Zinc	**12.7J**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:57	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**10.4J**	ug/L	50.0	9.5	1	08/27/19 15:00	09/03/19 14:48	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	08/27/19 15:00	09/03/19 14:48	7440-36-0	
Barium	**135**	ug/L	1.0	0.28	1	08/27/19 15:00	09/03/19 14:48	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/27/19 15:00	09/03/19 14:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:30	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**539**	mg/L	10.0	10.0	1		09/01/19 12:03		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		09/03/19 14:28		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/19/19 16:04	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	**31.0J**	ug/L	100	27.7	1	09/03/19 10:17	09/03/19 10:17		D8,J,P4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: DUP-1 **Lab ID: 60313018004** Collected: 08/26/19 08:00 Received: 08/27/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.1**	mg/L	1.0	0.22	1		09/12/19 03:53	16887-00-6	
Fluoride	**0.51**	mg/L	0.20	0.085	1		09/12/19 03:53	16984-48-8	
Sulfate	**59.5**	mg/L	5.0	1.2	5		09/12/19 04:24	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**8.4J**	mg/L	10.0	3.7	1	09/13/19 11:12	09/16/19 08:50		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.2**	mg/L	1.0	0.29	1		09/16/19 05:34	7440-44-0	B
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/27/19 09:48	18540-29-9	H1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 606100 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2477335 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	0.037	08/30/19 13:35	

LABORATORY CONTROL SAMPLE: 2477336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477337 2477338

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	5.0	5.1	101	101	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 606161 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2477516 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND	100	10.7	08/29/19 11:20	
Calcium	ug/L	ND	200	50.0	08/29/19 11:20	

LABORATORY CONTROL SAMPLE: 2477517

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	931	93	85-115	
Calcium	ug/L	10000	9960	100	85-115	

MATRIX SPIKE SAMPLE: 2477518

Parameter	Units	60313169002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	28.3J	1000	962	93	70-130	
Calcium	ug/L	63900	10000	71000	71	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477519 2477520

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	2170	1000	1000	3260	3270	109	110	70-130	0	20	
Calcium	ug/L	162000	10000	10000	177000	178000	148	167	70-130	1	20	M1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 606156 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2477489 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	4.1	08/29/19 11:20	
Beryllium	ug/L	ND	1.0	0.25	08/29/19 11:20	
Cadmium	ug/L	ND	5.0	0.56	08/29/19 11:20	
Chromium	ug/L	ND	5.0	1.0	08/29/19 11:20	
Cobalt	ug/L	ND	5.0	0.84	08/29/19 11:20	
Copper	ug/L	ND	10.0	3.4	08/29/19 11:20	
Hardness, Total(SM 2340B)	ug/L	ND	705	197	08/29/19 11:20	
Iron	ug/L	ND	50.0	14.0	08/29/19 11:20	
Lead	ug/L	ND	10.0	3.4	08/29/19 11:20	
Lithium	ug/L	ND	10.0	5.9	08/29/19 11:20	
Magnesium	ug/L	ND	50.0	13.0	08/29/19 11:20	
Manganese	ug/L	ND	5.0	2.1	08/29/19 11:20	
Molybdenum	ug/L	ND	20.0	2.6	08/29/19 11:20	
Nickel	ug/L	ND	5.0	1.2	08/29/19 11:20	
Selenium	ug/L	ND	15.0	6.6	08/29/19 11:20	
Silver	ug/L	ND	7.0	1.8	08/29/19 11:20	
Sodium	ug/L	ND	500	144	08/29/19 11:20	
Zinc	ug/L	ND	50.0	6.1	08/29/19 11:20	

LABORATORY CONTROL SAMPLE: 2477490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	911	91	80-120	
Beryllium	ug/L	1000	980	98	80-120	
Cadmium	ug/L	1000	943	94	80-120	
Chromium	ug/L	1000	985	98	80-120	
Cobalt	ug/L	1000	952	95	80-120	
Copper	ug/L	1000	923	92	80-120	
Hardness, Total(SM 2340B)	ug/L	66200	64600	98	80-120	
Iron	ug/L	10000	9920	99	80-120	
Lead	ug/L	1000	1050	105	80-120	
Lithium	ug/L	1000	932	93	80-120	
Magnesium	ug/L	10000	9640	96	80-120	
Manganese	ug/L	1000	950	95	80-120	
Molybdenum	ug/L	1000	966	97	80-120	
Nickel	ug/L	1000	980	98	80-120	
Selenium	ug/L	1000	952	95	80-120	
Silver	ug/L	500	480	96	80-120	
Sodium	ug/L	10000	9440	94	80-120	
Zinc	ug/L	1000	970	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477491 2477492

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	1000	1000	985	963	98	96	75-125	2	20	
Beryllium	ug/L	ND	1000	1000	991	975	99	98	75-125	2	20	
Cadmium	ug/L	ND	1000	1000	1000	981	100	98	75-125	2	20	
Chromium	ug/L	ND	1000	1000	993	985	99	98	75-125	1	20	
Cobalt	ug/L	ND	1000	1000	959	938	96	94	75-125	2	20	
Copper	ug/L	ND	1000	1000	979	956	98	96	75-125	2	20	
Hardness, Total(SM 2340B)	ug/L	578000	66200	66200	662000	668000	128	136	75-125	1	20	
Iron	ug/L	33.1J	10000	10000	10000	9840	100	98	75-125	2	20	
Lead	ug/L	ND	1000	1000	1040	1020	104	102	75-125	1	20	
Lithium	ug/L	40.8	1000	1000	1030	998	99	96	75-125	3	20	
Magnesium	ug/L	42200	10000	10000	53700	54000	115	118	75-125	0	20	
Manganese	ug/L	170	1000	1000	1150	1140	98	97	75-125	1	20	
Molybdenum	ug/L	ND	1000	1000	1030	1000	103	100	75-125	2	20	
Nickel	ug/L	5.6	1000	1000	991	969	98	96	75-125	2	20	
Selenium	ug/L	ND	1000	1000	1010	992	101	99	75-125	2	20	
Silver	ug/L	ND	500	500	504	493	101	99	75-125	2	20	
Sodium	ug/L	68200	10000	10000	81300	81100	131	129	75-125	0	20	M1
Zinc	ug/L	ND	1000	1000	980	960	98	96	75-125	2	20	

MATRIX SPIKE SAMPLE: 2477522

Parameter	Units	60313169002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	1000	929	93	75-125	
Beryllium	ug/L	ND	1000	963	96	75-125	
Cadmium	ug/L	ND	1000	938	94	75-125	
Chromium	ug/L	ND	1000	952	95	75-125	
Cobalt	ug/L	ND	1000	926	93	75-125	
Copper	ug/L	ND	1000	923	92	75-125	
Hardness, Total(SM 2340B)	ug/L	221000	66200	276000	83	75-125	
Iron	ug/L	1760	10000	11300	96	75-125	
Lead	ug/L	ND	1000	1010	101	75-125	
Lithium	ug/L	47.2	1000	972	92	75-125	
Magnesium	ug/L	14900	10000	24000	91	75-125	
Manganese	ug/L	183	1000	1100	92	75-125	
Molybdenum	ug/L	ND	1000	968	97	75-125	
Nickel	ug/L	1.6J	1000	954	95	75-125	
Selenium	ug/L	ND	1000	945	94	75-125	
Silver	ug/L	ND	500	476	95	75-125	
Sodium	ug/L	29500	10000	37900	84	75-125	
Zinc	ug/L	98.5	1000	1030	93	75-125	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 605886 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2476543 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	9.5	09/03/19 14:39	
Antimony	ug/L	ND	1.0	0.078	09/03/19 14:39	
Barium	ug/L	ND	1.0	0.28	09/03/19 14:39	
Thallium	ug/L	ND	1.0	0.099	09/03/19 14:39	

LABORATORY CONTROL SAMPLE: 2476544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1000	952	95	80-120	
Antimony	ug/L	40	37.8	95	80-120	
Barium	ug/L	40	37.2	93	80-120	
Thallium	ug/L	40	37.4	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2476549 2476550

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	1000	1000	1040	959	103	95	75-125	8	20	
Antimony	ug/L	0.086J	40	40	36.7	37.0	91	92	75-125	1	20	
Barium	ug/L	52.0	40	40	87.4	87.7	88	89	75-125	0	20	
Thallium	ug/L	ND	40	40	39.0	38.8	97	97	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 606872 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2480373 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	5.0	09/01/19 12:01	

LABORATORY CONTROL SAMPLE: 2480374

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	997	100	80-120	

SAMPLE DUPLICATE: 2480375

Parameter	Units	60313018002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	949	970	2	10	

SAMPLE DUPLICATE: 2480376

Parameter	Units	60313169002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	334	319	5	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 606794 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

SAMPLE DUPLICATE: 2479777

Parameter	Units	60313018002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.1	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 1337619 Analysis Method: EPA 9020
QC Batch Method: 9020B Analysis Description: Wet Chemistry 9020B
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: R3446158-2 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	08/30/19 08:41	

METHOD BLANK: R3446621-2 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	09/03/19 09:17	

METHOD BLANK: R3447039-2 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	09/04/19 10:28	

LABORATORY CONTROL SAMPLE: R3446158-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	186	93.2	85.0-115	

LABORATORY CONTROL SAMPLE: R3446621-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	210	105	85.0-115	

LABORATORY CONTROL SAMPLE: R3447039-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	205	102	85.0-115	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3446158-8 R3446158-9

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Halides	ug/L	ND	200	200	223	221	111	111	80.0-120	0.557	20	

SAMPLE DUPLICATE: R3446158-3

Parameter	Units	60313018001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	90.0	83.5J	7.53	20	J

SAMPLE DUPLICATE: R3446158-4

Parameter	Units	L1133397-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	278J	200	20	D8,J

SAMPLE DUPLICATE: R3446158-7

Parameter	Units	60313018002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3446621-3

Parameter	Units	L1133705-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	92.5	95.3J	2.97	20	J

SAMPLE DUPLICATE: R3446621-4

Parameter	Units	60313018003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3446621-5

Parameter	Units	60313018004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	31.0	ND	200	20	D8

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

SAMPLE DUPLICATE: R3446621-6

Parameter	Units	L1134231-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3446621-7

Parameter	Units	L1134231-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3446621-8

Parameter	Units	L1134231-03 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	80.7	30.0J	91.7	20	D8,J

SAMPLE DUPLICATE: R3446621-9

Parameter	Units	L1134231-04 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3447039-3

Parameter	Units	L1134455-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	35.4	50.5J	35.1	20	D8,J

SAMPLE DUPLICATE: R3447039-6

Parameter	Units	L1134455-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	168	172	2.47	20	

SAMPLE DUPLICATE: R3447039-8

Parameter	Units	L1134455-03 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	44.8	65.4J	37.4	20	D8,J

SAMPLE DUPLICATE: R3446621-10

Parameter	Units	L1134231-05 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

SAMPLE DUPLICATE: R3446621-13

Parameter	Units	L1134231-06 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	1600	1720	7.27	20	

SAMPLE DUPLICATE: R3446621-15

Parameter	Units	L1134231-07 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3446621-16

Parameter	Units	L1134231-08 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3446621-17

Parameter	Units	L1134110-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	61.4	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 608814 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2486917 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	09/11/19 12:25	
Fluoride	mg/L	ND	0.20	0.085	09/11/19 12:25	
Sulfate	mg/L	ND	1.0	0.23	09/11/19 12:25	

LABORATORY CONTROL SAMPLE: 2486918

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2486919 2486920

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	87.1	50	50	137	137	100	99	80-120	0	15	
Fluoride	mg/L	0.43	2.5	2.5	3.1	3.2	108	112	80-120	3	15	
Sulfate	mg/L	277	250	250	529	530	101	101	80-120	0	15	

MATRIX SPIKE SAMPLE: 2486921

Parameter	Units	60313018004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.1	5	9.1	101	80-120	
Fluoride	mg/L	0.51	2.5	3.3	110	80-120	
Sulfate	mg/L	59.5	25	86.0	106	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 609172 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 Water Analysis
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2488397 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	10.0	3.7	09/16/19 08:44	

LABORATORY CONTROL SAMPLE: 2488398

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	50	53.6	107	90-110	

MATRIX SPIKE SAMPLE: 2488399

Parameter	Units	60313018001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	34.0	50	78.5	89	90-110	M1

MATRIX SPIKE SAMPLE: 2488401

Parameter	Units	60314120003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	23.7	50	86.0	125	90-110	M1

SAMPLE DUPLICATE: 2488400

Parameter	Units	60313018003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chemical Oxygen Demand	mg/L	4.7J	3.9J		25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 609413 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60313018002, 60313018003

METHOD BLANK: 2489277 Matrix: Water
Associated Lab Samples: 60313018002, 60313018003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.29	09/14/19 09:04	

LABORATORY CONTROL SAMPLE: 2489278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.7	114	80-120	

MATRIX SPIKE SAMPLE: 2489280

Parameter	Units	60313018002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	0.80J	5	5.7	98	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 609458 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60313018001, 60313018004

METHOD BLANK: 2490102 Matrix: Water
Associated Lab Samples: 60313018001, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	0.32J	1.0	0.29	09/16/19 02:13	

LABORATORY CONTROL SAMPLE: 2490103

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.5	110	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 605743 Analysis Method: EPA 7196
QC Batch Method: EPA 7196 Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

METHOD BLANK: 2475953 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	0.0031	08/27/19 09:47	

LABORATORY CONTROL SAMPLE: 2475954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	0.1	0.10	103	90-110	

MATRIX SPIKE SAMPLE: 2475956

Parameter	Units	60313018002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.1	0.11	113	85-115	

SAMPLE DUPLICATE: 2475955

Parameter	Units	60313018001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/L	ND	ND		20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: PZ-2 **Lab ID: 60313018001** Collected: 08/26/19 13:10 Received: 08/27/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0303 ± 0.522 (0.937) C:NA T:89%**	pCi/L	09/13/19 11:04	13982-63-3	
Radium-228	EPA 904.0	**0.456 ± 0.433 (0.896) C:78% T:88%**	pCi/L	09/17/19 11:14	15262-20-1	
Total Radium	Total Radium Calculation	**0.486 ± 0.955 (1.83)**	pCi/L	09/18/19 14:55	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-1 **Lab ID: 60313018002** Collected: 08/26/19 14:40 Received: 08/27/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.543 ± 0.446 (0.593) C:NA T:90%**	pCi/L	09/13/19 11:04	13982-63-3	
Radium-228	EPA 904.0	**0.595 ± 0.395 (0.747) C:74% T:83%**	pCi/L	09/17/19 11:14	15262-20-1	
Total Radium	Total Radium Calculation	**1.14 ± 0.841 (1.34)**	pCi/L	09/18/19 14:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-2 **Lab ID: 60313018003** Collected: 08/26/19 16:45 Received: 08/27/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.12 ± 0.686 (0.805) C:NA T:84%**	pCi/L	09/13/19 11:04	13982-63-3	
Radium-228	EPA 904.0	**0.0761 ± 0.307 (0.698) C:74% T:93%**	pCi/L	09/17/19 11:14	15262-20-1	
Total Radium	Total Radium Calculation	**1.20 ± 0.993 (1.50)**	pCi/L	09/18/19 14:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: DUP-1 **Lab ID: 60313018004** Collected: 08/26/19 08:00 Received: 08/27/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.453 ± 0.535 (0.799) C:NA T:97%**	pCi/L	09/13/19 11:04	13982-63-3	
Radium-228	EPA 904.0	**0.405 ± 0.379 (0.776) C:76% T:87%**	pCi/L	09/17/19 11:14	15262-20-1	
Total Radium	Total Radium Calculation	**0.858 ± 0.914 (1.58)**	pCi/L	09/18/19 14:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-1 MS **Lab ID: 60313018005** Collected: 08/26/19 14:40 Received: 08/27/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**94.47 %REC ± NA (NA) C:NA T:NA**	pCi/L	09/13/19 11:04	13982-63-3	
Radium-228	EPA 904.0	**118.76 %REC ± NA (NA) C:NA T:NA**	pCi/L	09/17/19 11:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Sample: MW-1 MSD **Lab ID: 60313018006** Collected: 08/26/19 14:40 Received: 08/27/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**73.36 %REC 25.15 RPD ± NA (NA) C:NA T:NA**	pCi/L	09/13/19 11:04	13982-63-3	
Radium-228	EPA 904.0	**102.14 %REC 15.05 RPD ± NA (NA) C:NA T:NA**	pCi/L	09/17/19 11:14	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 359811 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004, 60313018005, 60313018006

METHOD BLANK: 1746816 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004, 60313018005, 60313018006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.249 ± 0.364 (0.783) C:80% T:78%	pCi/L	09/17/19 11:14	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

QC Batch: 359812 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004, 60313018005, 60313018006

METHOD BLANK: 1746817 Matrix: Water
Associated Lab Samples: 60313018001, 60313018002, 60313018003, 60313018004, 60313018005, 60313018006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.133 ± 0.386 (0.668) C:NA T:89%	pCi/L	09/13/19 11:04	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

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 adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

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

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 (%)

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

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

SAMPLE QUALIFIERS

Sample: 60313018001
[1] Wet Chemistry by Method 9020B - Initial pH~7.0
Sample: 60313018002
[1] Wet Chemistry by Method 9020B - Initial pH~7.0
Sample: 60313018003
[1] Wet Chemistry by Method 9020B - Initial pH~7.0
Sample: 60313018004
[1] Wet Chemistry by Method 9020B - Initial pH~7.0

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H1	Analysis conducted outside the EPA method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
J	Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P4	Sample field preservation does not meet EPA or method recommendations for this analysis.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60313018001	**PZ-2**	EPA 200.7	606161	EPA 200.7	606265
60313018002	**MW-1**	EPA 200.7	606161	EPA 200.7	606265
60313018003	**MW-2**	EPA 200.7	606161	EPA 200.7	606265
60313018004	**DUP-1**	EPA 200.7	606161	EPA 200.7	606265
60313018001	**PZ-2**	EPA 3010	606156	EPA 6010	606264
60313018002	**MW-1**	EPA 3010	606156	EPA 6010	606264
60313018003	**MW-2**	EPA 3010	606156	EPA 6010	606264
60313018004	**DUP-1**	EPA 3010	606156	EPA 6010	606264
60313018001	**PZ-2**	EPA 3010	605886	EPA 6020	605929
60313018002	**MW-1**	EPA 3010	605886	EPA 6020	605929
60313018003	**MW-2**	EPA 3010	605886	EPA 6020	605929
60313018004	**DUP-1**	EPA 3010	605886	EPA 6020	605929
60313018001	**PZ-2**	EPA 7470	606100	EPA 7470	606150
60313018002	**MW-1**	EPA 7470	606100	EPA 7470	606150
60313018003	**MW-2**	EPA 7470	606100	EPA 7470	606150
60313018004	**DUP-1**	EPA 7470	606100	EPA 7470	606150
60313018001	**PZ-2**	EPA 903.1	359812		
60313018002	**MW-1**	EPA 903.1	359812		
60313018003	**MW-2**	EPA 903.1	359812		
60313018004	**DUP-1**	EPA 903.1	359812		
60313018005	**MW-1 MS**	EPA 903.1	359812		
60313018006	**MW-1 MSD**	EPA 903.1	359812		
60313018001	**PZ-2**	EPA 904.0	359811		
60313018002	**MW-1**	EPA 904.0	359811		
60313018003	**MW-2**	EPA 904.0	359811		
60313018004	**DUP-1**	EPA 904.0	359811		
60313018005	**MW-1 MS**	EPA 904.0	359811		
60313018006	**MW-1 MSD**	EPA 904.0	359811		
60313018001	**PZ-2**	Total Radium Calculation	362025		
60313018002	**MW-1**	Total Radium Calculation	362025		
60313018003	**MW-2**	Total Radium Calculation	362025		
60313018004	**DUP-1**	Total Radium Calculation	362025		
60313018001	**PZ-2**	SM 2540C	606872		
60313018002	**MW-1**	SM 2540C	606872		
60313018003	**MW-2**	SM 2540C	606872		
60313018004	**DUP-1**	SM 2540C	606872		
60313018001	**PZ-2**	SM 4500-H+B	606794		
60313018002	**MW-1**	SM 4500-H+B	606794		
60313018003	**MW-2**	SM 4500-H+B	606794		
60313018004	**DUP-1**	SM 4500-H+B	606794		
60313018001	**PZ-2**	Trivalent Chromium Calculation	610562		
60313018002	**MW-1**	Trivalent Chromium Calculation	610562		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLOMBIA,MO
Pace Project No.: 60313018

