

2020 Annual Groundwater Monitoring and Corrective Action Report

PLANT McMANUS Inactive Ash Pond AP-1

Prepared for:

GEORGIA POWER COMPANY

Atlanta, Georgia



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Georgia Power Company

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Plant McManus
Inactive Ash Pond 1 (AP-1)

July 31, 2020



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CERTIFICATION STATEMENT

This 2020 *Annual Groundwater Monitoring and Corrective Action Report, Georgia Power Company - Plant McManus—Inactive Ash Pond 1 (AP-1)* has been prepared in compliance with the United States Environmental Protection Agency coal combustion residual rule [40 Code of Federal Regulations (CFR) 257 Subpart D] and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 by a qualified groundwater scientist or engineer with Resolute Environmental & Water Resources Consulting, LLC (Resolute).

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1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015) and the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10, this *2020 Annual Groundwater Monitoring and Corrective Action Report* has been prepared to document groundwater monitoring activities conducted at Georgia Power Company's (Georgia Power) Plant McManus Inactive Ash Pond 1 (AP-1) (the Site) and satisfy the requirements of § 257.90(e). To specify groundwater monitoring requirements, Georgia EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015). For ease of reference, the USEPA CCR rules are cited within this report.

Groundwater monitoring and reporting for the former AP-1 is performed in accordance with the monitoring requirements of 40 CFR 257.90 through 257.95 of the USEPA CCR rule, and Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6).

The former AP-1 ceased receiving waste prior to the effective date of the USEPA CCR rule promulgated in April 2015. A notification of intent to initiate closure of the inactive CCR ash pond was certified on December 7, 2015 and posted to Georgia Power's website. Therefore, groundwater monitoring and reporting for the former AP-1 are being completed in accordance with the alternate schedule in § 257.100(e)(5) of the revised USEPA CCR rule (August 5, 2016).

This report documents semiannual monitoring activities completed in the second half of 2019 and the first half of 2020 and includes the required report components in accordance with 40 CFR 257.90(e).

1.1 SITE LOCATION AND DESCRIPTION

The Site is located at 1 Crispen Island Dr. in Glynn County, Georgia, approximately 5.37 miles northwest of the city of Brunswick. The plant property is bordered by the Turtle River to the west and by Burnett Creek to the north. (Figure 1). The former AP-1 is located on the northeastern portion of the plant property (Figures 1 and 2).

The former AP-1 was an approximately 80-acre ash pond that was built in the late 1950's. Ash sluicing operations at AP-1 commenced in 1959 and ceased in 1972. Closure of AP-1 commenced in 2016. As part of closure, AP-1 was dewatered to remove the free liquids, and ash was removed and disposed of in an offsite, permitted landfill.

1.1.1 Regional Geology

The Brunswick area is underlain by three regional aquifer systems which extend to depths exceeding 1,100 feet. The uppermost regional aquifer is the surficial aquifer. In the Brunswick

area, this aquifer extends to a depth of approximately 180 feet. Although the surficial aquifer is defined on a regional scale as extending to approximately 180 feet below ground surface, Clarke and others (1990) acknowledge that localized lower permeability units can create confined or semi-confined conditions within limited areas of the surficial aquifer (ATC Associates Inc., 1997).

Regionally, the surficial aquifer is composed of geologic formations overlying the Hawthorn Formation. These formations include the Satilla, Charlton, and Raysor Formations, as well as undifferentiated Holocene, Pleistocene, Pliocene and late-Miocene deposits. In the Brunswick area, the Satilla is described as extending to approximately 28 feet below ground surface and the Cypresshead to approximately 50 feet below ground surface. Underlying the Satilla and Cypresshead Formations are sands, gravels, and clays which have been described by Weems and Edwards (2001) as two pairs of alternating confining units and water-bearing zones of the Ebenezer Formation. These alternating units of the Ebenezer Formation are described as an uppermost confining unit extending from approximately 50 to 75 feet below ground surface, followed by a water-bearing zone from approximately 75 to 110 feet below ground surface, another confining unit from approximately 110 to 15 feet below ground surface, and then another waterbearing zone from approximately 150 to 185 feet below ground surface. Depositionally, these sediments represent marginal to shallow marine beds, that are overlain by marine terrace deposits. Fluvial or residual deposits overlay the terrace deposits (Miller, 1986; Clarke et al, 1990).

The regional surficial aquifer is underlain by approximately 90 feet of lower-permeability portions (Miocene Unit A) of the Hawthorn Formation. This stratum forms the upper confining bed for the Brunswick aquifer system. The Brunswick aquifer system is composed of two confined aquifers (the Upper Brunswick aquifer and the Lower Brunswick aquifer) which are separated and confined above and below by less permeable units of the Hawthorn Formation. The Upper Brunswick aquifer extends from approximately 270 feet to 350 feet below ground surface, and the Lower Brunswick aquifer extends from approximately 400 feet to 470 feet below ground surface (Clarke et al, 1990).

1.1.2 Site Geology and Hydrogeology

Based on information collected during subsurface investigations, Plant McManus is underlain by very fine sands and clays from land surface (or beneath a shallow fill layer) to depths ranging from 33 to 43 feet below land surface. Very fine sands are predominant, but discontinuous clay layers of varying thickness were encountered during drilling activities. The clay layers varied from less than one inch to approximately ten feet in thickness. These very fine sands and discontinuous clay layers are interpreted to be the Upper Satilla Formation (ATC Associates, Inc., 1997).

Underlying the Upper Satilla Formation are fine to medium sands with greater silt content that have lower permeabilities than the sands of the Upper Satilla. These siltier sands, which were interpreted to be the Lower Satilla Formation, were encountered at depths greater than 35 feet below ground surface during the Site investigation performed in the 1990s (ATC Associates Inc., 1997). These sands may also correspond to the Cypresshead Formation of Huddleston (1988). Sands and clays below the Cypresshead and above the confining unit of the Brunswick aquifer

system have been described by Weems and Edwards (2001) as two pairs of alternating confining units and water-bearing zones of the Ebenezer Formation, extending from approximately 50 feet bgs to 185 feet bgs in the Brunswick area.

The regional surficial aquifer that contains the Upper and Lower Satilla Formations is underlain by approximately 90 feet of lower-permeability portions (Miocene Unit A) of the Hawthorn Formation. This stratum forms the upper confining bed for the Brunswick aquifer system.

The surficial aquifer underlying the mainland, marsh, and island is composed of the very fine to fine grain sand with discontinuous clay layers of the Upper and Lower Satilla Formation. In the marsh, the groundwater elevation at low tide is below the top of the marsh surface. The upper portion of the aquifer in the marsh has been cut by tidal creeks, which meander through the marsh. In addition to current and historically recent (pre-ash pond construction) tidal channels, the marsh is also likely to have paleo (pre-historic) tidal channels present throughout the upper portion of the aquifer in the marsh area, which may provide zones of higher hydraulic conductivity or isolated pockets of groundwater. Vertically, the Satilla formation fines downward to a silty fine sand of the Lower Satilla Formation. The aquifer is generally unconfined, with localized clay layers. Groundwater flowing within the surficial aquifer is separated from deeper aquifers by approximately 90 feet of lower-permeability portions of the Hawthorn Formation (Miocene Unit A) that form the upper confining bed for the Brunswick aquifer system (Clarke et al, 1990).

Groundwater flows from two directions toward the former AP-1. One groundwater flow component originates on the mainland, northeast of the facility, and flows southwest, while the other flow component originates on Crispen Island and flows north and northeast (Figures 3 through 6). Groundwater elevations in the monitoring wells on the mainland (MCM-02, -15, and -16) and on the island (MCM-08, and -11) have consistently exhibited higher groundwater elevations than the monitoring wells and piezometers installed along the dikes (Table 3), with MCM-01 and -04 exhibiting intermediate elevations between the mainland and dike wells. The potentiometric surface of the surficial aquifer and the resultant groundwater flow direction in the vicinity of the former AP-1 is a reflection of the topography of the mainland, Crispen Island, and the tidal marsh surrounding the area.

1.2 GROUNDWATER MONITORING SYSTEM

Pursuant to § 257.91, Georgia Power installed a groundwater monitoring system within the uppermost aquifer around former AP-1. The monitoring system is designed to monitor groundwater passing the waste boundary of the former AP-1 within the uppermost aquifer. Wells were located to serve as upgradient monitoring points or downgradient monitoring points based on groundwater flow direction (Table 1).

2.0 GROUNDWATER MONITORING ACTIVITIES

As required by §257.90(e), the following describes monitoring-related activities performed during the second half of 2019 and the first half of 2020 (the reporting period) and discusses any change

in status of the monitoring program. Based on results of the August 2019 *Annual Groundwater and Corrective Action Monitoring Report*, assessment monitoring was initiated at the Site. Assessment groundwater sampling events were conducted for the former AP-1 in August and October 2019. During the initial assessment monitoring event in August 2019, groundwater samples were collected and analyzed for the full suite of Appendix IV constituents. During the subsequent semi-annual assessment monitoring event in October 2019, groundwater samples were collected for the Appendix III constituents and the Appendix IV constituents detected during the August 2019 event. The second assessment monitoring event was performed in March 2020, in which the monitoring wells were sampled for the Appendix III and Appendix IV constituents detected during the August 2019 event.

Laboratory analytical data and field sampling data from the sampling activities conducted in the second half of 2019 and the first half of 2020 are presented in Appendix A. Groundwater sampling was performed in accordance with § 257.93. On October 2019, samples were collected from 13 monitoring wells in the former AP-1 monitoring network (Table 2). Of these 13 monitoring wells, 8 wells were resampled in November 2019. Monitoring wells MCM-18, MCM-19, and MCM-20, initially categorized as piezometers, were incorporated into the well network as background monitoring wells at the end of October 2019. These three background wells were sampled eight times during background sampling events between November 2019 and February 2020. By the March 2020 assessment sampling event, these three wells had transitioned into background monitoring wells and were included in the sampling event. Monitoring well MCM-08 was excluded from the March 2020 assessment sampling event as it was transitioned from a background monitoring well to a piezometer. A total of 15 wells were sampled in the March 2020, event and those wells are illustrated in Figure 2. Pursuant to § 257.90(e)(3), Table 2 presents a summary of groundwater sampling events completed at the former AP-1.

2.1 MONITORING WELL INSTALLATION, MAINTENANCE, AND ABANDONMENTS

In summary, monitoring activities in the last half of 2019 and the first half of 2020 included the following:

- Visual inspection of well conditions prior to sampling, recording Site conditions, and performing exterior maintenance to perform sampling under safe and clean conditions.
- Installation of additional monitoring wells and piezometers to characterize Site hydrogeology and groundwater flow conditions. The number, spacing, and depths of the new wells and piezometers were selected based on the characterization of the Site-specific hydrogeologic conditions and designed to monitor the uppermost water bearing zone.
 - Three background monitoring wells (MCM-18, MCM-19, MCM-20) were installed in late 2019;
 - Four piezometers (PZ-09 through PZ-12) were installed in late 2019; and
 - Six deep piezometers (DPZ-1 through DPZ-6) were installed in early 2020.

- Drilling of six stratigraphic boreholes (SB-1 through SB-6) to evaluate the depth of potential aquitards, aquicludes, and the upper confining unit of the Hawthorne Formation at Site, including evaluation of the depths of six deep piezometers.
- Transition of background monitoring well MCM-08 to piezometer.
- Abandonment of piezometer MCM-09 to facilitate closure activities.

The locations of the three background monitoring wells and the additional shallow and deep piezometers are shown on Figure 2, with relevant well and piezometer construction details provided in Table 1. Boring logs and well construction forms, and well development forms are included in Appendix B.

2.2 ASSESSMENT MONITORING

Appendix III constituents exhibited statistically significant increases (SSIs) over background during the first detection monitoring event conducted in March 2019. Analytical results and statistical evaluation of those results were provided in the 2019 Annual Groundwater and Corrective Action Monitoring Report (Resolute, 2019). Pursuant to § 257.95(b), the 13 monitoring wells of the certified compliance monitoring network (Table 2) were sampled for the full suite of Appendix IV constituents in August 2019 as the initial assessment monitoring event.

Following receipt of the initial Appendix IV sample results, the October 2019 semi-annual assessment monitoring event was conducted. In October 2019, the groundwater samples were analyzed for Appendix III constituents and the following Appendix IV constituents detected during the August 2019 event: antimony, arsenic, barium, beryllium, chromium, cobalt, lead, lithium, molybdenum, combined radium 226/228, selenium, and thallium. In addition, resampling of select wells was performed in November.

The second semi-annual assessment monitoring event was conducted in March 2020. Fifteen monitoring wells (the 13 from October 2019, plus MCM-18 through -20, and less MCM-08) were sampled pursuant to § 257.95(b) for the full suite of Appendix III and Appendix IV constituents detected during the August 2019 event. The sequence of monitoring events conducted at the former AP-1 in the latter half of 2019 and the first half of 2020 is summarized in Table 2. Details of these events and analytical results are discussed in Section 3, while the statistical results are discussed in Section 4.

2.3 ADDITIONAL WELL INSTALLATION AND GROUNDWATER SAMPLING

Groundwater samples were collected from the new piezometers MCM-18, MCM-19, and MCM-20 during November 2019 through February 2020 to establish an analytical background for groundwater in marsh and island-marsh transition zones on Site. The background dataset was intended to more accurately reflect influence from the marsh on groundwater similar to conditions in the vicinity of wells located on the AP-1 dikes. The field logs and laboratory reports associated with the sampling events from November 2019 through February 2020 are included in Appendix

A. Upon the completion of the background sampling events, these three wells were incorporated into the background monitoring network and were included in the March 2020 sampling event.

To evaluate groundwater flow onsite, Resolute installed six deep piezometers in March 2020 ranging in depths from 37.6 to 48 feet below ground surface. These deep piezometers were installed adjacent to existing monitoring wells along the northern and southern dikes (Figure 2). Resolute used gamma log information from six stratigraphic borings performed onsite and information acquired from Shelby tubes collected in areas adjacent to the stratigraphic borings to determine the intervals at which to set the deep piezometers.

Twenty-one Shelby tube samples were collected for analysis of formation grain size and permeability at various depths. One sample was collected at each of the 6 boring locations to establish the permeability and grain size of a typical sand present in the screened zone of wells in the surficial aquifer, and other samples were collected at varying depths from a potential aquitard layer identified through gamma logging. The gamma logs with sample depths are included in Appendix B. Results of the Shelby tube samples are discussed in Section 3.2. Resolute installed six deep piezometers at the locations shown in Figure 2 with the bottom screen depth set one to two feet above the potential aquitard (interval of low hydraulic conductivity) identified on the gamma logs and with the Shelby tube analyses. Boring logs, well construction forms, and well development forms for these six piezometers are provided in Appendix B.

3.0 SAMPLE METHODOLOGY & ANALYSES

The following sections describe the methods used to conduct groundwater monitoring and the groundwater sampling results that were obtained at the former AP-1 during October 2019 through March 2020.

3.1 GROUNDWATER ELEVATION MEASUREMENT

Prior to each sampling event, groundwater levels were recorded from piezometers and monitoring wells in the network at the former AP-1. Transducers were installed in 18 of the monitoring wells (MCM-01, -02, -04 through -07, -11, -12, -14, -16 through -20) and piezometers (MCM-03, -08, and -13) in February 2020. In April 2020, transducers were added to the six newly-installed deep piezometers, DPZ-01 through DPZ-06. Monitoring wells and piezometers were resurveyed on April 16, 2020 for coordinates, top-of-casing elevations, and mag nail elevations. The resurveyed information is listed in Table 1 and is reflected in the March 2020 potentiometric maps and groundwater flow velocity calculations. Groundwater elevations calculated during the August and October 2019 monitoring events, as well as the March 19, 2020 water level sweep and March 26, 2020 monitoring event, are summarized in Table 3. Groundwater elevation data were used to develop a potentiometric surface elevation contour map for each event (Figure 3 - Figure 6). Groundwater flow at the Site is discussed in Section 1.1.

3.2 GROUNDWATER GRADIENTS, HORIZONTAL FLOW VELOCITIES AND VERTICAL CONDUCTIVITIES

The horizontal groundwater flow velocity at the former AP-1 was calculated using a derivation of Darcy's Law. Specifically,

$$V = \frac{K * i}{\eta_e}$$

Where:

$$V = \text{Groundwater flow velocity } \left(\frac{\text{feet}}{\text{day}} \right)$$

$$K = \text{Average Hydraulic Conductivity } \left(\frac{\text{feet}}{\text{day}} \right)$$

$$i = \text{Horizontal hydraulic gradient } \left(\frac{\text{feet}}{\text{foot}} \right)$$

$$\eta_e = \text{Effective porosity}$$

Horizontal hydraulic gradients were calculated for the island and mainland flows using observed gradients for both the August 26, 2019 and October 16, 2019 low tide potentiometric surface

maps. In August 2019, the horizontal gradients ranged from approximately 0.005 feet per foot (ft/ft) between MCM-08 and MCM-07 (flow from the island to the former AP-1) to approximately 0.009 ft/ft between MCM-16 and MCM-02 (flow from the mainland to the former AP-1). In October 2019, the horizontal gradients ranged from approximately 0.004 ft/ft between MCM-08 and MCM-07 to approximately 0.008 ft/ft between MCM-16 and MCM-02.

Horizontal groundwater flow velocities were calculated using representative gradients from well pairs described above for the two 2019 events, average hydraulic conductivity, and effective porosity around the former AP-1 of 3.58 feet per day (ft/day) and 0.35, respectively. These calculations are presented on Table 4A. Based on these factors, the calculated horizontal groundwater flow velocities ranged from approximately 0.05 to 0.10 ft/day in August 2019 and 0.04 to 0.08 ft/day in October 2019. The average groundwater flow velocity at the former AP-1 for the two 2019 events was calculated as 0.066 ft/day, or 24 ft/year.

Horizontal groundwater flow velocities were calculated for three well/piezometer pairs at high and low tide using groundwater elevations collected on the January 23, 2020. Groundwater flow velocities representing groundwater flowing from the mainland to former AP-1 (0.081 feet per day [ft/day] between MCM-02 and MCM-16) and from the island to former AP-1 (0.049 ft/day between MCM-11 and MCM-12) were the same at high and low tide. However, groundwater flow velocities between the marsh and former AP-1 (MCM-08/PZ-12) were 0.016 ft/day at high tide and 0.008 ft/day at low tide. The groundwater direction during high tide was from the marsh to former AP-1 and at low tide from former AP-1 to the marsh. Average groundwater flow velocities were 0.049 ft/day or 17.74 feet per year (ft/year) at high tide and 0.046 ft/day or 16.75 ft/yr at low tide. While there is a reversal in flow direction between the MCM-08/PZ-12 well/piezometer pair, the flow velocities are similar, likely creating a stagnation of groundwater within the dike as the tide rises and falls.

Vertical hydraulic conductivity tests were performed at specified depths within the surficial aquifer by collecting Shelby tube samples from the stratigraphic borings and using flexible wall permeameter testing following ASTM D 5084-10. The results of these tests are included in Appendix B. Representative samples collected from the intervals screened in the compliance monitoring well network showed a range of vertical conductivities between 1.72×10^{-6} cm/s to 1.27×10^{-3} cm/s. Representative samples collected from slightly deeper intervals of the surficial aquifer (Lower Satilla, Cypresshead, or potentially the Ebenezer Formation) identified as a potential aquitard on gamma logs showed a range of vertical conductivities between 1.08×10^{-7} cm/s to 1.65×10^{-4} cm/s. The average horizontal conductivity measured in the interval screened in the compliance well network (1.18×10^{-3} cm/s) is two orders of magnitude greater than the average vertical hydraulic conductivity measured in the Lower Satilla Formation (3.25×10^{-5} cm/s), indicating the formation limits downward vertical flow at the Site.

3.3 GROUNDWATER SAMPLING

Groundwater samples were collected from the compliance monitoring network and select piezometers using low-flow sampling procedures in accordance with § 257.93(a). Purging and sampling was performed using either a Geotech peristaltic pump with the intake tubing lowered to the midpoint of the well screen (or as appropriate determined by the water level). QED

dedicated pumps are utilized in monitoring wells MCM-01, MCM-05, MCM-06, MCM-07, MCM-12, MCM-14, MCM-15, MCM-16, and MCM-17. Non-disposable equipment was decontaminated before use and between well locations.

A SmarTroll (In-Situ field instrument) was used to monitor and record field water quality parameters (pH, conductivity, dissolved oxygen (DO), temperature, and oxidation reduction potential [ORP]) during well purging to verify stabilization prior to sampling. Turbidity was monitored using a LaMotte 2020we (or similar) 1970-USEPA and ISO Compliant Model turbidity meter.

Groundwater samples were collected when the following stabilization criteria were met:

- ± 0.1 standard units for pH
- $\pm 10\%$ for specific conductance
- $\pm 10\%$ for DO > 0.5 mg/L. No criterion applies if DO < 0.5 mg/L, record only
- Turbidity measurements less than or equal to 10 nephelometric turbidity units (NTU)

Once stabilization was achieved, unfiltered samples were collected in appropriately preserved laboratory-supplied containers, placed in ice-packed coolers, and submitted to Pace Analytical Services, LLC (Pace) following chain-of-custody protocol. The field sampling forms generated during the monitoring events conducted during October 2019 through March 2020 are included in Appendix A.

3.4 LABORATORY ANALYSES

Laboratory analyses were performed by Pace, which is accredited by National Environmental Laboratory Accreditation Program (NELAP) and maintains a NELAP certification for all Appendix III and Appendix IV constituents analyzed for this project.

The groundwater analytical results from the semiannual assessment monitoring event conducted in October 2019, the resample event conducted in November 2019, and the March 2020 assessment monitoring event are summarized in Table 5. The Pace laboratory analytical reports are provided in Appendix A. The pH field measurements recorded during the sampling events are also provided in Table 5.

3.5 QUALITY ASSURANCE AND QUALITY CONTROL

During each sampling event, quality assurance/quality control samples (QA/QC) were collected at a rate of one sample per every 10 detection samples. QA/QC samples included field equipment rinsate blanks (EQBL), field blanks (FBL), and duplicate (DUP) samples. QA/QC sample data were evaluated during data validation (as described below) and are included in Appendix A.

Groundwater quality data in this report were independently validated in accordance with USEPA guidance (USEPA, 2011) and the analytical methods. Data validation generally consisted of reviewing sample integrity, holding times, laboratory method blanks, laboratory control samples, matrix spikes/matrix spike duplicate recoveries and relative percent differences (RPDs), post digestion spikes, laboratory and field duplicate RPDs, field and equipment blanks, and reporting limits. Where appropriate, validation qualifiers and flags are applied to the data using USEPA procedures as guidance (USEPA, 2017). Based on the data validation reports, the data collected during August, October, and November 2019, as well as March 2020, are acceptable for use in determining the compliance status of the Site. The associated data validation report is provided in Appendix A with the laboratory reports.

4.0 STATISTICAL ANALYSIS

Statistical analysis of groundwater monitoring data was performed by Groundwater Stats Consulting, LLC (GSC), following the appropriate certified statistical methodology for the Site. Statistical analysis methods and results are provided in Appendix C. A summary of methods and results are provided in the following sections.

4.1 METHODS

The statistical method used at the Site was developed by GSC using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance, March 2009, US EPA 530/ R-09-007 (US EPA, 2009). To develop the statistical methods, analytical data collected during the background period were evaluated and used to develop statistical limits for each Appendix III parameter and metals required by the existing EPD permit. Sanitas groundwater statistical software was used to screen the data and perform the statistical analyses. Sanitas is a decision support software package that incorporates the statistical tests required of Subtitle C and D facilities by US EPA regulations.

4.1.1 APPENDIX III CONSTITUENTS

The statistical test used to evaluate the groundwater monitoring data was the interwell prediction limit (PL) method for Appendix III constituents (boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids [TDS]) combined with the option of a 1-of-2 verification resampling strategy. Interwell prediction limits, constructed from all available pooled upgradient well data were used to evaluate the most recent compliance sample from each downgradient well reported during the October/November 2019 and March 2020 sampling events.

If data from a sampling event initially exceed the PL, the resampling strategy may be used to verify the result. In 1-of-2 resampling, one independent resample may be collected and evaluated within 90 days to determine whether the initial exceedance is verified. If the resample exceeds the PL, the initial exceedance is verified and an SSI is determined. When the resample result does not verify the initial result, there is no SSI. If resampling is not performed, the initial exceedance is a confirmed exceedance.

4.1.2 APPENDIX IV CONSTITUENTS

Background limits were used when determining the Appendix IV GWPS under USEPA rule 40 CFR § 257.95(h) and GA EPD CCR Rule 391-3-4-.10(6)(a). Parametric tolerance limits were used to calculate background limits from pooled upgradient well data when data followed a normal or transformed-normal distribution for Appendix IV parameters with a target of 95% confidence and 95% coverage. When data contained greater than 50% nondetects or when the data distribution did not follow a normal or transformed-normal distribution, a nonparametric tolerance limit was used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

USEPA revised the federal CCR Rule on July 30, 2018, updating GWPS for cobalt, lead, lithium, and molybdenum. As described in 40 CFR § 257.95(h)(1-3), the GWPS is:

- (1) The maximum contaminant level (MCL) established under 40 CFR §141.62 and 141.66.
- (2) Where an MCL has not been established:
 - (i) Cobalt 0.006 mg/L;
 - (ii) Lead 0.015 mg/L;
 - (iii) Lithium 0.040 mg/L; and
 - (iv) Molybdenum 0.100 mg/L.
- (3) Background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.

USEPA's updated GWPS have not yet been incorporated under GA EPD's CCR Rule. The GA EPD CCR Rule GWPS is:

- (1) The federally established MCL.
- (2) Where an MCL has not been established, the background concentration.
- (3) Background levels for constituents where the background level is higher than the MCL.

Following the above federal and state rule requirements, GWPS were established for statistical comparison of Appendix IV constituents and are presented in Tables 6 and 7.

4.2 STATISTICAL ANALYSES RESULTS – APPENDIX III

Data from the monitoring event conducted in October 2019 at the former AP-1 were statistically analyzed in accordance with the PE-certified statistical method. The statistical analysis and comparison to PLs are included as Appendix C.

Verification resampling was performed in November 2019, and some initial SSIs observed in the October 2019 sampling results were not confirmed. Statistical background was updated in April 2020 using data from monitoring wells MCM-18 through MCM-20. Base on the updated statistical results presented in Appendix C, selected Appendix III parameters remain above background, and Assessment Monitoring will continue.

4.3 STATISTICAL ANALYSES RESULTS - APPENDIX IV

Pursuant to § 257.95, Appendix IV groundwater quality data have been statistically analyzed and compared to groundwater protection standards within 90 days of receiving data from the first (October 2019) and second (March 2020) assessment monitoring event.

Data from the monitoring events conducted in October 2019 and March 2020 at the former AP-1 were statistically analyzed in accordance with the PE-certified statistical method. Review of the Sanitas results indicates that using the GWPS established according to both 40 CFR §257.95(h) and 391-3-4-.10(6)(a), the following SSLs were identified:

- Arsenic: MCM-06
- Lithium: MCM-06

A groundwater exceedance notification has been placed in the operating record pursuant to 40 CFR § 257.95(g). An Alternate Source Demonstration (ASD) for Lithium is currently in progress, and upon completion of the demonstration, the results will be submitted to Georgia EPD in a subsequent report.

5.0 MONITORING PROGRAM STATUS

5.1 ASSESSMENT MONITORING STATUS

Assessment Monitoring Status Pursuant to 40 CFR 257.96(b), Georgia Power will continue to monitor the groundwater at AP-1 in accordance with the assessment monitoring program regulations of 40 CFR 257.95 while ACM efforts are implemented to evaluate SSL concentrations of arsenic in select AP-1 wells with reference to the current Georgia EPD GWPS.

5.2 ASSESSMENT OF CORRECTIVE MEASURES

The Plant McManus former AP-1 is in assessment monitoring; An Assessment of Corrective Measures was implemented on July 9, 2020. SSIs of Appendix III constituents were identified in the October 2019 and March 2020 semiannual events. Pursuant to § 257.94(e)(1), Georgia Power will continue assessment monitoring in accordance with § 257.95.

6.0 CONCLUSIONS & FUTURE ACTIONS

This *2020 Annual Groundwater Monitoring and Corrective Action Report for Georgia Power's Plant McManus Inactive Ash Pond AP-1* was prepared to fulfill the requirements of USEPA's CCR Rule and Georgia EPD rule 391-3-4-.10(6)(c). Statistical evaluations of the groundwater monitoring data for the former AP-1 identified SSIs of Appendix III groundwater monitoring constituents. Georgia Power implemented an Assessment of Corrective Measures on July 9, 2020 and has initiated assessment monitoring pursuant to § 257.95. An Alternate Source Demonstration (ASD) for Lithium is currently in progress at Site. Upon the completion of the demonstration, the results will be submitted to Georgia EPD under separate cover.

The next semiannual sampling event is planned for October 2020.