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60313018003	**MW-2**	Trivalent Chromium Calculation	610562		
60313018004	**DUP-1**	Trivalent Chromium Calculation	610562		
60313018001	**PZ-2**	9020B	1337619	EPA 9020	1337619
60313018002	**MW-1**	9020B	1337619	EPA 9020	1337619
60313018003	**MW-2**	9020B	1337619	EPA 9020	1337619
60313018004	**DUP-1**	9020B	1337619	EPA 9020	1337619
60313018001	**PZ-2**	EPA 300.0	608814		
60313018002	**MW-1**	EPA 300.0	608814		
60313018003	**MW-2**	EPA 300.0	608814		
60313018004	**DUP-1**	EPA 300.0	608814		
60313018001	**PZ-2**	EPA 410.4	609172	EPA 410.4	609621
60313018002	**MW-1**	EPA 410.4	609172	EPA 410.4	609621
60313018003	**MW-2**	EPA 410.4	609172	EPA 410.4	609621
60313018004	**DUP-1**	EPA 410.4	609172	EPA 410.4	609621
60313018001	**PZ-2**	SM 5310C	609458		
60313018002	**MW-1**	SM 5310C	609413		
60313018003	**MW-2**	SM 5310C	609413		
60313018004	**DUP-1**	SM 5310C	609458		
60313018001	**PZ-2**	EPA 7196	605743		
60313018002	**MW-1**	EPA 7196	605743		
60313018003	**MW-2**	EPA 7196	605743		
60313018004	**DUP-1**	EPA 7196	605743		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO#: 60313018

60313018

Client Name: Burns & McDonnell

Courier: FedEx ☐ UPS ☐ VIA ☒ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☐ No ☒ Seals intact: Yes ☐ No ☒

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☒ Cpic

Thermometer Used: T301 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.9 **Corr. Factor** +0.0 **Corrected** 2.9

Temperature should be above freezing to 6°C 18.9, 1.9 18.9, 1.9

Date and initials of person examining contents: 8.27.19 AA

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☐Yes ☒No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	Cl+6
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	Cooler that was out of
Correct containers used:	☒Yes ☐No ☐N/A	temp only had Radium
Pace containers used:	☒Yes ☐No ☐N/A	samples
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? ☒ (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JEFFREY SHOPPER Date: _____

08262019 A

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	BURNS & MCDONNELL	Report To:	Brian Weis	Attention:	
Address:	Burns & McDonnell	Copy To:	Chris Hoglund	Company Name:	
	Kansas City, MO 64114			Address:	
Email:	bweis@burnsmcd.com	Purchase Order #:		Pace Quote:	
Phone:	816-333-9400 Fax	Project Name:	More's Lake Columbia, MO	Pace Project Manager:	jeff.shopper@pacelabs.com
Requested Due Date:	STD	Project #:	93647	Pace Profile #:	10268, 2

Regulatory Agency	
State / Location	
	MO

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	300.0 SO4,Cl,F	TOC	COD	TDS by 2540C	6010 Metals** Thallium by 6020	Mercury	Hardness	Hexavalent Chromium**SHORT HOLD	Trivalent Chromium Calc	TOX	Radium 226/228 (include combined)	pH	Residual Chlorine (Y/N)	**Al,Sb,As,Ba,Be,B,Cd,Ca,Cr,Co,Cu,Fe,Pb,Li,Mg,Mn,Mo,Ni,Se,Ag,Na,Zn
1	PZ-2	WT	G	8.26.19	1310			18.4	9	X	X	X	2BP3U					X	X	X	X	X	X	X	X	X	X	X	X	2BP3N, AG3S 001
2	mw-1	WT	G	8.26.19	1440			17.2	9	X	X	X						X	X	X	X	X	X	X	X	X	X	X		
3	mw-1 ms	WT	G	8.26.19	1440				9	X	X	X	6BP3U					X	X	X	X	X	X	X	X	X	X	X		6BP3N, 3AG3S 002
4	mw-1 msd	WT	G	8.26.19	1440				9	X	X	X						X	X	X	X	X	X	X	X	X	X	X		
5	mw-2 2BP1N, B2U, AG3S	WT	G	8.26.19	1615			16.1	9	X	X	X	2BP3U					X	X	X	X	X	X	X	X	X	X	X	2BP3N	003
6	Dup-1	WT	G	8.26.19					9	X	X	X						X	X	X	X	X	X	X	X	X	X	X		004
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
TOX EDD needed		8-26-19	1635		8-26-19	1635				
J-flags on - include MDLs on report.					8.26.19	0625	0.9	Y	N	Y
					27		18.9	N		
							1.9	Y		

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:					
SIGNATURE of SAMPLER:	DATE Signed:				

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

September 26, 2019

Brian Weis
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114

RE: Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Dear Brian Weis:
Enclosed are the analytical results for sample(s) received by the laboratory on August 27, 2019. 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,

Jeffrey Shopper
jeff.shopper@pacelabs.com
1(913)563-1408
Project Manager

Enclosures

cc: Carlyn Williams, Burns & McDonnell

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

Pace Analytical National Certification IDs

12065 Lebanon Road, Mt. Juliet, TN 37122
Alabama Certification #: 40660
Alaska Certification 17-026
Arizona Certification #: AZ0612
Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Pace Analytical National Certification IDs

Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975
New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60313169001	**MW-8**	Water	08/27/19 08:05	08/27/19 19:45
60313169002	**MW-4**	Water	08/27/19 09:35	08/27/19 19:45
60313169003	**MW-3**	Water	08/27/19 10:55	08/27/19 19:45
60313169004	**MW-5**	Water	08/27/19 12:30	08/27/19 19:45
60313169005	**MW-6**	Water	08/27/19 14:10	08/27/19 19:45
60313169006	**MW-7**	Water	08/27/19 15:55	08/27/19 19:45
60313169007	**BA POND**	Water	08/27/19 16:45	08/27/19 19:45

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60313169001	**MW-8**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313169002	**MW-4**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313169003	**MW-3**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313169004	**MW-5**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313169005	**MW-6**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7196	LDB	1	PASI-K
60313169006	**MW-7**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K
		EPA 7196	LDB	1	PASI-K
60313169007	**BA POND**	EPA 200.7	EMR	2	PASI-K
		EPA 6010	EMR	18	PASI-K
		EPA 6020	JGP	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	MJK	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 9020	VRP	1	PAN
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	MAP	1	PASI-K
		SM 5310C	MJK	1	PASI-K
		EPA 7196	LDB	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 606161

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313018002,60313169002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2477519)
  - Calcium
- MSD (Lab ID: 2477520)
  - Calcium

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 6010**
Description: 6010 MET ICP
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 606156

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313018002,60313169002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2477491)
  - Sodium
- MSD (Lab ID: 2477492)
  - Sodium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 606109

B: Analyte was detected in the associated method blank.

- BLANK for HBN 606109 [MPRP/529 (Lab ID: 2477382)
  - Aluminum

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 7470**
Description: 7470 Mercury
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- BA POND (Lab ID: 60313169007)
- MW-3 (Lab ID: 60313169003)
- MW-4 (Lab ID: 60313169002)
- MW-5 (Lab ID: 60313169004)
- MW-6 (Lab ID: 60313169005)
- MW-7 (Lab ID: 60313169006)
- MW-8 (Lab ID: 60313169001)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **Trivalent Chromium Calculation**
Description: Trivalent Chromium Calculation
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 9020**
Description: Wet Chemistry 9020B
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 9020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 1341150

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: R3448050-4)
  - Total Organic Halides
- DUP (Lab ID: R3448050-7)
  - Total Organic Halides
- DUP (Lab ID: R3448258-3)
  - Total Organic Halides

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 410.4**
Description: 410.4 COD
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 608314

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313169002,60313229001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2485116)
  - Chemical Oxygen Demand

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **SM 5310C**
Description: 5310C TOC
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 606973

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 2480656)
  - Total Organic Carbon

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Method: **EPA 7196**
Description: 7196 Chromium, Hexavalent
Client: BURNS & MCDONNELL
Date: September 26, 2019

General Information:
7 samples were analyzed for EPA 7196. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 606011

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60313169001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2476958)
  - Chromium, Hexavalent

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-8 **Lab ID: 60313169001** Collected: 08/27/19 08:05 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**354**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:24	7440-42-8	
Calcium	**253000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:24	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:24	7440-38-2	
Beryllium	**0.32J**	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:24	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:24	7440-43-9	
Chromium	**1.3J**	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:24	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:24	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:24	7440-50-8	
Iron	**931**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:24	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:24	7439-92-1	
Lithium	**24.5**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:24	7439-93-2	
Magnesium	**36300**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:24	7439-95-4	
Manganese	**864**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:24	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:24	7439-98-7	
Nickel	**5.9**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:24	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:24	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:24	7440-22-4	
Sodium	**71800**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:24	7440-23-5	
Hardness, Total(SM 2340B)	**781000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:24		
Zinc	ND	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:24	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**85.3**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:19	7429-90-5	B
Antimony	**0.096J**	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:19	7440-36-0	
Barium	**20.3**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:19	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:19	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 13:58	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1170**	mg/L	13.3	13.3	1		09/01/19 12:03		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/04/19 15:04		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/12/19 16:23	09/12/19 16:23		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-8 **Lab ID: 60313169001** Collected: 08/27/19 08:05 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**80.7**	mg/L	5.0	1.1	5		09/12/19 21:02	16887-00-6	
Fluoride	**0.17J**	mg/L	0.20	0.085	1		09/12/19 20:46	16984-48-8	
Sulfate	**474**	mg/L	50.0	11.5	50		09/12/19 21:49	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:06		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.63J**	mg/L	1.0	0.29	1		09/03/19 14:52	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:41	18540-29-9	M1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-4 **Lab ID: 60313169002** Collected: 08/27/19 09:35 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**28.3J**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:26	7440-42-8	
Calcium	**63900**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:26	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:26	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:26	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:26	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:26	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:26	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:26	7440-50-8	
Iron	**1760**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:26	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:26	7439-92-1	
Lithium	**47.2**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:26	7439-93-2	
Magnesium	**14900**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:26	7439-95-4	
Manganese	**183**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:26	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:26	7439-98-7	
Nickel	**1.6J**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:26	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:26	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:26	7440-22-4	
Sodium	**29500**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:26	7440-23-5	
Hardness, Total(SM 2340B)	**221000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:26		
Zinc	**98.5**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:26	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**40.1J**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:23	7429-90-5	B
Antimony	**0.090J**	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:23	7440-36-0	
Barium	**106**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:23	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:23	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:00	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**334**	mg/L	5.0	5.0	1		09/01/19 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		09/04/19 15:05		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/12/19 16:44	09/12/19 16:44		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-4 **Lab ID: 60313169002** Collected: 08/27/19 09:35 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.8**	mg/L	1.0	0.22	1		09/12/19 22:04	16887-00-6	
Fluoride	**0.27**	mg/L	0.20	0.085	1		09/12/19 22:04	16984-48-8	
Sulfate	**27.4**	mg/L	2.0	0.46	2		09/12/19 22:20	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**16.9**	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:07		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**7.2**	mg/L	1.0	0.29	1		09/03/19 15:05	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:42	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-3 **Lab ID: 60313169003** Collected: 08/27/19 10:55 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**50.6J**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:31	7440-42-8	
Calcium	**104000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:31	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:31	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:31	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:31	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:31	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:31	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:31	7440-50-8	
Iron	**14.6J**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:31	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:31	7439-92-1	
Lithium	**29.8**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:31	7439-93-2	
Magnesium	**36200**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:31	7439-95-4	
Manganese	**106**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:31	7439-96-5	
Molybdenum	**6.1J**	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:31	7439-98-7	
Nickel	ND	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:31	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:31	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:31	7440-22-4	
Sodium	**35800**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:31	7440-23-5	
Hardness, Total(SM 2340B)	**408000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:31		
Zinc	ND	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:31	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**18.4J**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:24	7429-90-5	B
Antimony	**0.11J**	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:24	7440-36-0	
Barium	**176**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:24	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:24	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:02	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**522**	mg/L	10.0	10.0	1		09/01/19 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		09/04/19 15:08		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/12/19 17:04	09/12/19 17:04		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-3 **Lab ID: 60313169003** Collected: 08/27/19 10:55 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.5**	mg/L	1.0	0.22	1		09/12/19 22:51	16887-00-6	
Fluoride	**0.55**	mg/L	0.20	0.085	1		09/12/19 22:51	16984-48-8	
Sulfate	**37.3**	mg/L	5.0	1.2	5		09/12/19 23:07	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:08		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.95J**	mg/L	1.0	0.29	1		09/03/19 15:18	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:42	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-5 **Lab ID: 60313169004** Collected: 08/27/19 12:30 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**204**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:33	7440-42-8	
Calcium	**112000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:33	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**5.2J**	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:33	7440-38-2	
Beryllium	**0.27J**	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:33	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:33	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:33	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:33	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:33	7440-50-8	
Iron	**238**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:33	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:33	7439-92-1	
Lithium	**37.6**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:33	7439-93-2	
Magnesium	**31900**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:33	7439-95-4	
Manganese	**169**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:33	7439-96-5	
Molybdenum	**3.4J**	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:33	7439-98-7	
Nickel	**1.9J**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:33	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:33	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:33	7440-22-4	
Sodium	**56400**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:33	7440-23-5	
Hardness, Total(SM 2340B)	**411000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:33		
Zinc	**14.0J**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:33	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**21.7J**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:25	7429-90-5	B
Antimony	ND	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:25	7440-36-0	
Barium	**220**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:25	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:25	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:05	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**599**	mg/L	10.0	10.0	1		09/01/19 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		09/04/19 15:09		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/12/19 17:23	09/12/19 17:23		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-5 **Lab ID: 60313169004** Collected: 08/27/19 12:30 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**30.2**	mg/L	5.0	1.1	5		09/12/19 23:38	16887-00-6	
Fluoride	**0.45**	mg/L	0.20	0.085	1		09/12/19 23:22	16984-48-8	
Sulfate	**106**	mg/L	20.0	4.6	20		09/12/19 23:53	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:09		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.2**	mg/L	1.0	0.29	1		09/03/19 15:30	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:43	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-6 **Lab ID: 60313169005** Collected: 08/27/19 14:10 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**61.3J**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:35	7440-42-8	
Calcium	**171000**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:35	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:35	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:35	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:35	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:35	7440-47-3	
Cobalt	**1.0J**	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:35	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:35	7440-50-8	
Iron	**842**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:35	7439-89-6	
Lead	**4.8J**	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:35	7439-92-1	
Lithium	**47.7**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:35	7439-93-2	
Magnesium	**34900**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:35	7439-95-4	
Manganese	**627**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:35	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:35	7439-98-7	
Nickel	**3.5J**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:35	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:35	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:35	7440-22-4	
Sodium	**48900**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:35	7440-23-5	
Hardness, Total(SM 2340B)	**571000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:35		
Zinc	**9.2J**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:35	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**171**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:27	7429-90-5	B
Antimony	ND	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:27	7440-36-0	
Barium	**63.0**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:27	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:27	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:07	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**848**	mg/L	10.0	10.0	1		09/01/19 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		09/04/19 15:11		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/13/19 11:21	09/13/19 11:21		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-6 **Lab ID: 60313169005** Collected: 08/27/19 14:10 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**30.5**	mg/L	5.0	1.1	5		09/13/19 00:56	16887-00-6	
Fluoride	**0.29**	mg/L	0.20	0.085	1		09/13/19 00:09	16984-48-8	
Sulfate	**97.2**	mg/L	20.0	4.6	20		09/13/19 01:11	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**10.6**	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:09		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.8**	mg/L	1.0	0.29	1		09/03/19 15:43	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:43	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-7 **Lab ID: 60313169006** Collected: 08/27/19 15:55 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**160**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:37	7440-42-8	
Calcium	**92400**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:37	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**9.3J**	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:37	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:37	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:37	7440-43-9	
Chromium	**5.9**	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:37	7440-47-3	
Cobalt	**3.0J**	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:37	7440-48-4	
Copper	**6.8J**	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:37	7440-50-8	
Iron	**17300**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:37	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:37	7439-92-1	
Lithium	**37.0**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:37	7439-93-2	
Magnesium	**22500**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:37	7439-95-4	
Manganese	**919**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:37	7439-96-5	
Molybdenum	**5.1J**	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:37	7439-98-7	
Nickel	**8.3**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:37	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:37	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:37	7440-22-4	
Sodium	**35600**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:37	7440-23-5	
Hardness, Total(SM 2340B)	**323000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:37		
Zinc	**662**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:37	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**1090**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:32	7429-90-5	
Antimony	**0.32J**	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:32	7440-36-0	
Barium	**111**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:32	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:09	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**520**	mg/L	10.0	10.0	1		09/01/19 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		09/04/19 15:12		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/13/19 11:41	09/13/19 11:41		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-7 **Lab ID: 60313169006** Collected: 08/27/19 15:55 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**30.0**	mg/L	5.0	1.1	5		09/13/19 01:43	16887-00-6	
Fluoride	**0.42**	mg/L	0.20	0.085	1		09/13/19 01:27	16984-48-8	
Sulfate	**96.8**	mg/L	20.0	4.6	20		09/13/19 01:58	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**9.9J**	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:09		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.4**	mg/L	1.0	0.29	1		09/03/19 15:56	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:44	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: BA POND **Lab ID: 60313169007** Collected: 08/27/19 16:45 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**1190**	ug/L	100	10.7	1	08/28/19 13:00	08/29/19 11:40	7440-42-8	
Calcium	**66400**	ug/L	200	50.0	1	08/28/19 13:00	08/29/19 11:40	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**9.8J**	ug/L	10.0	4.1	1	08/28/19 13:00	08/29/19 11:40	7440-38-2	
Beryllium	**0.26J**	ug/L	1.0	0.25	1	08/28/19 13:00	08/29/19 11:40	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	08/28/19 13:00	08/29/19 11:40	7440-43-9	
Chromium	**10.7**	ug/L	5.0	1.0	1	08/28/19 13:00	08/29/19 11:40	7440-47-3	
Cobalt	**3.3J**	ug/L	5.0	0.84	1	08/28/19 13:00	08/29/19 11:40	7440-48-4	
Copper	**7.6J**	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:40	7440-50-8	
Iron	**7570**	ug/L	50.0	14.0	1	08/28/19 13:00	08/29/19 11:40	7439-89-6	
Lead	**8.0J**	ug/L	10.0	3.4	1	08/28/19 13:00	08/29/19 11:40	7439-92-1	
Lithium	**8.6J**	ug/L	10.0	5.9	1	08/28/19 13:00	08/29/19 11:40	7439-93-2	
Magnesium	**14600**	ug/L	50.0	13.0	1	08/28/19 13:00	08/29/19 11:40	7439-95-4	
Manganese	**247**	ug/L	5.0	2.1	1	08/28/19 13:00	08/29/19 11:40	7439-96-5	
Molybdenum	**14.4J**	ug/L	20.0	2.6	1	08/28/19 13:00	08/29/19 11:40	7439-98-7	
Nickel	**8.7**	ug/L	5.0	1.2	1	08/28/19 13:00	08/29/19 11:40	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	08/28/19 13:00	08/29/19 11:40	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	08/28/19 13:00	08/29/19 11:40	7440-22-4	
Sodium	**27900**	ug/L	500	144	1	08/28/19 13:00	08/29/19 11:40	7440-23-5	
Hardness, Total(SM 2340B)	**226000**	ug/L	705	197	1	08/28/19 13:00	08/29/19 11:40		
Zinc	**25.6J**	ug/L	50.0	6.1	1	08/28/19 13:00	08/29/19 11:40	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**1980**	ug/L	50.0	9.5	1	08/28/19 11:06	09/03/19 14:34	7429-90-5	
Antimony	**0.38J**	ug/L	1.0	0.078	1	08/28/19 11:06	09/03/19 14:34	7440-36-0	
Barium	**70.1**	ug/L	1.0	0.28	1	08/28/19 11:06	09/03/19 14:34	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	08/28/19 11:06	09/03/19 14:34	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.037	1	08/28/19 11:07	08/30/19 14:16	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**380**	mg/L	5.0	5.0	1		09/01/19 12:04		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.9**	Std. Units	0.10	0.10	1		09/04/19 15:14		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	**0.011**	mg/L	0.010	0.010	1		09/20/19 14:35	16065-83-1	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	09/13/19 12:01	09/13/19 12:01		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: BA POND **Lab ID: 60313169007** Collected: 08/27/19 16:45 Received: 08/27/19 19:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**23.3**	mg/L	5.0	1.1	5		09/13/19 02:45	16887-00-6	
Fluoride	**1.1**	mg/L	0.20	0.085	1		09/13/19 02:14	16984-48-8	
Sulfate	**161**	mg/L	20.0	4.6	20		09/13/19 03:16	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**42.4**	mg/L	10.0	3.7	1	09/10/19 17:45	09/11/19 10:11		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.6**	mg/L	1.0	0.29	1		09/03/19 16:09	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		08/28/19 07:45	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606100 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2477335 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	0.037	08/30/19 13:35	

LABORATORY CONTROL SAMPLE: 2477336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477337 2477338

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	5.0	5.1	101	101	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606161 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2477516 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND	100	10.7	08/29/19 11:20	
Calcium	ug/L	ND	200	50.0	08/29/19 11:20	

LABORATORY CONTROL SAMPLE: 2477517

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	931	93	85-115	
Calcium	ug/L	10000	9960	100	85-115	

MATRIX SPIKE SAMPLE: 2477518

Parameter	Units	60313169002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	28.3J	1000	962	93	70-130	
Calcium	ug/L	63900	10000	71000	71	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477519 2477520

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	2170	1000	1000	3260	3270	109	110	70-130	0	20	
Calcium	ug/L	162000	10000	10000	177000	178000	148	167	70-130	1	20	M1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606156 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2477489 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	4.1	08/29/19 11:20	
Beryllium	ug/L	ND	1.0	0.25	08/29/19 11:20	
Cadmium	ug/L	ND	5.0	0.56	08/29/19 11:20	
Chromium	ug/L	ND	5.0	1.0	08/29/19 11:20	
Cobalt	ug/L	ND	5.0	0.84	08/29/19 11:20	
Copper	ug/L	ND	10.0	3.4	08/29/19 11:20	
Hardness, Total(SM 2340B)	ug/L	ND	705	197	08/29/19 11:20	
Iron	ug/L	ND	50.0	14.0	08/29/19 11:20	
Lead	ug/L	ND	10.0	3.4	08/29/19 11:20	
Lithium	ug/L	ND	10.0	5.9	08/29/19 11:20	
Magnesium	ug/L	ND	50.0	13.0	08/29/19 11:20	
Manganese	ug/L	ND	5.0	2.1	08/29/19 11:20	
Molybdenum	ug/L	ND	20.0	2.6	08/29/19 11:20	
Nickel	ug/L	ND	5.0	1.2	08/29/19 11:20	
Selenium	ug/L	ND	15.0	6.6	08/29/19 11:20	
Silver	ug/L	ND	7.0	1.8	08/29/19 11:20	
Sodium	ug/L	ND	500	144	08/29/19 11:20	
Zinc	ug/L	ND	50.0	6.1	08/29/19 11:20	

LABORATORY CONTROL SAMPLE: 2477490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	911	91	80-120	
Beryllium	ug/L	1000	980	98	80-120	
Cadmium	ug/L	1000	943	94	80-120	
Chromium	ug/L	1000	985	98	80-120	
Cobalt	ug/L	1000	952	95	80-120	
Copper	ug/L	1000	923	92	80-120	
Hardness, Total(SM 2340B)	ug/L	66200	64600	98	80-120	
Iron	ug/L	10000	9920	99	80-120	
Lead	ug/L	1000	1050	105	80-120	
Lithium	ug/L	1000	932	93	80-120	
Magnesium	ug/L	10000	9640	96	80-120	
Manganese	ug/L	1000	950	95	80-120	
Molybdenum	ug/L	1000	966	97	80-120	
Nickel	ug/L	1000	980	98	80-120	
Selenium	ug/L	1000	952	95	80-120	
Silver	ug/L	500	480	96	80-120	
Sodium	ug/L	10000	9440	94	80-120	
Zinc	ug/L	1000	970	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477491 2477492

Parameter	Units	60313018002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	1000	1000	985	963	98	96	75-125	2	20	
Beryllium	ug/L	ND	1000	1000	991	975	99	98	75-125	2	20	
Cadmium	ug/L	ND	1000	1000	1000	981	100	98	75-125	2	20	
Chromium	ug/L	ND	1000	1000	993	985	99	98	75-125	1	20	
Cobalt	ug/L	ND	1000	1000	959	938	96	94	75-125	2	20	
Copper	ug/L	ND	1000	1000	979	956	98	96	75-125	2	20	
Hardness, Total(SM 2340B)	ug/L	578000	66200	66200	662000	668000	128	136	75-125	1	20	
Iron	ug/L	33.1J	10000	10000	10000	9840	100	98	75-125	2	20	
Lead	ug/L	ND	1000	1000	1040	1020	104	102	75-125	1	20	
Lithium	ug/L	40.8	1000	1000	1030	998	99	96	75-125	3	20	
Magnesium	ug/L	42200	10000	10000	53700	54000	115	118	75-125	0	20	
Manganese	ug/L	170	1000	1000	1150	1140	98	97	75-125	1	20	
Molybdenum	ug/L	ND	1000	1000	1030	1000	103	100	75-125	2	20	
Nickel	ug/L	5.6	1000	1000	991	969	98	96	75-125	2	20	
Selenium	ug/L	ND	1000	1000	1010	992	101	99	75-125	2	20	
Silver	ug/L	ND	500	500	504	493	101	99	75-125	2	20	
Sodium	ug/L	68200	10000	10000	81300	81100	131	129	75-125	0	20	M1
Zinc	ug/L	ND	1000	1000	980	960	98	96	75-125	2	20	

MATRIX SPIKE SAMPLE: 2477522

Parameter	Units	60313169002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	1000	929	93	75-125	
Beryllium	ug/L	ND	1000	963	96	75-125	
Cadmium	ug/L	ND	1000	938	94	75-125	
Chromium	ug/L	ND	1000	952	95	75-125	
Cobalt	ug/L	ND	1000	926	93	75-125	
Copper	ug/L	ND	1000	923	92	75-125	
Hardness, Total(SM 2340B)	ug/L	221000	66200	276000	83	75-125	
Iron	ug/L	1760	10000	11300	96	75-125	
Lead	ug/L	ND	1000	1010	101	75-125	
Lithium	ug/L	47.2	1000	972	92	75-125	
Magnesium	ug/L	14900	10000	24000	91	75-125	
Manganese	ug/L	183	1000	1100	92	75-125	
Molybdenum	ug/L	ND	1000	968	97	75-125	
Nickel	ug/L	1.6J	1000	954	95	75-125	
Selenium	ug/L	ND	1000	945	94	75-125	
Silver	ug/L	ND	500	476	95	75-125	
Sodium	ug/L	29500	10000	37900	84	75-125	
Zinc	ug/L	98.5	1000	1030	93	75-125	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606109 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2477382 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	28.7J	50.0	9.5	09/03/19 14:16	
Antimony	ug/L	ND	1.0	0.078	09/03/19 14:16	
Barium	ug/L	ND	1.0	0.28	09/03/19 14:16	
Thallium	ug/L	ND	1.0	0.099	09/03/19 14:16	

LABORATORY CONTROL SAMPLE: 2477383

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1000	977	98	80-120	
Antimony	ug/L	40	37.5	94	80-120	
Barium	ug/L	40	37.0	92	80-120	
Thallium	ug/L	40	37.2	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2477384 2477385

Parameter	Units	60313169001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	85.3	1000	1000	1080	1080	99	99	75-125	0	20	
Antimony	ug/L	0.096J	40	40	36.9	36.7	92	92	75-125	1	20	
Barium	ug/L	20.3	40	40	57.5	57.1	93	92	75-125	1	20	
Thallium	ug/L	ND	40	40	40.2	39.5	100	99	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606872 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2480373 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	5.0	09/01/19 12:01	

LABORATORY CONTROL SAMPLE: 2480374

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	997	100	80-120	

SAMPLE DUPLICATE: 2480375

Parameter	Units	60313018002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	949	970	2	10	

SAMPLE DUPLICATE: 2480376

Parameter	Units	60313169002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	334	319	5	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 607252 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

SAMPLE DUPLICATE: 2481528

Parameter	Units	60313133006 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	9.3	9.3	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 1341150 Analysis Method: EPA 9020
QC Batch Method: 9020B Analysis Description: Wet Chemistry 9020B
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: R3450148-2 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	09/12/19 11:34	

METHOD BLANK: R3450534-2 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	09/13/19 10:59	

LABORATORY CONTROL SAMPLE: R3448050-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	207	103	85.0-115	

LABORATORY CONTROL SAMPLE: R3448258-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	194	97.0	85.0-115	

LABORATORY CONTROL SAMPLE: R3450148-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	195	97.7	85.0-115	

LABORATORY CONTROL SAMPLE: R3450534-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	200	99.9	85.0-115	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3448050-8 R3448050-9

Parameter	Units	L1135690-03 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Halides	ug/L	ND	200	200	223	213	111	106	80.0-120	4.79	20	

SAMPLE DUPLICATE: R3448050-3

Parameter	Units	L1135690-03 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3448050-4

Parameter	Units	L1135690-04 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	38.5J	200	20	D8,J

SAMPLE DUPLICATE: R3448050-5

Parameter	Units	L1135690-05 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3448050-6

Parameter	Units	L1135690-06 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3448050-7

Parameter	Units	L1135690-07 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	32.1	ND	200	20	D8

SAMPLE DUPLICATE: R3448258-3

Parameter	Units	L1136586-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	35.9	ND	200	20	D8

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

SAMPLE DUPLICATE: R3448258-4

Parameter	Units	L1136721-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450148-3

Parameter	Units	60313169001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450148-4

Parameter	Units	60313169002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450148-5

Parameter	Units	60313169003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450148-6

Parameter	Units	60313169004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450534-3

Parameter	Units	60313169005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450534-4

Parameter	Units	60313169006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3450534-5

Parameter	Units	60313169007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

SAMPLE DUPLICATE: R3450534-6

Parameter	Units	L1137972-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	1200	1190	0.724	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 609007 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2487719 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	09/12/19 10:11	
Fluoride	mg/L	ND	0.20	0.085	09/12/19 10:11	
Sulfate	mg/L	ND	1.0	0.23	09/12/19 10:11	

LABORATORY CONTROL SAMPLE: 2487720

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.1	101	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2487721 2487722

Parameter	Units	60313971001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	34.8	50	50	89.0	92.2	108	115	80-120	4	15	
Fluoride	mg/L	1.1	2.5	2.5	3.8	3.8	109	105	80-120	2	15	
Sulfate	mg/L	37.8	50	50	94.0	98.0	112	120	80-120	4	15	

MATRIX SPIKE SAMPLE: 2487723

Parameter	Units	60313169007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	23.3	25	50.0	107	80-120	
Fluoride	mg/L	1.1	2.5	3.8	106	80-120	
Sulfate	mg/L	161	100	265	105	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 608314 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 Water Analysis
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2485114 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	10.0	3.7	09/11/19 09:55	

LABORATORY CONTROL SAMPLE: 2485115

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	50	51.5	103	90-110	

MATRIX SPIKE SAMPLE: 2485116

Parameter	Units	60313229001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	36.9	50	97.8	122	90-110	M1

MATRIX SPIKE SAMPLE: 2485118

Parameter	Units	60313169002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	16.9	50	66.1	98	90-110	

SAMPLE DUPLICATE: 2485117

Parameter	Units	60313229003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chemical Oxygen Demand	mg/L	26.1	26.6	2	25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606973 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2480654 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.29	09/03/19 12:04	

LABORATORY CONTROL SAMPLE: 2480655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	102	80-120	

MATRIX SPIKE SAMPLE: 2480656

Parameter	Units	60312825004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	137	100	235	98	80-120	E

SAMPLE DUPLICATE: 2480657

Parameter	Units	60313183001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	2.4	2.7	13	25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 606011 Analysis Method: EPA 7196
QC Batch Method: EPA 7196 Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 2476956 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	0.0031	08/28/19 07:41	

LABORATORY CONTROL SAMPLE: 2476957

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	0.1	0.096	96	90-110	

MATRIX SPIKE SAMPLE: 2476958

Parameter	Units	60313169001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.1	0.077	77	85-115	M1

SAMPLE DUPLICATE: 2476959

Parameter	Units	60313169001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/L	ND	ND		20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-8 **Lab ID: 60313169001** Collected: 08/27/19 08:05 Received: 08/27/19 19:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.253 ± 0.431 (0.760) C:NA T:88%**	pCi/L	09/24/19 14:07	13982-63-3	
Radium-228	EPA 904.0	**1.19 ± 0.477 (0.752) C:85% T:84%**	pCi/L	09/25/19 13:52	15262-20-1	
Total Radium	Total Radium Calculation	**1.44 ± 0.908 (1.51)**	pCi/L	09/26/19 11:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-4 **Lab ID: 60313169002** Collected: 08/27/19 09:35 Received: 08/27/19 19:45 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 ± 0.392 (0.828) C:NA T:84%**	pCi/L	09/24/19 14:07	13982-63-3	
Radium-228	EPA 904.0	**0.403 ± 0.387 (0.796) C:83% T:84%**	pCi/L	09/25/19 14:15	15262-20-1	
Total Radium	Total Radium Calculation	**0.403 ± 0.779 (1.62)**	pCi/L	09/26/19 11:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-3 **Lab ID: 60313169003** Collected: 08/27/19 10:55 Received: 08/27/19 19:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.608 ± 0.588 (0.913) C:NA T:91%**	pCi/L	09/24/19 14:07	13982-63-3	
Radium-228	EPA 904.0	**0.0726 ± 0.358 (0.811) C:84% T:87%**	pCi/L	09/25/19 13:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.681 ± 0.946 (1.72)**	pCi/L	09/26/19 11:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-5 **Lab ID: 60313169004** Collected: 08/27/19 12:30 Received: 08/27/19 19:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.699 ± 0.587 (0.874) C:NA T:99%**	pCi/L	09/24/19 14:07	13982-63-3	
Radium-228	EPA 904.0	**0.825 ± 0.453 (0.827) C:83% T:79%**	pCi/L	09/25/19 13:53	15262-20-1	
Total Radium	Total Radium Calculation	**1.52 ± 1.04 (1.70)**	pCi/L	09/26/19 11:20	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-6 **Lab ID: 60313169005** Collected: 08/27/19 14:10 Received: 08/27/19 19:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.834 ± 0.633 (0.926) C:NA T:92%**	pCi/L	09/24/19 14:07	13982-63-3	
Radium-228	EPA 904.0	**0.363 ± 0.374 (0.779) C:85% T:87%**	pCi/L	09/25/19 13:53	15262-20-1	
Total Radium	Total Radium Calculation	**1.20 ± 1.01 (1.71)**	pCi/L	09/26/19 11:20	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: MW-7 **Lab ID: 60313169006** Collected: 08/27/19 15:55 Received: 08/27/19 19:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0664 ± 0.504 (0.997) C:NA T:84%**	pCi/L	09/24/19 14:07	13982-63-3	
Radium-228	EPA 904.0	**0.461 ± 0.339 (0.660) C:86% T:87%**	pCi/L	09/25/19 13:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.527 ± 0.843 (1.66)**	pCi/L	09/26/19 11:20	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Sample: BA POND **Lab ID: 60313169007** Collected: 08/27/19 16:45 Received: 08/27/19 19:45 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 ± 0.431 (0.895) C:NA T:89%**	pCi/L	09/24/19 14:21	13982-63-3	
Radium-228	EPA 904.0	**0.983 ± 0.603 (1.13) C:84% T:56%**	pCi/L	09/25/19 13:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.983 ± 1.03 (2.03)**	pCi/L	09/26/19 11:20	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 361442 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 1754441 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0734 ± 0.286 (0.684) C:87% T:84%	pCi/L	09/25/19 13:52	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

QC Batch: 361443 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

METHOD BLANK: 1754442 Matrix: Water
Associated Lab Samples: 60313169001, 60313169002, 60313169003, 60313169004, 60313169005, 60313169006, 60313169007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.154 ± 0.266 (0.476) C:NA T:83%	pCi/L	09/24/19 14:07	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

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 adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

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

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 (%)

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

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
J	Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60313169001	**MW-8**	EPA 200.7	606161	EPA 200.7	606265
60313169002	**MW-4**	EPA 200.7	606161	EPA 200.7	606265
60313169003	**MW-3**	EPA 200.7	606161	EPA 200.7	606265
60313169004	**MW-5**	EPA 200.7	606161	EPA 200.7	606265
60313169005	**MW-6**	EPA 200.7	606161	EPA 200.7	606265
60313169006	**MW-7**	EPA 200.7	606161	EPA 200.7	606265
60313169007	**BA POND**	EPA 200.7	606161	EPA 200.7	606265
60313169001	**MW-8**	EPA 3010	606156	EPA 6010	606264
60313169002	**MW-4**	EPA 3010	606156	EPA 6010	606264
60313169003	**MW-3**	EPA 3010	606156	EPA 6010	606264
60313169004	**MW-5**	EPA 3010	606156	EPA 6010	606264
60313169005	**MW-6**	EPA 3010	606156	EPA 6010	606264
60313169006	**MW-7**	EPA 3010	606156	EPA 6010	606264
60313169007	**BA POND**	EPA 3010	606156	EPA 6010	606264
60313169001	**MW-8**	EPA 3010	606109	EPA 6020	606145
60313169002	**MW-4**	EPA 3010	606109	EPA 6020	606145
60313169003	**MW-3**	EPA 3010	606109	EPA 6020	606145
60313169004	**MW-5**	EPA 3010	606109	EPA 6020	606145
60313169005	**MW-6**	EPA 3010	606109	EPA 6020	606145
60313169006	**MW-7**	EPA 3010	606109	EPA 6020	606145
60313169007	**BA POND**	EPA 3010	606109	EPA 6020	606145
60313169001	**MW-8**	EPA 7470	606100	EPA 7470	606150
60313169002	**MW-4**	EPA 7470	606100	EPA 7470	606150
60313169003	**MW-3**	EPA 7470	606100	EPA 7470	606150
60313169004	**MW-5**	EPA 7470	606100	EPA 7470	606150
60313169005	**MW-6**	EPA 7470	606100	EPA 7470	606150
60313169006	**MW-7**	EPA 7470	606100	EPA 7470	606150
60313169007	**BA POND**	EPA 7470	606100	EPA 7470	606150
60313169001	**MW-8**	EPA 903.1	361443		
60313169002	**MW-4**	EPA 903.1	361443		
60313169003	**MW-3**	EPA 903.1	361443		
60313169004	**MW-5**	EPA 903.1	361443		
60313169005	**MW-6**	EPA 903.1	361443		
60313169006	**MW-7**	EPA 903.1	361443		
60313169007	**BA POND**	EPA 903.1	361443		
60313169001	**MW-8**	EPA 904.0	361442		
60313169002	**MW-4**	EPA 904.0	361442		
60313169003	**MW-3**	EPA 904.0	361442		
60313169004	**MW-5**	EPA 904.0	361442		
60313169005	**MW-6**	EPA 904.0	361442		
60313169006	**MW-7**	EPA 904.0	361442		
60313169007	**BA POND**	EPA 904.0	361442		
60313169001	**MW-8**	Total Radium Calculation	363315		
60313169002	**MW-4**	Total Radium Calculation	363315		
60313169003	**MW-3**	Total Radium Calculation	363315		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60313169004	**MW-5**	Total Radium Calculation	363319		
60313169005	**MW-6**	Total Radium Calculation	363319		
60313169006	**MW-7**	Total Radium Calculation	363319		
60313169007	**BA POND**	Total Radium Calculation	363319		
60313169001	**MW-8**	SM 2540C	606872		
60313169002	**MW-4**	SM 2540C	606872		
60313169003	**MW-3**	SM 2540C	606872		
60313169004	**MW-5**	SM 2540C	606872		
60313169005	**MW-6**	SM 2540C	606872		
60313169006	**MW-7**	SM 2540C	606872		
60313169007	**BA POND**	SM 2540C	606872		
60313169001	**MW-8**	SM 4500-H+B	607252		
60313169002	**MW-4**	SM 4500-H+B	607252		
60313169003	**MW-3**	SM 4500-H+B	607252		
60313169004	**MW-5**	SM 4500-H+B	607252		
60313169005	**MW-6**	SM 4500-H+B	607252		
60313169006	**MW-7**	SM 4500-H+B	607252		
60313169007	**BA POND**	SM 4500-H+B	607252		
60313169001	**MW-8**	Trivalent Chromium Calculation	610780		
60313169002	**MW-4**	Trivalent Chromium Calculation	610780		
60313169003	**MW-3**	Trivalent Chromium Calculation	610780		
60313169004	**MW-5**	Trivalent Chromium Calculation	610780		
60313169005	**MW-6**	Trivalent Chromium Calculation	610780		
60313169006	**MW-7**	Trivalent Chromium Calculation	610780		
60313169007	**BA POND**	Trivalent Chromium Calculation	610780		
60313169001	**MW-8**	9020B	1341150	EPA 9020	1341150
60313169002	**MW-4**	9020B	1341150	EPA 9020	1341150
60313169003	**MW-3**	9020B	1341150	EPA 9020	1341150
60313169004	**MW-5**	9020B	1341150	EPA 9020	1341150
60313169005	**MW-6**	9020B	1341150	EPA 9020	1341150
60313169006	**MW-7**	9020B	1341150	EPA 9020	1341150
60313169007	**BA POND**	9020B	1341150	EPA 9020	1341150
60313169001	**MW-8**	EPA 300.0	609007		
60313169002	**MW-4**	EPA 300.0	609007		
60313169003	**MW-3**	EPA 300.0	609007		
60313169004	**MW-5**	EPA 300.0	609007		
60313169005	**MW-6**	EPA 300.0	609007		
60313169006	**MW-7**	EPA 300.0	609007		
60313169007	**BA POND**	EPA 300.0	609007		
60313169001	**MW-8**	EPA 410.4	608314	EPA 410.4	608725
60313169002	**MW-4**	EPA 410.4	608314	EPA 410.4	608725