7.0 REFERENCES

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TABLES

Table 1
Monitoring Well Network Summary
Plant McManus
Brunswick, GA

Well ID	Hydraulic Location	Installation Date	Resurvey Date	Northing ¹ (ft)	Easting ¹ (ft)	Top of Casing Elevation ² (ft NAVD 88)	Total Depth (ft BTOC)	Top of Screen Elevation (ft NAVD 88)	Bottom of Screen Elevation (ft NAVD 88)
Compliance Monitoring Network									
MCM-01	Upgradient	7/7/2016	4/16/2020	443727.31	852732.08	8.63	27.32	-7.93	-17.93
MCM-02	Upgradient	7/6/2016	4/16/2020	444496.53	852663.64	11.25	27.35	-5.22	-15.22
MCM-04	Downgradient	6/30/2016	4/16/2020	444804.73	851695.27	12.39	28.57	-5.18	-15.18
MCM-05	Downgradient	7/9/2016	4/16/2020	444716.63	851309.91	10.04	28.05	-7.25	-17.25
MCM-06	Downgradient	7/8/2016	4/16/2020	444407.22	850782.11	10.15	27.20	-6.27	-16.27
MCM-07	Downgradient	7/8/2016	4/16/2020	444059.38	850195.96	10.20	23.75	-2.76	-12.76
MCM-08	Upgradient	7/11/2016	4/16/2020	443758.80	849716.96	9.42	28.29	-8.39	-18.39
MCM-11	Upgradient	7/12/2016	4/16/2020	442429.80	851072.91	10.23	24.00	-3.34	-13.34
MCM-12	Downgradient	7/12/2016	4/16/2020	442821.17	851312.45	11.87	29.00	-6.12	-16.12
MCM-14	Downgradient	7/9/2016	4/16/2020	443358.82	852317.59	11.50	28.11	-6.23	-16.23
MCM-15	Upgradient	6/30/2016	4/16/2020	444825.53	851949.02	12.84	26.60	-4.53	-14.53
MCM-16	Upgradient	7/6/2019	4/16/2020	444551.32	852716.60	16.02	28.39	-1.72	-11.72
MCM-17	Downgradient	9/29/2016	4/16/2020	443074.41	851899.68	11.49	27.44	-4.81	-14.81
MCM-18	Upgradient	10/30/2019	4/16/2020	442067.07	851698.41	9.00	27.86	-8.76	-18.76
MCM-19	Upgradient	10/30/2019	4/16/2020	441157.82	852338.86	8.71	28.32	-9.53	-19.53
MCM-20	Upgradient	10/30/2019	4/16/2020	440944.40	852185.15	10.07	23.05	-2.98	-12.98
Piezometers									
MCM-03	Water Level	7/6/2016	4/16/2020	444414.88	851984.67	9.97	27.70	-7.73	-17.73
MCM-08	Water Level	7/11/2016	4/16/2020	443758.80	849716.96	9.42	28.29	-8.39	-18.39
MCM-09	Water Level	7/10/2019	NA	443252.16	850147.75	Abandoned			
MCM-10	Water Level	7/11/2016	4/16/2020	442791.88	850453.05	11.75	23.96	-1.25	-11.25
MCM-13	Water Level	7/9/2016	4/16/2020	443030.23	851826.19	12.56	27.46	-4.90	-14.90
PZ-09	Water Level	10/31/2019	4/16/2020	444082.13	849471.64	9.41	24.05	-4.56	-14.56
PZ-10	Water Level	11/1/2019	4/16/2020	444949.09	851673.98	12.17	22.91	-0.66	-10.66
PZ-11	Water Level	11/22/2019	4/16/2020	443222.86	849280.51	9.37	19.08	-4.63	-9.63
PZ-12	Water Level	11/22/2019	4/16/2020	443593.34	849396.87	7.90	18.70	-5.72	-10.72
DPZ-01	Water Level	3/10/2020	4/16/2020	444695.71	851277.40	9.71	40.78	-25.99	-30.99
DPZ-02	Water Level	3/10/2020	4/16/2020	444391.02	850757.94	9.54	43.46	-28.84	-33.84
DPZ-03	Water Level	3/11/2020	4/16/2020	444073.16	850218.83	9.46	47.57	-33.03	-38.03
DPZ-04	Water Level	3/12/2020	4/16/2020	443062.60	851881.94	11.45	51.23	-34.70	-39.70
DPZ-05	Water Level	3/11/2020	4/16/2020	443376.32	852342.11	11.00	51.20	-35.12	-40.12
DPZ-06	Water Level	3/12/2020	4/16/2020	444614.79	851846.27	12.04	40.50	-23.38	-28.38

Notes:

1. Georgia State Plane - East Coordinates.
 2. NAVD 88 - North American Vertical Datum of 1988
- ft BTOC - feet below top of casing
Updated By: KMS 6/4/20
Checked By: VF 6/9/20

Table 2
Groundwater Sampling Event Summary
Plant McManus
Brunswick, GA

Well ID	Hydraulic Location	August 2019	October 2019	November 2019	March 2020	Status of Monitoring
Purpose of Sampling Event		Appendix IV Scan	Assessment	Resample	Assessment	
MCM-01	Upgradient	S01	A01	R01	S02	Assessment
MCM-02	Upgradient	S01	A01	R01	S02	Assessment
MCM-04	Downgradient	S01	A01	R01	S02	Assessment
MCM-05	Downgradient	S01	A01	R01	S02	Assessment
MCM-06	Downgradient	S01	A01	--	S02	Assessment
MCM-07	Downgradient	S01	A01	R01	S02	Assessment
MCM-08	Upgradient	S01	A01	R01	--	Assessment
MCM-11	Upgradient	S01	A01	--	S02	Assessment
MCM-12	Downgradient	S01	A01	--	S02	Assessment
MCM-14	Downgradient	S01	A01	R01	S02	Assessment
MCM-15	Upgradient	S01	A01	--	S02	Assessment
MCM-16	Upgradient	S01	A01	--	S02	Assessment
MCM-17	Downgradient	S01	A01	R01	S02	Assessment
MCM-18	Upgradient	--	--	--	S02	Assessment
MCM-19	Upgradient	--	--	--	S02	Assessment
MCM-20	Upgradient	--	--	--	S02	Assessment

Notes:

S## - Full Appendix IV parameter scan event number

A## - Assessment monitoring event number

R##- Resample event number

-- Not Sampled

Updated By: VF 6/5/20

Checked By: KMS 6/10/20

**Table 3
Summary of Groundwater Elevations
Plant McManus
Brunswick, GA**

Well ID	Collection Date	Collection Date	Elevation Difference between Surveys (+/-)	August 29, 2019	August 26, 2019	October 15, 2019	October 16, 2019	March 19, 2020	March 26, 2020
	High Tide ¹	High Tide ¹		8:49	5:41	10:47	11:19		11:23
	Low Tide ¹	Low Tide ¹		14:42	11:51	16:51	17:33	12:11	
	Start Collection	Start Collection		8:40	12:48	10:57	17:13	13:30	11:21
	Stop Collection	Stop Collection		9:45	13:24	12:14	18:42	12:52	12:14
Top of Casing Elevation (ft NAVD 88)	Revised Top of Casing Elevation (ft NAVD 88) 4/16/20		High Tide GW Elevation (ft NAVD 88)	Low Tide GW Elevation (ft NAVD 88)	High Tide GW Elevation (ft NAVD 88)	Low Tide GW Elevation (ft NAVD 88)	Low Tide GW Elevation (ft NAVD 88) ²	High Tide GW Elevation (ft NAVD 88) ²	
<i>Compliance Monitoring Well Network</i>									
MCM-01	8.76	8.63	-0.13	1.94	1.52	1.90	1.82	4.09	4.06
MCM-02	10.58	11.25	0.67	3.91	3.56	3.70	3.79	7.26	6.75
MCM-04	12.47	12.39	-0.08	1.23	0.18	1.46	0.76	2.96	3.28
MCM-05	10.09	10.04	-0.05	0.13	-1.43	0.49	-0.80	1.39	2.62
MCM-06	10.17	10.15	-0.02	0.84	-1.30	1.14	-0.90	0.78	2.51
MCM-07	10.22	10.20	-0.02	1.69	0.22	1.57	0.82	2.20	2.90
MCM-11	10.37	10.23	-0.14	5.37	4.49	2.02	4.76	5.57	4.94
MCM-12	12.03	11.87	-0.16	1.25	0.94	1.35	1.31	2.83	2.88
MCM-14	11.66	11.50	-0.16	1.39	-0.89	1.50	-0.44	1.21	3.09
MCM-15	12.87	12.84	-0.03	1.70	1.07	1.74	2.54	3.26	3.20
MCM-16	15.81	16.02	0.21	4.58	4.26	4.24	4.37	7.63	7.50
MCM-17	11.67	11.49	-0.18	1.27	0.05	0.38	0.68	1.68	2.28
MCM-18	--	9.00	--	--	--	--	--	4.03	3.73
MCM-19	--	8.71	--	--	--	--	--	1.73	3.12
MCM-20	--	10.07	--	--	--	--	--	2.89	4.47
<i>Piezometer</i>									
MCM-03	10.00	9.97	-0.03	-0.58	-0.91	-0.11	-0.07	1.15	1.32
MCM-08	9.41	9.42	0.01	3.86	2.90	2.69	3.16	3.59	3.59
MCM-09	9.77	Abandoned	--	2.45	1.61	2.44	3.22	Abandoned	Abandoned
MCM-10	11.77	11.75	-0.02	4.75	3.74	3.23	4.36	5.27	NM
MCM-13	12.67	12.56	-0.11	1.22	0.43	1.39	1.08	2.25	2.55
PZ-9	--	9.41	--	--	--	--	--	3.36	2.95
PZ-10	--	12.17	--	--	--	--	--	2.52	3.21
PZ-11	--	9.37	--	--	--	--	--	3.97	3.30
PZ-12	--	7.90	--	--	--	--	--	2.51	2.67
DPZ-1	--	9.71	--	--	--	--	--	1.04	2.61
DPZ-2	--	9.54	--	--	--	--	--	0.78	2.54
DPZ-3	--	9.46	--	--	--	--	--	1.31	2.63
DPZ-4	--	11.45	--	--	--	--	--	1.54	2.44
DPZ-5	--	11.00	--	--	--	--	--	1.79	3.09
DPZ-6	--	12.04	--	--	--	--	--	2.93	2.93

Notes:

- High and low tide data pulled from the Crispin Island, Turtle River, Georgia tide chart generated using XTide: <http://tides.mobilegeographics.com/locations/1424>
 - Elevations calculated using revised survey from April 16, 2020
- NAVD 88 - North American Vertical Datum of 1988
 GW - groundwater
 Updated By: KMS 6/10/20
 Checked By: VF 6/11/20

Table 4A
2019 Horizontal Groundwater Flow Velocity Calculations
Plant McManus
Brunswick, GA

Well ID		h_1	h_2	K (ft/day) Average K of AP-1 wells	n_e	dh	L (ft)	i (ft/ft)	Velocity (ft/day)
<i>August 26, 2019 - Low Tide</i>									
MCM-08	MCM-07	2.90	0.22	3.58	0.35	2.68	567.47	0.005	0.048
MCM-16	MCM-02	4.26	3.56	3.58	0.35	0.70	75.63	0.009	0.095
<i>October 16, 2019 - Low Tide</i>									
MCM-08	MCM-07	3.16	0.82	3.58	0.35	2.34	567.47	0.004	0.042
MCM-16	MCM-02	4.37	3.79	3.58	0.35	0.58	75.63	0.008	0.078
									0.066

Notes:

K = hydraulic conductivity based on aquifer performance tests (revised 10/2019)

i = hydraulic gradient

n_e = effective porosity

dh = change between h_1 and h_2

h_1 and h_2 = groundwater elevation at location 1 and 2

L = distance between locations 1 and 2

ft = feet

Table 4B
 2020 Horizontal Groundwater Flow Velocity Calculations
 Georgia Power Plant McManus
 Brunswick, Georgia

Tide Level	High	High	High	Low	Low	Low
Well 1	MCM-08	MCM-16	MCM-11	MCM-08	MCM-16	MCM-11
Well 2	PZ-12	MCM-02	MCM-12	PZ-12	MCM-02	MCM-12
Distance between	361.54	75.63	458.82	361.54	75.63	458.82
Head Well 1	3.35	6.61	4.97	3.26	6.6	4.91
Head Well 2	2.7	5.82	2.41	3.8	5.82	2.21
Hydraulic gradient i	0.002	0.01	0.006	-0.001	0.01	0.006
K (cm/s site avg. from slug tests)	0.001	0.001	0.001	0.001	0.001	0.001
Ne (0.35 from HAR)	0.35	0.35	0.35	0.35	0.35	0.35
Velocity in cm/s	5.71E-06	2.86E-05	1.71E-05	2.86E-06	2.86E-05	1.71E-05
Velocity in ft/day	0.016	0.081	0.049	0.008	0.081	0.049
Velocity in ft/year	5.91	29.56	17.74	2.96	29.56	17.74
Average Velocity ft/day	0.049			0.046		
Average Velocity ft/year	17.74			16.75		

Note:

1. Groundwater elevations were measured on January 23, 2020.

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date							
		MCM-01	MCM-01	MCM-01 resample	MCM-01	MCM-02	MCM-02	MCM-02 resample	MCM-02
		8/27/2019	10/16/2019	11/20/2019	3/26/2020	8/28/2019	10/16/2019	11/19/2019	3/27/2020
APPENDIX III	Boron	--	ND (0.036 J)	--	ND (0.064 J)	--	0.085	--	ND (0.17 J)
	Calcium	--	13.6	--	10.1	--	4.9	--	4.9
	Chloride	--	21.4	--	23.0	--	33.1	--	32.9
	Fluoride	ND	ND (0.046 J)	--	ND	ND	ND (0.044 J)	--	ND
	pH ²	5.58	5.72	5.77	5.45	4.99	4.98	5.11	5.12
	Sulfate	--	31.9	--	36.2	--	24.4	--	28.6
	TDS	--	104	--	114	--	96.0	--	119
APPENDIX IV	Antimony	ND	ND	--	ND	ND	ND	--	ND
	Arsenic	0.0079	0.010	0.0064	0.0069	ND	ND (0.0030 J)	ND (0.00057 J)	ND
	Barium	0.077	0.074	--	0.070	0.10	0.10	--	0.095
	Beryllium	ND (0.000090 J)	ND	--	ND	ND (0.00011 J)	ND (0.00013 J)	--	ND
	Cadmium	ND	--	--	ND	ND	--	--	ND
	Chromium	ND (0.00079 J)	ND	--	ND	ND (0.0035 J)	ND	--	ND
	Cobalt	ND	ND	--	ND	ND (0.00042 J)	ND (0.00037 J)	--	ND
	Fluoride	ND	ND (0.046 J)	--	ND	ND	ND (0.044 J)	--	ND
	Lead	ND	ND	--	ND	ND	ND	--	ND
	Lithium	ND	ND	--	ND	ND	ND	--	ND
	Mercury	ND	--	--	ND	ND	--	--	ND
	Molybdenum	ND	ND	--	ND	ND	ND	--	ND
	Radium	1.20 U	1.40 U	--	1.15U	0.679 U	0.422 U	--	0.838U
	Selenium	ND	ND	--	ND	ND	ND	--	ND
	Thallium	ND	ND	--	ND	ND	ND	--	ND

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

TDS indicates total dissolved solids

U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated

Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date							
		MCM-04	MCM-04	MCM-04 resample	MCM-04	MCM-05	MCM-05	MCM-05 resample	MCM-05
		8/27/2019	10/15/2019	11/20/2019	3/28/2020	8/28/2019	10/16/2019	11/20/2019	3/28/2020
APPENDIX III	Boron	--	0.068	--	ND (0.067 J)	--	0.49	0.53	ND (0.28 J)
	Calcium	--	15.5	--	15.5	--	55.2	55.8	25.8
	Chloride	--	46.0	--	71.4	--	413	1480	693
	Fluoride	ND	ND (0.095 J)	--	ND	0.36	0.41	0.34	0.34
	pH ²	5.05	4.89	5.03	5.27	6.69	6.64	6.58	6.6
	Sulfate	--	105	--	86.6	--	158	132	63.8
	TDS	--	237	--	284	--	2860	2640	1470
APPENDIX IV	Antimony	ND	ND	--	ND	ND	ND	--	ND
	Arsenic	0.0072	ND (0.0038 J)	--	ND (0.0034 J)	ND (0.0019 J)	ND (0.0047 J)	--	ND
	Barium	0.083	0.082	--	0.039	0.011	0.012	--	ND (0.0041 J)
	Beryllium	ND (0.00032 J)	ND (0.00035 J)	--	ND	ND	ND	--	ND
	Cadmium	ND	--	--	ND	ND	--	--	ND
	Chromium	ND (0.0018 J)	ND (0.0012 J)	--	ND	ND (0.00047 J)	ND (0.00057 J)	--	ND
	Cobalt	0.0078	0.0085	0.0090	ND (0.0041 J)	ND	ND	--	ND
	Fluoride	ND	ND (0.095 J)	--	ND	0.36	0.41	0.34	0.34
	Lead	ND	ND	--	ND	ND	ND	--	ND
	Lithium	ND (0.0020 J)	ND (0.0019 J)	--	ND	ND (0.023 J)	ND (0.021 J)	--	ND (0.014 J)
	Mercury	ND	--	--	ND	ND	--	--	ND
	Molybdenum	ND	ND	--	ND	ND	ND	--	ND
	Radium	4.40	4.92	--	4.16	1.67	1.92	--	1.44U
	Selenium	ND	ND	--	ND	ND	ND	--	ND
	Thallium	ND	ND	--	ND	ND	ND	--	ND

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

TDS indicates total dissolved solids

U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated

Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date						
		MCM-06	MCM-06	MCM-06	MCM-07	MCM-07	MCM-07 resample	MCM-07
		8/28/2019	10/17/2019	3/28/2020	8/28/2019	10/17/2019	11/20/2019	3/28/2020
APPENDIX III	Boron	--	1.30	0.95	--	1.1	1.3	0.79
	Calcium	--	309	286	--	260	308	286
	Chloride	--	9930	9190	--	8210	9810	9070
	Fluoride	ND	ND	ND	ND	ND	ND	ND
	pH ²	6.87	6.86	6.8	6.35	6.40	6.27	6.35
	Sulfate	--	507	701	--	1230	1550	1090
	TDS	--	16100	18800	--	13200	16700	18300
APPENDIX IV	Antimony	ND (0.00098 J)	ND (0.00090 J)	ND (0.0029 J)	ND	ND	--	ND
	Arsenic	0.50	0.34	0.30	0.011	ND (0.0046 J)	--	0.012
	Barium	0.13	0.13	0.12	0.40	0.35	--	0.11
	Beryllium	ND	ND	ND	ND	ND (0.000078 J)	--	ND
	Cadmium	ND	--	ND	ND	--	--	ND
	Chromium	ND (0.00085 J)	ND (0.0015 J)	ND	ND (0.0024 J)	ND (0.0019 J)	--	ND
	Cobalt	ND	ND	ND	ND	ND	--	ND
	Fluoride	ND	ND	ND	ND	ND	ND	ND
	Lead	ND	ND (0.00012 J)	ND	ND (0.00010 J)	ND	--	ND
	Lithium	0.13	0.12	0.064	0.12	0.096	0.12	ND (0.027 J)
	Mercury	ND	--	ND	ND	--	--	ND
	Molybdenum	ND (0.0017 J)	ND (0.0017 J)	ND	ND	ND	--	ND
	Radium	6.86	7.85	11	8.73	7.97	9.80	11.7
	Selenium	ND (0.0014 J)	ND (0.0066 J)	ND	ND (0.0019 J)	ND (0.0049 J)	--	ND
Thallium	ND	ND (0.000076 J)	ND	ND	ND	--	ND	

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

TDS indicates total dissolved solids

U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated

Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date					
		MCM-08	MCM-08	MCM-08 resample	MCM-11	MCM-11	MCM-11
		8/28/2019	10/16/2019	11/19/2019	8/28/2019	10/16/2019	3/27/2020
APPENDIX III	Boron	--	0.39	--	--	ND (0.032 J)	ND (0.058 J)
	Calcium	--	53.0	--	--	2.2	3.3
	Chloride	--	2150	--	--	12.2	14.5
	Fluoride	ND	ND (0.10 J)	--	ND (0.068 J)	ND (0.10 J)	ND (0.066 J)
	pH ²	5.11	5.23	5.29	4.87	5.05	5.09
	Sulfate	--	423	--	--	17.4	23.4
	TDS	--	4070	--	--	82.0	87.0
APPENDIX IV	Antimony	ND	ND	--	ND	ND	ND
	Arsenic	0.023	0.024	--	ND (0.0050 J)	0.0054	ND (0.0034 J)
	Barium	0.52	0.54	--	0.035	0.036	0.039
	Beryllium	ND (0.00061 J)	ND (0.00059 J)	--	ND (0.000084 J)	ND (0.000090 J)	ND
	Cadmium	ND	--	--	ND	--	ND
	Chromium	ND (0.0095 J)	0.010	--	ND (0.00053 J)	ND (0.00072 J)	ND
	Cobalt	0.0061	0.0063	ND (0.0062 J)	ND	ND	ND
	Fluoride	ND	ND (0.10 J)	--	ND (0.068 J)	ND (0.10 J)	ND (0.066 J)
	Lead	ND	ND	--	ND	ND	ND
	Lithium	ND (0.0031 J)	ND (0.0027 J)	--	ND (0.00082 J)	ND	ND
	Mercury	ND	--	--	ND	--	ND
	Molybdenum	ND (0.0026 J)	ND (0.0026 J)	--	ND	ND	ND
	Radium	20.6	25.3	--	0.434 U	0.923 U	0.609U
	Selenium	ND (0.0048 J)	ND (0.0043 J)	--	ND	ND	ND
	Thallium	ND	ND	--	ND	ND	ND

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

TDS indicates total dissolved solids

U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated

Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date						
		MCM-12	MCM-12	MCM-12	MCM-14	MCM-14	MCM-14 resample	MCM-14
		8/27/2019	10/15/2019	3/27/2020	8/26/2019	10/15/2019	11/21/2019	3/27/2020
APPENDIX III	Boron	--	1.1	1.5	--	1.0	1.0	1.3
	Calcium	--	7.9	8.3	--	321	305	286
	Chloride	--	744	675	--	9050	8330	7680
	Fluoride	1.1	1.0	1.1	ND	ND	ND	ND
	pH ²	6.24	6.19	6.33	6.62	6.58	6.67	6.59
	Sulfate	--	ND (0.54 J)	ND	--	ND	1070	899
	TDS	--	1730	1970	--	15400	15800	16400
APPENDIX IV	Antimony	ND	ND	ND	ND (0.00040 J)	ND	--	ND
	Arsenic	ND (0.0011 J)	ND (0.0024 J)	ND	ND (0.0022 J)	0.0067	--	ND
	Barium	0.14	0.14	0.12	0.12	0.12	--	0.13
	Beryllium	ND (0.00090 J)	ND (0.00079 J)	ND	ND (0.00010 J)	ND	--	ND
	Cadmium	ND	--	ND	ND	--	--	ND
	Chromium	ND (0.0056 J)	ND (0.0057 J)	ND	ND (0.00071 J)	ND (0.00076 J)	--	ND
	Cobalt	ND (0.00070 J)	ND (0.00054 J)	ND	ND	ND	--	ND
	Fluoride	1.1	1.0	1.1	ND	ND	ND	ND
	Lead	ND (0.00022 J)	ND (0.000056 J)	ND	ND	ND	--	ND
	Lithium	ND (0.012 J)	ND (0.012 J)	ND	0.059	ND (0.056 J)	0.052	0.052
	Mercury	ND	--	ND	ND	--	--	ND
	Molybdenum	ND	ND	ND	ND	ND	--	ND
	Radium	2.91	3.28	2.33	7.68	8.70	7.34	9.63
	Selenium	ND (0.0019 J)	ND	ND	ND (0.0025 J)	ND (0.0030 J)	--	ND
	Thallium	ND	ND	ND	ND	ND	--	ND

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

TDS indicates total dissolved solids

U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated

Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date					
		MCM-15	MCM-15	MCM-15	MCM-16	MCM-16	MCM-16
		8/27/2019	10/15/2019	3/27/2020	8/27/2019	10/16/2019	3/27/2020
APPENDIX III	Boron	--	0.046	ND (0.076 J)	--	0.051	0.088 J
	Calcium	--	6.7	5.9	--	4.8	5.4
	Chloride	--	17.1	14.1	--	20.0	23.6
	Fluoride	ND	ND (0.14 J)	ND	ND	ND (0.044 J)	ND
	pH ²	5.35	5.32	5.30	4.88	4.89	5.12
	Sulfate	--	17.9	14.6	--	28.5	31.2
	TDS	--	107	110	--	95.0	110
APPENDIX IV	Antimony	ND	ND	ND	ND	ND	ND
	Arsenic	ND (0.0041 J)	ND (0.0038 J)	ND (0.0018 J)	ND (0.0019 J)	ND (0.0010 J)	ND
	Barium	0.048	0.041	0.041	0.13	0.13	0.13
	Beryllium	ND (0.00042 J)	ND (0.00034 J)	ND	ND (0.00021 J)	ND (0.00014 J)	ND
	Cadmium	ND	--	ND	ND	--	ND
	Chromium	ND (0.0026 J)	ND (0.0026 J)	ND	ND (0.00043 J)	ND	ND
	Cobalt	ND	ND	ND	ND (0.00030 J)	ND	ND
	Fluoride	ND	ND (0.14 J)	ND	ND	ND (0.044 J)	ND
	Lead	ND (0.00011 J)	ND (0.00038 J)	ND	ND	ND	ND
	Lithium	ND (0.0020 J)	ND (0.0016 J)	ND	ND	ND	ND
	Mercury	ND	--	ND	ND	--	ND
	Molybdenum	ND	ND	ND	ND	ND	ND
	Radium	2.33	0.979 U	1.84	1.03 U	1.86	1.51
	Selenium	ND (0.0018 J)	ND	ND	ND	ND	ND
	Thallium	ND	ND	ND	ND (0.000066 J)	ND	ND

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

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Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date						
		MCM-17	MCM-17	MCM-17 resample	MCM-17	MCM-18	MCM-19	MCM-20
		8/27/2019	10/16/2019	11/21/2019	3/27/2020	3/27/2020	3/27/2020	3/27/2020
APPENDIX III	Boron	--	1.6	1.5	1.8	ND (0.24 J)	0.96	0.94
	Calcium	--	118	125	222	23.2	122	113
	Chloride	--	4050	3890	4770	1450	6870	7110
	Fluoride	ND	ND (0.083 J)	ND	ND	ND (0.060 J)	ND	ND
	pH ²	6.23	6.54	6.40	6.93	4.34	5.14	3.81
	Sulfate	--	470	428	504	219	836	700
	TDS	--	7740	7720	10200	3090	14300	14600
APPENDIX IV	Antimony	ND	ND	--	ND	ND	ND	ND
	Arsenic	ND (0.0024 J)	ND (0.0043 J)	ND (0.0031 J)	ND	ND (0.0043 J)	0.017	0.027
	Barium	0.11	0.14	--	0.16	0.076	0.12	0.12
	Beryllium	ND (0.00018 J)	ND (0.00014 J)	--	ND	0.0040	0.011	0.018
	Cadmium	ND	--	--	ND	ND	ND	ND
	Chromium	ND (0.0066 J)	ND (0.0063 J)	--	ND	ND	ND	ND (0.0095 J)
	Cobalt	ND	ND	--	ND	ND	ND	0.036
	Fluoride	ND	ND (0.083 J)	ND	ND	ND (0.060 J)	ND	ND
	Lead	ND (0.00014 J)	ND (0.00034 J)	--	ND	ND	ND	ND
	Lithium	ND (0.023 J)	ND (0.024 J)	--	ND (0.033 J)	ND	ND (0.018 J)	ND (0.024 J)
	Mercury	ND	--	--	ND	ND	ND	ND
	Molybdenum	ND	ND	--	ND	ND	ND	ND
	Radium	5.82	7.50	8.89	9.54	10.2	22.8	47.2
	Selenium	ND (0.0018 J)	ND	--	ND	ND (0.0034 J)	0.013	0.012
	Thallium	ND	ND	--	ND	ND	ND	ND

Notes:

Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L)

ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL)

ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number

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Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring

-- indicates the parameter was not analyzed

Table 6
Federal Groundwater Protection Standards
Plant McManus
Brunswick, Georgia

MCMANUS ASH POND GWPS - FEDERAL				
Constituent Name	MCL	RSL	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.003	0.006
Arsenic, Total (mg/L)	0.01		0.031	0.031
Barium, Total (mg/L)	2		0.22	2
Beryllium, Total (mg/L)	0.004		0.021	0.021
Cadmium, Total (mg/L)	0.005		0.0025	0.005
Chromium, Total (mg/L)	0.1		0.01	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.035	0.035
Combined Radium, Total (pCi/L)	5		76.3	76.3
Fluoride, Total (mg/L)	4		1.5	4
Lead, Total (mg/L)	n/a	0.015	0.005	0.015
Lithium, Total (mg/L)	n/a	0.04	0.03	0.04
Mercury, Total (mg/L)	0.002		0.0007	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.05	0.1
Selenium, Total (mg/L)	0.05		0.15	0.15
Thallium, Total (mg/L)	0.002		0.001	0.002

Table from Appendix A - Groundwater Stats Consulting, March 26, 2020, Plant McManus Ash Pond, Assessment Monitoring Event Fall 2019

Notes:

mg/L = milligrams per liter;
pCi/L = picocuries per liter;
n/a = Not Available;
MCL = Maximum Contaminant Level;
RSL = Rule Specified Limit (Not yet adopted by EPD)

[1] The background limits are used when determining the groundwater protection standard (GWPS) under 40 CFR § 257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).

[2] Under 40 CFR § 257(h)(1-3) the GWPS is: (i) the MCL/RSL, (ii) where the MCL is not established, the background concentration, or (iii) background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.

Table 7
 Georgia EPD Groundwater Protection Standards
 Plant McManus
 Brunswick, Georgia

MCMANUS ASH POND GWPS - STATE				
Constituent Name	MCL	RSL	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.003	0.006
Arsenic, Total (mg/L)	0.01		0.031	0.031
Barium, Total (mg/L)	2		0.22	2
Beryllium, Total (mg/L)	0.004		0.021	0.021
Cadmium, Total (mg/L)	0.005		0.0025	0.005
Chromium, Total (mg/L)	0.1		0.01	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.035	0.035
Combined Radium, Total (pCi/L)	5		76.3	76.3
Fluoride, Total (mg/L)	4		1.5	4
Lead, Total (mg/L)	n/a	0.015	0.005	0.005
Lithium, Total (mg/L)	n/a	0.04	0.03	0.03
Mercury, Total (mg/L)	0.002		0.0007	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.05	0.05
Selenium, Total (mg/L)	0.05		0.15	0.15
Thallium, Total (mg/L)	0.002		0.001	0.002

Table from Appendix A - Groundwater Stats Consulting, March 26, 2020, Plant McManus Ash Pond, Assessment Monitoring Event Fall 2019

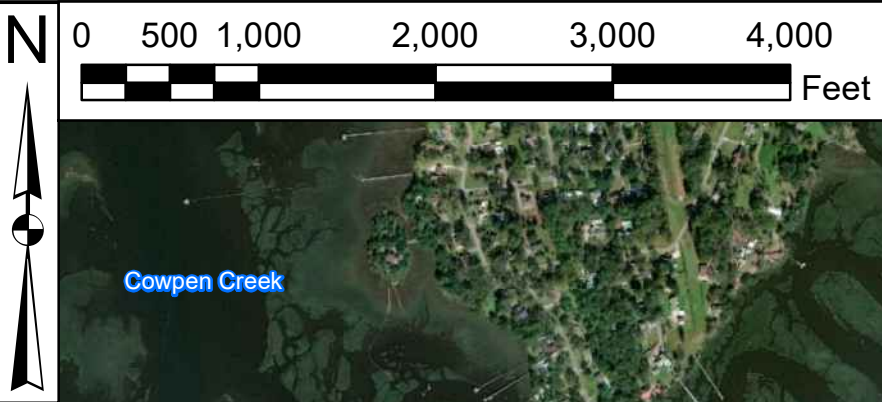
Notes:

mg/L = milligrams per liter;
 pCi/L = picocuries per liter;
 n/a = Not Available;
 MCL = Maximum Contaminant Level;
 RSL = Rule Specified Limit (Not yet adopted by EPD)

[1] The background limits are used when determining the groundwater protection standard (GWPS) under 40 CFR § 257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).

[2] Under existing EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background levels for constituents where the background level is higher than the MCL.

FIGURES



Cowpen Creek


Burnett Creek

AP-1

Plant McManus

Turtle River

Legend

 CCR Permitted Boundary

Resolute
Environmental & Water Resources Consulting

**Plant McManus
Site Location Map**

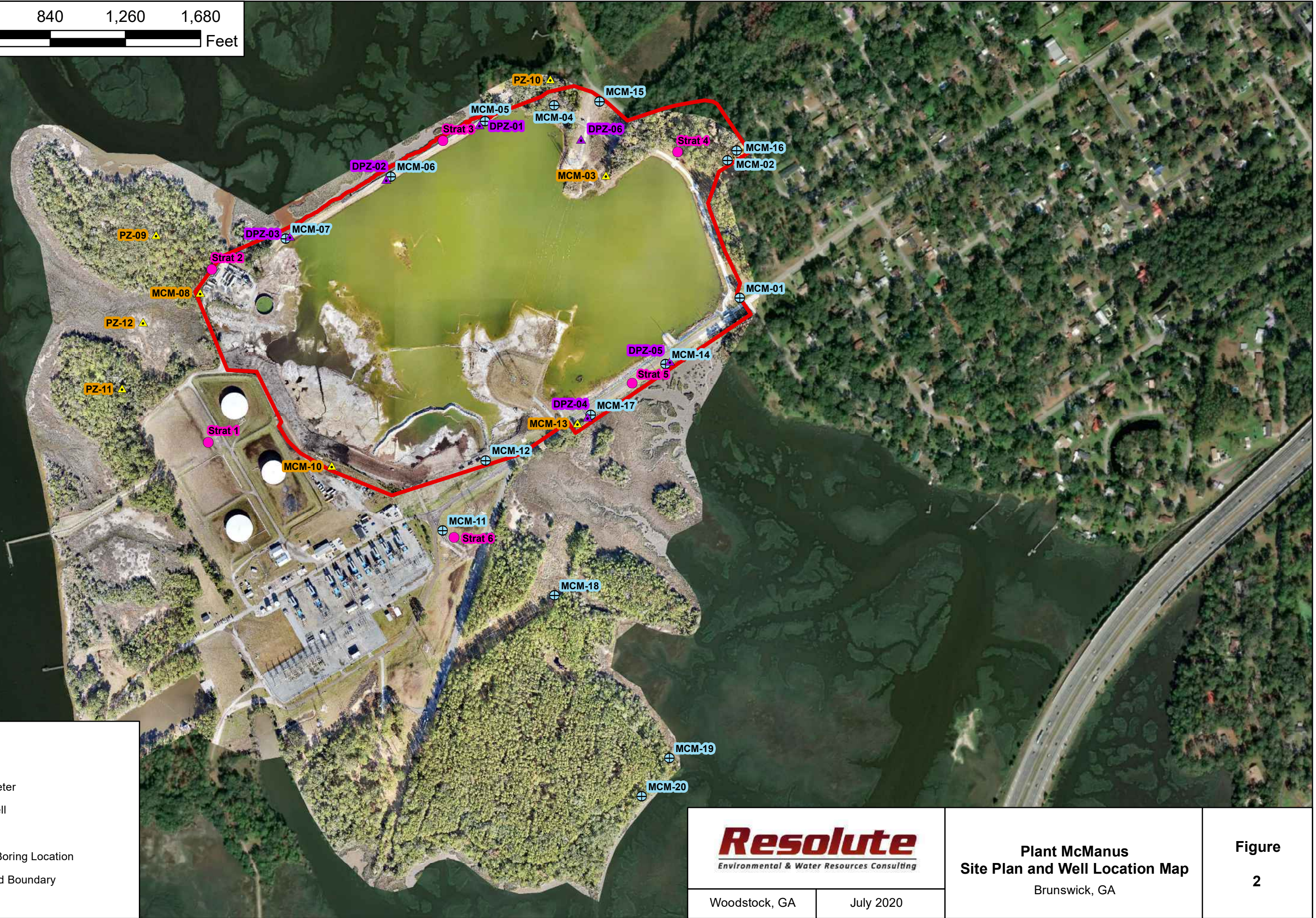
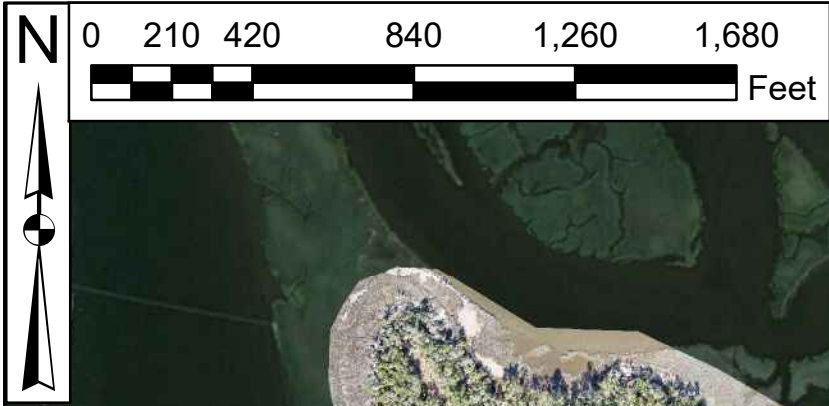
**Figure
1**

Woodstock, GA

July 2020

Brunswick, GA

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Legend

- ▲ Deep Piezometer
- ⊕ Monitoring Well
- ▲ Piezometer
- Stratigraphic Boring Location
- CCR Permitted Boundary

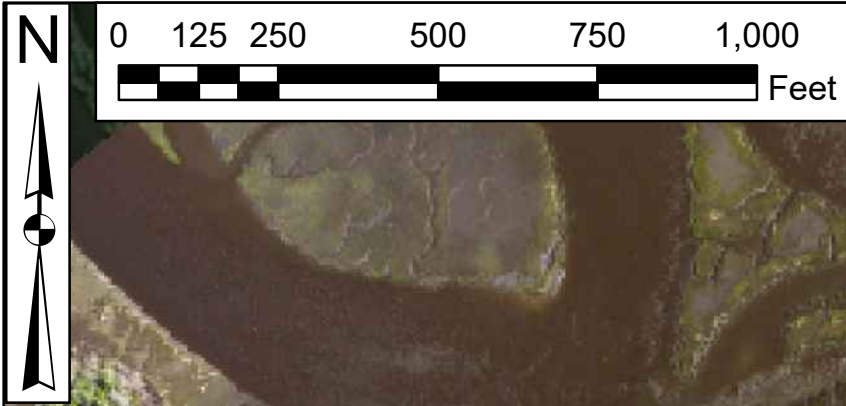


Plant McManus
Site Plan and Well Location Map
 Brunswick, GA

Figure
2

Woodstock, GA July 2020

Document Path: X:\ArcGIS\McManus\2019\CCRR\Figure 2C - Site Plan and Well Locations Map.mxd



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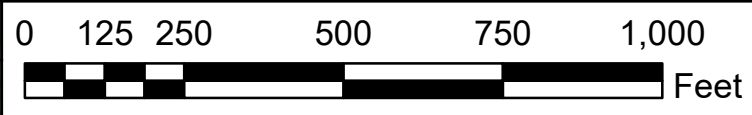
- Legend**
- ⊕ Monitoring Well
 - ▲ Piezometer
 - Groundwater Flow
 - Groundwater Contours
 - ▭ CCR Permitted Boundary

MCM-07
0.41 Groundwater Elevation (Monitoring Well)

MW-10
0.54 Groundwater Elevation (Piezometer)

Notes:
Potentiometric surface elevations shown in ft NAVD 88.
* MCM-09 was abandoned in December 2019

		Plant McManus Former AP-1 Potentiometric Surface Map Low Tide August 26, 2019 Brunswick, GA		Figure 3
		Woodstock, GA	July 2020	



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Legend

- Monitoring Well
- Piezometer
- Groundwater Flow
- Solid
- CCR Permitted Boundary

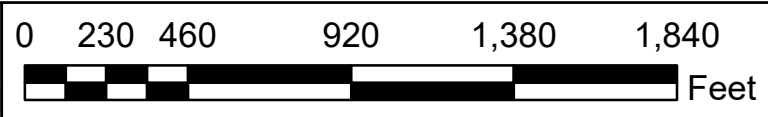
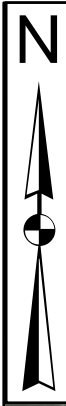
MCM-07 Groundwater Elevation (Monitoring Well)
0.41

MW-10 Groundwater Elevation (Piezometer)
0.54

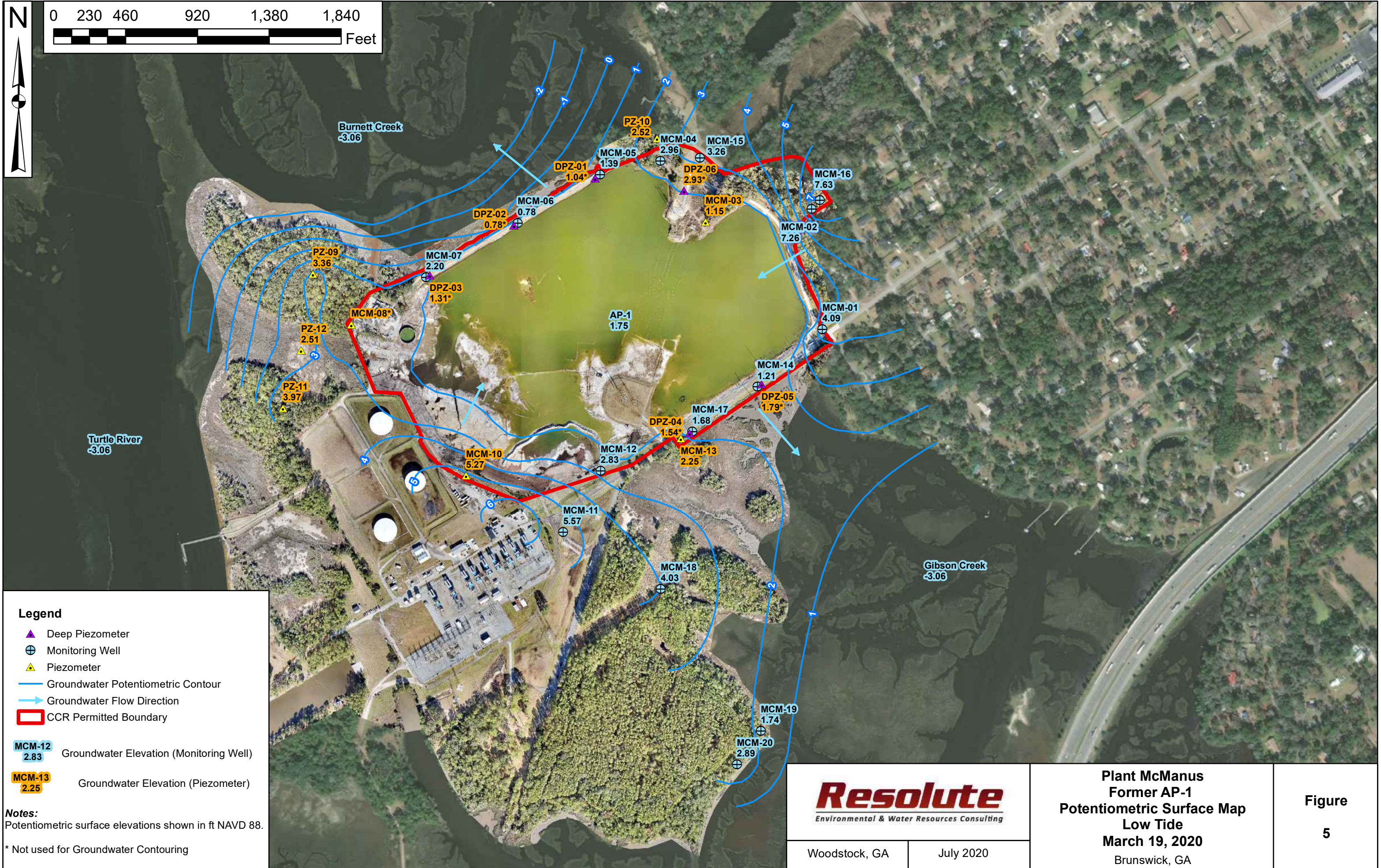
Notes:
Potentiometric surface elevations shown in ft NAVD 88.

* MCM-09 was abandoned in December 2019

		Plant McManus Former AP-1 Potentiometric Surface Map Low Tide October 16, 2019		Figure 4
		Woodstock, GA	July 2020	Brunswick, GA



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Legend

- Deep Piezometer
- Monitoring Well
- Piezometer
- Groundwater Potentiometric Contour
- Groundwater Flow Direction
- CCR Permitted Boundary

MCM-12
2.83 Groundwater Elevation (Monitoring Well)

MCM-13
2.25 Groundwater Elevation (Piezometer)

Notes:
Potentiometric surface elevations shown in ft NAVD 88.

* Not used for Groundwater Contouring

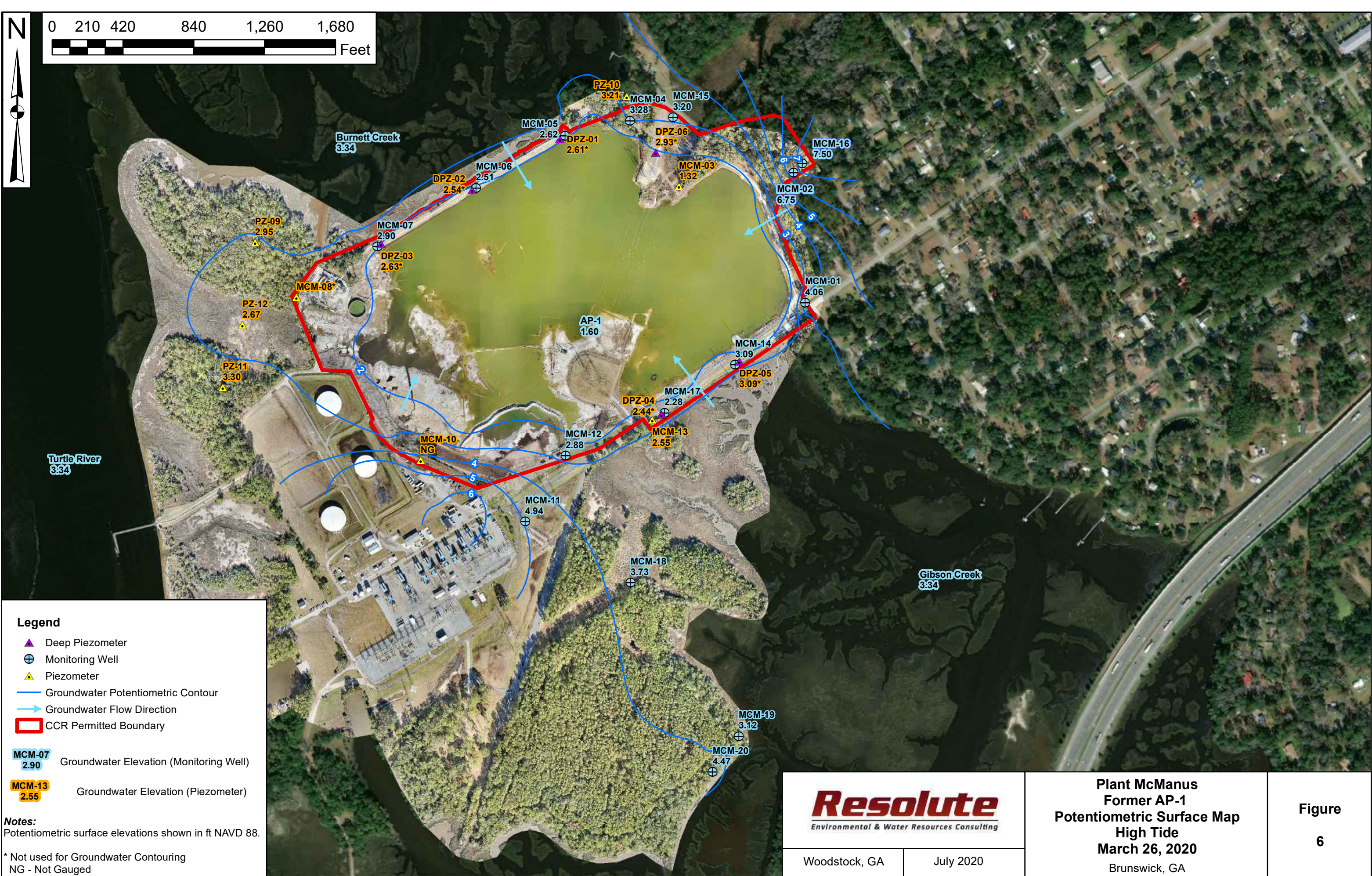
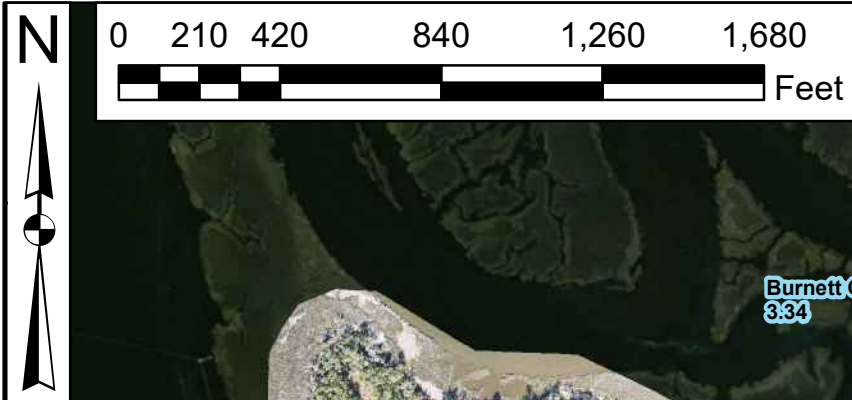


Woodstock, GA

July 2020

**Plant McManus
Former AP-1
Potentiometric Surface Map
Low Tide
March 19, 2020
Brunswick, GA**

**Figure
5**



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Legend

- ▲ Deep Piezometer
- ⊕ Monitoring Well
- ▲ Piezometer
- Groundwater Potentiometric Contour
- Groundwater Flow Direction
- CCR Permitted Boundary

MCM-07
2.90 Groundwater Elevation (Monitoring Well)

MCM-13
2.55 Groundwater Elevation (Piezometer)

Notes:
Potentiometric surface elevations shown in ft NAVD 88.

* Not used for Groundwater Contouring
NG - Not Gauged

		Plant McManus Former AP-1 Potentiometric Surface Map High Tide March 26, 2020 Brunswick, GA	Figure 6
Woodstock, GA	July 2020		

APPENDIX A

Laboratory Analytical and Field Sampling Reports

Appendix A1: Laboratory Analytical Data Packages and Data Validation Reports

Appendix A2: Field Sampling Forms

APPENDIX A1

Laboratory Analytical and Data Validation Reports

December 11, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: Plant McManus App III & IV
Pace Project No.: 2624541

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 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,



Kevin Herring for
Betsy McDaniel
betsy.mcdaniel@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624541001	MCM-04	Water	10/15/19 15:10	10/18/19 09:50
2624541002	MCM-12	Water	10/15/19 15:06	10/18/19 09:50
2624541003	MCM-14	Water	10/15/19 16:21	10/18/19 09:50
2624541004	MCM-15	Water	10/15/19 16:31	10/18/19 09:50
2624541005	FBL101519	Water	10/15/19 17:21	10/18/19 09:50
2624541006	EQBL101519	Water	10/15/19 17:26	10/18/19 09:50
2624541007	DUP-1	Water	10/15/19 00:00	10/18/19 09:50

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SAMPLE ANALYTE COUNT

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624541001	MCM-04	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624541002	MCM-12	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624541003	MCM-14	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624541004	MCM-15	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624541005	FBL101519	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624541006	EQBL101519	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624541007	DUP-1	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Sample: MCM-04		Lab ID: 2624541001		Collected: 10/15/19 15:10		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/29/19 10:39	7440-36-0	
Arsenic	0.0038J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/29/19 10:39	7440-38-2	
Barium	0.082	mg/L	0.010	0.00049	1	10/22/19 14:30	10/29/19 10:39	7440-39-3	
Beryllium	0.00035J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/29/19 10:39	7440-41-7	
Boron	0.068	mg/L	0.040	0.0049	1	10/22/19 14:30	10/29/19 10:39	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/29/19 10:39	7440-43-9	
Calcium	15.5	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 18:10	7440-70-2	
Chromium	0.0012J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/29/19 10:39	7440-47-3	
Cobalt	0.0085	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/29/19 10:39	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/29/19 10:39	7439-92-1	
Lithium	0.0019J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/29/19 10:39	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/29/19 10:39	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/29/19 10:39	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/29/19 10:39	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:22	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	237	mg/L	10.0	10.0	1		10/22/19 13:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	46.0	mg/L	1.0	0.024	1		10/25/19 17:22	16887-00-6	
Fluoride	0.095J	mg/L	0.30	0.029	1		10/25/19 17:22	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		10/25/19 22:12	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624541

Sample: MCM-12		Lab ID: 2624541002		Collected: 10/15/19 15:06		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 18:16	7440-36-0		
Arsenic	0.0024J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 18:16	7440-38-2	B	
Barium	0.14	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 18:16	7440-39-3		
Beryllium	0.00079J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 18:16	7440-41-7		
Boron	1.1	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 18:16	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 18:16	7440-43-9		
Calcium	7.9	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 18:16	7440-70-2		
Chromium	0.0057J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 18:16	7440-47-3		
Cobalt	0.00054J	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 18:16	7440-48-4		
Lead	0.000056J	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 18:16	7439-92-1		
Lithium	0.012J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 18:16	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 18:16	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 18:16	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 18:16	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:31	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	1730	mg/L	10.0	10.0	1		10/22/19 13:13			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	744	mg/L	100	2.4	100		10/25/19 22:34	16887-00-6		
Fluoride	1.0	mg/L	0.30	0.029	1		10/25/19 17:44	16984-48-8		
Sulfate	0.54J	mg/L	1.0	0.017	1		10/25/19 17:44	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624541

Sample: MCM-14		Lab ID: 2624541003		Collected: 10/15/19 16:21		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.015	0.0014	5	10/22/19 14:30	10/29/19 10:45	7440-36-0	D3	
Arsenic	0.0067	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 18:27	7440-38-2	B	
Barium	0.12	mg/L	0.050	0.0024	5	10/22/19 14:30	10/29/19 10:45	7440-39-3	D3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 18:27	7440-41-7		
Boron	1.0	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 18:27	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 18:27	7440-43-9		
Calcium	321	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 18:33	7440-70-2		
Chromium	0.00076J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 18:27	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 18:27	7440-48-4		
Lead	ND	mg/L	0.025	0.00023	5	10/22/19 14:30	10/29/19 10:45	7439-92-1	D3	
Lithium	0.056J	mg/L	0.15	0.0039	5	10/22/19 14:30	10/29/19 10:45	7439-93-2		
Molybdenum	ND	mg/L	0.050	0.0047	5	10/22/19 14:30	10/29/19 10:45	7439-98-7	D3	
Selenium	0.0030J	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 18:27	7782-49-2		
Thallium	ND	mg/L	0.0050	0.00026	5	10/22/19 14:30	10/29/19 10:45	7440-28-0	D3	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:34	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	15400	mg/L	10.0	10.0	1		10/22/19 13:13			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	9050	mg/L	1000	24.0	1000		10/29/19 20:28	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/25/19 18:07	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		10/25/19 18:07	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Sample: MCM-15		Lab ID: 2624541004		Collected: 10/15/19 16:31		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 18:39	7440-36-0	
Arsenic	0.0038J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 18:39	7440-38-2	B
Barium	0.041	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 18:39	7440-39-3	
Beryllium	0.00034J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 18:39	7440-41-7	
Boron	0.046	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 18:39	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 18:39	7440-43-9	
Calcium	6.7	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 18:39	7440-70-2	
Chromium	0.0026J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 18:39	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 18:39	7440-48-4	
Lead	0.00038J	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 18:39	7439-92-1	
Lithium	0.0016J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 18:39	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 18:39	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 18:39	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 18:39	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:36	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	107	mg/L	10.0	10.0	1		10/22/19 13:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	17.1	mg/L	1.0	0.024	1		10/25/19 19:58	16887-00-6	
Fluoride	0.14J	mg/L	0.30	0.029	1		10/25/19 19:58	16984-48-8	
Sulfate	17.9	mg/L	1.0	0.017	1		10/25/19 19:58	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624541

Sample: FBL101519		Lab ID: 2624541005		Collected: 10/15/19 17:21	Received: 10/18/19 09:50	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 19:02	7440-36-0		
Arsenic	0.0024J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 19:02	7440-38-2	B	
Barium	ND	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 19:02	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 19:02	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 19:02	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 19:02	7440-43-9		
Calcium	0.015J	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 19:02	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 19:02	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 19:02	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 19:02	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 19:02	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 19:02	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 19:02	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 19:02	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:43	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/22/19 13:13			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.051J	mg/L	1.0	0.024	1		10/25/19 20:21	16887-00-6	B	
Fluoride	0.033J	mg/L	0.30	0.029	1		10/25/19 20:21	16984-48-8		
Sulfate	0.019J	mg/L	1.0	0.017	1		10/25/19 20:21	14808-79-8	B	

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Sample: EQBL101519		Lab ID: 2624541006		Collected: 10/15/19 17:26		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 19:08	7440-36-0	
Arsenic	0.0022J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 19:08	7440-38-2	B
Barium	ND	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 19:08	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 19:08	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 19:08	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 19:08	7440-43-9	
Calcium	0.025J	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 19:08	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 19:08	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 19:08	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 19:08	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 19:08	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 19:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 19:08	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 19:08	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:45	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/22/19 13:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	1.9	mg/L	1.0	0.024	1		10/25/19 20:43	16887-00-6	M1
Fluoride	ND	mg/L	0.30	0.029	1		10/25/19 20:43	16984-48-8	M1
Sulfate	0.33J	mg/L	1.0	0.017	1		10/25/19 20:43	14808-79-8	B,M1

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Sample: DUP-1		Lab ID: 2624541007		Collected: 10/15/19 00:00		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	10/22/19 14:30	10/29/19 10:50	7440-36-0	D3
Arsenic	0.0062	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 19:13	7440-38-2	B
Barium	0.11	mg/L	0.050	0.0024	5	10/22/19 14:30	10/29/19 10:50	7440-39-3	D3
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 19:13	7440-41-7	
Boron	1.0	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 19:13	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 19:13	7440-43-9	
Calcium	319	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 19:19	7440-70-2	
Chromium	0.00092J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 19:13	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 19:13	7440-48-4	
Lead	ND	mg/L	0.025	0.00023	5	10/22/19 14:30	10/29/19 10:50	7439-92-1	D3
Lithium	0.051	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 19:13	7439-93-2	
Molybdenum	ND	mg/L	0.050	0.0047	5	10/22/19 14:30	10/29/19 10:50	7439-98-7	D3
Selenium	0.0032J	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 19:13	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	10/22/19 14:30	10/29/19 10:50	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:48	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	15500	mg/L	10.0	10.0	1		10/22/19 13:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	7640	mg/L	200	4.8	200		10/28/19 22:08	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/25/19 21:27	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		10/25/19 21:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624541

QC Batch: 37395 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

METHOD BLANK: 169178 Matrix: Water
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/24/19 12:17	

LABORATORY CONTROL SAMPLE: 169179

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 169180 169181

Parameter	Units	2624541001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0026	101	103	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624541

QC Batch: 37347 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

METHOD BLANK: 168971 Matrix: Water
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/24/19 16:36	
Arsenic	mg/L	0.0010J	0.0050	0.00035	10/24/19 16:36	
Barium	mg/L	ND	0.010	0.00049	10/24/19 16:36	
Beryllium	mg/L	ND	0.0030	0.000074	10/24/19 16:36	
Boron	mg/L	ND	0.040	0.0049	10/24/19 16:36	
Cadmium	mg/L	ND	0.0025	0.00011	10/24/19 16:36	
Calcium	mg/L	ND	0.10	0.011	10/24/19 16:36	
Chromium	mg/L	ND	0.010	0.00039	10/24/19 16:36	
Cobalt	mg/L	ND	0.0050	0.00030	10/24/19 16:36	
Lead	mg/L	ND	0.0050	0.000046	10/24/19 16:36	
Lithium	mg/L	ND	0.030	0.00078	10/24/19 16:36	
Molybdenum	mg/L	ND	0.010	0.00095	10/24/19 16:36	
Selenium	mg/L	ND	0.010	0.0013	10/24/19 16:36	
Thallium	mg/L	ND	0.0010	0.000052	10/24/19 16:36	

LABORATORY CONTROL SAMPLE: 168972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.11	108	80-120	
Boron	mg/L	1	1.1	107	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.11	108	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168973 168974

Parameter	Units	2624496002 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV

Pace Project No.: 2624541

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168973		168974		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2624496002 Result	MS Spike Conc.	MSD Spike Conc.									
Arsenic	mg/L	0.023	0.1	0.1	0.12	0.12	99	96	75-125	3	20		
Barium	mg/L	0.10	0.1	0.1	0.22	0.21	111	106	75-125	3	20		
Beryllium	mg/L	ND	0.1	0.1	0.11	0.11	113	110	75-125	3	20		
Boron	mg/L	0.38	1	1	1.5	1.5	109	109	75-125	0	20		
Cadmium	mg/L	0.00017J	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Calcium	mg/L	16.2	1	1	17.3	17.0	113	77	75-125	2	20		
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20		
Cobalt	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Lithium	mg/L	0.0032J	0.1	0.1	0.11	0.11	111	107	75-125	4	20		
Molybdenum	mg/L	0.010	0.1	0.1	0.11	0.11	104	101	75-125	2	20		
Selenium	mg/L	ND	0.1	0.1	0.095	0.093	95	93	75-125	2	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20		

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624541

QC Batch: 37331 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

LABORATORY CONTROL SAMPLE: 168856

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	399	100	84-108	

SAMPLE DUPLICATE: 168857

Parameter	Units	2624541001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	237	249	5	10	

SAMPLE DUPLICATE: 168858

Parameter	Units	2624432004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	67.0	69.0	3	10	

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624541

QC Batch: 37508 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

METHOD BLANK: 170018 Matrix: Water
Associated Lab Samples: 2624541001, 2624541002, 2624541003, 2624541004, 2624541005, 2624541006, 2624541007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.034J	1.0	0.024	10/25/19 14:24	
Fluoride	mg/L	ND	0.30	0.029	10/25/19 14:24	
Sulfate	mg/L	0.033J	1.0	0.017	10/25/19 14:24	

LABORATORY CONTROL SAMPLE: 170019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.5	105	90-110	
Fluoride	mg/L	10	10.9	109	90-110	
Sulfate	mg/L	10	10.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 170020 170021

Parameter	Units	2624506001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	5.6	20	20	24.6	21.5	95	79	90-110	14	15	M1
Fluoride	mg/L	0.62	20	20	18.7	19.5	91	94	90-110	4	15	
Sulfate	mg/L	ND	20	20	ND	ND	0	0	90-110		15	M1

MATRIX SPIKE SAMPLE: 170022

Parameter	Units	2624541006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.9	10	10.2	83	90-110	M1
Fluoride	mg/L	ND	10	10.7	106	90-110	
Sulfate	mg/L	0.33J	10	10.5	102	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant McManus App III & IV

Pace Project No.: 2624541

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.