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60313169

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60313169003	**MW-3**	EPA 410.4	608314	EPA 410.4	608725
60313169004	**MW-5**	EPA 410.4	608314	EPA 410.4	608725
60313169005	**MW-6**	EPA 410.4	608314	EPA 410.4	608725
60313169006	**MW-7**	EPA 410.4	608314	EPA 410.4	608725
60313169007	**BA POND**	EPA 410.4	608314	EPA 410.4	608725
60313169001	**MW-8**	SM 5310C	606973		
60313169002	**MW-4**	SM 5310C	606973		
60313169003	**MW-3**	SM 5310C	606973		
60313169004	**MW-5**	SM 5310C	606973		
60313169005	**MW-6**	SM 5310C	606973		
60313169006	**MW-7**	SM 5310C	606973		
60313169007	**BA POND**	SM 5310C	606973		
60313169001	**MW-8**	EPA 7196	606011		
60313169002	**MW-4**	EPA 7196	606011		
60313169003	**MW-3**	EPA 7196	606011		
60313169004	**MW-5**	EPA 7196	606011		
60313169005	**MW-6**	EPA 7196	606011		
60313169006	**MW-7**	EPA 7196	606011		
60313169007	**BA POND**	EPA 7196	606011		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60313169

60313169

Client Name: Burns McD

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☑ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☐ No ☑ Seals intact: Yes ☐ No ☑

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☐

Thermometer Used: T-300 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 4.1/4.2 Corr. Factor 0.0 **Corrected** 4.1/3.7/3.9 4.2

Date and initials of person examining contents: DVB/27/19

Temperature should be above freezing to 6°C 3.9/4.2

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	Crct
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	DVB/27/19
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JEFFREY SHOPPER Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A — Required Client Information:

Company:	BURNS & MCDONNELL
Address:	Burns & McDonnell
	Kansas City, MO 64114
Email:	bweis@burnsmcd.com
Phone:	816-333-9400 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Brian Weis
Copy To:	Chris Hoglund
Purchase Order #:	
Project Name:	More's Lake Columbia, MO
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	jeff.shopper@pacelabs.com
Pace Profile #:	10268, 2

Regulatory Agency:

State / Location: MO

Requested Analysis Filtered (Y/N)

SAMPLE ID — One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	300.0 SO4,Cl,F	TOC	COD	TDS by 2540C	6010 Metals** Thallium by 6020	Mercury	Hardness	Hexavalent Chromium**SHORT HOLD	Trivalent Chromium Calc	TOX	Radium 226/228 (include combined)	pH	Residual Chlorine (Y/N)	60313169 **Al,Sb,As,Ba,Be,B,Cd,Ca,Cr,Co,Cu,Fe,Pb,Li,Mg,Mn,Mo,Ni,Se,Ag,Na,Zn
1	MW-8 2BP3U AG3S 2BP3N BRU	WT	G	8-27-19	0805			16.4	9	X	X	X		SABR					X	X	X	X	X	X	X	X	X	X	X		2BPIN 001
2	MW-4	WT	G	8-27-19	0975			16.7	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X		002
3	MW-3	WT	G	8-27-19	1055			16.0	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X		003
4	MW-5	WT	G	8-27-19	1230			16.9	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X		004
5	MW-6	WT	G	8-27-19	1410			16.5	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X		005
6	MW-7	WT	G	8-27-19	1555			17.3	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X		006
7	BA DUP 2BP3U	WT	G	8-27-19	1645				9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X		007
8																																
9																																
10																																
11																																
12																																

8-27-19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
TOX EDD needed						
J-flags on - include MDLs on report.						

SAMPLE CONDITIONS

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
4.1	Y	NA	X
3.7			
3.9			
4.2			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

DECEMBER 2019

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 30, 2019

Brian Weis
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114

RE: Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Dear Brian Weis:
Enclosed are the analytical results for sample(s) received by the laboratory on December 04, 2019. 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,

Jeffrey Shopper
jeff.shopper@pacelabs.com
1(913)563-1408
Project Manager

Enclosures

cc: CHRIS HOGLUND, BURNS & MCDONNELL

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212018-8
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

Pace Analytical Services National
12065 Lebanon Road, Mt. Juliet, TN 37122
Alabama Certification #: 40660
Alaska Certification 17-026
Arizona Certification #: AZ0612
Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Pace Analytical Services National

Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975
New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60323115001	**MW-8**	Water	12/04/19 08:20	12/04/19 18:52
60323115002	**MW-3**	Water	12/04/19 09:30	12/04/19 18:52
60323115003	**MW-4**	Water	12/04/19 10:50	12/04/19 18:52
60323115004	**MW-5**	Water	12/04/19 12:15	12/04/19 18:52
60323115005	**MW-6**	Water	12/04/19 13:40	12/04/19 18:52
60323115006	**MW-7**	Water	12/04/19 15:00	12/04/19 18:52
60323115007	**BA POND**	Water	12/04/19 16:00	12/04/19 18:52

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60323115001	**MW-8**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MGS, MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60323115002	**MW-3**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60323115003	**MW-4**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60323115004	**MW-5**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60323115005	**MW-6**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7196	BLA	1	PASI-K
60323115006	**MW-7**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60323115007	**BA POND**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	VRP	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	LDB	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MJK	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 627957

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60322982002,60323115006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2559537)
  - Calcium
- MSD (Lab ID: 2559538)
  - Calcium

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 6010**
Description: 6010 MET ICP
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 7470**
Description: 7470 Mercury
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 9020**
Description: Wet Chemistry 9020B
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 9020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 1393394

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: R3481028-16)
  - Total Organic Halides

R1: RPD value was outside control limits.

- DUP (Lab ID: R3481028-13)
  - Total Organic Halides

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- BA POND (Lab ID: 60323115007)
- MW-3 (Lab ID: 60323115002)
- MW-4 (Lab ID: 60323115003)
- MW-5 (Lab ID: 60323115004)
- MW-6 (Lab ID: 60323115005)
- MW-7 (Lab ID: 60323115006)
- MW-8 (Lab ID: 60323115001)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **Trivalent Chromium Calculation**
Description: Trivalent Chromium Calculation
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 628057

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60323115001,60324047001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 2559820)
  - Fluoride

R1: RPD value was outside control limits.

- MSD (Lab ID: 2559820)
  - Fluoride

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 410.4**
Description: 410.4 COD
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 626459

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60323115003,60323162001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2553436)
  - Chemical Oxygen Demand

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **SM 5310C**
Description: 5310C TOC
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Method: **EPA 7196**
Description: 7196 Chromium, Hexavalent
Client: BURNS & MCDONNELL
Date: December 30, 2019

General Information:
7 samples were analyzed for EPA 7196. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-8 **Lab ID: 60323115001** Collected: 12/04/19 08:20 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**499**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:52	7440-42-8	
Calcium	**218000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:52	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**7.7J**	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:48	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:48	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:48	7440-43-9	
Chromium	**1.3J**	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:48	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:48	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:48	7440-50-8	
Iron	**758**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:48	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:48	7439-92-1	
Lithium	**23.8**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:48	7439-93-2	
Magnesium	**33200**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:48	7439-95-4	
Manganese	**684**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:48	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:48	7439-98-7	
Nickel	**5.5**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:48	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:48	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:48	7440-22-4	
Sodium	**78200**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:48	7440-23-5	
Hardness, Total(SM 2340B)	**732000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:48		
Zinc	ND	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:48	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**92.5**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:40	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:40	7440-36-0	
Barium	**22.9**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:40	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:40	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:01	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 12:56	12/11/19 12:56		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1260**	mg/L	13.3	13.3	1		12/09/19 12:33		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		12/10/19 08:53		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-8 **Lab ID: 60323115001** Collected: 12/04/19 08:20 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**77.8**	mg/L	5.0	1.1	5		12/13/19 16:04	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.085	1		12/13/19 16:53	16984-48-8	M1,R1
Sulfate	**409**	mg/L	50.0	11.5	50		12/13/19 13:01	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**4.2J**	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:14		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.75J**	mg/L	1.0	0.29	1		12/11/19 12:54	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:16	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-3 **Lab ID: 60323115002** Collected: 12/04/19 09:30 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**52.5J**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:54	7440-42-8	
Calcium	**96900**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:54	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:50	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:50	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:50	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:50	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:50	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:50	7440-50-8	
Iron	**98.6**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:50	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:50	7439-92-1	
Lithium	**31.0**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:50	7439-93-2	
Magnesium	**39500**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:50	7439-95-4	
Manganese	**300**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:50	7439-96-5	
Molybdenum	**5.6J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:50	7439-98-7	
Nickel	**2.4J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:50	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:50	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:50	7440-22-4	
Sodium	**35500**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:50	7440-23-5	
Hardness, Total(SM 2340B)	**448000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:50		
Zinc	ND	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:50	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:42	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:42	7440-36-0	
Barium	**183**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:42	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:42	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:03	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 13:16	12/11/19 13:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**545**	mg/L	10.0	10.0	1		12/09/19 12:33		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		12/10/19 08:54		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-3 **Lab ID: 60323115002** Collected: 12/04/19 09:30 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.2**	mg/L	1.0	0.22	1		12/13/19 17:41	16887-00-6	
Fluoride	**0.57**	mg/L	0.20	0.085	1		12/13/19 17:41	16984-48-8	
Sulfate	**36.7**	mg/L	5.0	1.2	5		12/13/19 17:57	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:15		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.69J**	mg/L	1.0	0.29	1		12/11/19 13:07	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:17	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-4 **Lab ID: 60323115003** Collected: 12/04/19 10:50 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**36.2J**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:57	7440-42-8	
Calcium	**58000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:57	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:52	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:52	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:52	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:52	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:52	7440-48-4	
Copper	**3.9J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:52	7440-50-8	
Iron	**1540**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:52	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:52	7439-92-1	
Lithium	**48.9**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:52	7439-93-2	
Magnesium	**15700**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:52	7439-95-4	
Manganese	**180**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:52	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:52	7439-98-7	
Nickel	**2.2J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:52	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:52	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:52	7440-22-4	
Sodium	**39300**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:52	7440-23-5	
Hardness, Total(SM 2340B)	**226000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:52		
Zinc	**110**	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:52	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**69.7**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:46	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:46	7440-36-0	
Barium	**112**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:46	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:46	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:06	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 13:37	12/11/19 13:37		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**334**	mg/L	5.0	5.0	1		12/09/19 12:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.3**	Std. Units	0.10	0.10	1		12/16/19 12:46		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-4 **Lab ID: 60323115003** Collected: 12/04/19 10:50 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.9**	mg/L	1.0	0.22	1		12/13/19 18:13	16887-00-6	
Fluoride	**0.35**	mg/L	0.20	0.085	1		12/13/19 18:13	16984-48-8	
Sulfate	**25.3**	mg/L	5.0	1.2	5		12/13/19 18:29	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**23.2**	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:15		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**6.6**	mg/L	1.0	0.29	1		12/11/19 13:21	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:19	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-5 **Lab ID: 60323115004** Collected: 12/04/19 12:15 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**205**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:59	7440-42-8	
Calcium	**98400**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:59	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**4.1J**	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:54	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:54	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:54	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:54	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:54	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:54	7440-50-8	
Iron	**695**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:54	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:54	7439-92-1	
Lithium	**36.9**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:54	7439-93-2	
Magnesium	**31600**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:54	7439-95-4	
Manganese	**111**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:54	7439-96-5	
Molybdenum	**3.7J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:54	7439-98-7	
Nickel	**1.7J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:54	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:54	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:54	7440-22-4	
Sodium	**55700**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:54	7440-23-5	
Hardness, Total(SM 2340B)	**407000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:54		
Zinc	**13.1J**	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:54	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**53.9**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:48	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:48	7440-36-0	
Barium	**212**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:48	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:42	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 13:57	12/11/19 13:57		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**576**	mg/L	10.0	10.0	1		12/09/19 12:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.10	1		12/16/19 12:49		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-5 **Lab ID: 60323115004** Collected: 12/04/19 12:15 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**24.3**	mg/L	5.0	1.1	5		12/13/19 19:33	16887-00-6	
Fluoride	**0.54**	mg/L	0.20	0.085	1		12/13/19 19:17	16984-48-8	
Sulfate	**97.5**	mg/L	5.0	1.2	5		12/13/19 19:33	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:16		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.2**	mg/L	1.0	0.29	1		12/11/19 14:01	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:19	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-6 **Lab ID: 60323115005** Collected: 12/04/19 13:40 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**71.3J**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 15:01	7440-42-8	
Calcium	**160000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 15:01	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**5.0J**	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:56	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:56	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:56	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:56	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:56	7440-48-4	
Copper	**3.7J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:56	7440-50-8	
Iron	**1010**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:56	7439-89-6	
Lead	**3.8J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:56	7439-92-1	
Lithium	**51.2**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:56	7439-93-2	
Magnesium	**37000**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:56	7439-95-4	
Manganese	**690**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:56	7439-96-5	
Molybdenum	ND	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:56	7439-98-7	
Nickel	**4.7J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:56	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:56	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:56	7440-22-4	
Sodium	**55400**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:56	7440-23-5	
Hardness, Total(SM 2340B)	**595000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:56		
Zinc	**11.7J**	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:56	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**99.4**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:49	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:49	7440-36-0	
Barium	**61.7**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:49	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:49	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:44	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 14:17	12/11/19 14:17		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**896**	mg/L	10.0	10.0	1		12/09/19 12:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		12/16/19 12:50		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-6 **Lab ID: 60323115005** Collected: 12/04/19 13:40 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**30.1**	mg/L	5.0	1.1	5		12/13/19 20:21	16887-00-6	
Fluoride	**0.34**	mg/L	0.20	0.085	1		12/13/19 20:05	16984-48-8	
Sulfate	**207**	mg/L	20.0	4.6	20		12/13/19 20:37	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**8.7J**	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:17		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.7**	mg/L	1.0	0.29	1		12/11/19 14:14	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:20	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-7 **Lab ID: 60323115006** Collected: 12/04/19 15:00 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**176**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 15:04	7440-42-8	
Calcium	**83000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 15:04	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**6.2J**	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:59	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:59	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:59	7440-43-9	
Chromium	**1.9J**	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:59	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:59	7440-48-4	
Copper	**4.1J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:59	7440-50-8	
Iron	**2620**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:59	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:59	7439-92-1	
Lithium	**40.4**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:59	7439-93-2	
Magnesium	**22600**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:59	7439-95-4	
Manganese	**341**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:59	7439-96-5	
Molybdenum	**5.2J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:59	7439-98-7	
Nickel	**3.1J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:59	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:59	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:59	7440-22-4	
Sodium	**34100**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:59	7440-23-5	
Hardness, Total(SM 2340B)	**323000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:59		
Zinc	**70.0**	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:59	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**165**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:50	7429-90-5	
Antimony	**0.13J**	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:50	7440-36-0	
Barium	**86.5**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:50	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:50	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:46	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 15:01	12/11/19 15:01		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**494**	mg/L	10.0	10.0	1		12/09/19 12:34		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.10	1		12/16/19 12:52		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-7 **Lab ID: 60323115006** Collected: 12/04/19 15:00 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**24.6**	mg/L	5.0	1.1	5		12/13/19 21:09	16887-00-6	
Fluoride	**0.46**	mg/L	0.20	0.085	1		12/13/19 20:53	16984-48-8	
Sulfate	**92.3**	mg/L	20.0	4.6	20		12/13/19 21:26	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**4.9J**	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:17		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.4**	mg/L	1.0	0.29	1		12/11/19 14:27	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:21	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: BA POND **Lab ID: 60323115007** Collected: 12/04/19 16:00 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**573**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 17:41	7440-42-8	
Calcium	**61800**	ug/L	200	50.0	1	12/12/19 14:41	12/16/19 17:52	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 17:05	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 17:05	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 17:05	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 17:05	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 17:05	7440-48-4	
Copper	**4.0J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 17:05	7440-50-8	
Iron	**689**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 17:05	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 17:05	7439-92-1	
Lithium	**6.2J**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 17:05	7439-93-2	
Magnesium	**12900**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 17:05	7439-95-4	
Manganese	**76.8**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 17:05	7439-96-5	
Molybdenum	**9.1J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 17:05	7439-98-7	
Nickel	**2.3J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 17:05	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 17:05	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 17:05	7440-22-4	
Sodium	**32400**	ug/L	500	144	1	12/16/19 09:15	12/16/19 17:05	7440-23-5	
Hardness, Total(SM 2340B)	**198000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 17:05		
Zinc	ND	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 17:05	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**352**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:52	7429-90-5	
Antimony	**0.15J**	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:52	7440-36-0	
Barium	**37.8**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:52	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:52	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 12:49	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/11/19 15:20	12/11/19 15:20		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**338**	mg/L	5.0	5.0	1		12/10/19 07:54		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.7**	Std. Units	0.10	0.10	1		12/16/19 12:54		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: BA POND **Lab ID: 60323115007** Collected: 12/04/19 16:00 Received: 12/04/19 18:52 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**23.5**	mg/L	5.0	1.1	5		12/13/19 22:30	16887-00-6	
Fluoride	**0.70**	mg/L	0.20	0.085	1		12/13/19 22:46	16984-48-8	
Sulfate	**133**	mg/L	20.0	4.6	20		12/13/19 21:42	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**6.7J**	mg/L	10.0	3.7	1	12/06/19 08:29	12/09/19 10:18		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.2**	mg/L	1.0	0.29	1		12/11/19 14:41	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/05/19 08:22	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 626664 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2554299 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	0.058	12/09/19 11:29	

LABORATORY CONTROL SAMPLE: 2554300

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2554301 2554302

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	4.8	4.9	96	98	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 627957 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2559535 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND	100	10.7	12/13/19 14:31	
Calcium	ug/L	ND	200	50.0	12/13/19 14:31	

LABORATORY CONTROL SAMPLE: 2559536

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	959	96	85-115	
Calcium	ug/L	10000	9230	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2559537 2559538

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	2520	1000	1000	3410	3430	89	91	70-130	0	20	
Calcium	ug/L	159000	10000	10000	163000	163000	45	43	70-130	0	20	M1

MATRIX SPIKE SAMPLE: 2559539

Parameter	Units	60323115006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	176	1000	1180	100	70-130	
Calcium	ug/L	83000	10000	94800	118	70-130	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 628424 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2561685 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	4.1	12/16/19 16:23	
Beryllium	ug/L	ND	1.0	0.25	12/16/19 16:23	
Cadmium	ug/L	ND	5.0	0.56	12/16/19 16:23	
Chromium	ug/L	ND	5.0	1.0	12/16/19 16:23	
Cobalt	ug/L	ND	5.0	0.84	12/16/19 16:23	
Copper	ug/L	ND	10.0	3.4	12/16/19 16:23	
Hardness, Total(SM 2340B)	ug/L	ND	705	197	12/16/19 16:23	
Iron	ug/L	ND	50.0	14.0	12/16/19 16:23	
Lead	ug/L	ND	10.0	3.4	12/16/19 16:23	
Lithium	ug/L	ND	10.0	5.9	12/16/19 16:23	
Magnesium	ug/L	ND	50.0	13.0	12/16/19 16:23	
Manganese	ug/L	ND	5.0	2.1	12/16/19 16:23	
Molybdenum	ug/L	ND	20.0	2.6	12/16/19 16:23	
Nickel	ug/L	ND	5.0	1.2	12/16/19 16:23	
Selenium	ug/L	ND	15.0	6.6	12/16/19 16:23	
Silver	ug/L	ND	7.0	1.8	12/16/19 16:23	
Sodium	ug/L	ND	500	144	12/16/19 16:23	
Zinc	ug/L	ND	50.0	6.1	12/16/19 16:23	

LABORATORY CONTROL SAMPLE: 2561686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	969	97	80-120	
Beryllium	ug/L	1000	959	96	80-120	
Cadmium	ug/L	1000	984	98	80-120	
Chromium	ug/L	1000	977	98	80-120	
Cobalt	ug/L	1000	1000	100	80-120	
Copper	ug/L	1000	976	98	80-120	
Hardness, Total(SM 2340B)	ug/L	66200	65100	98	80-120	
Iron	ug/L	10000	9780	98	80-120	
Lead	ug/L	1000	1010	101	80-120	
Lithium	ug/L	1000	945	95	80-120	
Magnesium	ug/L	10000	9880	99	80-120	
Manganese	ug/L	1000	968	97	80-120	
Molybdenum	ug/L	1000	996	100	80-120	
Nickel	ug/L	1000	1000	100	80-120	
Selenium	ug/L	1000	981	98	80-120	
Silver	ug/L	500	488	98	80-120	
Sodium	ug/L	10000	9750	98	80-120	
Zinc	ug/L	1000	968	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2561687 2561688

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	6.3J	1000	1000	987	1010	98	100	75-125	2	20	
Beryllium	ug/L	ND	1000	1000	966	969	97	97	75-125	0	20	
Cadmium	ug/L	ND	1000	1000	978	982	98	98	75-125	0	20	
Chromium	ug/L	ND	1000	1000	978	980	98	98	75-125	0	20	
Cobalt	ug/L	ND	1000	1000	968	974	97	97	75-125	1	20	
Copper	ug/L	ND	1000	1000	962	959	96	96	75-125	0	20	
Hardness, Total(SM 2340B)	ug/L	595000	66200	66200	656000	674000	91	119	75-125	3	20	
Iron	ug/L	38.9J	10000	10000	9760	9840	97	98	75-125	1	20	
Lead	ug/L	ND	1000	1000	968	976	97	98	75-125	1	20	
Lithium	ug/L	41.6	1000	1000	1000	1010	96	97	75-125	1	20	
Magnesium	ug/L	43600	10000	10000	52600	53900	90	103	75-125	2	20	
Manganese	ug/L	183	1000	1000	1130	1140	95	96	75-125	1	20	
Molybdenum	ug/L	3.5J	1000	1000	1010	1020	101	101	75-125	1	20	
Nickel	ug/L	6.4	1000	1000	969	973	96	97	75-125	0	20	
Selenium	ug/L	ND	1000	1000	980	978	98	98	75-125	0	20	
Silver	ug/L	ND	500	500	484	486	97	97	75-125	0	20	
Sodium	ug/L	72100	10000	10000	81700	84000	96	118	75-125	3	20	
Zinc	ug/L	ND	1000	1000	955	963	95	96	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 626484 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2553613 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	8.2	12/09/19 14:29	
Antimony	ug/L	ND	1.0	0.097	12/09/19 14:29	
Barium	ug/L	ND	1.0	0.32	12/09/19 14:29	
Thallium	ug/L	ND	1.0	0.093	12/09/19 14:29	

LABORATORY CONTROL SAMPLE: 2553614

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1000	965	96	80-120	
Antimony	ug/L	40	38.5	96	80-120	
Barium	ug/L	40	38.3	96	80-120	
Thallium	ug/L	40	37.5	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2553615 2553616

Parameter	Units	60322982001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	11.9J	1000	1000	1010	993	100	98	75-125	2	20	
Antimony	ug/L	0.21J	40	40	38.8	38.3	96	95	75-125	1	20	
Barium	ug/L	70.0	40	40	110	108	100	96	75-125	2	20	
Thallium	ug/L	ND	40	40	39.8	39.3	99	98	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 1393394 Analysis Method: EPA 9020
QC Batch Method: 9020B Analysis Description: Wet Chemistry 9020B
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: R3480613-2 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	12/09/19 12:46	

LABORATORY CONTROL SAMPLE: R3480613-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	204	102	85.0-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3481028-10 R3481028-11

Parameter	Units	L1167286-13 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Halides	ug/L	ND	200	200	238	263	119	131	80.0-120	10.1	20	MH

SAMPLE DUPLICATE: R3480613-3

Parameter	Units	L1167344-19 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481028-3

Parameter	Units	L1167286-07 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481028-4

Parameter	Units	L1167286-08 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481028-5

Parameter	Units	L1167286-09 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

SAMPLE DUPLICATE: R3481028-6

Parameter	Units	L1167286-10 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481028-7

Parameter	Units	L1167286-11 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481028-8

Parameter	Units	L1167286-12 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481028-9

Parameter	Units	L1167286-13 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481475-3

Parameter	Units	60323115001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481475-4

Parameter	Units	60323115002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481475-5

Parameter	Units	60323115003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481475-6

Parameter	Units	60323115004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

SAMPLE DUPLICATE: R3481475-7

Parameter	Units	60323115005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481475-8

Parameter	Units	60323115006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481475-9

Parameter	Units	60323115007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3481895-3

Parameter	Units	L1169078-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	629	659	4.64	20	

SAMPLE DUPLICATE: R3481028-13

Parameter	Units	L1168406-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	533	1090	68.9	20	R1

SAMPLE DUPLICATE: R3481028-16

Parameter	Units	L1169002-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	59.9	41.3J	36.7	20	D8,J

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 626979 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006

METHOD BLANK: 2555836 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	5.0	12/09/19 12:31	

LABORATORY CONTROL SAMPLE: 2555837

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	980	98	80-120	

SAMPLE DUPLICATE: 2555838

Parameter	Units	60323193006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	330	362	10	10	

SAMPLE DUPLICATE: 2555839

Parameter	Units	60323365002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	926	965	4	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 627156
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60323115007

METHOD BLANK: 2556478 Matrix: Water
Associated Lab Samples: 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	5.0	12/10/19 07:54	

LABORATORY CONTROL SAMPLE: 2556479

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1000	100	80-120	

SAMPLE DUPLICATE: 2556480

Parameter	Units	60323152001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	602	615	2	10	

SAMPLE DUPLICATE: 2556481

Parameter	Units	60323332004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	559	563	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 627173 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60323115001, 60323115002

SAMPLE DUPLICATE: 2556513

Parameter	Units	60322862003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 628495 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

SAMPLE DUPLICATE: 2561856

Parameter	Units	60323115003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.3	7.3	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 628057 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2559817 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	12/13/19 09:48	
Fluoride	mg/L	ND	0.20	0.085	12/13/19 09:48	
Sulfate	mg/L	ND	1.0	0.23	12/13/19 09:48	

METHOD BLANK: 2561821 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	12/16/19 09:06	
Fluoride	mg/L	ND	0.20	0.085	12/16/19 09:06	
Sulfate	mg/L	ND	1.0	0.23	12/16/19 09:06	

LABORATORY CONTROL SAMPLE: 2559818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	4.6	93	90-110	

LABORATORY CONTROL SAMPLE: 2561822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2559819 2559820

Parameter	Units	60323115001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	77.8	250	250	313	315	94	95	80-120	1	15	
Fluoride	mg/L	0.21	2.5	2.5	2.8	1.4	103	48	80-120	65	15	M1,R1
Sulfate	mg/L	409	250	250	659	662	100	101	80-120	0	15	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

MATRIX SPIKE SAMPLE: 2559821

Parameter	Units	60324047001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	114	50	163	98	80-120	
Fluoride	mg/L	ND	25	26.8	107	80-120	
Sulfate	mg/L	30.8	50	88.5	115	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 626459 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 Water Analysis
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2553434 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	10.0	3.7	12/09/19 10:08	

LABORATORY CONTROL SAMPLE: 2553435

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	50	49.9	100	90-110	

MATRIX SPIKE SAMPLE: 2553436

Parameter	Units	60323162001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	112	50	152	80	90-110	M1

MATRIX SPIKE SAMPLE: 2553438

Parameter	Units	60323115003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	23.2	50	71.4	96	90-110	

SAMPLE DUPLICATE: 2553437

Parameter	Units	60323193001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chemical Oxygen Demand	mg/L	17.1	15.8	8	25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 627540 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2557804 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.36	12/11/19 09:07	

LABORATORY CONTROL SAMPLE: 2557805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	102	80-120	

MATRIX SPIKE SAMPLE: 2557806

Parameter	Units	60322982002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	0.60J	5	5.2	92	80-120	

SAMPLE DUPLICATE: 2557807

Parameter	Units	60322982002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	0.60J	0.50J		25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 626267 Analysis Method: EPA 7196
QC Batch Method: EPA 7196 Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 2552643 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	0.0031	12/05/19 08:15	

LABORATORY CONTROL SAMPLE: 2552644

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	0.1	0.098	98	90-110	

MATRIX SPIKE SAMPLE: 2552645

Parameter	Units	60323115001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.1	0.097	96	85-115	

SAMPLE DUPLICATE: 2552646

Parameter	Units	60323115002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/L	ND	ND		20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-8 **Lab ID: 60323115001** Collected: 12/04/19 08:20 Received: 12/04/19 18:52 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.262 ± 0.408 (0.706) C:NA T:91%**	pCi/L	12/24/19 10:38	13982-63-3	
Radium-228	EPA 904.0	**-0.420 ± 0.504 (1.19) C:75% T:88%**	pCi/L	12/24/19 11:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.262 ± 0.912 (1.90)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-3 **Lab ID: 60323115002** Collected: 12/04/19 09:30 Received: 12/04/19 18:52 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.922 ± 0.588 (0.738) C:NA T:93%**	pCi/L	12/24/19 10:38	13982-63-3	
Radium-228	EPA 904.0	**0.642 ± 0.415 (0.793) C:74% T:97%**	pCi/L	12/24/19 11:53	15262-20-1	
Total Radium	Total Radium Calculation	**1.56 ± 1.00 (1.53)**	pCi/L	12/26/19 13:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-4 **Lab ID: 60323115003** Collected: 12/04/19 10:50 Received: 12/04/19 18:52 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 ± 0.383 (0.810) C:NA T:96%**	pCi/L	12/24/19 10:38	13982-63-3	
Radium-228	EPA 904.0	**-1.12 ± 0.450 (1.12) C:72% T:88%**	pCi/L	12/24/19 11:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.000 ± 0.833 (1.93)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-5 **Lab ID: 60323115004** Collected: 12/04/19 12:15 Received: 12/04/19 18:52 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.0650 ± 0.584 (1.18) C:NA T:86%**	pCi/L	12/24/19 10:38	13982-63-3	
Radium-228	EPA 904.0	**0.124 ± 0.465 (1.05) C:69% T:83%**	pCi/L	12/24/19 11:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.124 ± 1.05 (2.23)**	pCi/L	12/26/19 13:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-6 **Lab ID: 60323115005** Collected: 12/04/19 13:40 Received: 12/04/19 18:52 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.401 ± 0.558 (0.943) C:NA T:85%**	pCi/L	12/24/19 10:51	13982-63-3	
Radium-228	EPA 904.0	**0.448 ± 0.398 (0.812) C:70% T:95%**	pCi/L	12/24/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	**0.849 ± 0.956 (1.76)**	pCi/L	12/26/19 13:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: MW-7 **Lab ID: 60323115006** Collected: 12/04/19 15:00 Received: 12/04/19 18:52 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.226 ± 0.314 (0.525) C:NA T:100%**	pCi/L	12/24/19 10:51	13982-63-3	
Radium-228	EPA 904.0	**0.222 ± 0.346 (0.750) C:69% T:93%**	pCi/L	12/24/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	**0.448 ± 0.660 (1.28)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Sample: BA POND **Lab ID: 60323115007** Collected: 12/04/19 16:00 Received: 12/04/19 18:52 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.131 ± 0.314 (0.606) C:NA T:89%**	pCi/L	12/24/19 10:51	13982-63-3	
Radium-228	EPA 904.0	**-0.0776 ± 0.427 (0.996) C:73% T:85%**	pCi/L	12/24/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	**0.131 ± 0.741 (1.60)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 375584 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 1822131 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0509 ± 0.264 (0.548) C:NA T:87%	pCi/L	12/24/19 10:38	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

QC Batch: 375583 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

METHOD BLANK: 1822130 Matrix: Water
Associated Lab Samples: 60323115001, 60323115002, 60323115003, 60323115004, 60323115005, 60323115006, 60323115007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	1.02 ± 0.431 (0.700) C:76% T:88%	pCi/L	12/24/19 11:53	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

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 adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

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

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 (%)

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

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
J	Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MH	Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323115001	**MW-8**	EPA 200.7	627957	EPA 200.7	628042
60323115002	**MW-3**	EPA 200.7	627957	EPA 200.7	628042
60323115003	**MW-4**	EPA 200.7	627957	EPA 200.7	628042
60323115004	**MW-5**	EPA 200.7	627957	EPA 200.7	628042
60323115005	**MW-6**	EPA 200.7	627957	EPA 200.7	628042
60323115006	**MW-7**	EPA 200.7	627957	EPA 200.7	628042
60323115007	**BA POND**	EPA 200.7	627957	EPA 200.7	628042
60323115001	**MW-8**	EPA 3010	628424	EPA 6010	628479
60323115002	**MW-3**	EPA 3010	628424	EPA 6010	628479
60323115003	**MW-4**	EPA 3010	628424	EPA 6010	628479
60323115004	**MW-5**	EPA 3010	628424	EPA 6010	628479
60323115005	**MW-6**	EPA 3010	628424	EPA 6010	628479
60323115006	**MW-7**	EPA 3010	628424	EPA 6010	628479
60323115007	**BA POND**	EPA 3010	628424	EPA 6010	628479
60323115001	**MW-8**	EPA 3010	626484	EPA 6020	626625
60323115002	**MW-3**	EPA 3010	626484	EPA 6020	626625
60323115003	**MW-4**	EPA 3010	626484	EPA 6020	626625
60323115004	**MW-5**	EPA 3010	626484	EPA 6020	626625
60323115005	**MW-6**	EPA 3010	626484	EPA 6020	626625
60323115006	**MW-7**	EPA 3010	626484	EPA 6020	626625
60323115007	**BA POND**	EPA 3010	626484	EPA 6020	626625
60323115001	**MW-8**	EPA 7470	626664	EPA 7470	626716
60323115002	**MW-3**	EPA 7470	626664	EPA 7470	626716
60323115003	**MW-4**	EPA 7470	626664	EPA 7470	626716
60323115004	**MW-5**	EPA 7470	626664	EPA 7470	626716
60323115005	**MW-6**	EPA 7470	626664	EPA 7470	626716
60323115006	**MW-7**	EPA 7470	626664	EPA 7470	626716
60323115007	**BA POND**	EPA 7470	626664	EPA 7470	626716
60323115001	**MW-8**	EPA 903.1	375584		
60323115002	**MW-3**	EPA 903.1	375584		
60323115003	**MW-4**	EPA 903.1	375584		
60323115004	**MW-5**	EPA 903.1	375584		
60323115005	**MW-6**	EPA 903.1	375584		
60323115006	**MW-7**	EPA 903.1	375584		
60323115007	**BA POND**	EPA 903.1	375584		
60323115001	**MW-8**	EPA 904.0	375583		
60323115002	**MW-3**	EPA 904.0	375583		
60323115003	**MW-4**	EPA 904.0	375583		
60323115004	**MW-5**	EPA 904.0	375583		
60323115005	**MW-6**	EPA 904.0	375583		
60323115006	**MW-7**	EPA 904.0	375583		
60323115007	**BA POND**	EPA 904.0	375583		
60323115001	**MW-8**	Total Radium Calculation	377163		
60323115002	**MW-3**	Total Radium Calculation	377163		
60323115003	**MW-4**	Total Radium Calculation	377163		
60323115004	**MW-5**	Total Radium Calculation	377163		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323115005	MW-6	Total Radium Calculation	377163		
60323115006	MW-7	Total Radium Calculation	377163		
60323115007	BA POND	Total Radium Calculation	377163		
60323115001	MW-8	9020B	1393394	EPA 9020	1393394
60323115002	MW-3	9020B	1393394	EPA 9020	1393394
60323115003	MW-4	9020B	1393394	EPA 9020	1393394
60323115004	MW-5	9020B	1393394	EPA 9020	1393394
60323115005	MW-6	9020B	1393394	EPA 9020	1393394
60323115006	MW-7	9020B	1393394	EPA 9020	1393394
60323115007	BA POND	9020B	1393394	EPA 9020	1393394
60323115001	MW-8	SM 2540C	626979		
60323115002	MW-3	SM 2540C	626979		
60323115003	MW-4	SM 2540C	626979		
60323115004	MW-5	SM 2540C	626979		
60323115005	MW-6	SM 2540C	626979		
60323115006	MW-7	SM 2540C	626979		
60323115007	BA POND	SM 2540C	627156		
60323115001	MW-8	SM 4500-H+B	627173		
60323115002	MW-3	SM 4500-H+B	627173		
60323115003	MW-4	SM 4500-H+B	628495		
60323115004	MW-5	SM 4500-H+B	628495		
60323115005	MW-6	SM 4500-H+B	628495		
60323115006	MW-7	SM 4500-H+B	628495		
60323115007	BA POND	SM 4500-H+B	628495		
60323115001	MW-8	Trivalent Chromium Calculation	628903		
60323115002	MW-3	Trivalent Chromium Calculation	628903		
60323115003	MW-4	Trivalent Chromium Calculation	628903		
60323115004	MW-5	Trivalent Chromium Calculation	628903		
60323115005	MW-6	Trivalent Chromium Calculation	628903		
60323115006	MW-7	Trivalent Chromium Calculation	628903		
60323115007	BA POND	Trivalent Chromium Calculation	628903		
60323115001	MW-8	EPA 300.0	628057		
60323115002	MW-3	EPA 300.0	628057		
60323115003	MW-4	EPA 300.0	628057		
60323115004	MW-5	EPA 300.0	628057		
60323115005	MW-6	EPA 300.0	628057		
60323115006	MW-7	EPA 300.0	628057		
60323115007	BA POND	EPA 300.0	628057		
60323115001	MW-8	EPA 410.4	626459	EPA 410.4	626956
60323115002	MW-3	EPA 410.4	626459	EPA 410.4	626956

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLOMBIA, MO
Pace Project No.: 60323115

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60323115003	**MW-4**	EPA 410.4	626459	EPA 410.4	626956
60323115004	**MW-5**	EPA 410.4	626459	EPA 410.4	626956
60323115005	**MW-6**	EPA 410.4	626459	EPA 410.4	626956
60323115006	**MW-7**	EPA 410.4	626459	EPA 410.4	626956
60323115007	**BA POND**	EPA 410.4	626459	EPA 410.4	626956
60323115001	**MW-8**	SM 5310C	627540		
60323115002	**MW-3**	SM 5310C	627540		
60323115003	**MW-4**	SM 5310C	627540		
60323115004	**MW-5**	SM 5310C	627540		
60323115005	**MW-6**	SM 5310C	627540		
60323115006	**MW-7**	SM 5310C	627540		
60323115007	**BA POND**	SM 5310C	627540		
60323115001	**MW-8**	EPA 7196	626267		
60323115002	**MW-3**	EPA 7196	626267		
60323115003	**MW-4**	EPA 7196	626267		
60323115004	**MW-5**	EPA 7196	626267		
60323115005	**MW-6**	EPA 7196	626267		
60323115006	**MW-7**	EPA 7196	626267		
60323115007	**BA POND**	EPA 7196	626267		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60323115