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.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

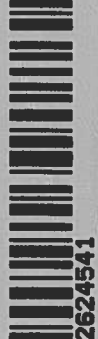
Project: Plant McManus App III & IV
Pace Project No.: 2624541

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624541001	MCM-04	EPA 3005A	37347	EPA 6020B	37377
2624541002	MCM-12	EPA 3005A	37347	EPA 6020B	37377
2624541003	MCM-14	EPA 3005A	37347	EPA 6020B	37377
2624541004	MCM-15	EPA 3005A	37347	EPA 6020B	37377
2624541005	FBL101519	EPA 3005A	37347	EPA 6020B	37377
2624541006	EQBL101519	EPA 3005A	37347	EPA 6020B	37377
2624541007	DUP-1	EPA 3005A	37347	EPA 6020B	37377
2624541001	MCM-04	EPA 7470A	37395	EPA 7470A	37466
2624541002	MCM-12	EPA 7470A	37395	EPA 7470A	37466
2624541003	MCM-14	EPA 7470A	37395	EPA 7470A	37466
2624541004	MCM-15	EPA 7470A	37395	EPA 7470A	37466
2624541005	FBL101519	EPA 7470A	37395	EPA 7470A	37466
2624541006	EQBL101519	EPA 7470A	37395	EPA 7470A	37466
2624541007	DUP-1	EPA 7470A	37395	EPA 7470A	37466
2624541001	MCM-04	SM 2540C	37331		
2624541002	MCM-12	SM 2540C	37331		
2624541003	MCM-14	SM 2540C	37331		
2624541004	MCM-15	SM 2540C	37331		
2624541005	FBL101519	SM 2540C	37331		
2624541006	EQBL101519	SM 2540C	37331		
2624541007	DUP-1	SM 2540C	37331		
2624541001	MCM-04	EPA 300.0	37508		
2624541002	MCM-12	EPA 300.0	37508		
2624541003	MCM-14	EPA 300.0	37508		
2624541004	MCM-15	EPA 300.0	37508		
2624541005	FBL101519	EPA 300.0	37508		
2624541006	EQBL101519	EPA 300.0	37508		
2624541007	DUP-1	EPA 300.0	37508		

REPORT OF LABORATORY ANALYSIS

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WO# : 2624541



WO# : 2624542



CHAIN-OF-CUSTODY / Analytical Request
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields

Section A
Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339
 Email: jbraham@southernco.com
 Phone: (404)506-7239 Fax:
 Requested Due Date:

Section B
Required Project Information:
 Report To: Joju Abraham
 Copy To: Lauren Petty, Resolute
 Atlanta, GA 30339
 Purchase Order #: SCS10382775
 Project Name: Plant McManus App. III & IV
 Project #:
 Attention: scsvoices@southernco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@pacelabs.com
 Pace Profile #:

ITEM	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLER TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST Y/N	REQUESTED ANALYSIS FILTERED (Y/N)		SAMPLE CONDITIONS								
			START DATE TIME	END DATE TIME		UNPRESERVED	H2SO4		HNO3	HCl		NaOH + Zn Ac	Na2S2O3	Methanol	Other	DATE	TIME	TEMP IN C	RECEIVED ON			
1	Drinking Water	DW	10/15/19	1510	WT G			5	Unpreserved			X	X	X	X	X	X	X				
2	Water	WT	10/15/19	1506	WT G			5				X	X	X	X	X	X	X				
3	Waste Water	WW	10/15/19	1021	WT G			7				X	X	X	X	X	X	X				
4	Product	P	10/15/19	1131	WT G			5				X	X	X	X	X	X	X				
5	Soil/Solid	SL	10/15/19	1721	WT G			5				X	X	X	X	X	X	X				
6	Oil	OL	10/15/19	1726	WT G			5				X	X	X	X	X	X	X				
7	Wipe	WP	10/15/19	---	WT G			5				X	X	X	X	X	X	X				
8	Air	AR																				
9	Other	OT																				
10	Tissue	TS																				
11																						
12																						
ADDITIONAL COMMENTS												ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS							
Metals App III & IV - EPA 6010/6020												FedEx	10/17/19	1200								
TDS - SM 254DC												gmsl - RACE	10/17/19	1200								
Radium 226 & 228 EPA 9315 & 9320													10/18									
Anions - EPA 300																						
Mercury - EPA 7470																						
Betsy McDaniel has list of parameters for App III & IV.																						
SIGNATURE of SAMPLER: Joe Booth & Veronica Fay																						
PRINT Name of SAMPLER: Joe Booth & Veronica Fay																						
SIGNATURE of SAMPLER: Betsy McDaniel																						
DATE Signed: 10/25/19																						



Sample Condition Upon Receipt

WO# : 2624541
PM: BM Due Date: 10/25/19
CLIENT: GAPower-CCR

Client Name: _____

WO# : 2624542
PM: BM Due Date: 11/15/19
CLIENT: GAPower-CCR

Courier: [] Fed Ex [] UPS [] USPS [] Client [] Commercial [] Pace Other
Tracking #: _____

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

Packing Material: [] Bubble Wrap [] Bubble Bags [] None [] Other

Thermometer Used _____ Type of Ice: Wet Blue None [] Samples on ice, cooling process has begun

Cooler Temperature 4.6
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: _____

Table with 16 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Numbered Item. Includes items like Chain of Custody Present, Samples Arrived within Hold Time, etc.

Client Notification/ Resolution: Field Data Required? Y / N
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

November 15, 2019

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2624542PlantMcmanus App III&IV
Pace Project No.: 30331305

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2624542PlantMcmanus App III&IV
Pace Project No.: 30331305

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2624542PlantMcmanus App III&IV

Pace Project No.: 30331305

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624542001	MCM-04	Water	10/15/19 15:10	10/22/19 09:30
2624542002	MCM-12	Water	10/15/19 15:06	10/22/19 09:30
2624542003	MCM-14	Water	10/15/19 16:21	10/22/19 09:30
2624542004	MCM-15	Water	10/15/19 16:31	10/22/19 09:30
2624542005	FBL101519	Water	10/15/19 17:21	10/22/19 09:30
2624542006	EQBL101519	Water	10/15/19 17:26	10/22/19 09:30
2624542007	DUP-1	Water	10/15/19 00:01	10/22/19 09:30

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SAMPLE ANALYTE COUNT

Project: 2624542PlantMcmanus App III&IV
Pace Project No.: 30331305

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624542001	MCM-04	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624542002	MCM-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624542003	MCM-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624542004	MCM-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624542005	FBL101519	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624542006	EQBL101519	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624542007	DUP-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2624542PlantMcmamus App III&IV
Pace Project No.: 30331305

Sample: MCM-04		Lab ID: 2624542001	Collected: 10/15/19 15:10	Received: 10/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	3.03 ± 0.753 (0.446)		pCi/L	11/07/19 07:22	13982-63-3	
		C:91% T:NA					
Radium-228	EPA 9320	1.89 ± 0.832 (1.42)		pCi/L	11/08/19 20:30	15262-20-1	
		C:85% T:81%					
Total Radium	Total Radium Calculation	4.92 ± 1.59 (1.87)		pCi/L	11/13/19 14:00	7440-14-4	

Sample: MCM-12		Lab ID: 2624542002	Collected: 10/15/19 15:06	Received: 10/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.98 ± 0.609 (0.588)		pCi/L	11/07/19 07:22	13982-63-3	
		C:86% T:NA					
Radium-228	EPA 9320	1.30 ± 0.837 (1.62)		pCi/L	11/08/19 20:30	15262-20-1	
		C:77% T:83%					
Total Radium	Total Radium Calculation	3.28 ± 1.45 (2.21)		pCi/L	11/13/19 14:00	7440-14-4	

Sample: MCM-14		Lab ID: 2624542003	Collected: 10/15/19 16:21	Received: 10/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	3.50 ± 0.797 (0.324)		pCi/L	11/07/19 09:09	13982-63-3	
		C:98% T:NA					
Radium-228	EPA 9320	5.20 ± 1.44 (1.80)		pCi/L	11/08/19 20:30	15262-20-1	
		C:79% T:83%					
Total Radium	Total Radium Calculation	8.70 ± 2.24 (2.12)		pCi/L	11/13/19 14:00	7440-14-4	

Sample: MCM-15		Lab ID: 2624542004	Collected: 10/15/19 16:31	Received: 10/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.638 ± 0.310 (0.385)		pCi/L	11/07/19 09:09	13982-63-3	
		C:90% T:NA					
Radium-228	EPA 9320	0.341 ± 0.503 (1.08)		pCi/L	11/08/19 19:29	15262-20-1	
		C:83% T:80%					
Total Radium	Total Radium Calculation	0.979 ± 0.813 (1.47)		pCi/L	11/13/19 14:00	7440-14-4	

Sample: FBL101519		Lab ID: 2624542005	Collected: 10/15/19 17:21	Received: 10/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.237 ± 0.210 (0.366)		pCi/L	11/07/19 08:48	13982-63-3	
		C:93% T:NA					
Radium-228	EPA 9320	0.559 ± 0.576 (1.19)		pCi/L	11/08/19 19:31	15262-20-1	
		C:75% T:83%					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2624542PlantMcmanus App III&IV

Pace Project No.: 30331305

Sample: FBL101519		Lab ID: 2624542005	Collected: 10/15/19 17:21	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.796 ± 0.786 (1.56)	pCi/L	11/13/19 14:00	7440-14-4	

Sample: EQBL101519		Lab ID: 2624542006	Collected: 10/15/19 17:26	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.343 ± 0.321 (0.638) C:90% T:NA	pCi/L	11/07/19 08:48	13982-63-3	
Radium-228	EPA 9320	-0.229 ± 0.507 (1.23) C:78% T:77%	pCi/L	11/08/19 19:33	15262-20-1	
Total Radium	Total Radium Calculation	0.343 ± 0.828 (1.87)	pCi/L	11/13/19 14:00	7440-14-4	

Sample: DUP-1		Lab ID: 2624542007	Collected: 10/15/19 00:01	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	2.91 ± 0.736 (0.430) C:93% T:NA	pCi/L	11/07/19 08:48	13982-63-3	
Radium-228	EPA 9320	2.95 ± 0.908 (1.14) C:75% T:89%	pCi/L	11/08/19 19:41	15262-20-1	
Total Radium	Total Radium Calculation	5.86 ± 1.64 (1.57)	pCi/L	11/13/19 14:00	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2624542PlantMcmanus App III&IV

Pace Project No.: 30331305

QC Batch: 368370

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624542001, 2624542002, 2624542003, 2624542004, 2624542005, 2624542006, 2624542007

METHOD BLANK: 1787257

Matrix: Water

Associated Lab Samples: 2624542001, 2624542002, 2624542003, 2624542004, 2624542005, 2624542006, 2624542007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0477 ± 0.582 (1.37) C:76% T:75%	pCi/L	11/08/19 19:28	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2624542PlantMcmanus App III&IV

Pace Project No.: 30331305

QC Batch: 368369

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2624542001, 2624542002, 2624542003, 2624542004, 2624542005, 2624542006, 2624542007

METHOD BLANK: 1787256

Matrix: Water

Associated Lab Samples: 2624542001, 2624542002, 2624542003, 2624542004, 2624542005, 2624542006, 2624542007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.352 ± 0.285 (0.530) C:94% T:NA	pCi/L	11/07/19 07:21	

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

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QUALIFIERS

Project: 2624542PlantMcmanus App III&IV
Pace Project No.: 30331305

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.



State Of Origin: GA
 Cert. Needed: Yes No
 Owner Received Date: 10/18/2019 Results Requested By: 11/15/2019

Workorder: 2624542 Workorder Name: Plant McManus App III & IV

Report To: Betsy McDaniel
 Pace Analytical Atlanta
 110 Technology Parkway
 Peachtree Corners, GA 30092
 Phone (770)734-4200

Subcontract To: Pace Analytical Pittsburgh
 1638 Roseytown Road
 Suites 2, 3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600

Requested Analysis

WO#: 30331305

Radium 226/228 (EPA 915/9320)

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers							LAB USE ONLY	
						HNO3								
1	MCM-04	PS	10/15/2019 15:10	2624542001	Water	2								001
2	MCM-12	PS	10/15/2019 15:06	2624542002	Water	2								002
3	MCM-14	PS	10/15/2019 16:21	2624542003	Water	4								003
4	MCM-15	PS	10/15/2019 16:31	2624542004	Water	2								004
5	FBL101519	PS	10/15/2019 17:21	2624542005	Water	2								005
6	EQBL101519	PS	10/15/2019 17:26	2624542006	Water	2								006
7	DUP-1	PS	10/15/2019 00:00	2624542007	Water	2								007

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1			<i>BECK THOMPSON</i>	10-22-19 0930		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2						<input type="checkbox"/>	<input type="checkbox"/>	
3						<input type="checkbox"/>	<input type="checkbox"/>	

Cooler Temperature on Receipt N/A °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace GA

Project # 30331305

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1069 9308 4495

Label	<u>BLM</u>
LIMS Login	<u>BLM</u>

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

Thermometer Used N/A Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp N/A °C Correction Factor: _____ °C Final Temp: ✓ °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>BLM 10-22-19</u>
	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:		/		3.
Sampler Name & Signature on COC:		/		4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>BLM</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>BLM</u> Date: <u>10-22-19</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

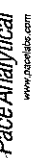
Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 11/6/2019
Worklist: 50622
Matrix: DW

Method Blank Assessment	
MB Sample ID	1787256
MB concentration:	0.352
M/B Counting Uncertainty:	0.281
MB MDC:	0.530
MB Numerical Performance Indicator:	2.45
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSID (Y or N)?	N
LCS50622	LCS50622
Count Date:	11/7/2019
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.053
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.519
Target Conc. (pCi/L, g, F):	4.632
Uncertainty (Calculated):	0.056
Result (pCi/L, g, F):	4.973
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.765
Numerical Performance Indicator:	0.87
Percent Recovery:	107.36%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	2624542003
Duplicate Sample I.D.:	2624542003DUP
Sample Result (pCi/L, g, F):	3.496
Sample Result Counting Uncertainty (pCi/L, g, F):	0.615
Sample Duplicate Result (pCi/L, g, F):	3.553
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	0.626
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	-0.128
Duplicate RPD:	1.63%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MSD Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result:		
Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator:		
MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator:		
MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Sample Matrix Spike Duplicate Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs Numerical Indicator: MS/ MSD Duplicate Status vs RPD: % RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

LAM 11/13/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Re-226
Analyst: LAL
Date: 11/6/2019
Worklist: 50622
Matrix: DW

Method Blank Assessment	
MB Sample ID	1787256
MB Concentration:	0.352
M/B Counting Uncertainty:	0.281
MB MDC:	0.530
MB Numerical Performance Indicator:	2.45
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

	LCS/D (Y or N)?	
	LCS50622	Y
Laboratory Control Sample Assessment		
Count Date:	11/7/2019	LCS50622
Spike I.D.:	19-033	11/7/2019
Decay Corrected Spike Concentration (pCi/mL):	24.053	19-033
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.519	0.512
Target Conc. (pCi/L, g, F):	4.632	4.700
Uncertainty (Calculated):	0.056	0.056
Result (pCi/L, g, F):	4.973	4.328
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.765	0.705
Numerical Performance Indicator:	0.87	-1.03
Percent Recovery:	107.36%	92.09%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	125%	125%
Lower % Recovery Limits:	75%	75%

Duplicate Sample Assessment	
Sample I.D.:	LCS50622
Duplicate Sample I.D.:	LCS50622
Sample Result (pCi/L, g, F):	4.973
Sample Result Counting Uncertainty (pCi/L, g, F):	0.765
Sample Duplicate Result (pCi/L, g, F):	4.328
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.705
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	1.215
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	15.31%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator:		
MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs Numerical Indicator: MS/ MSD Duplicate Status vs RPD: % RPD Limit:

UAM 11/13/19

TAR DW QC
Printed: 11/13/2019 8:38 AM
11/13/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 11/14/2019
Worklist: 50623
Matrix: WT

Method Blank Assessment	
MB Sample ID	1787257
MB concentration:	-0.048
M/B 2 Sigma CSU:	0.582
MB MDC:	1.371
MB Numerical Performance Indicator:	-0.16
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS (Y or N)?	
	LCS50623	Y
Count Date:	11/8/2019	LCS50623
Spike I.D.:	19-026	11/8/2019
Decay Corrected Spike Concentration (pCi/mL):	34.783	19-026
Volume Used (mL):	0.10	34.783
Aliquot Volume (L, g, F):	0.808	0.10
Target Conc. (pCi/L, g, F):	4.302	0.810
Uncertainty (Calculated):	0.211	4.296
Result (pCi/L, g, F):	3.306	0.210
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.853	4.684
Numerical Performance Indicator:	-2.22	1.079
Percent Recovery:	76.85%	0.69
Status vs Numerical Indicator:	N/A	109.04%
Status vs Recovery:	Pass	N/A
Upper % Recovery Limits:	135%	Pass
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below:
Sample I.D.:	LCS50623
Duplicate Sample I.D.:	LCS50623
Sample Result (pCi/L, g, F):	3.306
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.853
Sample Duplicate Result (pCi/L, g, F):	4.684
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.079
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-1.963
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	34.64%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Pass
% RPD Limit:	36%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result 2 Sigma CSU (pCi/L, g, F): Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

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January 16, 2020

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: Plant McManus App III & IV
Pace Project No.: 2624543

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 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,



Kevin Herring for
Betsy McDaniel
betsy.mcdaniel@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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SAMPLE SUMMARY

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624543001	MCM-01	Water	10/16/19 13:32	10/18/19 09:50
2624543002	MCM-02	Water	10/16/19 11:15	10/18/19 09:50
2624543003	MCM-05	Water	10/16/19 15:26	10/18/19 09:50
2624543004	MCM-08	Water	10/16/19 15:22	10/18/19 09:50
2624543005	MCM-11	Water	10/16/19 13:47	10/18/19 09:50
2624543006	MCM-16	Water	10/16/19 09:59	10/18/19 09:50
2624543007	MCM-17	Water	10/16/19 10:37	10/18/19 09:50
2624543008	FBL101619	Water	10/16/19 16:35	10/18/19 09:50
2624543009	EQBL101619	Water	10/16/19 16:40	10/18/19 09:50
2624543010	DUP-2	Water	10/16/19 00:00	10/18/19 09:50

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SAMPLE ANALYTE COUNT

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624543001	MCM-01	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543002	MCM-02	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543003	MCM-05	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543004	MCM-08	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543005	MCM-11	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543006	MCM-16	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543007	MCM-17	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543008	FBL101619	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543009	EQBL101619	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624543010	DUP-2	EPA 6020B	CSW	14

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SAMPLE ANALYTE COUNT

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624543

Sample: MCM-01		Lab ID: 2624543001		Collected: 10/16/19 13:32		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 19:25	7440-36-0		
Arsenic	0.010	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 19:25	7440-38-2	B	
Barium	0.074	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 19:25	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 19:25	7440-41-7		
Boron	0.036J	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 19:25	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 19:25	7440-43-9		
Calcium	13.6	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 19:30	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 19:25	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 19:25	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 19:25	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 19:25	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 19:25	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 19:25	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 19:25	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:50	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	104	mg/L	10.0	10.0	1		10/23/19 15:50			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	21.4	mg/L	1.0	0.024	1		10/25/19 17:21	16887-00-6	M1	
Fluoride	0.046J	mg/L	0.30	0.029	1		10/25/19 17:21	16984-48-8		
Sulfate	31.9	mg/L	1.0	0.017	1		10/25/19 17:21	14808-79-8	M1	

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Sample: MCM-02		Lab ID: 2624543002		Collected: 10/16/19 11:15		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 19:36	7440-36-0		
Arsenic	0.0030J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 19:36	7440-38-2	B	
Barium	0.10	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 19:36	7440-39-3		
Beryllium	0.00013J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 19:36	7440-41-7		
Boron	0.085	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 19:36	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 19:36	7440-43-9		
Calcium	4.9	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 19:36	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 19:36	7440-47-3		
Cobalt	0.00037J	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 19:36	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 19:36	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 19:36	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 19:36	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 19:36	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 19:36	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:53	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	96.0	mg/L	10.0	10.0	1		10/23/19 15:51			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	33.1	mg/L	1.0	0.024	1		10/25/19 18:28	16887-00-6	M1	
Fluoride	0.044J	mg/L	0.30	0.029	1		10/25/19 18:28	16984-48-8		
Sulfate	24.4	mg/L	1.0	0.017	1		10/25/19 18:28	14808-79-8	M1	

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624543

Sample: MCM-05		Lab ID: 2624543003		Collected: 10/16/19 15:26		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 19:48	7440-36-0		
Arsenic	0.0047J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 19:48	7440-38-2	B	
Barium	0.012	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 19:48	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 19:48	7440-41-7		
Boron	0.49	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 19:48	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 19:48	7440-43-9		
Calcium	55.2	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 19:53	7440-70-2		
Chromium	0.00057J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 19:48	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 19:48	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 19:48	7439-92-1		
Lithium	0.021J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 19:48	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 19:48	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 19:48	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 19:48	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:55	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	2860	mg/L	10.0	10.0	1		10/23/19 16:03			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1390	mg/L	200	4.8	200		10/28/19 15:17	16887-00-6		
Fluoride	0.41	mg/L	0.30	0.029	1		10/25/19 18:50	16984-48-8		
Sulfate	252	mg/L	200	3.4	200		10/28/19 15:17	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Sample: MCM-08		Lab ID: 2624543004		Collected: 10/16/19 15:22		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 20:11	7440-36-0	
Arsenic	0.024	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 20:11	7440-38-2	
Barium	0.54	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 20:11	7440-39-3	
Beryllium	0.00059J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 20:11	7440-41-7	
Boron	0.39	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 20:11	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 20:11	7440-43-9	
Calcium	53.0	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 20:16	7440-70-2	
Chromium	0.010	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 20:11	7440-47-3	
Cobalt	0.0063	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 20:11	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 20:11	7439-92-1	
Lithium	0.0027J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 20:11	7439-93-2	
Molybdenum	0.0026J	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 20:11	7439-98-7	
Selenium	0.0043J	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 20:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 20:11	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 12:57	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	4070	mg/L	10.0	10.0	1		10/23/19 16:04		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	2150	mg/L	200	4.8	200		10/28/19 16:24	16887-00-6	
Fluoride	0.10J	mg/L	0.30	0.029	1		10/25/19 19:12	16984-48-8	
Sulfate	476	mg/L	200	3.4	200		10/28/19 16:24	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Sample: MCM-11		Lab ID: 2624543005		Collected: 10/16/19 13:47		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 20:22	7440-36-0		
Arsenic	0.0054	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 20:22	7440-38-2	B	
Barium	0.036	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 20:22	7440-39-3		
Beryllium	0.000090J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 20:22	7440-41-7		
Boron	0.032J	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 20:22	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 20:22	7440-43-9		
Calcium	2.2	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 20:22	7440-70-2		
Chromium	0.00072J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 20:22	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 20:22	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 20:22	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 20:22	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 20:22	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 20:22	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 20:22	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 13:00	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	82.0	mg/L	10.0	10.0	1		10/23/19 16:04			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	12.2	mg/L	1.0	0.024	1		10/25/19 19:34	16887-00-6		
Fluoride	0.10J	mg/L	0.30	0.029	1		10/25/19 19:34	16984-48-8		
Sulfate	17.4	mg/L	1.0	0.017	1		10/25/19 19:34	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624543

Sample: MCM-16		Lab ID: 2624543006		Collected: 10/16/19 09:59		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 20:33	7440-36-0	
Arsenic	0.0010J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 20:33	7440-38-2	B
Barium	0.13	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 20:33	7440-39-3	
Beryllium	0.00014J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 20:33	7440-41-7	
Boron	0.051	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 20:33	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 20:33	7440-43-9	
Calcium	4.8	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 20:33	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 20:33	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 20:33	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 20:33	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 20:33	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 20:33	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 20:33	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 20:33	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 13:02	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	95.0	mg/L	10.0	10.0	1		10/23/19 16:04		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	20.0	mg/L	1.0	0.024	1		10/25/19 19:56	16887-00-6	
Fluoride	0.044J	mg/L	0.30	0.029	1		10/25/19 19:56	16984-48-8	
Sulfate	28.5	mg/L	1.0	0.017	1		10/25/19 19:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624543

Sample: MCM-17		Lab ID: 2624543007		Collected: 10/16/19 10:37		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 20:45	7440-36-0	
Arsenic	0.0043J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 20:45	7440-38-2	B
Barium	0.14	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 20:45	7440-39-3	
Beryllium	0.00014J	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 20:45	7440-41-7	
Boron	1.6	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 20:45	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 20:45	7440-43-9	
Calcium	118	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 20:51	7440-70-2	
Chromium	0.0063J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 20:45	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 20:45	7440-48-4	
Lead	0.00034J	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 20:45	7439-92-1	
Lithium	0.024J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 20:45	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 20:45	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 20:45	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 20:45	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 13:04	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	7740	mg/L	10.0	10.0	1		10/23/19 16:04		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	4260	mg/L	250	6.0	250		10/28/19 20:04	16887-00-6	
Fluoride	0.083J	mg/L	0.30	0.029	1		10/25/19 20:18	16984-48-8	
Sulfate	453	mg/L	250	4.2	250		10/28/19 20:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Sample: FBL101619		Lab ID: 2624543008		Collected: 10/16/19 16:35		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 20:56	7440-36-0		
Arsenic	0.0017J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 20:56	7440-38-2	B	
Barium	ND	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 20:56	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 20:56	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 20:56	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 20:56	7440-43-9		
Calcium	0.030J	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 20:56	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 20:56	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 20:56	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 20:56	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 20:56	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 20:56	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 20:56	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 20:56	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 13:11	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	11.0	mg/L	10.0	10.0	1		10/23/19 16:04			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1.3	mg/L	1.0	0.024	1		10/25/19 20:40	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/25/19 20:40	16984-48-8		
Sulfate	0.067J	mg/L	1.0	0.017	1		10/25/19 20:40	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV
Pace Project No.: 2624543

Sample: EQBL101619		Lab ID: 2624543009		Collected: 10/16/19 16:40	Received: 10/18/19 09:50	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 21:02	7440-36-0		
Arsenic	0.0012J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 21:02	7440-38-2	B	
Barium	ND	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 21:02	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 21:02	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 21:02	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 21:02	7440-43-9		
Calcium	ND	mg/L	0.10	0.011	1	10/22/19 14:30	10/24/19 21:02	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 21:02	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 21:02	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 21:02	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 21:02	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 21:02	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 21:02	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 21:02	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 13:14	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/23/19 16:05			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	ND	mg/L	1.0	0.024	1		10/25/19 22:30	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/25/19 22:30	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		10/25/19 22:30	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Sample: DUP-2		Lab ID: 2624543010		Collected: 10/16/19 00:00		Received: 10/18/19 09:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/22/19 14:30	10/24/19 21:19	7440-36-0	
Arsenic	0.0042J	mg/L	0.0050	0.00035	1	10/22/19 14:30	10/24/19 21:19	7440-38-2	B
Barium	0.013	mg/L	0.010	0.00049	1	10/22/19 14:30	10/24/19 21:19	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/22/19 14:30	10/24/19 21:19	7440-41-7	
Boron	0.53	mg/L	0.040	0.0049	1	10/22/19 14:30	10/24/19 21:19	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/22/19 14:30	10/24/19 21:19	7440-43-9	
Calcium	55.6	mg/L	5.0	0.55	50	10/22/19 14:30	10/24/19 21:25	7440-70-2	
Chromium	0.00064J	mg/L	0.010	0.00039	1	10/22/19 14:30	10/24/19 21:19	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/22/19 14:30	10/24/19 21:19	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/22/19 14:30	10/24/19 21:19	7439-92-1	
Lithium	0.023J	mg/L	0.030	0.00078	1	10/22/19 14:30	10/24/19 21:19	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/22/19 14:30	10/24/19 21:19	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/22/19 14:30	10/24/19 21:19	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/22/19 14:30	10/24/19 21:19	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 11:09	10/24/19 13:16	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	2790	mg/L	10.0	10.0	1		10/23/19 16:05		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	1380	mg/L	100	2.4	100		10/28/19 17:30	16887-00-6	
Fluoride	0.40	mg/L	0.30	0.029	1		10/25/19 22:53	16984-48-8	
Sulfate	184	mg/L	100	1.7	100		10/28/19 17:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV

Pace Project No.: 2624543

QC Batch: 37395

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2624543001, 2624543002, 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

METHOD BLANK: 169178

Matrix: Water

Associated Lab Samples: 2624543001, 2624543002, 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/24/19 12:17	

LABORATORY CONTROL SAMPLE: 169179

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 169180 169181

Parameter	Units	2624541001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L		0.0025	0.0025	0.0025	0.0026	101	103	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624543

QC Batch: 37347 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2624543001, 2624543002, 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

METHOD BLANK: 168971 Matrix: Water
Associated Lab Samples: 2624543001, 2624543002, 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/24/19 16:36	
Arsenic	mg/L	0.0010J	0.0050	0.00035	10/24/19 16:36	
Barium	mg/L	ND	0.010	0.00049	10/24/19 16:36	
Beryllium	mg/L	ND	0.0030	0.000074	10/24/19 16:36	
Boron	mg/L	ND	0.040	0.0049	10/24/19 16:36	
Cadmium	mg/L	ND	0.0025	0.00011	10/24/19 16:36	
Calcium	mg/L	ND	0.10	0.011	10/24/19 16:36	
Chromium	mg/L	ND	0.010	0.00039	10/24/19 16:36	
Cobalt	mg/L	ND	0.0050	0.00030	10/24/19 16:36	
Lead	mg/L	ND	0.0050	0.000046	10/24/19 16:36	
Lithium	mg/L	ND	0.030	0.00078	10/24/19 16:36	
Molybdenum	mg/L	ND	0.010	0.00095	10/24/19 16:36	
Selenium	mg/L	ND	0.010	0.0013	10/24/19 16:36	
Thallium	mg/L	ND	0.0010	0.000052	10/24/19 16:36	

LABORATORY CONTROL SAMPLE: 168972

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.11	108	80-120	
Boron	mg/L	1	1.1	107	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.11	108	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV

Pace Project No.: 2624543

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168973		168974		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2624496002 Result	MS Spike Conc.	MSD Spike Conc.									
Antimony	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20		
Arsenic	mg/L	0.023	0.1	0.1	0.12	0.12	99	96	75-125	3	20		
Barium	mg/L	0.10	0.1	0.1	0.22	0.21	111	106	75-125	3	20		
Beryllium	mg/L	ND	0.1	0.1	0.11	0.11	113	110	75-125	3	20		
Boron	mg/L	0.38	1	1	1.5	1.5	109	109	75-125	0	20		
Cadmium	mg/L	0.00017J	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Calcium	mg/L	16.2	1	1	17.3	17.0	113	77	75-125	2	20		
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20		
Cobalt	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Lithium	mg/L	0.0032J	0.1	0.1	0.11	0.11	111	107	75-125	4	20		
Molybdenum	mg/L	0.010	0.1	0.1	0.11	0.11	104	101	75-125	2	20		
Selenium	mg/L	ND	0.1	0.1	0.095	0.093	95	93	75-125	2	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20		

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV

Pace Project No.: 2624543

QC Batch: 37419

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2624543001, 2624543002

LABORATORY CONTROL SAMPLE: 169291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	391	98	84-108	

SAMPLE DUPLICATE: 169292

Parameter	Units	2624484007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 169293

Parameter	Units	2624491004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	500	501	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624543

QC Batch: 37440 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

LABORATORY CONTROL SAMPLE: 169405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	414	104	84-108	

SAMPLE DUPLICATE: 169406

Parameter	Units	2624543003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2860	2850	1	10	

SAMPLE DUPLICATE: 169407

Parameter	Units	2624635001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	543	548	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.

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QUALITY CONTROL DATA

Project: Plant McManus App III & IV
Pace Project No.: 2624543

QC Batch: 37561 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624543001, 2624543002, 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

METHOD BLANK: 170363 Matrix: Water
Associated Lab Samples: 2624543001, 2624543002, 2624543003, 2624543004, 2624543005, 2624543006, 2624543007, 2624543008, 2624543009, 2624543010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/25/19 16:33	
Fluoride	mg/L	ND	0.30	0.029	10/25/19 16:33	
Sulfate	mg/L	ND	1.0	0.017	10/25/19 16:33	

LABORATORY CONTROL SAMPLE: 170364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.8	108	90-110	
Fluoride	mg/L	10	10.8	108	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 170365 170366

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624543001	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	21.4	10	10	28.5	28.6	71	72	90-110	0	15 M1
Fluoride	mg/L	0.046J	10	10	10.1	10.2	101	101	90-110	1	15
Sulfate	mg/L	31.9	10	10	35.4	35.4	35	36	90-110	0	15 M1

MATRIX SPIKE SAMPLE: 170367

Parameter	Units	2624543002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	33.1	10	38.9	58	90-110	M1
Fluoride	mg/L	0.044J	10	10.1	101	90-110	
Sulfate	mg/L	24.4	10	29.1	46	90-110	M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant McManus App III & IV

Pace Project No.: 2624543

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.

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.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

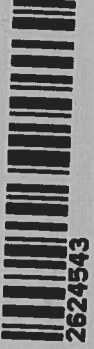
Project: Plant McManus App III & IV
Pace Project No.: 2624543

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624543001	MCM-01	EPA 3005A	37347	EPA 6020B	37377
2624543002	MCM-02	EPA 3005A	37347	EPA 6020B	37377
2624543003	MCM-05	EPA 3005A	37347	EPA 6020B	37377
2624543004	MCM-08	EPA 3005A	37347	EPA 6020B	37377
2624543005	MCM-11	EPA 3005A	37347	EPA 6020B	37377
2624543006	MCM-16	EPA 3005A	37347	EPA 6020B	37377
2624543007	MCM-17	EPA 3005A	37347	EPA 6020B	37377
2624543008	FBL101619	EPA 3005A	37347	EPA 6020B	37377
2624543009	EQBL101619	EPA 3005A	37347	EPA 6020B	37377
2624543010	DUP-2	EPA 3005A	37347	EPA 6020B	37377
2624543001	MCM-01	EPA 7470A	37395	EPA 7470A	37466
2624543002	MCM-02	EPA 7470A	37395	EPA 7470A	37466
2624543003	MCM-05	EPA 7470A	37395	EPA 7470A	37466
2624543004	MCM-08	EPA 7470A	37395	EPA 7470A	37466
2624543005	MCM-11	EPA 7470A	37395	EPA 7470A	37466
2624543006	MCM-16	EPA 7470A	37395	EPA 7470A	37466
2624543007	MCM-17	EPA 7470A	37395	EPA 7470A	37466
2624543008	FBL101619	EPA 7470A	37395	EPA 7470A	37466
2624543009	EQBL101619	EPA 7470A	37395	EPA 7470A	37466
2624543010	DUP-2	EPA 7470A	37395	EPA 7470A	37466
2624543001	MCM-01	SM 2540C	37419		
2624543002	MCM-02	SM 2540C	37419		
2624543003	MCM-05	SM 2540C	37440		
2624543004	MCM-08	SM 2540C	37440		
2624543005	MCM-11	SM 2540C	37440		
2624543006	MCM-16	SM 2540C	37440		
2624543007	MCM-17	SM 2540C	37440		
2624543008	FBL101619	SM 2540C	37440		
2624543009	EQBL101619	SM 2540C	37440		
2624543010	DUP-2	SM 2540C	37440		
2624543001	MCM-01	EPA 300.0	37561		
2624543002	MCM-02	EPA 300.0	37561		
2624543003	MCM-05	EPA 300.0	37561		
2624543004	MCM-08	EPA 300.0	37561		
2624543005	MCM-11	EPA 300.0	37561		
2624543006	MCM-16	EPA 300.0	37561		
2624543007	MCM-17	EPA 300.0	37561		
2624543008	FBL101619	EPA 300.0	37561		
2624543009	EQBL101619	EPA 300.0	37561		
2624543010	DUP-2	EPA 300.0	37561		

REPORT OF LABORATORY ANALYSIS

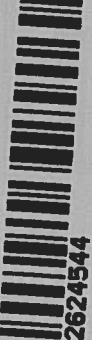
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WO#: 2624543



2624543

WO#: 2624544



2624544

CHAIN-OF-CUSTODY / Analytical Request

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant

Section A

Required Client Information:

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339
 Email: jabraham@southernco.com
 Phone: (404)506-7239 Fax:
 Requested Due Date:

Copy To: Lauren Petty, Resolute
 Purchase Order #: SCS10382775
 Project Name: Plant McManus App. III & IV
 Project #:

Section B

Required Project Information:

Report To: Jiji Abraham
 Attention: scsinvoices@southernco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@pace.com
 Pace Profile #:

Section C

Invoice Information:

Request: 1 of 1

ITEM #	MATRIX CODE <small>Drinking Water, Waste Water, Product, Oil, Air, Other, Tissue</small>	SAMPLE TYPE <small>(G=GRAB C=COMP)</small>	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives <small>H2SO4, HNO3, HCl, NaOH + Zn Ac, Na2S2O3, Methanol, Other</small>	Analyses Test <small>Y/N</small>	Residual Chrome (Y/N)
			START DATE	END TIME					
1	MCM-01	WTG	10/16/19 1332			5	H2SO4	Metals App III & IV TDS * Rad. um 226 & 228 * Anions * Mercury	
2	MCM-02	WTG	10/16/19 1115			5	H2SO4		
3	MCM-05	WTG	10/16/19 1526			7	H2SO4		
4	MCM-08	WTG	10/16/19 1522			5	H2SO4		
5	MCM-11	WTG	10/16/19 1547			5	H2SO4		
6	MCM-16	WTG	10/16/19 0959			5	H2SO4		
7	MCM-17	WTG	10/16/19 1037			5	H2SO4		
8	FDL101619	WTG	10/16/19 1435			4	H2SO4		
9	EGBL101619	WTG	10/16/19 1040			5	H2SO4		
10	DVP-2	WTG	10/16/19			5	H2SO4		
11									
12									

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C
Relolute / Veronica Fay	10/17/19	1200	Fcd Ex R. Adelman	10/17/19	1200		

Request: 1 of 1

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Joe Beeth & Veronica Fay
 SIGNATURE OF SAMPLER: [Signature] DATE Signed: 10/26/19

Mercury - EPA 7470
 ~Betsy McDaniel has list of parameters for App. III & IV.



Sample Condition Upon Receipt

WO#: 2624543

PM: BM Due Date: 10/25/19
CLIENT: GAPower-CCR

Client Name: GIA Power

WO#: 2624544

PM: BM Due Date: 11/15/19
CLIENT: GAPower-CCR

Courier: [X] Fed Ex [] UPS [] USPS [] Client [] Commercial [] Pace Other

Tracking #: 7803 2388 8290

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

Packing Material: [] Bubble Wrap [] Bubble Bags [X] None [] Other

Thermometer Used 83 Type of Ice: Wet Blue None [] Samples on ice, cooling process has begun

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10/18/19

Table with 16 rows and 2 columns. Rows include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot # (if purchased).

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

3000 W28

Project Manager Review: Date:

November 26, 2019

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2624544 PlantMcManusAppIII&IV
Pace Project No.: 30331322

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 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.

Revision 1 - This report replaces the November 15, 2019 report. This project was revised on November 26, 2019 to include the Ra-226/228 calc for all samples. (Greensburg, PA)

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

Sincerely,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2624544 PlantMcManusAppIII&IV

Pace Project No.: 30331322

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2624544 PlantMcManusAppIII&IV

Pace Project No.: 30331322

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624544001	MCM-01	Water	10/16/19 13:32	10/22/19 09:30
2624544002	MCM-02	Water	10/16/19 11:15	10/22/19 09:30
2624544003	MCM-05	Water	10/16/19 15:26	10/22/19 09:30
2624544004	MCM-08	Water	10/16/19 15:22	10/22/19 09:30
2624544005	MCM-11	Water	10/16/19 13:47	10/22/19 09:30
2624544006	MCM-16	Water	10/16/19 09:59	10/22/19 09:30
2624544007	MCM-17	Water	10/16/19 10:37	10/22/19 09:30
2624544008	FBL101619	Water	10/16/19 16:35	10/22/19 09:30
2624544009	EQBL101619	Water	10/16/19 16:40	10/22/19 09:30
2624544010	DUP-2	Water	10/16/19 00:01	10/22/19 09:30

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SAMPLE ANALYTE COUNT

Project: 2624544 PlantMcManusAppIII&IV
Pace Project No.: 30331322

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624544001	MCM-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544002	MCM-02	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544003	MCM-05	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544004	MCM-08	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544005	MCM-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544006	MCM-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544007	MCM-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544008	FBL101619	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544009	EQBL101619	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624544010	DUP-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2624544 PlantMcManusAppIII&IV
Pace Project No.: 30331322

Sample: MCM-01		Lab ID: 2624544001	Collected: 10/16/19 13:32	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.424 ± 0.304 (0.532) C:89% T:NA	pCi/L	11/07/19 08:48	13982-63-3	
Radium-228	EPA 9320	0.977 ± 0.663 (1.26) C:74% T:82%	pCi/L	11/08/19 20:22	15262-20-1	
Total Radium	Total Radium Calculation	1.40 ± 0.967 (1.79)	pCi/L	11/13/19 14:00	7440-14-4	

Sample: MCM-02		Lab ID: 2624544002	Collected: 10/16/19 11:15	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.422 ± 0.265 (0.396) C:94% T:NA	pCi/L	11/07/19 07:35	13982-63-3	
Radium-228	EPA 9320	-0.142 ± 0.661 (1.57) C:74% T:76%	pCi/L	11/08/19 20:24	15262-20-1	
Total Radium	Total Radium Calculation	0.422 ± 0.926 (1.97)	pCi/L	11/26/19 15:04	7440-14-4	

Sample: MCM-05		Lab ID: 2624544003	Collected: 10/16/19 15:26	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.856 ± 0.360 (0.356) C:94% T:NA	pCi/L	11/07/19 07:49	13982-63-3	
Radium-228	EPA 9320	1.06 ± 0.677 (1.29) C:77% T:86%	pCi/L	11/08/19 20:24	15262-20-1	
Total Radium	Total Radium Calculation	1.92 ± 1.04 (1.65)	pCi/L	11/26/19 15:04	7440-14-4	

Sample: MCM-08		Lab ID: 2624544004	Collected: 10/16/19 15:22	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	18.3 ± 2.68 (0.0682) C:95% T:NA	pCi/L	11/12/19 17:55	13982-63-3	
Radium-228	EPA 9320	6.95 ± 1.69 (1.57) C:72% T:82%	pCi/L	11/08/19 20:24	15262-20-1	
Total Radium	Total Radium Calculation	25.3 ± 4.37 (1.64)	pCi/L	11/26/19 15:04	7440-14-4	

Sample: MCM-11		Lab ID: 2624544005	Collected: 10/16/19 13:47	Received: 10/22/19 09:30	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.803 ± 0.358 (0.412) C:89% T:NA	pCi/L	11/07/19 07:36	13982-63-3	
Radium-228	EPA 9320	0.120 ± 0.539 (1.23) C:77% T:84%	pCi/L	11/08/19 20:25	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2624544 PlantMcManusAppIII&IV
Pace Project No.: 30331322

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: MCM-11 Lab ID: 2624544005 Collected: 10/16/19 13:47 Received: 10/22/19 09:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.923 ± 0.897 (1.64)	pCi/L	11/26/19 15:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: MCM-16 Lab ID: 2624544006 Collected: 10/16/19 09:59 Received: 10/22/19 09:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.921 ± 0.369 (0.332) C:91% T:NA	pCi/L	11/07/19 07:36	13982-63-3	
Radium-228	EPA 9320	0.940 ± 0.651 (1.26) C:78% T:84%	pCi/L	11/08/19 20:25	15262-20-1	
Total Radium	Total Radium Calculation	1.86 ± 1.02 (1.59)	pCi/L	11/26/19 15:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: MCM-17 Lab ID: 2624544007 Collected: 10/16/19 10:37 Received: 10/22/19 09:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	3.96 ± 0.895 (0.347) C:93% T:NA	pCi/L	11/07/19 07:36	13982-63-3	
Radium-228	EPA 9320	3.54 ± 1.06 (1.36) C:78% T:88%	pCi/L	11/08/19 20:25	15262-20-1	
Total Radium	Total Radium Calculation	7.50 ± 1.96 (1.71)	pCi/L	11/26/19 15:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: FBL101619 Lab ID: 2624544008 Collected: 10/16/19 16:35 Received: 10/22/19 09:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.956 ± 0.431 (0.574) C:85% T:NA	pCi/L	11/07/19 07:36	13982-63-3	
Radium-228	EPA 9320	0.439 ± 0.586 (1.25) C:77% T:89%	pCi/L	11/08/19 20:25	15262-20-1	
Total Radium	Total Radium Calculation	1.40 ± 1.02 (1.82)	pCi/L	11/26/19 15:04	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: EQBL101619 Lab ID: 2624544009 Collected: 10/16/19 16:40 Received: 10/22/19 09:30 Matrix: Water						
PWS: Site ID: Sample Type:						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.598 ± 0.315 (0.396) C:89% T:NA	pCi/L	11/07/19 07:36	13982-63-3	
Radium-228	EPA 9320	0.356 ± 0.527 (1.14) C:73% T:89%	pCi/L	11/08/19 20:25	15262-20-1	
Total Radium	Total Radium Calculation	0.954 ± 0.842 (1.54)	pCi/L	11/26/19 15:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2624544 PlantMcManusAppIII&IV

Pace Project No.: 30331322

Sample: DUP-2 **Lab ID: 2624544010** Collected: 10/16/19 00:01 Received: 10/22/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.08 ± 0.417 (0.416) C:91% T:NA	pCi/L	11/07/19 07:36	13982-63-3	
Radium-228	EPA 9320	1.09 ± 0.619 (1.12) C:77% T:87%	pCi/L	11/08/19 20:25	15262-20-1	
Total Radium	Total Radium Calculation	2.17 ± 1.04 (1.54)	pCi/L	11/26/19 15:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2624544 PlantMcManusAppIII&IV

Pace Project No.: 30331322

QC Batch: 368370

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624544001, 2624544002, 2624544003, 2624544004, 2624544005, 2624544006, 2624544007, 2624544008, 2624544009, 2624544010

METHOD BLANK: 1787257

Matrix: Water

Associated Lab Samples: 2624544001, 2624544002, 2624544003, 2624544004, 2624544005, 2624544006, 2624544007, 2624544008, 2624544009, 2624544010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.0477 ± 0.582 (1.37) C:76% T:75%	pCi/L	11/08/19 19:28	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2624544 PlantMcManusAppIII&IV

Pace Project No.: 30331322

QC Batch: 368369

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2624544001, 2624544002, 2624544003, 2624544004, 2624544005, 2624544006, 2624544007, 2624544008, 2624544009, 2624544010

METHOD BLANK: 1787256

Matrix: Water

Associated Lab Samples: 2624544001, 2624544002, 2624544003, 2624544004, 2624544005, 2624544006, 2624544007, 2624544008, 2624544009, 2624544010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.352 ± 0.285 (0.530) C:94% T:NA	pCi/L	11/07/19 07:21	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2624544 PlantMcManusAppIII&IV
Pace Project No.: 30331322

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA

Cert. Needed: Yes No

Workorder: 2624544 Subcontract To: Pace Analytical Pittsburgh

Owner Received Date: 10/18/2019 Results Requested By: 11/15/2019

Report To: Betsy McDaniel 110 Technology Parkway Peachtree Corners, GA 30092 Phone (770)734-4200

WO#: 30331322

30331322

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						HNO3		
1	MCM-01	PS	10/16/2019 13:32	2624544001	Water	2		001
2	MCM-02	PS	10/16/2019 11:15	2624544002	Water	2		002
3	MCM-05	PS	10/16/2019 15:26	2624544003	Water	4		003
4	MCM-08	PS	10/16/2019 15:22	2624544004	Water	2		004
5	MCM-11	PS	10/16/2019 13:47	2624544005	Water	2		005
6	MCM-16	PS	10/16/2019 09:59	2624544006	Water	2		006
7	MCM-17	PS	10/16/2019 10:37	2624544007	Water	2		007
8	FBL101619	PS	10/16/2019 16:35	2624544008	Water	2		008
9	EOBL101619	PS	10/16/2019 16:40	2624544009	Water	2		009
10	DUP-2	PS	10/16/2019 00:00	2624544010	Water	2		010

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1			<i>[Signature]</i>	10/22/19 0930				
2								
3								

Cooler Temperature on Receipt: _____ °C Custody Seal: Y or N Received on Ice: Y or N Samples Intact: Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace GA

Project # # 30331322

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1096 9308 4299

Label <u>OV</u>
LIMS Login <u>OV</u>

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

Thermometer Used NA Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>10/22/19 OVB</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. <u>10/22/19 OVB see comments</u>
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. <u>PH-12</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>OVB</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>OVB</u> Date: <u>10/22/19</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

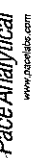
Comments/ Resolution: One bottle from Sample Dup. 2 received w/ lid off - spilled in water approximately 1400 mL left in bottle - marked as low volume

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 11/6/2019
Worklist: 50622
Matrix: DW

Method Blank Assessment	
MB Sample ID	1787256
MB concentration:	0.352
M/B Counting Uncertainty:	0.281
MB MDC:	0.530
MB Numerical Performance Indicator:	2.45
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSID (Y or N)?	N
LCS50622	LCS50622
Count Date:	11/7/2019
Spike ID:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.053
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.519
Target Conc. (pCi/L, g, F):	4.632
Uncertainty (Calculated):	0.056
Result (pCi/L, g, F):	4.973
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.765
Numerical Performance Indicator:	0.87
Percent Recovery:	107.36%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	2624542003
Duplicate Sample I.D.:	2624542003DUP
Sample Result (pCi/L, g, F):	3.496
Sample Result Counting Uncertainty (pCi/L, g, F):	0.615
Sample Duplicate Result (pCi/L, g, F):	3.553
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	0.626
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	-0.128
Duplicate RPD:	1.63%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Sample Matrix Spike Control Assessment		MS/MSD 1	MS/MSD 2
Sample Collection Date:			
Sample I.D.:			
Sample MS I.D.:			
Sample MSD I.D.:			
Spike I.D.:			
MS/MSD Decay Corrected Spike Concentration (pCi/mL):			
Spike Volume Used in MS (mL):			
Spike Volume Used in MSD (mL):			
MS Aliquot (L, g, F):			
MSD Aliquot (L, g, F):			
MS Target Conc. (pCi/L, g, F):			
MSD Target Conc. (pCi/L, g, F):			
MS Spike Uncertainty (calculated):			
MSD Spike Uncertainty (calculated):			
Sample Result Counting Uncertainty (pCi/L, g, F):			
Sample Matrix Spike Result:			
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):			
Sample Matrix Spike Duplicate Result:			
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):			
MS Numerical Performance Indicator:			
MSD Numerical Performance Indicator:			
MS Percent Recovery:			
MSD Percent Recovery:			
MS Status vs Numerical Indicator:			
MSD Status vs Numerical Indicator:			
MS Status vs Recovery:			
MSD Status vs Recovery:			
MS/MSD Upper % Recovery Limits:			
MS/MSD Lower % Recovery Limits:			

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):	
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	
MS/ MSD Duplicate Status vs Numerical Indicator:	
MS/ MSD Duplicate Status vs RPD:	
% RPD Limit:	

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

LAM 11/13/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Re-226
Analyst: LAL
Date: 11/6/2019
Worklist: 50622
Matrix: DW

Method Blank Assessment	
MB Sample ID	1787256
MB Concentration:	0.352
M/B Counting Uncertainty:	0.281
MB MDC:	0.530
MB Numerical Performance Indicator:	2.45
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS/D (Y or N)?	
	LCS-50622	Y
Count Date:	11/7/2019	LCS-50622
Spike I.D.:	19-033	11/7/2019
Decay Corrected Spike Concentration (pCi/mL):	24.053	19-033
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.519	0.512
Target Conc. (pCi/L, g, F):	4.632	4.700
Uncertainty (Calculated):	0.056	0.056
Result (pCi/L, g, F):	4.973	4.328
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.765	0.705
Numerical Performance Indicator:	0.87	-1.03
Percent Recovery:	107.36%	92.09%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	125%	125%
Lower % Recovery Limits:	75%	75%

Duplicate Sample Assessment	
Sample I.D.:	LCS-50622
Duplicate Sample I.D.:	LCS-50622
Sample Result (pCi/L, g, F):	4.973
Sample Result Counting Uncertainty (pCi/L, g, F):	0.765
Sample Duplicate Result (pCi/L, g, F):	4.328
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.705
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	1.215
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	15.31%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator:		
MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

UAM 11/13/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 11/14/2019
Worklist: 50623
Matrix: WT

Method Blank Assessment	
MB Sample ID	1787257
MB concentration:	-0.048
M/B 2 Sigma CSU:	0.582
MB MDC:	1.371
MB Numerical Performance Indicator:	-0.16
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSID (Y or N)?	
	LCS50623	Y
Count Date:	11/8/2019	LCS50623
Spike I.D.:	19-026	11/8/2019
Decay Corrected Spike Concentration (pCi/mL):	34.783	19-026
Volume Used (mL):	0.10	34.783
Aliquot Volume (L, g, F):	0.808	0.10
Target Conc. (pCi/L, g, F):	4.302	0.810
Uncertainty (Calculated):	0.211	4.296
Result (pCi/L, g, F):	3.306	0.210
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.853	4.684
Numerical Performance Indicator:	-2.22	1.079
Percent Recovery:	76.85%	0.69
Status vs Numerical Indicator:	N/A	109.04%
Status vs Recovery:	Pass	N/A
Upper % Recovery Limits:	135%	Pass
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	
Sample I.D.:	LCS50623
Duplicate Sample I.D.:	LCS50623
Sample Result (pCi/L, g, F):	3.306
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.853
Sample Duplicate Result (pCi/L, g, F):	4.684
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.079
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-1.963
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	34.64%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Pass
% RPD Limit:	36%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.: MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result 2 Sigma CSU (pCi/L, g, F): Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Handwritten signature/initials

Handwritten signature/initials

December 17, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT MCMANUS APP. III&IV
Pace Project No.: 2624794

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 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,



Kevin Herring for
Betsy McDaniel
betsy.mcdaniel@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624794001	MCM-06	Water	10/17/19 10:54	10/18/19 09:50
2624794002	MCM-07	Water	10/17/19 10:59	10/18/19 09:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624794001	MCM-06	EPA 6020B	CSW	13
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624794002	MCM-07	EPA 6020B	CSW	13
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS APP. III&IV
Pace Project No.: 2624794

Sample: MCM-06		Lab ID: 2624794001		Collected: 10/17/19 10:54		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	0.00090J	mg/L	0.0030	0.00027	1	10/28/19 20:04	10/29/19 19:33	7440-36-0	B	
Arsenic	0.34	mg/L	0.0050	0.00035	1	10/28/19 20:04	10/29/19 19:33	7440-38-2		
Barium	0.13	mg/L	0.010	0.00049	1	10/28/19 20:04	10/29/19 19:33	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/28/19 20:04	10/29/19 19:33	7440-41-7		
Boron	1.3	mg/L	0.040	0.0049	1	10/28/19 20:04	10/29/19 19:33	7440-42-8		
Calcium	309	mg/L	5.0	0.55	50	10/28/19 20:04	10/30/19 19:43	7440-70-2		
Chromium	0.0015J	mg/L	0.010	0.00039	1	10/28/19 20:04	10/29/19 19:33	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/28/19 20:04	10/29/19 19:33	7440-48-4		
Lead	0.00012J	mg/L	0.0050	0.000046	1	10/28/19 20:04	10/29/19 19:33	7439-92-1		
Lithium	0.12	mg/L	0.030	0.00078	1	10/28/19 20:04	10/29/19 19:33	7439-93-2		
Molybdenum	0.0017J	mg/L	0.010	0.00095	1	10/28/19 20:04	10/29/19 19:33	7439-98-7		
Selenium	0.0066J	mg/L	0.010	0.0013	1	10/28/19 20:04	10/29/19 19:33	7782-49-2		
Thallium	0.000076J	mg/L	0.0010	0.000052	1	10/28/19 20:04	10/29/19 19:33	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	16100	mg/L	10.0	10.0	1		10/25/19 16:37		H1	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	9930	mg/L	1000	24.0	1000		11/05/19 18:35	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/26/19 03:40	16984-48-8		
Sulfate	507	mg/L	500	8.5	500		11/05/19 01:58	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