60323115

Client Name: Burns & McDonnell

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☑ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☐ No ☑ Seals intact: Yes ☐ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☑ ZPlC

Thermometer Used: T298 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): As-read 4.7, 4.1 **Corr. Factor** +0.0 **Corrected** 4.7, 4.1, 14.0

Date and initials of person examining contents: VB 12/5/19

Temperature should be above freezing to 6°C 14.0

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	Cr+6
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jeffrey Shopper Date: _____

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	BURNS & MCDONNELL	Report To:	Brian Weis	Attention:	
Address:	Burns & McDonnell	Copy To:	Chris Hoglund	Company Name:	
	Kansas City, MO 64114			Address:	
Email:	bweis@burnsmcd.com	Purchase Order #:	128635	Pace Quote:	
Phone:	816-333-9400 Fax	Project Name:	More's Lake Columbia, MO	Pace Project Manager:	jeff.shopper@pacelabs.com
Requested Due Date:		Project #:	93647	Pace Profile #:	10268, 2

Regulatory Agency	State / Location
	MO

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	300.0 SO4,Cl,F	TOC	COD	TDS by 2540C	6010 Metals** Thallium by 6020	Mercury	Hardness	Hexavalent Chromium**SHORT HOLD	Trivalent Chromium Calc	TOX	Radium 226/228 (include combined)	pH	Residual Chlorine (Y/N)	60323115 **Al,Sb,As,Ba,Be,B,Cd,Ca,Cr,Co,Cu,Fe,Pb,Li,Mg,Mn,Mo,Ni,Se,Ag,Na,Zn
1	MW-8	WT	G	12-4-19	0820			15.1	9	X	X	X							X	X	X	X	X	X	X	X	X	X		001
2	MW-3	WT	G	12-4-19	0930			13.4	9	X	X	X							X	X	X	X	X	X	X	X	X	X		002
3	MW-4	WT	G	12-4-19	1050			15.2	9	X	X	X							X	X	X	X	X	X	X	X	X	X		003
4	MW-5	WT	G	12-4-19	1215			15.9	9	X	X	X							X	X	X	X	X	X	X	X	C	X	X		004
5	MW-6	WT	G	12-4-19	1340			16.2	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X		005
6	MW-7	WT	G	12-4-19	1500			16.4	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X		006
7	BAPOND	WT	G	12-4-19	1600			X	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X		007
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
TOX EDD needed	[signature] / BMcD	12-4-19	1852	[signature] PACE	12/4/19	1852				
J-flags on - include MDLs on report.							14.0	Y	N	Y
							4.7°C	Y	N	Y
							4.1°C	Y	N	Y

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:			
SIGNATURE of SAMPLER:	DATE Signed:		

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 02, 2020

Brian Weis
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114

RE: Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Dear Brian Weis:
Enclosed are the analytical results for sample(s) received by the laboratory on December 04, 2019. 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.

Revised report_rev1

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

Sincerely,

Jeffrey Shopper
jeff.shopper@pacelabs.com
1(913)563-1408
Project Manager

Enclosures

cc: CHRIS HOGLUND, BURNS & MCDONNELL

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services Kansas
9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Inorganic Drinking Water Certification #: 10090
Arkansas Drinking Water
Arkansas Certification #: 19-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212020-2
Oklahoma Certification #: 9205/9935
Florida: Cert E871149 SEKS WET
Texas Certification #: T104704407-19-12
Utah Certification #: KS000212018-8
Illinois Certification #: 004592
Kansas Field Laboratory Accreditation: # E-92587
Missouri SEKS Micro Certification: 10070

Pace Analytical Services National
12065 Lebanon Road, Mt. Juliet, TN 37122
Alabama Certification #: 40660
Alaska Certification 17-026
Arizona Certification #: AZ0612
Arkansas Certification #: 88-0469
California Certification #: 2932
Canada Certification #: 1461.01
Colorado Certification #: TN00003
Connecticut Certification #: PH-0197
DOD Certification: #1461.01
EPA# TN00003
Florida Certification #: E87487
Georgia DW Certification #: 923
Georgia Certification: NELAP
Idaho Certification #: TN00003
Illinois Certification #: 200008
Indiana Certification #: C-TN-01
Iowa Certification #: 364

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Pace Analytical Services National

Kansas Certification #: E-10277
Kentucky UST Certification #: 16
Kentucky Certification #: 90010
Louisiana Certification #: AI30792
Louisiana DW Certification #: LA180010
Maine Certification #: TN0002
Maryland Certification #: 324
Massachusetts Certification #: M-TN003
Michigan Certification #: 9958
Minnesota Certification #: 047-999-395
Mississippi Certification #: TN00003
Missouri Certification #: 340
Montana Certification #: CERT0086
Nebraska Certification #: NE-OS-15-05
Nevada Certification #: TN-03-2002-34
New Hampshire Certification #: 2975
New Jersey Certification #: TN002
New Mexico DW Certification
New York Certification #: 11742
North Carolina Aquatic Toxicity Certification #: 41
North Carolina Drinking Water Certification #: 21704
North Carolina Environmental Certificate #: 375
North Dakota Certification #: R-140
Ohio VAP Certification #: CL0069
Oklahoma Certification #: 9915
Oregon Certification #: TN200002
Pennsylvania Certification #: 68-02979
Rhode Island Certification #: LAO00356
South Carolina Certification #: 84004
South Dakota Certification
Tennessee DW/Chem/Micro Certification #: 2006
Texas Certification #: T 104704245-17-14
Texas Mold Certification #: LAB0152
USDA Soil Permit #: P330-15-00234
Utah Certification #: TN00003
Virginia Certification #: VT2006
Vermont Dept. of Health: ID# VT-2006
Virginia Certification #: 460132
Washington Certification #: C847
West Virginia Certification #: 233
Wisconsin Certification #: 9980939910
Wyoming UST Certification #: via A2LA 2926.01
A2LA-ISO 17025 Certification #: 1461.01
A2LA-ISO 17025 Certification #: 1461.02
AIHA-LAP/LLC EMLAP Certification #:100789

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60322982001	**PZ-2**	Water	12/03/19 12:40	12/04/19 06:25
60322982002	**MW-1**	Water	12/03/19 14:00	12/04/19 06:25
60322982003	**MW-2**	Water	12/03/19 16:00	12/04/19 06:25
60322982004	**DUP-1**	Water	12/03/19 12:40	12/04/19 06:25

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60322982001	**PZ-2**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	EEM	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60322982002	**MW-1**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	EEM	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60322982003	**MW-2**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9020	EEM	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K
60322982004	**DUP-1**	EPA 200.7	HKC	2	PASI-K
		EPA 6010	HKC	18	PASI-K
		EPA 6020	LRS	4	PASI-K
		EPA 7470	JLH	1	PASI-K
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9020	EEM	1	PAN
		SM 2540C	BLA	1	PASI-K
		SM 4500-H+B	AJS2	1	PASI-K
		Trivalent Chromium Calculation	LDB	1	PASI-K
		EPA 300.0	MGS	3	PASI-K
		EPA 410.4	BLA	1	PASI-K
		SM 5310C	LDB	1	PASI-K
		EPA 7196	BLA	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 200.7**
Description: 200.7 Metals, Total
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 627957

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60322982002,60323115006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2559537)
  - Calcium
- MSD (Lab ID: 2559538)
  - Calcium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 6010**
Description: 6010 MET ICP
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 7470**
Description: 7470 Mercury
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 9020**
Description: Wet Chemistry 9020B
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 9020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 1392586

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: R3480132-10)
  - Total Organic Halides
- DUP (Lab ID: R3480132-9)
  - Total Organic Halides

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **SM 2540C**
Description: 2540C Total Dissolved Solids
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **SM 4500-H+B**
Description: 4500H+ pH, Electrometric
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for SM 4500-H+B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA required holding time.
- DUP-1 (Lab ID: 60322982004)
- MW-1 (Lab ID: 60322982002)
- MW-2 (Lab ID: 60322982003)
- PZ-2 (Lab ID: 60322982001)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **Trivalent Chromium Calculation**
Description: Trivalent Chromium Calculation
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 627710

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60322982002,60323300004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2558474)
  - Chloride

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 410.4**
Description: 410.4 COD
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 410.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 410.4 with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **SM 5310C**
Description: 5310C TOC
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Method: **EPA 7196**
Description: 7196 Chromium, Hexavalent
Client: BURNS & MCDONNELL
Date: January 02, 2020

General Information:
4 samples were analyzed for EPA 7196. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: PZ-2 **Lab ID: 60322982001** Collected: 12/03/19 12:40 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**430**	ug/L	100	11.7	1	12/12/19 14:41	12/13/19 14:33	7440-42-8	
Calcium	**163000**	ug/L	200	32.4	1	12/12/19 14:41	12/13/19 14:33	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.6	1	12/16/19 09:15	12/16/19 16:30	7440-38-2	
Beryllium	ND	ug/L	1.0		1	12/16/19 09:15	12/16/19 16:30	7440-41-7	
Cadmium	ND	ug/L	5.0	0.89	1	12/16/19 09:15	12/16/19 16:30	7440-43-9	
Chromium	ND	ug/L	5.0	1.5	1	12/16/19 09:15	12/16/19 16:30	7440-47-3	
Cobalt	ND	ug/L	5.0	1.5	1	12/16/19 09:15	12/16/19 16:30	7440-48-4	
Copper	**4.2J**	ug/L	10.0	4.2	1	12/16/19 09:15	12/16/19 16:30	7440-50-8	
Iron	**337**	ug/L	50.0	26.8	1	12/16/19 09:15	12/16/19 16:30	7439-89-6	
Lead	ND	ug/L	10.0	4.6	1	12/16/19 09:15	12/16/19 16:30	7439-92-1	
Lithium	**8.6J**	ug/L	10.0	4.6	1	12/16/19 09:15	12/16/19 16:30	7439-93-2	
Magnesium	**34600**	ug/L	50.0	19.7	1	12/16/19 09:15	12/16/19 16:30	7439-95-4	
Manganese	**435**	ug/L	5.0	0.97	1	12/16/19 09:15	12/16/19 16:30	7439-96-5	
Molybdenum	**3.3J**	ug/L	20.0	1.7	1	12/16/19 09:15	12/16/19 16:30	7439-98-7	
Nickel	**4.1J**	ug/L	5.0	1.7	1	12/16/19 09:15	12/16/19 16:30	7440-02-0	
Selenium	ND	ug/L	15.0	6.7	1	12/16/19 09:15	12/16/19 16:30	7782-49-2	
Silver	ND	ug/L	7.0	2.5	1	12/16/19 09:15	12/16/19 16:30	7440-22-4	
Sodium	**130000**	ug/L	500	107	1	12/16/19 09:15	12/16/19 16:30	7440-23-5	
Hardness, Total(SM 2340B)	**581000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:30		
Zinc	ND	ug/L	50.0	6.6	1	12/16/19 09:15	12/16/19 16:30	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**11.9J**	ug/L	50.0	8.2	1	12/06/19 11:04	12/09/19 14:32	7429-90-5	
Antimony	**0.21J**	ug/L	1.0	0.097	1	12/06/19 11:04	12/09/19 14:32	7440-36-0	
Barium	**70.0**	ug/L	1.0	0.32	1	12/06/19 11:04	12/09/19 14:32	7440-39-3	
Thallium	ND	ug/L	1.0	0.093	1	12/06/19 11:04	12/09/19 14:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 11:47	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	**75.2J**	ug/L	100	27.7	1	12/09/19 14:23	12/09/19 14:23		J
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1100**	mg/L	13.3	13.3	1		12/09/19 07:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.0**	Std. Units	0.10	0.10	1		12/10/19 08:51		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: PZ-2 **Lab ID: 60322982001** Collected: 12/03/19 12:40 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**197**	mg/L	10.0	2.2	10		12/12/19 15:41	16887-00-6	
Fluoride	**0.55**	mg/L	0.20	0.085	1		12/12/19 15:26	16984-48-8	
Sulfate	**243**	mg/L	50.0	11.5	50		12/12/19 15:57	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	**28.6**	mg/L	10.0	3.7	1	12/05/19 07:29	12/05/19 11:32		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**6.0**	mg/L	2.0	0.72	2		12/11/19 11:34	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/04/19 11:15	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: MW-1 **Lab ID: 60322982002** Collected: 12/03/19 14:00 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**2520**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:36	7440-42-8	
Calcium	**159000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:36	7440-70-2	M1
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**6.3J**	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:32	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:32	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:32	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:32	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:32	7440-48-4	
Copper	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:32	7440-50-8	
Iron	**38.9J**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:32	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:32	7439-92-1	
Lithium	**41.6**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:32	7439-93-2	
Magnesium	**43600**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:32	7439-95-4	
Manganese	**183**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:32	7439-96-5	
Molybdenum	**3.5J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:32	7439-98-7	
Nickel	**6.4**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:32	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:32	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:32	7440-22-4	
Sodium	**72100**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:32	7440-23-5	
Hardness, Total(SM 2340B)	**595000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:32		
Zinc	ND	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:32	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	50.0	9.5	1	12/18/19 16:28	12/19/19 12:36	7429-90-5	
Antimony	**0.085J**	ug/L	1.0	0.078	1	12/18/19 16:28	12/19/19 12:36	7440-36-0	
Barium	**49.7**	ug/L	1.0	0.28	1	12/18/19 16:28	12/19/19 12:36	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/18/19 16:28	12/19/19 12:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 11:50	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/09/19 15:06	12/09/19 15:06		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**910**	mg/L	10.0	10.0	1		12/09/19 07:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.10	1		12/04/19 13:19		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: MW-1 **Lab ID: 60322982002** Collected: 12/03/19 14:00 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**79.0**	mg/L	10.0	2.2	10		12/12/19 17:01	16887-00-6	
Fluoride	**0.12J**	mg/L	0.20	0.085	1		12/12/19 16:13	16984-48-8	
Sulfate	**272**	mg/L	50.0	11.5	50		12/12/19 17:48	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	12/05/19 07:29	12/05/19 11:33		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.60J**	mg/L	1.0	0.29	1		12/11/19 11:47	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/04/19 11:15	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: MW-2 **Lab ID: 60322982003** Collected: 12/03/19 16:00 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**93.0J**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:47	7440-42-8	
Calcium	**107000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:47	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:43	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:43	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:43	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:43	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:43	7440-48-4	
Copper	**3.9J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:43	7440-50-8	
Iron	**478**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:43	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:43	7439-92-1	
Lithium	**35.4**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:43	7439-93-2	
Magnesium	**41800**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:43	7439-95-4	
Manganese	**326**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:43	7439-96-5	
Molybdenum	**7.4J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:43	7439-98-7	
Nickel	**2.5J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:43	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:43	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:43	7440-22-4	
Sodium	**34900**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:43	7440-23-5	
Hardness, Total(SM 2340B)	**462000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:43		
Zinc	**29.0J**	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:43	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**99.1**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:37	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:37	7440-36-0	
Barium	**135**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:37	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:37	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 11:56	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/09/19 15:48	12/09/19 15:48		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**553**	mg/L	10.0	10.0	1		12/09/19 07:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		12/04/19 13:22		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: MW-2 **Lab ID: 60322982003** Collected: 12/03/19 16:00 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.8**	mg/L	1.0	0.22	1		12/12/19 19:07	16887-00-6	
Fluoride	**0.55**	mg/L	0.20	0.085	1		12/12/19 19:07	16984-48-8	
Sulfate	**58.3**	mg/L	5.0	1.2	5		12/12/19 19:23	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	12/05/19 07:29	12/05/19 11:34		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.78J**	mg/L	1.0	0.29	1		12/11/19 12:27	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/04/19 11:16	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: DUP-1 **Lab ID: 60322982004** Collected: 12/03/19 12:40 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Boron	**85.7J**	ug/L	100	10.7	1	12/12/19 14:41	12/13/19 14:49	7440-42-8	
Calcium	**108000**	ug/L	200	50.0	1	12/12/19 14:41	12/13/19 14:49	7440-70-2	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	ND	ug/L	10.0	4.1	1	12/16/19 09:15	12/16/19 16:45	7440-38-2	
Beryllium	ND	ug/L	1.0	0.25	1	12/16/19 09:15	12/16/19 16:45	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	12/16/19 09:15	12/16/19 16:45	7440-43-9	
Chromium	ND	ug/L	5.0	1.0	1	12/16/19 09:15	12/16/19 16:45	7440-47-3	
Cobalt	ND	ug/L	5.0	0.84	1	12/16/19 09:15	12/16/19 16:45	7440-48-4	
Copper	**3.7J**	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:45	7440-50-8	
Iron	**321**	ug/L	50.0	14.0	1	12/16/19 09:15	12/16/19 16:45	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	12/16/19 09:15	12/16/19 16:45	7439-92-1	
Lithium	**35.1**	ug/L	10.0	5.9	1	12/16/19 09:15	12/16/19 16:45	7439-93-2	
Magnesium	**41100**	ug/L	50.0	13.0	1	12/16/19 09:15	12/16/19 16:45	7439-95-4	
Manganese	**316**	ug/L	5.0	2.1	1	12/16/19 09:15	12/16/19 16:45	7439-96-5	
Molybdenum	**5.7J**	ug/L	20.0	2.6	1	12/16/19 09:15	12/16/19 16:45	7439-98-7	
Nickel	**2.5J**	ug/L	5.0	1.2	1	12/16/19 09:15	12/16/19 16:45	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	12/16/19 09:15	12/16/19 16:45	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	12/16/19 09:15	12/16/19 16:45	7440-22-4	
Sodium	**28600**	ug/L	500	144	1	12/16/19 09:15	12/16/19 16:45	7440-23-5	
Hardness, Total(SM 2340B)	**450000**	ug/L	705	197	1	12/16/19 09:15	12/16/19 16:45		
Zinc	**26.9J**	ug/L	50.0	6.1	1	12/16/19 09:15	12/16/19 16:45	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Aluminum	**14.3J**	ug/L	50.0	9.5	1	12/06/19 11:04	12/09/19 14:39	7429-90-5	
Antimony	ND	ug/L	1.0	0.078	1	12/06/19 11:04	12/09/19 14:39	7440-36-0	
Barium	**134**	ug/L	1.0	0.28	1	12/06/19 11:04	12/09/19 14:39	7440-39-3	
Thallium	ND	ug/L	1.0	0.099	1	12/06/19 11:04	12/09/19 14:39	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	0.058	1	12/06/19 14:40	12/09/19 11:59	7439-97-6	
Wet Chemistry 9020B	Analytical Method: EPA 9020 Preparation Method: 9020B								
Total Organic Halides	ND	ug/L	100	27.7	1	12/09/19 16:08	12/09/19 16:08		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**546**	mg/L	10.0	10.0	1		12/09/19 07:57		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.10	1		12/04/19 13:23		H6
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	ND	mg/L	0.010	0.010	1		12/17/19 16:31	16065-83-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: DUP-1 **Lab ID: 60322982004** Collected: 12/03/19 12:40 Received: 12/04/19 06:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.8**	mg/L	1.0	0.22	1		12/12/19 19:39	16887-00-6	
Fluoride	**0.57**	mg/L	0.20	0.085	1		12/12/19 19:39	16984-48-8	
Sulfate	**58.5**	mg/L	5.0	1.2	5		12/12/19 19:55	14808-79-8	
410.4 COD	Analytical Method: EPA 410.4 Preparation Method: EPA 410.4								
Chemical Oxygen Demand	ND	mg/L	10.0	3.7	1	12/05/19 07:29	12/05/19 11:35		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.89J**	mg/L	1.0	0.29	1		12/11/19 12:41	7440-44-0	
7196 Chromium, Hexavalent	Analytical Method: EPA 7196								
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1		12/04/19 11:15	18540-29-9	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 626664 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2554299 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	0.058	12/09/19 11:29	

LABORATORY CONTROL SAMPLE: 2554300

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2554301 2554302

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	4.8	4.9	96	98	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 627957 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2559535 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND	100	11.7	12/13/19 14:31	
Calcium	ug/L	ND	200	32.4	12/13/19 14:31	