Sample: MCM-07		Lab ID: 2624794002		Collected: 10/17/19 10:59		Received: 10/18/19 09:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/28/19 20:04	10/29/19 19:39	7440-36-0		
Arsenic	0.0046J	mg/L	0.0050	0.00035	1	10/28/19 20:04	10/29/19 19:39	7440-38-2		
Barium	0.35	mg/L	0.010	0.00049	1	10/28/19 20:04	10/29/19 19:39	7440-39-3		
Beryllium	0.000078J	mg/L	0.0030	0.000074	1	10/28/19 20:04	10/29/19 19:39	7440-41-7		
Boron	1.1	mg/L	0.040	0.0049	1	10/28/19 20:04	10/29/19 19:39	7440-42-8		
Calcium	260	mg/L	5.0	0.55	50	10/28/19 20:04	10/30/19 19:48	7440-70-2		
Chromium	0.0019J	mg/L	0.010	0.00039	1	10/28/19 20:04	10/29/19 19:39	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/28/19 20:04	10/29/19 19:39	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/28/19 20:04	10/29/19 19:39	7439-92-1		
Lithium	0.096	mg/L	0.030	0.00078	1	10/28/19 20:04	10/29/19 19:39	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/28/19 20:04	10/29/19 19:39	7439-98-7		
Selenium	0.0049J	mg/L	0.010	0.0013	1	10/28/19 20:04	10/29/19 19:39	7782-49-2	M1	
Thallium	ND	mg/L	0.0010	0.000052	1	10/28/19 20:04	10/29/19 19:39	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	13200	mg/L	10.0	10.0	1		10/25/19 16:37		H1	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	8210	mg/L	500	12.0	500		11/05/19 02:20	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/26/19 04:02	16984-48-8		
Sulfate	1230	mg/L	500	8.5	500		11/05/19 02:20	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS APP. III&IV
Pace Project No.: 2624794

QC Batch: 37696 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2624794001, 2624794002

METHOD BLANK: 171182 Matrix: Water
Associated Lab Samples: 2624794001, 2624794002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.00029J	0.0030	0.00027	10/29/19 19:20	
Arsenic	mg/L	ND	0.0050	0.00035	10/29/19 19:20	
Barium	mg/L	ND	0.010	0.00049	10/29/19 19:20	
Beryllium	mg/L	ND	0.0030	0.000074	10/29/19 19:20	
Boron	mg/L	ND	0.040	0.0049	10/29/19 19:20	
Calcium	mg/L	ND	0.10	0.011	10/29/19 19:20	
Chromium	mg/L	ND	0.010	0.00039	10/29/19 19:20	
Cobalt	mg/L	ND	0.0050	0.00030	10/29/19 19:20	
Lead	mg/L	ND	0.0050	0.000046	10/29/19 19:20	
Lithium	mg/L	ND	0.030	0.00078	10/29/19 19:20	
Molybdenum	mg/L	ND	0.010	0.00095	10/29/19 19:20	
Selenium	mg/L	ND	0.010	0.0013	10/29/19 19:20	
Thallium	mg/L	ND	0.0010	0.000052	10/29/19 19:20	

LABORATORY CONTROL SAMPLE: 171183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	113	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	0.99	99	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.11	106	80-120	
Lead	mg/L	0.1	0.11	106	80-120	
Lithium	mg/L	0.1	0.11	106	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.11	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171184 171185

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2624794002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	111	112	75-125	0	20	
Arsenic	mg/L	0.0046J	0.1	0.1	0.097	0.098	93	93	75-125	0	20	
Barium	mg/L	0.35	0.1	0.1	0.46	0.46	108	109	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

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QUALITY CONTROL DATA

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171184		171185		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624794002 Result	MS Spike Conc.	MSD Spike Conc.									
Beryllium	mg/L	0.000078J	0.1	0.1	0.090	0.091	90	91	75-125	1	20		
Boron	mg/L	1.1	1	1	1.9	1.9	78	81	75-125	1	20		
Calcium	mg/L	260	1	1	269	272	841	1200	75-125	1	20		
Chromium	mg/L	0.0019J	0.1	0.1	0.11	0.11	104	103	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.095	0.094	95	94	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.095	0.096	95	96	75-125	1	20		
Lithium	mg/L	0.096	0.1	0.1	0.20	0.20	101	102	75-125	0	20		
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	109	110	75-125	0	20		
Selenium	mg/L	0.0049J	0.1	0.1	0.051	0.048	46	43	75-125	5	20	M1	
Thallium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS APP. III&IV
Pace Project No.: 2624794

QC Batch: 37558 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624794001, 2624794002

LABORATORY CONTROL SAMPLE: 170357

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	399	100	84-108	

SAMPLE DUPLICATE: 170358

Parameter	Units	2624635002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1550	1650	6	10	

SAMPLE DUPLICATE: 170359

Parameter	Units	2624682011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1120	1090	2	10	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS APP. III&IV
Pace Project No.: 2624794

QC Batch: 37561 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624794001, 2624794002

METHOD BLANK: 170363 Matrix: Water
Associated Lab Samples: 2624794001, 2624794002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	10/25/19 16:33	

LABORATORY CONTROL SAMPLE: 170364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	10.8	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 170365 170366

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2624543001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Fluoride	mg/L	0.046J	10	10	10.1	10.2	101	101	90-110	1	15		

MATRIX SPIKE SAMPLE: 170367

Parameter	Units	2624543002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.044J	10	10.1	101	90-110	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS APP. III&IV
Pace Project No.: 2624794

QC Batch: 38283 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624794001, 2624794002

METHOD BLANK: 173780 Matrix: Water
Associated Lab Samples: 2624794001, 2624794002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.10J	1.0	0.024	11/06/19 00:40	
Sulfate	mg/L	0.066J	1.0	0.017	11/06/19 00:40	

LABORATORY CONTROL SAMPLE: 173781

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	10.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 173782 173783

Parameter	Units	2625229001		173783		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	2080	10	10	626	625	-14600	-14600	90-110	0	15
Sulfate	mg/L	5.8	10	10	17.1	16.9	113	111	90-110	1	15 M1

MATRIX SPIKE SAMPLE: 173784

Parameter	Units	2625211001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	8.4	20	27.3	94	90-110	
Sulfate	mg/L	ND	20	ND	0	90-110 M1	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

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.

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.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

H1 Analysis conducted outside the EPA method holding time.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS APP. III&IV

Pace Project No.: 2624794

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624794001	MCM-06	EPA 3005A	37696	EPA 6020B	37751
2624794002	MCM-07	EPA 3005A	37696	EPA 6020B	37751
2624794001	MCM-06	SM 2540C	37558		
2624794002	MCM-07	SM 2540C	37558		
2624794001	MCM-06	EPA 300.0	37561		
2624794001	MCM-06	EPA 300.0	38283		
2624794002	MCM-07	EPA 300.0	37561		
2624794002	MCM-07	EPA 300.0	38283		

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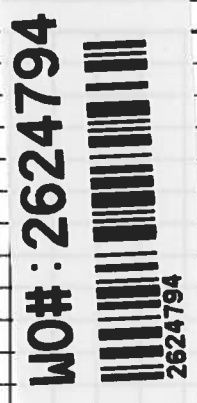
CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A	Section B	Section C
Required Client Information: Company: Georgia Power - Coal Combustion Residuals Address: 2480 Maner Road Atlanta, GA 30339 Email: jbraham@southernco.com Phone: (404)506-7239 Requested Due Date:	Required Project Information: Report To: Joli Abraham Copy To: Lauren Petty, Resolute Purchase Order #: SCS10382775 Project Name: Plant McManus App. III & IV Project #:	Invoice Information: Attention: scsinvoises@southernco.com Company Name: Address: Pace Project Manager: betsy.mcdaniel@paceclabs.com Pace Profile #: Regulatory Agency: State / Location: GA

Page: 1 Of 1

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	Preservatives				Y/N	Requested Analysis Filtered (Y/N)		
			START DATE	START TIME	END DATE	END TIME		Unpreserved	H2SO4	HNO3	HCl			NaOH + Zn Ac	Mehtanol
1	MTG	WTG	10/17/19	1054			52	3					X	* Metals App. III & IV	
2	MTG	WTG	10/17/19	1059			52	3					X	* TDS	
3													X	* Radium 226 & 228	
4													X	* Anions	
5													X	* Mercury	
6															
7															
8															
9															
10															
11															
12															



ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Metals App III & IV - EPA 1010/1029 Resolute/Veronica Fay	Veronica Fay	10/17/19	1200	FedEx	10/17/19	1200	
* TDS - SM 2540C					10/18	9:50	4.6
* Radium 226 & 228 - EPA 9315X 4320							
* Anions - EPA 300							

SAMPLER NAME AND SIGNATURE	DATE SIGNED
PRINT Name of SAMPLER: Joe Booth & Veronica Fay	10/17/19
SIGNATURE of SAMPLER: Veronica Fay	

* Mercury - EPA 1410
* Betsy McDaniel has list of parameters for App. III & IV

Sample Condition Upon Receipt

WO#: 2624794

Due Date: 10/25/19

PM: BM

CLIENT: GAPower-CCR

Pace Analytical

Client Name: GP-Mcmenus

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 083 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 4.6 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: _____

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____

Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

November 19, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339


RE: Project: PLANT MCMANUS APP. III&IV RAD
Pace Project No.: 2624793

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 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,



Betsy McDaniel
betsy.mcdaniel@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS APP. III&IV RAD
Pace Project No.: 2624793

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

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SAMPLE SUMMARY

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624793001	MCM-06	Water	10/17/19 10:54	10/18/19 09:50
2624793002	MCM-07	Water	10/17/19 10:59	10/18/19 09:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624793001	MCM-06	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624793002	MCM-07	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

Sample: MCM-06 **Lab ID: 2624793001** Collected: 10/17/19 10:54 Received: 10/18/19 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	4.83 ± 1.08 (0.438) C:75% T:NA	pCi/L	11/15/19 08:32	13982-63-3	
Radium-228	EPA 9320	3.02 ± 0.892 (1.16) C:75% T:72%	pCi/L	11/12/19 12:14	15262-20-1	
Total Radium	Total Radium Calculation	7.85 ± 1.97 (1.60)	pCi/L	11/18/19 14:56	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

Sample: MCM-07 **Lab ID: 2624793002** Collected: 10/17/19 10:59 Received: 10/18/19 09:50 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	3.82 ± 0.901 (0.470) C:81% T:NA	pCi/L	11/15/19 08:32	13982-63-3	
Radium-228	EPA 9320	4.15 ± 0.982 (0.831) C:80% T:79%	pCi/L	11/12/19 12:15	15262-20-1	
Total Radium	Total Radium Calculation	7.97 ± 1.88 (1.30)	pCi/L	11/18/19 14:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

QC Batch: 369306

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624793001, 2624793002

METHOD BLANK: 1791694

Matrix: Water

Associated Lab Samples: 2624793001, 2624793002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.317 ± 0.325 (0.673) C:79% T:91%	pCi/L	11/12/19 12:14	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

QC Batch:	369307	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2624793001, 2624793002		

METHOD BLANK:	1791695	Matrix:	Water
Associated Lab Samples:	2624793001, 2624793002		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.330 ± 0.234 (0.359) C:92% T:NA	pCi/L	11/15/19 08:32	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

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.

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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS APP. III&IV RAD

Pace Project No.: 2624793

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624793001	MCM-06	EPA 9315	369307		
2624793002	MCM-07	EPA 9315	369307		
2624793001	MCM-06	EPA 9320	369306		
2624793002	MCM-07	EPA 9320	369306		
2624793001	MCM-06	Total Radium Calculation	371524		
2624793002	MCM-07	Total Radium Calculation	371524		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Required Client Information:

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339
 Email: jabraham@southernco.com
 Phone: (404)506-7239 Fax: _____
 Requested Due Date: _____

Section B

Required Project Information:

Report To: Joju Abraham
 Copy To: Lauren Petty, Resolute
 Purchase Order #: SCS10382775
 Project Name: Plant McManus App. III & IV
 Project #: _____

Section C

Invoice Information:

Attention: scsinvoices@southernco.com
 Company Name: _____
 Address: _____
 Pace Quote: _____
 Pace Project Manager: betsy.mcdaniel@pacelabs.com,
 Pace Profile #: _____

Page: 1 Of

Regulatory Agency

State / Location

GA

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analyses Test Y/N	# Metals App. I & II	# TDS	# Radium 226 & 228	# Anions	# Mercury	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)														
						START		END				Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol							Other																										
						DATE	TIME	DATE	TIME																																										
1	MCM-06			WTG	G	10/17/19	1054				5	2	3								X	X	X	X	X																										
2	MCM-07			WTG	G	10/17/19	1059				5	2	3								X	X	X	X	X																										
3																																																			
4																																																			
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8																																																			
9																																																			
10																																																			
11																																																			
12																																																			
ADDITIONAL COMMENTS						RELINQUISHED BY / AFFILIATION			DATE	TIME	ACCEPTED BY / AFFILIATION						DATE	TIME	SAMPLE CONDITION																																
* Metals App III & IV - EPA 6010/6020						Resolute / Veronica Fay			10/17/19	1200	Fed Ex <i>[Signature]</i>						10/17/19	1200	Page 11 of 11																																
* TDS - SM 2540C																	10/18	9:50	4.6																																

December 05, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT MCMANUS CCR
Pace Project No.: 2626070

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2626070001	MCM-01	Water	11/20/19 15:12	11/22/19 08:44
2626070002	MCM-02	Water	11/19/19 15:48	11/22/19 08:44
2626070003	MCM-04	Water	11/20/19 09:24	11/22/19 08:44
2626070004	MCM-08	Water	11/19/19 13:54	11/22/19 08:44
2626070005	DUP-1	Water	11/19/19 00:00	11/22/19 08:44
2626070006	FBL111919	Water	11/19/19 16:24	11/22/19 08:44
2626070007	EQBL111919	Water	11/19/19 16:30	11/22/19 08:44
2626070008	MCM-05	Water	11/20/19 11:16	11/22/19 08:44
2626070009	MCM-07	Water	11/20/19 13:40	11/22/19 08:44
2626070010	MCM-14	Water	11/21/19 08:36	11/22/19 08:44
2626070011	MCM-17	Water	11/21/19 11:36	11/22/19 08:44

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2626070001	MCM-01	EPA 6020B	CSW	1
2626070002	MCM-02	EPA 6020B	CSW	1
2626070003	MCM-04	EPA 6020B	CSW	1
2626070004	MCM-08	EPA 6020B	CSW	1
2626070005	DUP-1	EPA 6020B	CSW	1
2626070006	FBL111919	EPA 6020B	CSW	2
2626070007	EQBL111919	EPA 6020B	CSW	2
2626070008	MCM-05	EPA 6020B	CSW	2
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2626070009	MCM-07	EPA 6020B	CSW	3
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2626070010	MCM-14	EPA 6020B	CSW	3
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2626070011	MCM-17	EPA 6020B	CSW	3
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MCM-01									
Lab ID: 2626070001									
Collected: 11/20/19 15:12 Received: 11/22/19 08:44 Matrix: Water									
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Arsenic	0.0064	mg/L	0.0050	0.00035	1	11/27/19 13:08	12/04/19 15:11	7440-38-2	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: MCM-02									
Lab ID: 2626070002									
Collected: 11/19/19 15:48 Received: 11/22/19 08:44 Matrix: Water									
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Arsenic	0.00057J	mg/L	0.0050	0.00035	1	11/27/19 13:08	12/04/19 15:34	7440-38-2	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: MCM-04		Lab ID: 2626070003		Collected: 11/20/19 09:24	Received: 11/22/19 08:44	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	0.0090	mg/L	0.0025	0.00030	1	11/27/19 13:08	12/04/19 15:40	7440-48-4		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: MCM-08	Lab ID: 2626070004	Collected: 11/19/19 13:54	Received: 11/22/19 08:44	Matrix: Water					
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Cobalt	0.0062J	mg/L	0.025	0.0030	10	11/27/19 13:08	12/05/19 16:41	7440-48-4	D3

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: DUP-1	Lab ID: 2626070005	Collected: 11/19/19 00:00	Received: 11/22/19 08:44	Matrix: Water					
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Cobalt	0.0066J	mg/L	0.025	0.0030	10	11/27/19 13:08	12/05/19 16:47	7440-48-4	D3

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: FBL111919		Lab ID: 2626070006		Collected: 11/19/19 16:24	Received: 11/22/19 08:44	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/27/19 13:08	12/04/19 16:33	7440-38-2		
Cobalt	ND	mg/L	0.0025	0.00030	1	11/27/19 13:08	12/04/19 16:33	7440-48-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: EQBL111919		Lab ID: 2626070007		Collected: 11/19/19 16:30	Received: 11/22/19 08:44	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/27/19 13:08	12/04/19 16:38	7440-38-2		
Cobalt	ND	mg/L	0.0025	0.00030	1	11/27/19 13:08	12/04/19 16:38	7440-48-4		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: MCM-05		Lab ID: 2626070008		Collected: 11/20/19 11:16	Received: 11/22/19 08:44	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Boron	0.53	mg/L	0.040	0.0049	1	11/27/19 13:08	12/04/19 16:44	7440-42-8		
Calcium	55.8	mg/L	5.0	0.55	50	11/27/19 13:08	12/04/19 16:50	7440-70-2		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	2640	mg/L	10.0	10.0	1		11/25/19 15:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1480	mg/L	100	2.4	100		11/28/19 04:17	16887-00-6		
Fluoride	0.34	mg/L	0.30	0.029	1		11/28/19 05:46	16984-48-8		
Sulfate	132	mg/L	100	1.7	100		11/28/19 04:17	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: MCM-07		Lab ID: 2626070009		Collected: 11/20/19 13:40		Received: 11/22/19 08:44		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Boron	1.3	mg/L	0.20	0.025	5	11/27/19 13:08	12/05/19 15:33	7440-42-8	
Calcium	308	mg/L	5.0	0.55	50	11/27/19 13:08	12/04/19 17:01	7440-70-2	
Lithium	0.12	mg/L	0.050	0.0039	5	11/27/19 13:08	12/05/19 15:33	7439-93-2	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	16700	mg/L	10.0	10.0	1		11/25/19 15:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	9810	mg/L	1000	24.0	1000		12/02/19 16:59	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		11/28/19 06:08	16984-48-8	
Sulfate	1550	mg/L	100	1.7	100		11/28/19 04:40	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: MCM-14		Lab ID: 2626070010		Collected: 11/21/19 08:36		Received: 11/22/19 08:44		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Boron	1.0	mg/L	0.040	0.0049	1	11/27/19 13:08	12/04/19 17:07	7440-42-8	
Calcium	305	mg/L	5.0	0.55	50	11/27/19 13:08	12/04/19 17:13	7440-70-2	
Lithium	0.052	mg/L	0.010	0.00078	1	11/27/19 13:08	12/04/19 17:07	7439-93-2	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	15800	mg/L	10.0	10.0	1		11/25/19 15:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	8330	mg/L	500	12.0	500		12/02/19 17:21	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		11/28/19 06:30	16984-48-8	
Sulfate	1070	mg/L	100	1.7	100		11/28/19 05:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

Sample: MCM-17		Lab ID: 2626070011		Collected: 11/21/19 11:36		Received: 11/22/19 08:44		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Arsenic	0.0031J	mg/L	0.0050	0.00035	1	11/27/19 13:08	12/04/19 17:18	7440-38-2	
Boron	1.5	mg/L	0.040	0.0049	1	11/27/19 13:08	12/04/19 17:18	7440-42-8	
Calcium	125	mg/L	5.0	0.55	50	11/27/19 13:08	12/04/19 17:24	7440-70-2	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	7720	mg/L	10.0	10.0	1		11/25/19 15:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	3890	mg/L	100	2.4	100		11/28/19 05:24	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		11/28/19 06:52	16984-48-8	
Sulfate	428	mg/L	100	1.7	100		11/28/19 05:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 2626070

QC Batch: 39683 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2626070001, 2626070002, 2626070003, 2626070004, 2626070005, 2626070006, 2626070007, 2626070008, 2626070009, 2626070010, 2626070011

METHOD BLANK: 180361 Matrix: Water
Associated Lab Samples: 2626070001, 2626070002, 2626070003, 2626070004, 2626070005, 2626070006, 2626070007, 2626070008, 2626070009, 2626070010, 2626070011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	12/04/19 15:00	
Boron	mg/L	ND	0.040	0.0049	12/04/19 15:00	
Calcium	mg/L	ND	0.10	0.011	12/04/19 15:00	
Cobalt	mg/L	ND	0.0025	0.00030	12/04/19 15:00	
Lithium	mg/L	ND	0.010	0.00078	12/04/19 15:00	

LABORATORY CONTROL SAMPLE: 180362

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.099	99	80-120	
Boron	mg/L	1	1.0	103	80-120	
Calcium	mg/L	1	1.0	102	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.10	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 180363 180364

Parameter	Units	2626070001		180364		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Arsenic	mg/L	0.0064	0.1	0.1	0.11	0.11	103	100	75-125	3	20		
Boron	mg/L	0.054	1	1	1.1	1.1	104	102	75-125	1	20		
Calcium	mg/L	12.2	1	1	13.3	13.0	106	82	75-125	2	20		
Cobalt	mg/L	ND	0.1	0.1	0.11	0.10	105	101	75-125	4	20		
Lithium	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20		

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

QC Batch: 39519 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 2626070008, 2626070009, 2626070010, 2626070011

LABORATORY CONTROL SAMPLE: 179739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	399	100	84-108	

SAMPLE DUPLICATE: 179740

Parameter	Units	2626028001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2460	2410	2	10	

SAMPLE DUPLICATE: 179741

Parameter	Units	2626084001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	80.0	88.0	10	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

QC Batch: 39693 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 2626070008, 2626070009, 2626070010, 2626070011

METHOD BLANK: 180385 Matrix: Water
 Associated Lab Samples: 2626070008, 2626070009, 2626070010, 2626070011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	11/27/19 17:15	
Fluoride	mg/L	ND	0.30	0.029	11/27/19 17:15	
Sulfate	mg/L	ND	1.0	0.017	11/27/19 17:15	

LABORATORY CONTROL SAMPLE: 180386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	90	90-110	
Fluoride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	10	10.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 180387 180388

Parameter	Units	2625876001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.6	10	10	15.8	15.7	92	92	90-110	0	15	
Fluoride	mg/L	ND	10	10	9.4	9.3	93	92	90-110	1	15	
Sulfate	mg/L	ND	10	10	14.4	14.2	96	94	90-110	1	15	

MATRIX SPIKE SAMPLE: 180389

Parameter	Units	2625876002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.7	10	15.3	76	90-110	M1
Fluoride	mg/L	ND	10	9.0	89	90-110	M1
Sulfate	mg/L	6.9	10	17.8	109	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PLANT MCMANUS CCR

Pace Project No.: 2626070

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.

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.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR
Pace Project No.: 2626070

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2626070001	MCM-01	EPA 3005A	39683	EPA 6020B	39702
2626070002	MCM-02	EPA 3005A	39683	EPA 6020B	39702
2626070003	MCM-04	EPA 3005A	39683	EPA 6020B	39702
2626070004	MCM-08	EPA 3005A	39683	EPA 6020B	39702
2626070005	DUP-1	EPA 3005A	39683	EPA 6020B	39702
2626070006	FBL111919	EPA 3005A	39683	EPA 6020B	39702
2626070007	EQBL111919	EPA 3005A	39683	EPA 6020B	39702
2626070008	MCM-05	EPA 3005A	39683	EPA 6020B	39702
2626070009	MCM-07	EPA 3005A	39683	EPA 6020B	39702
2626070010	MCM-14	EPA 3005A	39683	EPA 6020B	39702
2626070011	MCM-17	EPA 3005A	39683	EPA 6020B	39702
2626070008	MCM-05	SM 2540C	39519		
2626070009	MCM-07	SM 2540C	39519		
2626070010	MCM-14	SM 2540C	39519		
2626070011	MCM-17	SM 2540C	39519		
2626070008	MCM-05	EPA 300.0	39693		
2626070009	MCM-07	EPA 300.0	39693		
2626070010	MCM-14	EPA 300.0	39693		
2626070011	MCM-17	EPA 300.0	39693		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
 Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Manner Road
 Atlanta, GA 30339
 Email: Impathy@southemco.com
 Phone: _____ Fax: _____
 Requested Due Date: _____

Section B
 Required Project Information:
 Report To: Lauren Ferry
 Copy To: Kevin Stephenson, Stephen Wilson, Lea Millet, Trent Cochran
 Purchase Order #: _____
 Project Name: Plant McManus CCR
 Project #: _____

Section C
 Invoice Information:
 Attention: _____
 Company Name: _____
 Address: _____
 Pace Quote
 Pace Project Manager: kevin.hemm@pacelabs.com
 Pace Profile #: _____

Page: 1 of 1

#	ITEM	MATRIX CODE Drinking Water Waste Water Product Soil/Solid Oil Wine Air Other Tissue	COLLECTED		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analytes/Tests Y/N	Requested Analysis: Filtered (Y/N)	Residual Chlorine (Y/N)									
			Date	Time					Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol				Other	TDS, Cl, F, SO4	Metals 6020 App. III	Radium 226, 228	As Only Metals 6020	Co Only Metals 6020	Pb Only Metals 6020		
1	MCM-01		11/20/19	1512	G	G	1									X											
2	MCM-02		11/19/19	1548	G	G	1									X											
3	MCM-04		11/21/19	0924	G	G	1									X											
4	MCM-05		11/20/19	1116	G	G	2									X											
5	MCM-07		11/20/19	1340	G	G	2									X											
6	MCM-08		11/19/19	1354	G	G	1									X											
7	MCM-14		11/21/19	0836	G	G	2									X											
8	MCM-17		11/21/19	1136	G	G	2									X											
9	Dug-1		11/19/19	-	G	G	1									X											
10	FB-11/19/19		11/19/19	1624	G	G	2									X											
11	FB-11/19/19		11/19/19	1630	G	G	2									X											

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION: Kevin Stephenson 11/21/19 1540

ACCEPTED BY / AFFILIATION: K. WELLS/TON/PACE 11/21/19 1544 0.6 Y

DATE: 11/21/19 1540

TIME: 1540

TEMP IN C: _____

Received on: _____

Ice (Y/N): _____

Sealed (Y/N): _____

Cooler (Y/N): _____

Samples Intact (Y/N): _____

SAMPLER NAME AND SIGNATURE: _____

PRINT Name of SAMPLER: _____

SIGNATURE of SAMPLER: _____

DATE Signed: 11/21/19

WO#: 2626070

2626070



Client Name

WO#: 2626070

Project #

Courier: Fed Ex UPS USPS

PM: KH

Due Date: 12/03/19

Tracking #: 7782 138E

CLIENT: GAPower-CCR

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used TH2083

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

Cooler Temperature

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents:

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix: WT			
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Field Data Required? Y / N

Comments/ Resolution: _____

3000 W28

Project Manager Review:

Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

January 08, 2020

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2626065
Pace Project No.: 30342892

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 26, 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2626065
Pace Project No.: 30342892

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2626065
Pace Project No.: 30342892

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2626065005	MCM-07	Water	11/20/19 13:40	11/26/19 09:30
2626065007	MCM-14	Water	11/21/19 08:36	11/26/19 09:30
2626065008	MCM-17	Water	11/21/19 11:36	11/26/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2626065
Pace Project No.: 30342892

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2626065005	MCM-07	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626065007	MCM-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626065008	MCM-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2626065
Pace Project No.: 30342892

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	4.02 ± 1.08 (0.572) C:56% T:NA	pCi/L	01/03/20 08:20	13982-63-3	
Radium-228		EPA 9320	5.78 ± 1.30 (0.889) C:77% T:73%	pCi/L	01/06/20 11:50	15262-20-1	
Total Radium		Total Radium Calculation	9.80 ± 2.38 (1.46)	pCi/L	01/07/20 09:41	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	3.21 ± 0.781 (0.386) C:96% T:NA	pCi/L	01/03/20 08:12	13982-63-3	
Radium-228		EPA 9320	4.13 ± 0.973 (0.813) C:74% T:94%	pCi/L	01/06/20 11:50	15262-20-1	
Total Radium		Total Radium Calculation	7.34 ± 1.75 (1.20)	pCi/L	01/07/20 09:41	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	5.08 ± 1.10 (0.360) C:96% T:NA	pCi/L	01/03/20 08:20	13982-63-3	
Radium-228		EPA 9320	3.81 ± 0.962 (0.898) C:72% T:78%	pCi/L	01/06/20 11:50	15262-20-1	
Total Radium		Total Radium Calculation	8.89 ± 2.06 (1.26)	pCi/L	01/07/20 09:41	7440-14-4	

Sample: MCM-17 **Lab ID: 2626065008** Collected: 11/21/19 11:36 Received: 11/26/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid was added to one container to meet the sample preservation requirement of pH <2 for radiological analyses. The sample was preserved <2 within the required 5 days of collection.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2626065
Pace Project No.: 30342892

QC Batch:	377631	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2626065005, 2626065007, 2626065008		

METHOD BLANK:	1831482	Matrix:	Water
Associated Lab Samples:	2626065005, 2626065007, 2626065008		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.397 ± 0.277 (0.443) C:99% T:NA	pCi/L	01/03/20 08:04	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2626065
Pace Project No.: 30342892

QC Batch:	377622	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2626065005, 2626065007, 2626065008		

METHOD BLANK:	1831430	Matrix:	Water
Associated Lab Samples:	2626065005, 2626065007, 2626065008		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.390 ± 0.409 (0.850) C:76% T:81%	pCi/L	01/06/20 11:47	

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

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QUALIFIERS

Project: 2626065
Pace Project No.: 30342892

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody



Samples were sent directly to the Subcontracting Laboratory. State Of Origin: GA Yes No

Workorder: 2626065 Workorder Name: PLANT MCMANUS CCR

Owner Received Date: 11/22/2019 Results Requested By: 12/24/2019

Report To: **Kevin Herring**
Pace Analytical Charlotte
9800 Kincey Ave.
Suite 100
Huntersville, NC 28078
Phone (704)875-9092

Subcontract To: **Pace Analytical Pittsburgh**
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601
Phone (724)850-5600

RAD 226/228

WO#: 30342892

30342892

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				LAB USE ONLY	
						1	2	3	4		
1	MCM-07	PS	11/20/2019 13:40	2626065005	Water					X	∞/1
2	MCM-14	PS	11/21/2019 08:36	2626065007	Water					X	002
3	MCM-17	PS	11/21/2019 11:36	2626065008	Water					X	003
4											
5											

Comments

Transfers Released By: *[Signature]* Received By: *[Signature]* Date/Time: 11-26-19 09:30 AM 12-31-19

Cooler Temperature on Receipt: *N/A* °C Custody Seal: Y or *N* Received on Ice: Y or *N* Samples Intact: Y or *N*

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace Georgia Charlotte

Project # #-30342892

Courier: Fed Ex UPS USPS Client Commercial Pace Other DM 11-31-19

Label BUM
LIMS Login BUM

Tracking #: 106993092605

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

Thermometer Used NA Type of Ice: Wet Blue None

Cooler Temperature Observed Temp NA °C Correction Factor: NA °C Final Temp: NA °C
Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>BA 11-26-19</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>			1. <u>10D0391</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>			2.
Chain of Custody Relinquished:		<input checked="" type="checkbox"/>		3.
Sampler Name & Signature on COC:		<input checked="" type="checkbox"/>		4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>BA 11-26-19</u>	5.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>			6.
Short Hold Time Analysis (<72hr remaining):		<input checked="" type="checkbox"/>		7.
Rush Turn Around Time Requested:		<input checked="" type="checkbox"/>		8.
Sufficient Volume:	<input checked="" type="checkbox"/>			9.
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>			10.
Containers Intact:	<input checked="" type="checkbox"/>			11.
Orthophosphate field filtered			<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered			<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:			<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests			<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input checked="" type="checkbox"/>			16. <u>Added 25 ml to sample 2626065008 1x ONLY</u> <u>Added to one bottle.</u>
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>			Initial when completed: <u>BA</u> Date/time of preservation: <u>11-26-19 1609</u> Lot # of added preservative: <u>DL19-1322</u>
Headspace in VOA Vials (>6mm):			<input checked="" type="checkbox"/>	17.
Trip Blank Present:			<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present			<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>			Initial when completed: <u>BA</u> Date: <u>11-26-19</u>

Client Notification/ Resolution:

Person-Contacted: _____ Date/Time: _____ Contacted-By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Test: Ra-226
Analyst: LAL
Date: 1/2/2020
Worklist: 51690
Matrix: DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1831482
MB concentration:	0.397
M/B Counting Uncertainty:	0.271
MB MDC:	0.443
MB Numerical Performance Indicator:	2.87
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCSD (Y or N)?	Y
Count Date:	1/3/2020	LCSD51690	1/3/2020
Spike I.D.:	19-033		19-033
Decay Corrected Spike Concentration (pCi/mL):	24.052		24.052
Volume Used (mL):	0.10		0.10
Aliquot Volume (L, g, F):	0.504		0.506
Target Conc. (pCi/L, g, F):	4.776		4.754
Uncertainty (Calculated):	0.057		0.057
Result (pCi/L, g, F):	4.574		4.999
LCSD Counting Uncertainty (pCi/L, g, F):	0.792		0.812
Numerical Performance Indicator:	-0.50		0.59
Percent Recovery:	95.77%		105.14%
Status vs Numerical Indicator:	N/A		N/A
Upper % Recovery Limits:	Pass		Pass
Lower % Recovery Limits:	125%		125%
	75%		75%

Duplicate Sample Assessment	
Sample I.D.:	LCSD51690
Duplicate Sample I.D.:	LCSD51690
Sample Result (pCi/L, g, F):	4.574
Sample Duplicate Result (pCi/L, g, F):	0.792
Sample Duplicate Result (pCi/L, g, F):	4.999
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-0.734
(Based on the LCSD/LCSD Percent Recoveries) Duplicate RPD:	9.32%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.: MS/MSD Decay Corrected Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MSD Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Am 1/3/20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 1/3/2020
Worklist: 51686
Matrix: WT

Method Blank Assessment	
MB Sample ID	1831430
MB concentration:	0.390
M/B 2 Sigma CSU:	0.409
MB MDC:	0.850
MB Numerical Performance Indicator:	1.87
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCSS1686	Y
Count Date:	1/6/2020	1/6/2020
Spike I.D.:	19-057	19-057
Decay Corrected Spike Concentration (pCi/mL):	35.639	35.639
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.802	0.812
Target Conc. (pCi/L, g, F):	4.443	4.390
Uncertainty (calculated):	0.320	0.316
Result (pCi/L, g, F):	5.033	3.994
LCSD/LCSD 2 Sigma CSU (pCi/L, g, F):	1.148	0.936
Numerical Performance Indicator:	0.97	-0.79
Percent Recovery:	113.27%	90.97%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	Matrix Spike/Matrix Spike Duplicate Sample Assessment
<p>Sample I.D.: Duplicate Sample I.D.:</p> <p>Sample Result (pCi/L, g, F): Sample Duplicate Result (pCi/L, g, F):</p> <p>Sample Result 2 Sigma CSU (pCi/L, g, F): Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):</p> <p>Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F): Are sample and/or duplicate results below RL?</p> <p>Duplicate Numerical Performance Indicator: (Based on the LCSD/LCSD Percent Recoveries) Duplicate RPD:</p> <p>Duplicate Status vs Numerical Indicator: Duplicate Status vs RPD: % RPD Limit:</p>	<p>Sample I.D.:</p> <p>Sample MS I.D.:</p> <p>Sample MSD I.D.:</p> <p>Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result:</p> <p>Sample Matrix Spike Duplicate Result:</p> <p>Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:</p>

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

JS 1-7-20
MS 1-7-20

December 17, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 08, 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,



Kevin Herring for
Betsy McDaniel
betsy.mcdaniel@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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SAMPLE SUMMARY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2625466001	MCM-19	Water	11/07/19 08:56	11/08/19 10:10
2625466002	MCM-20	Water	11/07/19 11:00	11/08/19 10:10
2625466003	MCM-18	Water	11/07/19 13:30	11/08/19 10:10
2625466004	FBL110719	Water	11/07/19 13:58	11/08/19 10:10
2625466005	EQBL110719	Water	11/07/19 14:04	11/08/19 10:10
2625466006	DUP-1	Water	11/07/19 00:00	11/08/19 10:10

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SAMPLE ANALYTE COUNT

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2625466001	MCM-19	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625466002	MCM-20	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625466003	MCM-18	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625466004	FBL110719	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625466005	EQBL110719	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625466006	DUP-1	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

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ANALYTICAL RESULTS

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Sample: MCM-19		Lab ID: 2625466001		Collected: 11/07/19 08:56		Received: 11/08/19 10:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/12/19 14:24	11/13/19 21:52	7440-36-0		
Arsenic	0.0094J	mg/L	0.025	0.0018	5	11/12/19 14:24	11/14/19 14:31	7440-38-2	D3	
Barium	0.22	mg/L	0.010	0.00049	1	11/12/19 14:24	11/13/19 21:52	7440-39-3		
Beryllium	0.0068J	mg/L	0.015	0.00037	5	11/12/19 14:24	11/14/19 14:31	7440-41-7	D3	
Boron	0.84	mg/L	0.20	0.025	5	11/12/19 14:24	11/14/19 14:31	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	11/12/19 14:24	11/13/19 21:52	7440-43-9		
Calcium	158	mg/L	5.0	0.55	50	11/12/19 14:24	11/13/19 21:58	7440-70-2		
Chromium	0.0050J	mg/L	0.050	0.0020	5	11/12/19 14:24	11/14/19 14:31	7440-47-3	D3	
Cobalt	ND	mg/L	0.025	0.0015	5	11/12/19 14:24	11/14/19 14:31	7440-48-4	D3	
Lead	0.00063J	mg/L	0.0050	0.000046	1	11/12/19 14:24	11/13/19 21:52	7439-92-1		
Lithium	0.015J	mg/L	0.15	0.0039	5	11/12/19 14:24	11/14/19 14:31	7439-93-2	D3	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/12/19 14:24	11/13/19 21:52	7439-98-7		
Selenium	0.063	mg/L	0.050	0.0063	5	11/12/19 14:24	11/14/19 14:31	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/12/19 14:24	11/13/19 21:52	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/12/19 13:45	11/13/19 12:19	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	10900	mg/L	10.0	10.0	1		11/12/19 17:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	6170	mg/L	1000	24.0	1000		11/13/19 19:47	16887-00-6	M1	
Fluoride	ND	mg/L	0.30	0.029	1		11/13/19 09:06	16984-48-8	M1	
Sulfate	832	mg/L	100	1.7	100		11/13/19 16:06	14808-79-8	M1	

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ANALYTICAL RESULTS

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

Sample: MCM-20		Lab ID: 2625466002		Collected: 11/07/19 11:00		Received: 11/08/19 10:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/12/19 14:24	11/13/19 22:04	7440-36-0		
Arsenic	0.026	mg/L	0.025	0.0018	5	11/12/19 14:24	11/14/19 14:37	7440-38-2		
Barium	0.16	mg/L	0.010	0.00049	1	11/12/19 14:24	11/13/19 22:04	7440-39-3		
Beryllium	0.021	mg/L	0.015	0.00037	5	11/12/19 14:24	11/14/19 14:37	7440-41-7		
Boron	1.1	mg/L	0.20	0.025	5	11/12/19 14:24	11/14/19 14:37	7440-42-8		
Cadmium	0.00034J	mg/L	0.0025	0.00011	1	11/12/19 14:24	11/13/19 22:04	7440-43-9		
Calcium	163	mg/L	5.0	0.55	50	11/12/19 14:24	11/13/19 22:09	7440-70-2		
Chromium	0.0083J	mg/L	0.010	0.00039	1	11/12/19 14:24	11/13/19 22:04	7440-47-3		
Cobalt	0.026	mg/L	0.0050	0.00030	1	11/12/19 14:24	11/13/19 22:04	7440-48-4		
Lead	0.0019J	mg/L	0.0050	0.000046	1	11/12/19 14:24	11/13/19 22:04	7439-92-1		
Lithium	0.026J	mg/L	0.15	0.0039	5	11/12/19 14:24	11/14/19 14:37	7439-93-2	D3	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/12/19 14:24	11/13/19 22:04	7439-98-7		
Selenium	0.12	mg/L	0.050	0.0063	5	11/12/19 14:24	11/14/19 14:37	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/12/19 14:24	11/13/19 22:04	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/12/19 13:45	11/13/19 12:22	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	13500	mg/L	10.0	10.0	1		11/12/19 17:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	7880	mg/L	1000	24.0	1000		11/13/19 20:09	16887-00-6		
Fluoride	1.4	mg/L	0.30	0.029	1		11/13/19 10:12	16984-48-8		
Sulfate	1010	mg/L	100	1.7	100		11/13/19 16:28	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Sample: MCM-18		Lab ID: 2625466003		Collected: 11/07/19 13:30		Received: 11/08/19 10:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/12/19 14:24	11/13/19 22:15	7440-36-0		
Arsenic	0.0067	mg/L	0.0050	0.00035	1	11/12/19 14:24	11/13/19 22:15	7440-38-2		
Barium	0.12	mg/L	0.010	0.00049	1	11/12/19 14:24	11/13/19 22:15	7440-39-3		
Beryllium	0.0070	mg/L	0.0030	0.000074	1	11/12/19 14:24	11/13/19 22:15	7440-41-7		
Boron	0.27	mg/L	0.040	0.0049	1	11/12/19 14:24	11/13/19 22:15	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	11/12/19 14:24	11/13/19 22:15	7440-43-9		
Calcium	46.2	mg/L	5.0	0.55	50	11/12/19 14:24	11/13/19 22:21	7440-70-2		
Chromium	0.0038J	mg/L	0.010	0.00039	1	11/12/19 14:24	11/13/19 22:15	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	11/12/19 14:24	11/13/19 22:15	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	11/12/19 14:24	11/13/19 22:15	7439-92-1		
Lithium	0.0055J	mg/L	0.030	0.00078	1	11/12/19 14:24	11/13/19 22:15	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	11/12/19 14:24	11/13/19 22:15	7439-98-7		
Selenium	0.036	mg/L	0.010	0.0013	1	11/12/19 14:24	11/13/19 22:15	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/12/19 14:24	11/13/19 22:15	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/12/19 13:45	11/13/19 12:36	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	4140	mg/L	10.0	10.0	1		11/12/19 17:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	2360	mg/L	100	2.4	100		11/13/19 16:50	16887-00-6		
Fluoride	0.49	mg/L	0.30	0.029	1		11/13/19 10:34	16984-48-8	B	
Sulfate	379	mg/L	100	1.7	100		11/13/19 16:50	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Sample: FBL110719		Lab ID: 2625466004		Collected: 11/07/19 13:58	Received: 11/08/19 10:10	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/12/19 14:24	11/13/19 22:27	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	11/12/19 14:24	11/13/19 22:27	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	11/12/19 14:24	11/13/19 22:27	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	11/12/19 14:24	11/13/19 22:27	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	11/12/19 14:24	11/13/19 22:27	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	11/12/19 14:24	11/13/19 22:27	7440-43-9		
Calcium	0.013J	mg/L	0.10	0.011	1	11/12/19 14:24	11/13/19 22:27	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	11/12/19 14:24	11/13/19 22:27	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	11/12/19 14:24	11/13/19 22:27	7440-48-4		
Lead	0.000048J	mg/L	0.0050	0.000046	1	11/12/19 14:24	11/13/19 22:27	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	11/12/19 14:24	11/13/19 22:27	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	11/12/19 14:24	11/13/19 22:27	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	11/12/19 14:24	11/13/19 22:27	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/12/19 14:24	11/13/19 22:27	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/12/19 13:45	11/13/19 12:38	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		11/12/19 17:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1.5	mg/L	1.0	0.024	1		11/13/19 10:56	16887-00-6		
Fluoride	0.038J	mg/L	0.30	0.029	1		11/13/19 10:56	16984-48-8	B	
Sulfate	2.0	mg/L	1.0	0.017	1		11/13/19 10:56	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Sample: EQBL110719		Lab ID: 2625466005		Collected: 11/07/19 14:04		Received: 11/08/19 10:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/12/19 14:24	11/13/19 22:44	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	11/12/19 14:24	11/13/19 22:44	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	11/12/19 14:24	11/13/19 22:44	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	11/12/19 14:24	11/13/19 22:44	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	11/12/19 14:24	11/13/19 22:44	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	11/12/19 14:24	11/13/19 22:44	7440-43-9		
Calcium	0.022J	mg/L	0.10	0.011	1	11/12/19 14:24	11/13/19 22:44	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	11/12/19 14:24	11/13/19 22:44	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	11/12/19 14:24	11/13/19 22:44	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	11/12/19 14:24	11/13/19 22:44	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	11/12/19 14:24	11/13/19 22:44	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	11/12/19 14:24	11/13/19 22:44	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	11/12/19 14:24	11/13/19 22:44	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/12/19 14:24	11/13/19 22:44	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/12/19 13:45	11/13/19 12:41	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		11/12/19 17:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.37J	mg/L	1.0	0.024	1		11/13/19 11:18	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		11/13/19 11:18	16984-48-8		
Sulfate	0.039J	mg/L	1.0	0.017	1		11/13/19 11:18	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

Sample: DUP-1		Lab ID: 2625466006		Collected: 11/07/19 00:00		Received: 11/08/19 10:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/12/19 14:24	11/13/19 22:50	7440-36-0		
Arsenic	0.010	mg/L	0.0050	0.00035	1	11/12/19 14:24	11/13/19 22:50	7440-38-2		
Barium	0.20	mg/L	0.010	0.00049	1	11/12/19 14:24	11/13/19 22:50	7440-39-3		
Beryllium	0.0068J	mg/L	0.015	0.00037	5	11/12/19 14:24	11/14/19 14:42	7440-41-7	D3	
Boron	0.29	mg/L	0.20	0.025	5	11/12/19 14:24	11/14/19 14:42	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	11/12/19 14:24	11/13/19 22:50	7440-43-9		
Calcium	40.0	mg/L	0.50	0.055	5	11/12/19 14:24	11/14/19 14:42	7440-70-2		
Chromium	0.0049J	mg/L	0.010	0.00039	1	11/12/19 14:24	11/13/19 22:50	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	11/12/19 14:24	11/13/19 22:50	7440-48-4		
Lead	0.00012J	mg/L	0.0050	0.000046	1	11/12/19 14:24	11/13/19 22:50	7439-92-1		
Lithium	0.0053J	mg/L	0.15	0.0039	5	11/12/19 14:24	11/14/19 14:42	7439-93-2	D3	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/12/19 14:24	11/13/19 22:50	7439-98-7		
Selenium	0.075	mg/L	0.010	0.0013	1	11/12/19 14:24	11/13/19 22:50	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/12/19 14:24	11/13/19 22:50	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/12/19 13:45	11/13/19 12:43	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	11100	mg/L	10.0	10.0	1		11/12/19 17:13			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	6430	mg/L	1000	24.0	1000		11/13/19 20:54	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		11/13/19 11:40	16984-48-8		
Sulfate	814	mg/L	100	1.7	100		11/13/19 17:12	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

QC Batch: 38630 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

METHOD BLANK: 175574 Matrix: Water
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	11/13/19 12:07	

LABORATORY CONTROL SAMPLE: 175575

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0027	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 175576 175577

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2625466002 Result	Spike Conc.	Spike Conc.	Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0028	0.0027	112	109	75-125	3	20

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QUALITY CONTROL DATA

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

QC Batch: 38622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

METHOD BLANK: 175522 Matrix: Water
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	11/13/19 20:26	
Arsenic	mg/L	0.00048J	0.0050	0.00035	11/13/19 20:26	
Barium	mg/L	ND	0.010	0.00049	11/13/19 20:26	
Beryllium	mg/L	ND	0.0030	0.000074	11/13/19 20:26	
Boron	mg/L	ND	0.040	0.0049	11/13/19 20:26	
Cadmium	mg/L	ND	0.0025	0.00011	11/13/19 20:26	
Calcium	mg/L	ND	0.10	0.011	11/13/19 20:26	
Chromium	mg/L	ND	0.010	0.00039	11/13/19 20:26	
Cobalt	mg/L	ND	0.0050	0.00030	11/13/19 20:26	
Lead	mg/L	ND	0.0050	0.000046	11/13/19 20:26	
Lithium	mg/L	ND	0.030	0.00078	11/13/19 20:26	
Molybdenum	mg/L	ND	0.010	0.00095	11/13/19 20:26	
Selenium	mg/L	ND	0.010	0.0013	11/13/19 20:26	
Thallium	mg/L	ND	0.0010	0.000052	11/13/19 20:26	

LABORATORY CONTROL SAMPLE: 175523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	110	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.11	105	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Boron	mg/L	1	1.0	104	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	105	80-120	
Lithium	mg/L	0.1	0.10	103	80-120	
Molybdenum	mg/L	0.1	0.11	109	80-120	
Selenium	mg/L	0.1	0.093	93	80-120	
Thallium	mg/L	0.1	0.10	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 175524 175525

Parameter	Units	2625374003 Result	MS		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.							
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	105	75-125	1	20

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QUALITY CONTROL DATA

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 175524		175525		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2625374003 Result	MS Spike Conc.	MSD Spike Conc.									
Arsenic	mg/L	0.011	0.1	0.1	0.11	0.11	98	97	75-125	1	20		
Barium	mg/L	0.078	0.1	0.1	0.18	0.18	105	102	75-125	2	20		
Beryllium	mg/L	0.000079J	0.1	0.1	0.099	0.10	99	100	75-125	2	20		
Boron	mg/L	0.048	1	1	1.0	1.0	100	100	75-125	0	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	1	20		
Calcium	mg/L	28.2	1	1	29.1	28.6	98	47	75-125	2	20	M6	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Cobalt	mg/L	0.014	0.1	0.1	0.11	0.11	99	97	75-125	2	20		
Lead	mg/L	0.00011J	0.1	0.1	0.10	0.096	99	96	75-125	4	20		
Lithium	mg/L	0.033	0.1	0.1	0.14	0.13	103	99	75-125	3	20		
Molybdenum	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20		
Selenium	mg/L	ND	0.1	0.1	0.096	0.096	96	96	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	2	20		

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QUALITY CONTROL DATA

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

QC Batch: 38694 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

LABORATORY CONTROL SAMPLE: 175768

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	393	98	84-108	

SAMPLE DUPLICATE: 175769

Parameter	Units	2625494001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	85.0	82.0	4	10	

SAMPLE DUPLICATE: 175770

Parameter	Units	2625494011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	90.0	99.0	10	10	

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QUALITY CONTROL DATA

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

QC Batch: 38709 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

METHOD BLANK: 175821 Matrix: Water
Associated Lab Samples: 2625466001, 2625466002, 2625466003, 2625466004, 2625466005, 2625466006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	11/13/19 08:22	
Fluoride	mg/L	0.098J	0.30	0.029	11/13/19 08:22	
Sulfate	mg/L	ND	1.0	0.017	11/13/19 08:22	

LABORATORY CONTROL SAMPLE: 175822

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.9	99	90-110	
Fluoride	mg/L	10	9.9	99	90-110	
Sulfate	mg/L	10	9.5	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 175823 175824

Parameter	Units	2625466001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	0.72	0.68	7	7	90-110	6	15	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

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QUALIFIERS

Project: Georgia Power - Plant McManus

Pace Project No.: 2625466

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.

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.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Georgia Power - Plant McManus
Pace Project No.: 2625466

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2625466001	MCM-19	EPA 3005A	38622	EPA 6020B	38720
2625466002	MCM-20	EPA 3005A	38622	EPA 6020B	38720
2625466003	MCM-18	EPA 3005A	38622	EPA 6020B	38720
2625466004	FBL110719	EPA 3005A	38622	EPA 6020B	38720
2625466005	EQBL110719	EPA 3005A	38622	EPA 6020B	38720
2625466006	DUP-1	EPA 3005A	38622	EPA 6020B	38720
2625466001	MCM-19	EPA 7470A	38630	EPA 7470A	38698
2625466002	MCM-20	EPA 7470A	38630	EPA 7470A	38698
2625466003	MCM-18	EPA 7470A	38630	EPA 7470A	38698
2625466004	FBL110719	EPA 7470A	38630	EPA 7470A	38698
2625466005	EQBL110719	EPA 7470A	38630	EPA 7470A	38698
2625466006	DUP-1	EPA 7470A	38630	EPA 7470A	38698
2625466001	MCM-19	SM 2540C	38694		
2625466002	MCM-20	SM 2540C	38694		
2625466003	MCM-18	SM 2540C	38694		
2625466004	FBL110719	SM 2540C	38694		
2625466005	EQBL110719	SM 2540C	38694		
2625466006	DUP-1	SM 2540C	38694		
2625466001	MCM-19	EPA 300.0	38709		
2625466002	MCM-20	EPA 300.0	38709		
2625466003	MCM-18	EPA 300.0	38709		
2625466004	FBL110719	EPA 300.0	38709		
2625466005	EQBL110719	EPA 300.0	38709		
2625466006	DUP-1	EPA 300.0	38709		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Information:
 Company: Georgia Power
 Address: 2480 Manor Road
 Atlanta, GA 30339
 Phone: (404) 506-7239
 Fax: (404) 506-7239
 E-mail: labraham@southemco.com

Section B
Required Project Information:
 Report To: Jitu Abraham / Lauren Parry
 Copy To: Resolute
 Purchase Order #: SCS10382775
 Project Name: Georgia Power - Plant McManus CCR Scope
 Project #:
 Requested Due Date:
 Regulatory Agency:
 State / Location: GA

Section C
Invoice Information:
 Attention: SCSInvoices@southemco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: Detry, medaniel@pacelabs.com
 Pace Profile #: 334 1 2
 Requested Analysis Filtered (Y/N):
 Page: 1 of 1

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9, -) Sample IDs must be unique	MATRIX Drinking Water Water Wastewater Product Seawater Oil Wipe Air Other Tissue	CODE DW WT WW P SL CK WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION		# OF CONTAINERS		Preservatives							Analyses Test					Residual Chlorine (Y/N)																						
						START DATE TIME	END DATE TIME	UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Radium 226/228	Metals App. III & App. IV	Chloride, Fluoride, Sulfate	TDS by 2540C																										
1	MCM-19										4	1	3																																	
2	MCM-20										4	1	3																																	
3	MCM-18										4	1	3																																	
4	EBL1019										4	1	3																																	
5	EBL1019										4	1	3																																	
6	Dug-1										4	1	3																																	
7																																														
8																																														
9																																														
10																																														
11																																														
12																																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS TEMP in C Received on Ice (Y/N) Custody Sealed Cooler (Y/N) Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:
 Signature of SAMPLER: [Signature]
 DATE Signed: 11/19/19

PRINT Name of SAMPLER:
 Signature of SAMPLER: [Signature]
 DATE Signed: 11/19/19

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

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project #

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)		
1				1	2																								
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

FOR OFF

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (Out of hold, incorrect preservative, out of temp, incorrect containers).

December 10, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: Georgia Power - Plant McManus
Pace Project No.: 2625465

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 08, 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,



Kevin Herring for
Betsy McDaniel
betsy.mcdaniel@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Georgia Power - Plant McManus
Pace Project No.: 2625465

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Georgia Power - Plant McManus
Pace Project No.: 2625465

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2625465001	MCM-19	Water	11/07/19 08:56	11/08/19 10:10
2625465002	MCM-20	Water	11/07/19 11:00	11/08/19 10:10
2625465003	MCM-18	Water	11/07/19 13:30	11/08/19 10:10
2625465004	FBL110719	Water	11/07/19 13:58	11/08/19 10:10
2625465005	EQBL110719	Water	11/07/19 14:04	11/08/19 10:10
2625465006	DUP-1	Water	11/07/19 00:00	11/08/19 10:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2625465001	MCM-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625465002	MCM-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625465003	MCM-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625465004	FBL110719	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625465005	EQBL110719	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625465006	DUP-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Sample: MCM-19 **Lab ID: 2625465001** Collected: 11/07/19 08:56 Received: 11/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	7.04 ± 1.39 (0.538) C:93% T:NA	pCi/L	12/05/19 07:43	13982-63-3	
Radium-228	EPA 9320	10.7 ± 2.08 (0.544) C:76% T:94%	pCi/L	12/05/19 12:10	15262-20-1	
Total Radium	Total Radium Calculation	17.7 ± 3.47 (1.08)	pCi/L	12/06/19 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Sample: MCM-20 **Lab ID: 2625465002** Collected: 11/07/19 11:00 Received: 11/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	12.2 ± 2.15 (0.343) C:96% T:NA	pCi/L	12/05/19 07:43	13982-63-3	
Radium-228	EPA 9320	26.0 ± 4.80 (0.564) C:78% T:95%	pCi/L	12/05/19 12:10	15262-20-1	
Total Radium	Total Radium Calculation	38.2 ± 6.95 (0.907)	pCi/L	12/06/19 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Sample: MCM-18 **Lab ID: 2625465003** Collected: 11/07/19 13:30 Received: 11/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	7.99 ± 1.53 (0.451) C:94% T:NA	pCi/L	12/05/19 07:44	13982-63-3	
Radium-228	EPA 9320	6.84 ± 1.40 (0.578) C:82% T:89%	pCi/L	12/05/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	14.8 ± 2.93 (1.03)	pCi/L	12/06/19 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Sample: FBL110719 **Lab ID: 2625465004** Collected: 11/07/19 13:58 Received: 11/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.206 ± 0.258 (0.541) C:92% T:NA	pCi/L	12/05/19 07:44	13982-63-3	
Radium-228	EPA 9320	0.201 ± 0.268 (0.569) C:82% T:87%	pCi/L	12/05/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	0.407 ± 0.526 (1.11)	pCi/L	12/06/19 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Sample: EQBL110719 **Lab ID: 2625465005** Collected: 11/07/19 14:04 Received: 11/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.437 ± 0.332 (0.605) C:93% T:NA	pCi/L	12/05/19 07:44	13982-63-3	
Radium-228	EPA 9320	0.478 ± 0.310 (0.576) C:82% T:89%	pCi/L	12/05/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	0.915 ± 0.642 (1.18)	pCi/L	12/06/19 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Sample: DUP-1 **Lab ID: 2625465006** Collected: 11/07/19 00:00 Received: 11/08/19 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	7.51 ± 1.46 (0.343) C:96% T:NA	pCi/L	12/05/19 07:31	13982-63-3	
Radium-228	EPA 9320	11.0 ± 2.15 (0.608) C:81% T:92%	pCi/L	12/05/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	18.5 ± 3.61 (0.951)	pCi/L	12/06/19 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

QC Batch:	372720	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2625465001, 2625465002, 2625465003, 2625465004, 2625465005, 2625465006		

METHOD BLANK:	1808830	Matrix:	Water
Associated Lab Samples:	2625465001, 2625465002, 2625465003, 2625465004, 2625465005, 2625465006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.109 ± 0.258 (0.575) C:85% T:83%	pCi/L	12/05/19 12:07	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

QC Batch: 373533 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium

Associated Lab Samples: 2625465001, 2625465002, 2625465003, 2625465004, 2625465005, 2625465006

METHOD BLANK: 1812548 Matrix: Water

Associated Lab Samples: 2625465001, 2625465002, 2625465003, 2625465004, 2625465005, 2625465006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.412 ± 0.265 (0.378) C:94% T:NA	pCi/L	12/05/19 07:43	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Georgia Power - Plant McManus
Pace Project No.: 2625465

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.