LABORATORY CONTROL SAMPLE: 2559536

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	959	96	85-115	
Calcium	ug/L	10000	9230	92	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2559537 2559538

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	2520	1000	1000	3410	3430	89	91	70-130	0	20	
Calcium	ug/L	159000	10000	10000	163000	163000	45	43	70-130	0	20	M1

MATRIX SPIKE SAMPLE: 2559539

Parameter	Units	60323115006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	176	1000	1180	100	70-130	
Calcium	ug/L	83000	10000	94800	118	70-130	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 628424 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2561685 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	4.6	12/16/19 16:23	
Beryllium	ug/L	ND	1.0		12/16/19 16:23	
Cadmium	ug/L	ND	5.0	0.89	12/16/19 16:23	
Chromium	ug/L	ND	5.0	1.5	12/16/19 16:23	
Cobalt	ug/L	ND	5.0	1.5	12/16/19 16:23	
Copper	ug/L	ND	10.0	4.2	12/16/19 16:23	
Hardness, Total(SM 2340B)	ug/L	ND	705	197	12/16/19 16:23	
Iron	ug/L	ND	50.0	26.8	12/16/19 16:23	
Lead	ug/L	ND	10.0	4.6	12/16/19 16:23	
Lithium	ug/L	ND	10.0	4.6	12/16/19 16:23	
Magnesium	ug/L	ND	50.0	19.7	12/16/19 16:23	
Manganese	ug/L	ND	5.0	0.97	12/16/19 16:23	
Molybdenum	ug/L	ND	20.0	1.7	12/16/19 16:23	
Nickel	ug/L	ND	5.0	1.7	12/16/19 16:23	
Selenium	ug/L	ND	15.0	6.7	12/16/19 16:23	
Silver	ug/L	ND	7.0	2.5	12/16/19 16:23	
Sodium	ug/L	ND	500	107	12/16/19 16:23	
Zinc	ug/L	ND	50.0	6.6	12/16/19 16:23	

LABORATORY CONTROL SAMPLE: 2561686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	969	97	80-120	
Beryllium	ug/L	1000	959	96	80-120	
Cadmium	ug/L	1000	984	98	80-120	
Chromium	ug/L	1000	977	98	80-120	
Cobalt	ug/L	1000	1000	100	80-120	
Copper	ug/L	1000	976	98	80-120	
Hardness, Total(SM 2340B)	ug/L	66200	65100	98	80-120	
Iron	ug/L	10000	9780	98	80-120	
Lead	ug/L	1000	1010	101	80-120	
Lithium	ug/L	1000	945	95	80-120	
Magnesium	ug/L	10000	9880	99	80-120	
Manganese	ug/L	1000	968	97	80-120	
Molybdenum	ug/L	1000	996	100	80-120	
Nickel	ug/L	1000	1000	100	80-120	
Selenium	ug/L	1000	981	98	80-120	
Silver	ug/L	500	488	98	80-120	
Sodium	ug/L	10000	9750	98	80-120	
Zinc	ug/L	1000	968	97	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2561687 2561688

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	6.3J	1000	1000	987	1010	98	100	75-125	2	20	
Beryllium	ug/L	ND	1000	1000	966	969	97	97	75-125	0	20	
Cadmium	ug/L	ND	1000	1000	978	982	98	98	75-125	0	20	
Chromium	ug/L	ND	1000	1000	978	980	98	98	75-125	0	20	
Cobalt	ug/L	ND	1000	1000	968	974	97	97	75-125	1	20	
Copper	ug/L	ND	1000	1000	962	959	96	96	75-125	0	20	
Hardness, Total(SM 2340B)	ug/L	595000	66200	66200	656000	674000	91	119	75-125	3	20	
Iron	ug/L	38.9J	10000	10000	9760	9840	97	98	75-125	1	20	
Lead	ug/L	ND	1000	1000	968	976	97	98	75-125	1	20	
Lithium	ug/L	41.6	1000	1000	1000	1010	96	97	75-125	1	20	
Magnesium	ug/L	43600	10000	10000	52600	53900	90	103	75-125	2	20	
Manganese	ug/L	183	1000	1000	1130	1140	95	96	75-125	1	20	
Molybdenum	ug/L	3.5J	1000	1000	1010	1020	101	101	75-125	1	20	
Nickel	ug/L	6.4	1000	1000	969	973	96	97	75-125	0	20	
Selenium	ug/L	ND	1000	1000	980	978	98	98	75-125	0	20	
Silver	ug/L	ND	500	500	484	486	97	97	75-125	0	20	
Sodium	ug/L	72100	10000	10000	81700	84000	96	118	75-125	3	20	
Zinc	ug/L	ND	1000	1000	955	963	95	96	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 626484 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60322982001, 60322982003, 60322982004

METHOD BLANK: 2553613 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	8.2	12/09/19 14:29	
Antimony	ug/L	ND	1.0	0.097	12/09/19 14:29	
Barium	ug/L	ND	1.0	0.32	12/09/19 14:29	
Thallium	ug/L	ND	1.0	0.093	12/09/19 14:29	

LABORATORY CONTROL SAMPLE: 2553614

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1000	965	96	80-120	
Antimony	ug/L	40	38.5	96	80-120	
Barium	ug/L	40	38.3	96	80-120	
Thallium	ug/L	40	37.5	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2553615 2553616

Parameter	Units	60322982001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	11.9J	1000	1000	1010	993	100	98	75-125	2	20	
Antimony	ug/L	0.21J	40	40	38.8	38.3	96	95	75-125	1	20	
Barium	ug/L	70.0	40	40	110	108	100	96	75-125	2	20	
Thallium	ug/L	ND	40	40	39.8	39.3	99	98	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 629209
QC Batch Method: EPA 3010
Analysis Method: EPA 6020
Analysis Description: 6020 MET
Associated Lab Samples: 60322982002

METHOD BLANK: 2564096 Matrix: Water
Associated Lab Samples: 60322982002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	8.2	12/19/19 12:32	
Antimony	ug/L	ND	1.0	0.097	12/19/19 12:32	
Barium	ug/L	ND	1.0	0.32	12/19/19 12:32	
Thallium	ug/L	ND	1.0	0.093	12/19/19 12:32	

LABORATORY CONTROL SAMPLE: 2564097

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	1000	970	97	80-120	
Antimony	ug/L	40	39.3	98	80-120	
Barium	ug/L	40	39.5	99	80-120	
Thallium	ug/L	40	38.2	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2564099 2564100

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	1000	1000	955	977	95	97	75-125	2	20	
Antimony	ug/L	0.085J	40	40	38.4	38.9	96	97	75-125	1	20	
Barium	ug/L	49.7	40	40	87.4	88.5	94	97	75-125	1	20	
Thallium	ug/L	ND	40	40	39.4	40.1	98	100	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 1392586 Analysis Method: EPA 9020
QC Batch Method: 9020B Analysis Description: Wet Chemistry 9020B
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: R3480132-2 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Halides	ug/L	ND	100	27.7	12/07/19 11:33	

LABORATORY CONTROL SAMPLE: R3480132-1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Halides	ug/L	200	214	107	85.0-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: R3480600-9 R3480600-10

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Halides	ug/L	ND	200	200	203	192	102	96.0	80.0-120	5.73	20	

SAMPLE DUPLICATE: R3480132-3

Parameter	Units	L1167286-01 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-4

Parameter	Units	L1167286-02 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-5

Parameter	Units	L1167286-03 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-6

Parameter	Units	L1167286-04 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	34.1	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

SAMPLE DUPLICATE: R3480132-7

Parameter	Units	L1167286-05 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-8

Parameter	Units	L1167286-06 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-9

Parameter	Units	L1167344-08 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	31.0J	200	20	D8,J

SAMPLE DUPLICATE: R3480600-3

Parameter	Units	L1167344-14 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480600-7

Parameter	Units	60322982001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	75.2	90.5J	18.5	20	J

SAMPLE DUPLICATE: R3480600-8

Parameter	Units	60322982002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-10

Parameter	Units	L1167344-09 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	43.6	33.6J	25.9	20	D8,J

SAMPLE DUPLICATE: R3480132-11

Parameter	Units	L1167344-10 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

SAMPLE DUPLICATE: R3480132-12

Parameter	Units	L1167344-11 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-13

Parameter	Units	L1167344-12 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480132-14

Parameter	Units	L1167344-13 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480600-11

Parameter	Units	60322982003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

SAMPLE DUPLICATE: R3480600-12

Parameter	Units	60322982004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Halides	ug/L	ND	ND	0.00	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 626840 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2555253 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	5.0	12/09/19 07:55	

LABORATORY CONTROL SAMPLE: 2555254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1010	101	80-120	

SAMPLE DUPLICATE: 2555255

Parameter	Units	60322899001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	7540	8130	7	10	

SAMPLE DUPLICATE: 2555256

Parameter	Units	60322982002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	910	943	4	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 626066 Analysis Method: SM 4500-H+B
QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH
Associated Lab Samples: 60322982002, 60322982003, 60322982004

SAMPLE DUPLICATE: 2551964

Parameter	Units	60322982002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.1	1	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 627173
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60322982001

SAMPLE DUPLICATE: 2556513

Parameter	Units	60322862003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	0	5	H6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 627710 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2558470 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	12/12/19 09:10	
Fluoride	mg/L	ND	0.20	0.085	12/12/19 09:10	
Sulfate	mg/L	ND	1.0	0.23	12/12/19 09:10	

METHOD BLANK: 2560491 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	12/13/19 21:33	
Fluoride	mg/L	ND	0.20	0.085	12/13/19 21:33	
Sulfate	mg/L	ND	1.0	0.23	12/13/19 21:33	

LABORATORY CONTROL SAMPLE: 2558471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	2.5	2.3	92	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

LABORATORY CONTROL SAMPLE: 2560492

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.0	100	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2558472 2558473

Parameter	Units	60322982002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	79.0	50	50	133	136	109	115	80-120	2	15	
Fluoride	mg/L	0.12J	2.5	2.5	2.3	2.2	86	81	80-120	6	15	
Sulfate	mg/L	272	250	250	532	532	104	104	80-120	0	15	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

MATRIX SPIKE SAMPLE: 2558474

Parameter	Units	60323300004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	114	50	176	124	80-120	M1
Fluoride	mg/L	ND	25	24.9	100	80-120	
Sulfate	mg/L	105	50	164	119	80-120	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 626256 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 Water Analysis
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2552596 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	10.0	3.7	12/05/19 11:25	

LABORATORY CONTROL SAMPLE: 2552597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	50	46.8	94	90-110	

MATRIX SPIKE SAMPLE: 2552599

Parameter	Units	60322982002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	ND	50	49.8	98	90-110	

SAMPLE DUPLICATE: 2552598

Parameter	Units	60323107001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chemical Oxygen Demand	mg/L	241	240	0	25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 627540 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2557804 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.36	12/11/19 09:07	

LABORATORY CONTROL SAMPLE: 2557805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	102	80-120	

MATRIX SPIKE SAMPLE: 2557806

Parameter	Units	60322982002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	0.60J	5	5.2	92	80-120	

SAMPLE DUPLICATE: 2557807

Parameter	Units	60322982002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	0.60J	0.50J		25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 626074 Analysis Method: EPA 7196
QC Batch Method: EPA 7196 Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 2551981 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	0.0031	12/04/19 11:14	

LABORATORY CONTROL SAMPLE: 2551982

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	0.1	0.098	98	90-110	

MATRIX SPIKE SAMPLE: 2551984

Parameter	Units	60322982002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.1	0.099	99	85-115	

SAMPLE DUPLICATE: 2551983

Parameter	Units	60322982004 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/L	ND	ND		20	H1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: PZ-2 **Lab ID: 60322982001** Collected: 12/03/19 12:40 Received: 12/04/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.118 ± 0.327 (0.635) C:NA T:85%**	pCi/L	12/26/19 10:40	13982-63-3	
Radium-228	EPA 904.0	**2.68 ± 0.752 (0.902) C:69% T:88%**	pCi/L	12/24/19 14:30	15262-20-1	
Total Radium	Total Radium Calculation	**2.80 ± 1.08 (1.54)**	pCi/L	12/26/19 13:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: MW-1 **Lab ID: 60322982002** Collected: 12/03/19 14:00 Received: 12/04/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.441 ± 0.304 (0.324) C:NA T:92%**	pCi/L	12/26/19 10:40	13982-63-3	
Radium-228	EPA 904.0	**0.508 ± 0.442 (0.899) C:73% T:82%**	pCi/L	12/24/19 14:30	15262-20-1	
Total Radium	Total Radium Calculation	**0.949 ± 0.746 (1.22)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: MW-2 **Lab ID: 60322982003** Collected: 12/03/19 16:00 Received: 12/04/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.611 ± 0.540 (0.801) C:NA T:77%**	pCi/L	12/26/19 10:40	13982-63-3	
Radium-228	EPA 904.0	**0.624 ± 0.423 (0.818) C:75% T:86%**	pCi/L	12/24/19 14:31	15262-20-1	
Total Radium	Total Radium Calculation	**1.24 ± 0.963 (1.62)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Sample: DUP-1 **Lab ID: 60322982004** Collected: 12/03/19 12:40 Received: 12/04/19 06:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.741 ± 0.472 (0.593) C:NA T:98%**	pCi/L	12/26/19 10:53	13982-63-3	
Radium-228	EPA 904.0	**0.546 ± 0.434 (0.865) C:68% T:88%**	pCi/L	12/24/19 14:31	15262-20-1	
Total Radium	Total Radium Calculation	**1.29 ± 0.906 (1.46)**	pCi/L	12/26/19 13:00	7440-14-4	

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 375587 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 1822133 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.328 ± 0.343 (0.537) C:NA T:96%	pCi/L	12/26/19 10:40	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

QC Batch: 375585 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

METHOD BLANK: 1822132 Matrix: Water
Associated Lab Samples: 60322982001, 60322982002, 60322982003, 60322982004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.527 ± 0.347 (0.650) C:73% T:88%	pCi/L	12/24/19 15:08	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

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 adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

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

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 (%)

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

TNI - The NELAC Institute.

LABORATORIES

PAN	Pace Analytical National
PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H1	Analysis conducted outside the EPA method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
J	Analyte detected below the reporting limit, therefore result is an estimate. This qualifier is also used for all TICs.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60322982001	**PZ-2**	EPA 200.7	627957	EPA 200.7	628042
60322982002	**MW-1**	EPA 200.7	627957	EPA 200.7	628042
60322982003	**MW-2**	EPA 200.7	627957	EPA 200.7	628042
60322982004	**DUP-1**	EPA 200.7	627957	EPA 200.7	628042
60322982001	**PZ-2**	EPA 3010	628424	EPA 6010	628479
60322982002	**MW-1**	EPA 3010	628424	EPA 6010	628479
60322982003	**MW-2**	EPA 3010	628424	EPA 6010	628479
60322982004	**DUP-1**	EPA 3010	628424	EPA 6010	628479
60322982001	**PZ-2**	EPA 3010	626484	EPA 6020	626625
60322982002	**MW-1**	EPA 3010	629209	EPA 6020	629248
60322982003	**MW-2**	EPA 3010	626484	EPA 6020	626625
60322982004	**DUP-1**	EPA 3010	626484	EPA 6020	626625
60322982001	**PZ-2**	EPA 7470	626664	EPA 7470	626716
60322982002	**MW-1**	EPA 7470	626664	EPA 7470	626716
60322982003	**MW-2**	EPA 7470	626664	EPA 7470	626716
60322982004	**DUP-1**	EPA 7470	626664	EPA 7470	626716
60322982001	**PZ-2**	EPA 903.1	375587		
60322982002	**MW-1**	EPA 903.1	375587		
60322982003	**MW-2**	EPA 903.1	375587		
60322982004	**DUP-1**	EPA 903.1	375587		
60322982001	**PZ-2**	EPA 904.0	375585		
60322982002	**MW-1**	EPA 904.0	375585		
60322982003	**MW-2**	EPA 904.0	375585		
60322982004	**DUP-1**	EPA 904.0	375585		
60322982001	**PZ-2**	Total Radium Calculation	377163		
60322982002	**MW-1**	Total Radium Calculation	377163		
60322982003	**MW-2**	Total Radium Calculation	377163		
60322982004	**DUP-1**	Total Radium Calculation	377163		
60322982001	**PZ-2**	9020B	1392586	EPA 9020	1392586
60322982002	**MW-1**	9020B	1392586	EPA 9020	1392586
60322982003	**MW-2**	9020B	1392586	EPA 9020	1392586
60322982004	**DUP-1**	9020B	1392586	EPA 9020	1392586
60322982001	**PZ-2**	SM 2540C	626840		
60322982002	**MW-1**	SM 2540C	626840		
60322982003	**MW-2**	SM 2540C	626840		
60322982004	**DUP-1**	SM 2540C	626840		
60322982001	**PZ-2**	SM 4500-H+B	627173		
60322982002	**MW-1**	SM 4500-H+B	626066		
60322982003	**MW-2**	SM 4500-H+B	626066		
60322982004	**DUP-1**	SM 4500-H+B	626066		
60322982001	**PZ-2**	Trivalent Chromium Calculation	628903		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MORE'S LAKE COLUMBIA, MO
Pace Project No.: 60322982

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60322982002	**MW-1**	Trivalent Chromium Calculation	628903		
60322982003	**MW-2**	Trivalent Chromium Calculation	628903		
60322982004	**DUP-1**	Trivalent Chromium Calculation	628903		
60322982001	**PZ-2**	EPA 300.0	627710		
60322982002	**MW-1**	EPA 300.0	627710		
60322982003	**MW-2**	EPA 300.0	627710		
60322982004	**DUP-1**	EPA 300.0	627710		
60322982001	**PZ-2**	EPA 410.4	626256	EPA 410.4	626420
60322982002	**MW-1**	EPA 410.4	626256	EPA 410.4	626420
60322982003	**MW-2**	EPA 410.4	626256	EPA 410.4	626420
60322982004	**DUP-1**	EPA 410.4	626256	EPA 410.4	626420
60322982001	**PZ-2**	SM 5310C	627540		
60322982002	**MW-1**	SM 5310C	627540		
60322982003	**MW-2**	SM 5310C	627540		
60322982004	**DUP-1**	SM 5310C	627540		
60322982001	**PZ-2**	EPA 7196	626074		
60322982002	**MW-1**	EPA 7196	626074		
60322982003	**MW-2**	EPA 7196	626074		
60322982004	**DUP-1**	EPA 7196	626074		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60322982

60322982

Client Name: Burns & McDonnell

Courier: FedEx ☐ UPS ☐ VIA ☑ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☑ ZIP IC

Thermometer Used: T296 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 13.2, 0.6 **Corr. Factor** +0.0 **Corrected** 13.2, 0.6, 2.9

Date and initials of person examining contents: VB 12/4/19

Temperature should be above freezing to 6°C 2.9

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	Cr+6
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	Cooler at 13.2°C Contained
Correct containers used:	☑Yes ☐No ☐N/A	only Radium Containers
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO₃, H₂SO₄, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Jeffrey Shopper Date: _____

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	BURNS & MCDONNELL	Report To:	Brian Weis	Attention:	
Address:	Burns & McDonnell	Copy To:	Chris Hoglund	Company Name:	
	Kansas City, MO 64114			Address:	
Email:	bweis@burnsmcd.com	Purchase Order #:	128635	Pace Quote:	
Phone:	816-333-9400 Fax	Project Name:	More's Lake Columbia, MO	Pace Project Manager:	jeff.shopper@pacelabs.com
Requested Due Date:		Project #:	93647	Pace Profile #:	10268, 2

Regulatory Agency

State / Location: MO

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: 300.0 SO4,Cl,F	TOC	COD	TDS by 2540C	6010 Metals** Thallium by 6020	Mercury	Hardness	Hexavalent Chromium**SHORT HOLD	Trivalent Chromium Calc	TOX	Radium 226/228 (include combined)	pH	Residual Chlorine (Y/N)	**Al,Sb,As,Ba,Be,B,Cd,Ca,Cr,Co,Cu,Fe,Pb,Li,Mg,Mn,Mo,Ni,Se,Ag,Na,Zn
1	PZ-2	WT	6	12-3-19	1240			6	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	001
2	MW-1	WT	6	12-3-19	1405			6	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	002
3	MW-1/MS	WT	6	12-3-19	1405			6	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	
4	MW-1/MSD	WT	6	12-3-19	1405			6	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	
5	MW-2	WT	6	12-3-19	1600			6	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	003
6	Dup-1	WT	6	12-3-19	—			—	9	X	X	X							X	X	X	X	X	X	X	X	X	X	X	004
7																														
8																														
9																														
10																														
11																														
12																														

12-3-19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
TOX EDD needed	[illegible] / B.M.D	12-3-19	1700	Bill Williamson			
J-flags on - include MDLs on report.				Victoria B / Pace	12/4/19	1025	13.2 / 9-6 9.9

SAMPLER NAME AND SIGNATURE	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:				
SIGNATURE of SAMPLER: DATE Signed:				

APPENDIX C – DATA VALIDATION REPORTS

AUGUST 2019

Memorandum

Date: October 17, 2019

To: Chris Hoglund

From: Kortney Blaufuss

Re: Quality Assurance/Quality Control (QA/QC) Review of Analytical Data
Quarterly Groundwater Monitoring Event, August 2019
at More's Lake – Columbia, Missouri
Project No. 93647

Groundwater samples were collected for More's Lake in Columbia, Missouri on August 26 and 27 2019. Most samples were analyzed by Pace Analytical (Pace) of Lenexa, KS, and some samples were sent to their sister labs Pace Analytical National of Mount Juliet, Tennessee, and Pace Analytical of Greensburg, PA, unless otherwise noted, for one or more of the following parameters:

Analysis	Method
Appendix III Detection Monitoring	
Metals: boron and calcium	EPA 200.7
Anions: chloride, fluoride, and sulfate	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
pH	SW-846 Method 4500-H+B
Appendix IV Assessment Monitoring	
Metals: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, molybdenum, selenium, and thallium	SW-846 Method 6010 or 6020
Metals: mercury	SW-846 Method 7470
[1]Radium 226/228 Combined	EPA 903.1/904.0
[2]MDNR Water Quality Parameters	
Metals: aluminum, copper, iron, magnesium, manganese, nickel, silver, sodium, zinc	SW-846 Method 6010
Hexavalent and [3]Trivalent Chromium	SW-846 Method 7196
Chemical Oxygen Demand (COD)	EPA 410.4
Total Hardness	EPA 2340B
Total Organic Carbon (TOC)	SM 5310C
Total Organic Halides (TOX)	SW-846 Method 9020B

[1]Radium 226/228 combined analyzed by Pace of Greensburg, Pennsylvania (calculated result)
[2]MDNR – Missouri Department of Natural Resources
[3]Trivalent chromium result based on calculation

The following data sets were reviewed in support of this investigation:

Data Set	Date Collected	Matrix
60313018	08/26/2019	Water
60313169	08/27/2019	Water

The QA/QC results in association with the samples collected were examined for any method-specific requirements. Data qualifiers, when appropriate, were added to the data as recommended in United States Environmental Protection Agency's (USEPA's) *National Functional Guidelines for Inorganic Superfund Methods Data Review* (NFGI, 2017). The QA/QC review results are discussed below. All qualifiers are presented in Table 1.

1. Chain-of-Custody (COC) – The relinquished and received signatures, times, and dates on the COCs were present.

2. Requested Analyses Completed – All analyses were completed as requested.

3. Holding Times – All samples were analyzed within the recommended method holding times, except for the following:

    - All reported pH results were flagged by the lab for being outside of the 15-minute EPA required holding time. The lab pH measurements were also greater than 24 hours after sample collection times. Since pH was also measured in the field, which had generally comparable results to those in the lab, the reported pH results were qualified as estimated (J) rather than rejected (R).

    - It should be noted the lab flagged the hexavalent chromium result for sample DUP-1 (60313018004) as being outside of the 24-hour hold time; however, this sample was a blind duplicate (no collection time noted to the lab) of sample MW-2. The sample was analyzed within the holding time, and the flag assigned by the lab was disregarded.

4. Sample Preservation – The majority of the samples were received by the laboratories at or below the recommended 4 degrees Celsius (°C) ± 2 °C sample preservation temperature range. Because the samples were not received in a frozen state, the samples were considered viable, and all analyses were completed. No qualifiers were needed due to low temperatures.

    In data package 60313018, one of the sample coolers had an elevated temperature of 18.9 degrees Celsius. This cooler contained only the radium samples, which did not have method-specific temperature requirements, and as a result, required no qualification. Additionally, in this data package, the field preservation for TOX analysis did not meet EPA requirements for samples PZ-2, MW-1, MW-2, and DUP-1. As such, the TOX samples were qualified as estimated (J) for any detections and estimated at the reporting limit (UJ) for any nondetects.

5. Laboratory Method Blanks – Method blanks were reviewed to determine the potential for sample cross-contamination due to laboratory handling. No detections of target analytes were noted in the method blanks, except for the following:

    - TOC was detected in the method blank for QC Batch 609458. Associated samples with TOC detections less than 5 times the method blank detection were qualified as nondetect (U). See Table 1.

    - Aluminum was detected in the method blank for QC Batch 2477382. Associated samples with aluminum detections less than 5 times the method blank detection were qualified as nondetect (U). See Table 1.

- Radium-226 and/or radium-228 had detections in the method blanks in both data packages; however, they were all below the minimum detectable concentration (MDC). All samples reported the radium results as combined radium and had detections which were less than five times the method blank detections, as well as less than their respective MDCs. Normally, results which are less than five-times the method blank detection would be qualified as nondetect (U) to account for potential carryover between the samples in the lab. However, due to the relative error associated with each sample result, and all of the sample results falling below their MDC value, all samples were qualified as estimated (J). This qualification applies to all combined radium results.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – The LCS/LCSD contains a matrix similar to the sample that has been spiked with known concentrations of target analytes. The LCS/LCSD is prepared and analyzed by the same method as the samples. As a measure of analytical accuracy, the results of the LCS/LCSD are compared against the known analyte concentrations in the spike to determine the percent recovery (REC). The results of these two portions are compared with each other for reproducibility using the relative percent difference (RPD). The purpose of the LCS/LCSD is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference. All LCS/LCSD RECs were within their respective QC limits.

7. Matrix Spike/Matrix Spike Duplicates (MS/MSD) – MS/MSDs are typically run for organic and inorganic analyses. A sample is split into three portions (original, MS and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results of these two portions are compared with each other for reproducibility using the RPD. They are also compared against the unspiked portion of the sample for REC of the spike. Note, only project-specific MS/MSD samples were evaluated.

   - The MS/MSD performed on sample MW-1 (60313018002) for calcium and sodium did not meet the spike requirements since the amount used to spike the sample was less than one-fourth the amount in the parent sample. Thus, no conclusion could be drawn from these MS/MSD analyses, and no qualifiers were necessary.

   - The MS performed on sample PZ-2 (60313018001) for COD had a low MS REC. COD was detected in the noted sample, and qualified as estimated (J-) to account for potential low bias.

   - The MS performed on sample MW-8 (60313169001) for hexavalent chromium had a low MS REC. Hexavalent chromium was nondetect in the noted sample, and qualified as estimated at the reporting limit (UJ).

   All other project-specific MS/MSD RECs and/or RPDs were within QC limits.

8. Field Duplicate Results – Field duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and

analysis of field samples. There are no specific USEPA criteria for qualifying data from field duplicate results. Depending upon the sample concentration, one of the following criteria based upon NFGI is applicable:

- Is the compound detected in both portions?
- If the sample concentrations are greater than 5 times the reporting limit, then the maximum allowable RPD is 20 percent for water samples.
- If the sample concentrations are less than 5 times the reporting limit, then a sensitivity test is applied. For the sensitivity test, the sample concentrations must agree within ± the reporting limit for water samples.
- If the radium results are reported above their minimum detectable concentration (MDC), the normalized difference (also called the relative error ratio) between the duplicate pair was calculated. The maximum normalized difference is 1.96 for the radium samples.

Note that if the dilution factors between the original and duplicate samples differ by a factor of five or more, no qualifiers were added based on discrepancies between the two samples.

The following field duplicate pair was collected:

- MW-2 // DUP-1 (60313018003 // 60313018004): All results were adequately replicated.

9. Laboratory Duplicate Results – In instances where a MS/MSD was not applicable, laboratory duplicate analyses were performed. Laboratory duplicates provide information on the ability to reproduce lab results and to account for error introduced from handling, shipping, storage, preparation, and lab analysis. All project specific laboratory duplicate results were within control limits, except for the following:

    - Pace performed laboratory duplicate analyses for TOX on several project samples. Several were flagged with an RPD exceedance. However, since the results were less than five times the reporting limit, a sensitivity test was more appropriate. The results passed the sensitivity test, and no qualifiers were necessary.

10. Detection and Quantitation Limits – Dilutions for chloride and/or sulfate were required for one or more samples. These dilutions were required to bring target analyte concentrations into the linearity range of the instrument calibration and/or to compensate for matrix interference. All reporting limits were adjusted accordingly. No data qualifiers were added based on the dilutions.

11. Calibration Blanks and Calibration Standards/Verifications – One data package (60313018) had one or more samples for the TOC analysis where the continuing calibration was outside of Pace's

analytical limits. The lab flagged these samples "CH", to account for potential high bias. As such, these samples were qualified as estimated (J).

12. Conclusion – The data were reviewed for achievement of any method-specified QA/QC criteria. All qualifiers added during this review are presented in Table 1. All data are valid for use, as qualified, in reporting the results of this investigation.

Attachment
Table 1: Data Qualifiers

Table 1
Data Qualifiers
Groundwater Sampling Event - August 2019
More's Lake - Columbia, Missouri

Sample Identification	Laboratory Number	Parameter(s)	Data Qualifier	Reason for Qualification
All Samples	All Samples	pH	J	All pH measurements for these samples were performed more than 24 hours after sample collection. Because field pH measurements were also recorded and no significant differences were noted, the results were qualified as estimated (J) rather than rejected (R).
All Samples	All Samples	Combined Radium 226/228	J	Method blank detections (see text for details)
SDG 60313018				
PZ-2	60313018001	COD	J-	MS REC < QC Limits
PZ-2 MW-1 MW-2 DUP-1	60313018001 60313018002 60313018003 60313018004	TOX	J - detects UJ - nondetects	Inadequate sample preservation
DUP-1	60313018004	TOC	U	Method Blank Detection
MW-1 MW-2	60313018002 60313018003	TOC	UJ	Method Blank Detection and CCV outside limits
SDG 60313169				
MW-8	60313169001	Hexavalent Chromium	UJ	MS REC < QC Limits
MW-8 MW-4 MW-3 MW-5	60313169001 60313169002 60313169003 60313169004	Aluminum	U	Method Blank Detection

Notes:

CCV = continuing calibration verification
COD - chemical oxygen demand
J = qualified as estimated
J- = qualified as estimated low bias
MS = matrix spike
QC = quality control
REC = percent recovery
SDG = sample delivery group
TOC = total organic carbon
TOX = total organic halides
U = qualified as nondetect
UJ = estimated at the reporting limit

DECEMBER 2019

Memorandum

Date: January 9, 2020

To: Chris Hoglund

From: Kortney Blaufuss

Re: Quality Assurance/Quality Control (QA/QC) Review of Analytical Data
Quarterly Groundwater Monitoring Event, December 2019
at More's Lake – Columbia, Missouri
Project No. 93647

Groundwater samples were collected for More's Lake in Columbia, Missouri on December 3 and 4, 2019. Most samples were analyzed by Pace Analytical (Pace) of Lenexa, Kansas, and some samples were sent to their sister labs Pace Analytical National of Mount Juliet, Tennessee, and Pace Analytical of Greensburg, Pennsylvania, unless otherwise noted, for one or more of the following parameters:

Analysis	Method
Appendix III Detection Monitoring	
Metals: boron and calcium	EPA 200.7
Anions: chloride, fluoride, and sulfate	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
pH	SW-846 Method 4500-H+B
Appendix IV Assessment Monitoring	
Metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, molybdenum, selenium, and thallium	SW-846 Method 6010 or 6020
Metals: mercury	SW-846 Method 7470
[1]Radium 226/228 Combined	EPA 903.1/904.0
[2]MDNR Water Quality Parameters	
Metals: copper, iron, magnesium, manganese, nickel, silver, sodium, zinc	SW-846 Method 6010
Hexavalent and Trivalent Chromium[3]	SW-846 Method 7196
Chemical Oxygen Demand (COD)	EPA 410.4
Total Hardness	EPA 2340B
Total Organic Carbon (TOC)	SM 5310C
Total Organic Halides (TOX) [4]	SW-846 Method 9020B

[1]Radium 226/228 combined analyzed by Pace of Greensburg, Pennsylvania (calculated result)
[2]MDNR – Missouri Department of Natural Resources
[3]Trivalent chromium result based on calculation
[4]Total Organic Halides analyzed by Pace Analytical National of Mount Juliet, Tennessee

The following data sets were reviewed in support of this investigation:

Data Set	Date Collected	Matrix
60323115	12/04/2019	Water
60322982_Rev1	12/03/2019	Water

The QA/QC results in association with the samples collected were examined for any method-specific requirements. Data qualifiers, when appropriate, were added to the data as recommended in United States Environmental Protection Agency's (USEPA's) *National Functional Guidelines for Inorganic Superfund*

Methods Data Review (NFGI, 2017). The QA/QC review results are discussed below. All qualifiers are presented in Table 1.

1. Chain-of-Custody (COC) – The relinquished and received signatures, times, and dates on the COCs were present.

2. Requested Analyses Completed – All analyses were completed as requested.

3. Holding Times – All samples were analyzed within the recommended method holding times, except for the following:

    - All reported pH results were flagged by the lab for being outside of the 15-minute EPA required holding time. The lab pH measurements were also greater than 24 hours after sample collection times. Since pH was also measured in the field, which had generally comparable results to those in the lab, the reported pH results were qualified as estimated (J) rather than rejected (R).

    - It should be noted the lab flagged the hexavalent chromium result for sample DUP-1 (60322982004) as being outside of the 24-hour hold time; however, this sample was a blind duplicate (no collection time noted to the lab) of sample MW-2. The sample was analyzed within the holding time, and the flag assigned by the lab was disregarded.

4. Sample Preservation – The majority of the samples were received by the laboratories at or below the recommended 4 degrees Celsius (°C) ± 2 °C sample preservation temperature range. Because the samples were not received in a frozen state, the samples were considered viable, and all analyses were completed. No qualifiers were needed due to low temperatures.

    In each data package, one of the three sample coolers had elevated temperatures of 14.0°C and 13.2°C. These coolers contained only the radium samples, which did not have method-specific temperature requirements, and as a result, required no qualification.

5. Laboratory Method Blanks – Method blanks were reviewed to determine the potential for sample cross-contamination due to laboratory handling. No detections of target analytes were noted in the method blanks, except for the following:

    - Radium-226 and/or radium-228 had detections in the method blanks in both data packages. Historical data shows radium (226 and/or 228) has been detected above the reporting limit in more than one sampling event, and there is also a level of uncertainty in radium results that is not typically addressed, or relevant information provided for this scope of work. Rather than qualifying samples nondetect (U) based on these method blank detections, as these data will be used for statistical analysis, the samples were qualified as follows:

- The majority of the samples had corresponding radium-226 and/or 228 detections less than five times their associated blank value. However, because both radium 226 and 228 were used to report the combined radium, along with their associated uncertainty ranges, all combined radium results were qualified as estimated (J) based on professional judgement.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – The LCS/LCSD contains a matrix similar to the sample that has been spiked with known concentrations of target analytes. The LCS/LCSD is prepared and analyzed by the same method as the samples. As a measure of analytical accuracy, the results of the LCS/LCSD are compared against the known analyte concentrations in the spike to determine the percent recovery (REC). The results of these two portions are compared with each other for reproducibility using the relative percent difference (RPD). The purpose of the LCS/LCSD is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference. All LCS/LCSD RECs were within their respective QC limits.

7. Matrix Spike/Matrix Spike Duplicates (MS/MSD) – MS/MSDs are typically run for organic and inorganic analyses. A sample is split into three portions (original, MS and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results of these two portions are compared with each other for reproducibility using the RPD. They are also compared against the unspiked portion of the sample for REC of the spike. Note, only project-specific MS/MSD samples were evaluated.

   - The MS/MSD performed on sample MW-1 (60322982002) for calcium did not meet the spike requirements since the amount used to spike the sample was less than one-fourth the amount in the parent sample. Thus, no conclusion could be drawn from these MS/MSD analyses, and no qualifiers were necessary.

   - The MS/MSD performed on sample MW-8 (60323115001) for fluoride had a low MSD REC and an elevated RPD. Fluoride was detected in the noted sample, and qualified as estimated (J).

   All other project-specific MS/MSD RECs and/or RPDs were within QC limits.

8. Laboratory Duplicate Results – In instances where a MS/MSD was not applicable, laboratory duplicate analyses were performed. Laboratory duplicates provide information on the ability to reproduce lab results and to account for error introduced from handling, shipping, storage, preparation, and lab analysis. All project specific laboratory duplicate results were within control limits, except for the following:

   - Pace performed laboratory duplicate analyses for TOX on several project samples. Several were flagged with an RPD exceedance. However, since the results were less than five times the reporting limit, a sensitivity test was more appropriate. The results passed the sensitivity test, and no qualifiers were necessary.

9. Field Duplicate Results – Field duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and analysis of field samples. There are no specific USEPA criteria for qualifying data from field duplicate results. Depending upon the sample concentration, one of the following criteria based upon NFGI is applicable:

   - Is the compound detected in both portions?
   - If the sample concentrations are greater than 5 times the reporting limit, then the maximum allowable RPD is 20 percent for water samples.
   - If the sample concentrations are less than 5 times the reporting limit, then a sensitivity test is applied. For the sensitivity test, the sample concentrations must agree within ± the reporting limit for water samples.
   - If the radium results are reported above their minimum detectable concentration (MDC), the normalized difference (also called the relative error ratio) between the duplicate pair was calculated. The maximum normalized difference is 1.96 for the radium samples.

   Note that if the dilution factors between the original and duplicate samples differ by a factor of five or more, no qualifiers were added based on discrepancies between the two samples.

   The following field duplicate pair was collected:

   - MW-2 // DUP-1 (60322982003 // 60322982004): The results for iron results exhibited an elevated RPD. As such, this analyte was qualified as estimated (J) to account for this field duplicate discrepancy. Additionally, the aluminum results were less than five times their reporting limit, and a sensitivity test was applied. The results failed the sensitivity test and were qualified as estimated (J) to account for the field duplicate discrepancy.

10. Detection and Quantitation Limits – Dilutions for chloride and/or sulfate were required for one or more samples. These dilutions were required to bring target analyte concentrations into the linearity range of the instrument calibration and/or to compensate for matrix interference. All reporting limits were adjusted accordingly. No data qualifiers were added based on the dilutions.

11. Conclusion – The data were reviewed for achievement of any method-specified QA/QC criteria. All qualifiers added during this review are presented in Table 1. All data are valid for use, as qualified, in reporting the results of this investigation.

    Attachment
    Table 1: Data Qualifiers

Table 1
Data Qualifiers
Groundwater Sampling Event - December 2019
More's Lake - Columbia, Missouri

Sample Identification	Laboratory Number	Parameter(s)	Data Qualifier	Reason for Qualification
All Samples	Varies	pH	J	All pH measurements for these samples were performed more than 24 hours after sample collection. Because field pH measurements were also recorded and no significant differences were noted, the results were qualified as estimated (J) rather than rejected (R).
All Samples	Varies	Combined Radium 226/228	J	Method blank detections (see text for details)
SDG 60322982_Rev1				
MW-2 DUP-1	60322982003 60322982004	Iron Aluminum	J	Field Duplicate Discrepancy
SDG 60323115				
MW-8	60323115001	Fluoride	J	MSD REC < QC Limits; RPD > QC Limit

Notes:

J = qualified as estimated
MSD = matrix spike duplicate
QC = quality control
REC = percent recovery
RPD = relative percent difference
SDG = sample delivery group

BURNS McDONNELL

CREATE AMAZING.

Burns & McDonnell World Headquarters
9400 Ward Parkway
Kansas City, MO 64114
O 816-333-9400
F 816-333-3690
www.burnsmcd.com