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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Georgia Power - Plant McManus

Pace Project No.: 2625465

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2625465001	MCM-19	EPA 9315	373533		
2625465002	MCM-20	EPA 9315	373533		
2625465003	MCM-18	EPA 9315	373533		
2625465004	FBL110719	EPA 9315	373533		
2625465005	EQBL110719	EPA 9315	373533		
2625465006	DUP-1	EPA 9315	373533		
2625465001	MCM-19	EPA 9320	372720		
2625465002	MCM-20	EPA 9320	372720		
2625465003	MCM-18	EPA 9320	372720		
2625465004	FBL110719	EPA 9320	372720		
2625465005	EQBL110719	EPA 9320	372720		
2625465006	DUP-1	EPA 9320	372720		
2625465001	MCM-19	Total Radium Calculation	374277		
2625465002	MCM-20	Total Radium Calculation	374277		
2625465003	MCM-18	Total Radium Calculation	374277		
2625465004	FBL110719	Total Radium Calculation	374277		
2625465005	EQBL110719	Total Radium Calculation	374277		
2625465006	DUP-1	Total Radium Calculation	374277		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Georgia Power, 2480 Marner Road, Atlanta, GA 30339, jlabraham@southemco.com, (404) 506-7239, Fax: (404) 506-7239, Requested Due Date: _____

Section B Required Project Information: Report To: Jyu Abraham / Lauren Parry, Copy To: Resolute, Purchase Order #: SCS10382775, Project Name: Georgia Power - Plant McKinnus CCR Scope, Project #: _____, Requested Analysis Filtered (Y/N): _____

Section C Invoice Information: Attention: SCSInvoices@southemco.com, Company Name: _____, Address: _____, Pace Quote: _____, Pace Project Manager: Delys medaniel@pacelab.com, Pace Profile #: 334 1 2, State / Location: GA

Page : 1 of 1

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9, -) Sample IDs must be unique	MATRIX Drinking Water Water Waste Water Product Seawater Oil Wipe Air Other Tissue	CODE DW WT WW P SL CL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analyses Test	Y/N	Residual Chlorine (Y/N)									
						START DATE	END DATE			Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol				Other	Radium 226/228	Metals App. III & App. IV	Chloride, Fluoride, Sulfate	TDS by 2540C				
1	MCM-19								4																			
2	MCM-20								4																			
3	MCM-18								4																			
4	EBL019								4																			
5	EBL0719								4																			
6	Dug-1								4																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
				quasir pcc	11/8	10:10	36

SAMPLER NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed: 11/19/19

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

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Project #

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)		
	1			1	2	1																							
	2																												
	3																												
	4																												
	5																												
	6																												
	7																												
	8																												
	9																												
	10																												
	11																												
	12																												

FOR OFF

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (Out of hold, incorrect preservative, out of temp, incorrect containers).

December 10, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 20, 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,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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SAMPLE SUMMARY

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2625920001	MCM-18	Water	11/18/19 15:10	11/20/19 09:10
2625920002	MCM-19	Water	11/19/19 09:36	11/20/19 09:10
2625920003	MCM-20	Water	11/19/19 11:00	11/20/19 09:10
2625920004	DUP-1	Water	11/18/19 00:00	11/20/19 09:10
2625920005	FBL111819	Water	11/18/19 16:04	11/20/19 09:10
2625920006	EQBL111819	Water	11/18/19 16:10	11/20/19 09:10

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SAMPLE ANALYTE COUNT

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2625920001	MCM-18	EPA 6020B	CSW	15
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625920002	MCM-19	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625920003	MCM-20	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625920004	DUP-1	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625920005	FBL111819	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2625920006	EQBL111819	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

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ANALYTICAL RESULTS

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

Sample: MCM-18		Lab ID: 2625920001		Collected: 11/18/19 15:10		Received: 11/20/19 09:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.030	0.0027	10	11/22/19 17:10	11/27/19 15:43	7440-36-0		
Arsenic	0.012J	mg/L	0.050	0.0035	10	11/22/19 17:10	11/27/19 15:43	7440-38-2		
Barium	0.11	mg/L	0.10	0.0049	10	11/22/19 17:10	11/27/19 15:43	7440-39-3		
Beryllium	0.0063J	mg/L	0.030	0.00074	10	11/22/19 17:10	11/27/19 15:43	7440-41-7		
Boron	0.29J	mg/L	0.40	0.049	10	11/22/19 17:10	11/27/19 15:43	7440-42-8		
Cadmium	ND	mg/L	0.025	0.0011	10	11/22/19 17:10	11/27/19 15:43	7440-43-9		
Calcium	41.8	mg/L	1.0	0.11	10	11/22/19 17:10	11/27/19 15:43	7440-70-2	M6	
Chromium	0.0046J	mg/L	0.10	0.0039	10	11/22/19 17:10	11/27/19 15:43	7440-47-3		
Cobalt	ND	mg/L	0.025	0.0030	10	11/22/19 17:10	11/27/19 15:43	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	11/22/19 17:10	11/26/19 20:49	7439-92-1		
Lithium	ND	mg/L	0.10	0.0078	10	11/22/19 17:10	11/27/19 15:43	7439-93-2		
Molybdenum	ND	mg/L	0.10	0.0095	10	11/22/19 17:10	11/27/19 15:43	7439-98-7		
Potassium	14.2	mg/L	5.0	1.3	50	11/22/19 17:10	11/26/19 20:54	7440-09-7	M6	
Selenium	ND	mg/L	0.10	0.013	10	11/22/19 17:10	11/27/19 15:43	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/22/19 17:10	11/26/19 20:49	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/22/19 15:25	11/22/19 19:29	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	4030	mg/L	10.0	10.0	1		11/22/19 14:03			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	6970	mg/L	1000	24.0	1000		11/26/19 19:22	16887-00-6	M1	
Fluoride	0.52	mg/L	0.30	0.029	1		11/26/19 09:35	16984-48-8	M1	
Sulfate	737	mg/L	50.0	0.85	50		11/26/19 16:20	14808-79-8	M1	

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ANALYTICAL RESULTS

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

Sample: MCM-19		Lab ID: 2625920002		Collected: 11/19/19 09:36		Received: 11/20/19 09:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.030	0.0027	10	11/22/19 17:10	11/27/19 16:03	7440-36-0	D3
Arsenic	0.019J	mg/L	0.050	0.0035	10	11/22/19 17:10	11/27/19 16:03	7440-38-2	D3
Barium	0.13	mg/L	0.10	0.0049	10	11/22/19 17:10	11/27/19 16:03	7440-39-3	D3
Beryllium	0.014J	mg/L	0.030	0.00074	10	11/22/19 17:10	11/27/19 16:03	7440-41-7	D3
Boron	0.83	mg/L	0.40	0.049	10	11/22/19 17:10	11/27/19 16:03	7440-42-8	
Cadmium	ND	mg/L	0.025	0.0011	10	11/22/19 17:10	11/27/19 16:03	7440-43-9	D3
Calcium	152	mg/L	5.0	0.55	50	11/22/19 17:10	11/26/19 21:52	7440-70-2	
Chromium	0.0059J	mg/L	0.10	0.0039	10	11/22/19 17:10	11/27/19 16:03	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0030	10	11/22/19 17:10	11/27/19 16:03	7440-48-4	D3
Lead	ND	mg/L	0.050	0.00046	10	11/22/19 17:10	11/27/19 16:03	7439-92-1	D3
Lithium	0.020J	mg/L	0.10	0.0078	10	11/22/19 17:10	11/27/19 16:03	7439-93-2	D3
Molybdenum	ND	mg/L	0.10	0.0095	10	11/22/19 17:10	11/27/19 16:03	7439-98-7	D3
Selenium	0.039J	mg/L	0.10	0.013	10	11/22/19 17:10	11/27/19 16:03	7782-49-2	D3
Thallium	ND	mg/L	0.010	0.00052	10	11/22/19 17:10	11/27/19 16:03	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	11/22/19 15:25	11/22/19 19:31	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	10000	mg/L	10.0	10.0	1		11/22/19 14:04		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	5650	mg/L	1000	24.0	1000		11/26/19 19:44	16887-00-6	
Fluoride	0.033J	mg/L	0.30	0.029	1		11/26/19 09:58	16984-48-8	
Sulfate	795	mg/L	100	1.7	100		11/26/19 16:42	14808-79-8	

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ANALYTICAL RESULTS

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

Sample: MCM-20		Lab ID: 2625920003		Collected: 11/19/19 11:00		Received: 11/20/19 09:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.030	0.0027	10	11/22/19 17:10	11/27/19 16:14	7440-36-0	D3
Arsenic	0.031J	mg/L	0.050	0.0035	10	11/22/19 17:10	11/27/19 16:14	7440-38-2	D3
Barium	0.14	mg/L	0.10	0.0049	10	11/22/19 17:10	11/27/19 16:14	7440-39-3	
Beryllium	0.015J	mg/L	0.030	0.00074	10	11/22/19 17:10	11/27/19 16:14	7440-41-7	D3
Boron	1.3	mg/L	0.40	0.049	10	11/22/19 17:10	11/27/19 16:14	7440-42-8	
Cadmium	ND	mg/L	0.025	0.0011	10	11/22/19 17:10	11/27/19 16:14	7440-43-9	D3
Calcium	169	mg/L	5.0	0.55	50	11/22/19 17:10	11/26/19 22:03	7440-70-2	
Chromium	0.0096J	mg/L	0.10	0.0039	10	11/22/19 17:10	11/27/19 16:14	7440-47-3	D3
Cobalt	0.022J	mg/L	0.025	0.0030	10	11/22/19 17:10	11/27/19 16:14	7440-48-4	D3
Lead	0.0013J	mg/L	0.050	0.00046	10	11/22/19 17:10	11/27/19 16:14	7439-92-1	D3
Lithium	0.023J	mg/L	0.10	0.0078	10	11/22/19 17:10	11/27/19 16:14	7439-93-2	D3
Molybdenum	ND	mg/L	0.10	0.0095	10	11/22/19 17:10	11/27/19 16:14	7439-98-7	D3
Selenium	0.047J	mg/L	0.10	0.013	10	11/22/19 17:10	11/27/19 16:14	7782-49-2	D3
Thallium	ND	mg/L	0.010	0.00052	10	11/22/19 17:10	11/27/19 16:14	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	11/22/19 15:25	11/22/19 19:34	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	13300	mg/L	10.0	10.0	1		11/22/19 14:04		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	8130	mg/L	1000	24.0	1000		11/26/19 20:06	16887-00-6	
Fluoride	1.2	mg/L	0.30	0.029	1		11/26/19 10:20	16984-48-8	
Sulfate	1140	mg/L	100	1.7	100		11/26/19 17:04	14808-79-8	

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ANALYTICAL RESULTS

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

Sample: DUP-1		Lab ID: 2625920004		Collected: 11/18/19 00:00		Received: 11/20/19 09:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.030	0.0027	10	11/22/19 17:10	11/27/19 16:20	7440-36-0	D3
Arsenic	0.012J	mg/L	0.050	0.0035	10	11/22/19 17:10	11/27/19 16:20	7440-38-2	D3
Barium	0.11	mg/L	0.10	0.0049	10	11/22/19 17:10	11/27/19 16:20	7440-39-3	
Beryllium	0.0052	mg/L	0.0030	0.000074	1	11/22/19 17:10	11/26/19 22:09	7440-41-7	
Boron	0.23	mg/L	0.040	0.0049	1	11/22/19 17:10	11/26/19 22:09	7440-42-8	
Cadmium	ND	mg/L	0.025	0.0011	10	11/22/19 17:10	11/27/19 16:20	7440-43-9	D3
Calcium	41.8	mg/L	1.0	0.11	10	11/22/19 17:10	11/27/19 16:20	7440-70-2	
Chromium	0.0040J	mg/L	0.10	0.0039	10	11/22/19 17:10	11/27/19 16:20	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0030	10	11/22/19 17:10	11/27/19 16:20	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.000046	1	11/22/19 17:10	11/26/19 22:09	7439-92-1	
Lithium	0.0045J	mg/L	0.010	0.00078	1	11/22/19 17:10	11/26/19 22:09	7439-93-2	
Molybdenum	ND	mg/L	0.10	0.0095	10	11/22/19 17:10	11/27/19 16:20	7439-98-7	D3
Selenium	0.014J	mg/L	0.10	0.013	10	11/22/19 17:10	11/27/19 16:20	7782-49-2	D3
Thallium	ND	mg/L	0.0010	0.000052	1	11/22/19 17:10	11/26/19 22:09	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	11/22/19 15:25	11/22/19 19:36	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3960	mg/L	10.0	10.0	1		11/22/19 14:03		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	2140	mg/L	1000	24.0	1000		11/26/19 20:28	16887-00-6	
Fluoride	0.55	mg/L	0.30	0.029	1		11/26/19 10:42	16984-48-8	
Sulfate	381	mg/L	50.0	0.85	50		11/26/19 17:26	14808-79-8	

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ANALYTICAL RESULTS

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

Sample: FBL111819		Lab ID: 2625920005		Collected: 11/18/19 16:04	Received: 11/20/19 09:10	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	11/22/19 17:10	11/26/19 22:20	7440-36-0	
Arsenic	0.0010J	mg/L	0.0050	0.00035	1	11/22/19 17:10	11/26/19 22:20	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	11/22/19 17:10	11/26/19 22:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/22/19 17:10	11/26/19 22:20	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	11/22/19 17:10	11/26/19 22:20	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/22/19 17:10	11/26/19 22:20	7440-43-9	
Calcium	0.036J	mg/L	0.10	0.011	1	11/22/19 17:10	11/26/19 22:20	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/22/19 17:10	11/26/19 22:20	7440-47-3	
Cobalt	ND	mg/L	0.0025	0.00030	1	11/22/19 17:10	11/26/19 22:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/22/19 17:10	11/26/19 22:20	7439-92-1	
Lithium	ND	mg/L	0.010	0.00078	1	11/22/19 17:10	11/26/19 22:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/22/19 17:10	11/26/19 22:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	11/22/19 17:10	11/26/19 22:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	11/22/19 17:10	11/26/19 22:20	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	11/22/19 15:25	11/22/19 19:38	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		11/22/19 14:03		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.99J	mg/L	1.0	0.024	1		11/26/19 11:04	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		11/26/19 11:04	16984-48-8	
Sulfate	1.5	mg/L	1.0	0.017	1		11/26/19 11:04	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

Sample: EQBL111819		Lab ID: 2625920006		Collected: 11/18/19 16:10		Received: 11/20/19 09:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/22/19 17:10	11/26/19 22:26	7440-36-0		
Arsenic	0.0011J	mg/L	0.0050	0.00035	1	11/22/19 17:10	11/26/19 22:26	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	11/22/19 17:10	11/26/19 22:26	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	11/22/19 17:10	11/26/19 22:26	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	11/22/19 17:10	11/26/19 22:26	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	11/22/19 17:10	11/26/19 22:26	7440-43-9		
Calcium	0.041J	mg/L	0.10	0.011	1	11/22/19 17:10	11/26/19 22:26	7440-70-2		
Chromium	0.00041J	mg/L	0.010	0.00039	1	11/22/19 17:10	11/26/19 22:26	7440-47-3		
Cobalt	ND	mg/L	0.0025	0.00030	1	11/22/19 17:10	11/26/19 22:26	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	11/22/19 17:10	11/26/19 22:26	7439-92-1		
Lithium	ND	mg/L	0.010	0.00078	1	11/22/19 17:10	11/26/19 22:26	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	11/22/19 17:10	11/26/19 22:26	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	11/22/19 17:10	11/26/19 22:26	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	11/22/19 17:10	11/26/19 22:26	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	11/22/19 15:25	11/22/19 19:41	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		11/22/19 14:03			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.36J	mg/L	1.0	0.024	1		11/26/19 11:26	16887-00-6		
Fluoride	0.039J	mg/L	0.30	0.029	1		11/26/19 11:26	16984-48-8		
Sulfate	0.093J	mg/L	1.0	0.017	1		11/26/19 11:26	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

QC Batch: 39402

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

METHOD BLANK: 179071

Matrix: Water

Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	11/22/19 18:55	

LABORATORY CONTROL SAMPLE: 179072

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 179073 179074

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2625809031 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0024	99	97	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

QC Batch: 39405 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

METHOD BLANK: 179084 Matrix: Water
Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	11/26/19 20:37	
Arsenic	mg/L	ND	0.0050	0.00035	11/26/19 20:37	
Barium	mg/L	ND	0.010	0.00049	11/26/19 20:37	
Beryllium	mg/L	ND	0.0030	0.000074	11/26/19 20:37	
Boron	mg/L	ND	0.040	0.0049	11/26/19 20:37	
Cadmium	mg/L	ND	0.0025	0.00011	11/26/19 20:37	
Calcium	mg/L	ND	0.10	0.011	11/26/19 20:37	
Chromium	mg/L	ND	0.010	0.00039	11/26/19 20:37	
Cobalt	mg/L	ND	0.0025	0.00030	11/26/19 20:37	
Lead	mg/L	ND	0.0050	0.000046	11/26/19 20:37	
Lithium	mg/L	ND	0.010	0.00078	11/26/19 20:37	
Molybdenum	mg/L	ND	0.010	0.00095	11/26/19 20:37	
Potassium	mg/L	ND	0.10	0.026	11/26/19 20:37	
Selenium	mg/L	ND	0.010	0.0013	11/26/19 20:37	
Thallium	mg/L	ND	0.0010	0.000052	11/26/19 20:37	

LABORATORY CONTROL SAMPLE: 179085

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	106	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.11	105	80-120	
Beryllium	mg/L	0.1	0.11	106	80-120	
Boron	mg/L	1	1.1	106	80-120	
Cadmium	mg/L	0.1	0.11	107	80-120	
Calcium	mg/L	1	1.0	103	80-120	
Chromium	mg/L	0.1	0.10	104	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	105	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Potassium	mg/L	1	0.97	97	80-120	
Selenium	mg/L	0.1	0.10	104	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

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QUALITY CONTROL DATA

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 179086		179087		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2625920001 Result	MS Spike Conc.	MSD Spike Conc.									
Antimony	mg/L	ND	0.1	0.1	0.097	0.10	97	99	75-125	3	20		
Arsenic	mg/L	0.012J	0.1	0.1	0.11	0.11	98	100	75-125	1	20		
Barium	mg/L	0.11	0.1	0.1	0.20	0.21	94	102	75-125	4	20		
Beryllium	mg/L	0.0063J	0.1	0.1	0.10	0.11	98	101	75-125	3	20		
Boron	mg/L	0.29J	1	1	1.2	1.3	96	99	75-125	3	20		
Cadmium	mg/L	ND	0.1	0.1	0.096	0.098	96	97	75-125	2	20		
Calcium	mg/L	41.8	1	1	41.8	44.5	-3	270	75-125	6	20	M6	
Chromium	mg/L	0.0046J	0.1	0.1	0.098J	0.11	93	101	75-125	8	20		
Cobalt	mg/L	ND	0.1	0.1	0.096	0.098	96	98	75-125	2	20		
Lead	mg/L	ND	0.1	0.1	0.087	0.088	87	88	75-125	2	20		
Lithium	mg/L	ND	0.1	0.1	0.10	0.11	100	102	75-125		20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	0	20		
Potassium	mg/L	14.2	1	1	14.3	15.2	19	109	75-125	6	20	M6	
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	99	99	75-125	0	20		
Thallium	mg/L	ND	0.1	0.1	0.088	0.090	88	90	75-125	2	20		

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QUALITY CONTROL DATA

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

QC Batch: 39395 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

LABORATORY CONTROL SAMPLE: 179051

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	369	92	84-108	

SAMPLE DUPLICATE: 179052

Parameter	Units	2625920001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4030	4010	0	10	

SAMPLE DUPLICATE: 179053

Parameter	Units	2625928001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1720	1720	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

QC Batch: 39545 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

METHOD BLANK: 179782 Matrix: Water
Associated Lab Samples: 2625920001, 2625920002, 2625920003, 2625920004, 2625920005, 2625920006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	11/26/19 07:45	
Fluoride	mg/L	ND	0.30	0.029	11/26/19 07:45	
Sulfate	mg/L	ND	1.0	0.017	11/26/19 07:45	

LABORATORY CONTROL SAMPLE: 179783

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.0	100	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	10.5	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 179784 179785

Parameter	Units	2626038001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	9.1	10	10	18.5	18.5	94	94	90-110	0	15	
Fluoride	mg/L	0.057J	10	10	10.0	10.0	100	100	90-110	0	15	
Sulfate	mg/L	619	10	10	185	185	-4340	-4340	90-110	0	15 M1	

MATRIX SPIKE SAMPLE: 179786

Parameter	Units	2625920001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6970	10	174	-68000	90-110 M1	
Fluoride	mg/L	0.52	10	6.1	56	90-110 M1	
Sulfate	mg/L	737	10	132	-6050	90-110 M1	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Georgia Power-Plant McManus

Pace Project No.: 2625920

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.

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.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Georgia Power-Plant McManus
Pace Project No.: 2625920

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2625920001	MCM-18	EPA 3005A	39405	EPA 6020B	39453
2625920002	MCM-19	EPA 3005A	39405	EPA 6020B	39453
2625920003	MCM-20	EPA 3005A	39405	EPA 6020B	39453
2625920004	DUP-1	EPA 3005A	39405	EPA 6020B	39453
2625920005	FBL111819	EPA 3005A	39405	EPA 6020B	39453
2625920006	EQBL111819	EPA 3005A	39405	EPA 6020B	39453
2625920001	MCM-18	EPA 7470A	39402	EPA 7470A	39447
2625920002	MCM-19	EPA 7470A	39402	EPA 7470A	39447
2625920003	MCM-20	EPA 7470A	39402	EPA 7470A	39447
2625920004	DUP-1	EPA 7470A	39402	EPA 7470A	39447
2625920005	FBL111819	EPA 7470A	39402	EPA 7470A	39447
2625920006	EQBL111819	EPA 7470A	39402	EPA 7470A	39447
2625920001	MCM-18	SM 2540C	39395		
2625920002	MCM-19	SM 2540C	39395		
2625920003	MCM-20	SM 2540C	39395		
2625920004	DUP-1	SM 2540C	39395		
2625920005	FBL111819	SM 2540C	39395		
2625920006	EQBL111819	SM 2540C	39395		
2625920001	MCM-18	EPA 300.0	39545		
2625920002	MCM-19	EPA 300.0	39545		
2625920003	MCM-20	EPA 300.0	39545		
2625920004	DUP-1	EPA 300.0	39545		
2625920005	FBL111819	EPA 300.0	39545		
2625920006	EQBL111819	EPA 300.0	39545		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section B
Client Information:
 Report To: Jhu Abraham / Lauren Piety
 Copy To: Resolute, V.S. SUTTON, J.M.
 Address: 2480 Marner Road
 Atlanta, GA 30339
 Email: jlabraham@southemco.com
 Phone: (404) 506-7238
 Fax: [Blank]
 Acquisition Due Date: [Blank]

Section C
Invoice Information:
 Attention: BCSInvoices@southemco.com
 Company Name: [Blank]
 Address: [Blank]
 State / Location: GA
 Project Name: Georgia Power - Plant McManus CCR Scope
 Project #: 394.1.2
 Purchase Order #: SCS10382775
 Price Quote: Kevin [Blank]
 Price Project Manager: [Blank] (mailto:kevin@specialists.com)
 Price Profile #: 394.1.2

ITEM #	MATRIX CODE DW, WT, WW, P, SL, UL, MP, AR, OT, TS Drinking Water, Waste Water, Product, Soil/Solid, Oil, Air, Other, Tissue	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST	Residual Chlorine (Y/N)
			START	END							
1	MCMA-18	G	11/19/19	1510			4	H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Radium 226/228 Metals App. III & App IV Chloride, Fluoride, Sulfate TDS by 2540C		
2	MCMA-19	G	11/19/19	0936			4				
3	MCMA-20	G	11/19/19	1100			4				
4	Dup-1	G	11/19/19	-			4				
5	EBL11B19	G	11/19/19	1604			4				
6	EBL11B19	G	11/19/19	1610			4				

RECEIVED BY / AFFILIATION
 Kevin Stogardson / K. WELINGTON / TACE 11/20 0910 1-2 Y Y

DATE
 11/19/19

TEMP IN C
 [Blank]

RECEIVED ON
 [Blank]

COOLING
 [Blank]

SEALING
 [Blank]

SAMPLES
 [Blank]

CONTACT
 [Blank]

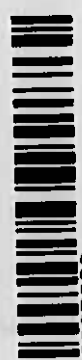
SAMPLER NAME AND SIGNATURE
 Kevin Stogardson

PRINT NAME OF SAMPLER
 Kevin Stogardson

SIGNATURE OF SAMPLER
 [Signature]

DATE SIGNED
 11/19/19

WO# : 2625920



2625920



Client Name: _____

WO#: 2625920
PM: KH Due Date: 11/27/19
CLIENT: OAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 7781 5699 9778

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

Packing Material: Bubble Wrap Bubble Bags None Other Plastic bags

Thermometer Used 083

Cooler Temperature 1.2

Type of Ice: Wet Blue None

Biological Tissue is Frozen: Yes No

Samples on ice, cooling process has begun
Date and initials of person examining contents: _____

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Pace Trip Blank Lot # (if purchased):		

Field Data Required? Y / N

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

F-ALLC003rev.3, 11September2006

December 20, 2019

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2625919
Pace Project No.: 30337333

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2625919
Pace Project No.: 30337333

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2625919
Pace Project No.: 30337333

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2625919001	MCM-18	Water	11/18/19 15:10	11/22/19 09:30
2625919002	MCM-19	Water	11/19/19 09:36	11/22/19 09:30
2625919003	MCM-20	Water	11/19/19 11:00	11/22/19 09:30
2625919004	DUP-1	Water	11/18/19 00:01	11/22/19 09:30
2625919005	FBL111819	Water	11/18/19 16:04	11/22/19 09:30
2625919006	EQBL111819	Water	11/18/19 16:10	11/22/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2625919
Pace Project No.: 30337333

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2625919001	MCM-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625919002	MCM-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625919003	MCM-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625919004	DUP-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625919005	FBL111819	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2625919006	EQBL111819	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2625919
Pace Project No.: 30337333

Sample: MCM-18		Lab ID: 2625919001	Collected: 11/18/19 15:10	Received: 11/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	7.72 ± 1.37 (0.268)		pCi/L	12/09/19 10:09	13982-63-3	
		C:90% T:NA					
Radium-228	EPA 9320	6.20 ± 1.33 (0.789)		pCi/L	12/10/19 11:26	15262-20-1	
		C:77% T:87%					
Total Radium	Total Radium Calculation	13.9 ± 2.70 (1.06)		pCi/L	12/17/19 10:40	7440-14-4	

Sample: MCM-19		Lab ID: 2625919002	Collected: 11/19/19 09:36	Received: 11/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	6.56 ± 1.20 (0.286)		pCi/L	12/09/19 10:09	13982-63-3	
		C:93% T:NA					
Radium-228	EPA 9320	12.3 ± 2.41 (0.858)		pCi/L	12/10/19 11:06	15262-20-1	
		C:73% T:85%					
Total Radium	Total Radium Calculation	18.9 ± 3.61 (1.14)		pCi/L	12/17/19 10:40	7440-14-4	

Sample: MCM-20		Lab ID: 2625919003	Collected: 11/19/19 11:00	Received: 11/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	10.1 ± 1.71 (0.223)		pCi/L	12/09/19 10:09	13982-63-3	
		C:92% T:NA					
Radium-228	EPA 9320	33.0 ± 6.09 (0.940)		pCi/L	12/10/19 10:38	15262-20-1	
		C:77% T:85%					
Total Radium	Total Radium Calculation	43.1 ± 7.80 (1.16)		pCi/L	12/17/19 10:40	7440-14-4	

Sample: DUP-1		Lab ID: 2625919004	Collected: 11/18/19 00:01	Received: 11/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	8.26 ± 1.28 (0.164)		pCi/L	12/17/19 19:32	13982-63-3	
		C:90% T:NA					
Radium-228	EPA 9320	6.47 ± 1.39 (0.902)		pCi/L	12/10/19 10:38	15262-20-1	
		C:76% T:80%					
Total Radium	Total Radium Calculation	14.7 ± 2.67 (1.07)		pCi/L	12/18/19 09:51	7440-14-4	

Sample: FBL111819		Lab ID: 2625919005	Collected: 11/18/19 16:04	Received: 11/22/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.379 ± 0.147 (0.202)		pCi/L	12/17/19 19:20	13982-63-3	
		C:90% T:NA					
Radium-228	EPA 9320	0.943 ± 0.545 (1.03)		pCi/L	12/10/19 10:38	15262-20-1	
		C:75% T:76%					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2625919
Pace Project No.: 30337333

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.32 ± 0.692 (1.23)	pCi/L	12/18/19 09:51	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.369 ± 0.139 (0.180) C:88% T:NA	pCi/L	12/17/19 17:02	13982-63-3	
Radium-228	EPA 9320	0.269 ± 0.443 (0.962) C:79% T:81%	pCi/L	12/10/19 10:38	15262-20-1	
Total Radium	Total Radium Calculation	0.638 ± 0.582 (1.14)	pCi/L	12/18/19 09:51	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2625919
Pace Project No.: 30337333

QC Batch: 375561	Analysis Method: EPA 9315
QC Batch Method: EPA 9315	Analysis Description: 9315 Total Radium
Associated Lab Samples: 2625919004, 2625919005, 2625919006	

METHOD BLANK: 1822073	Matrix: Water
Associated Lab Samples: 2625919004, 2625919005, 2625919006	

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.505 ± 0.245 (0.361) C:92% T:NA	pCi/L	12/17/19 19:27	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2625919
Pace Project No.: 30337333

QC Batch:	373913	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2625919001, 2625919002, 2625919003		

METHOD BLANK:	1813988	Matrix:	Water
Associated Lab Samples:	2625919001, 2625919002, 2625919003		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.281 ± 0.166 (0.210) C:97% T:NA	pCi/L	12/09/19 08:32	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2625919

Pace Project No.: 30337333

QC Batch: 373886

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2625919001, 2625919002, 2625919003, 2625919004, 2625919005, 2625919006

METHOD BLANK: 1813920

Matrix: Water

Associated Lab Samples: 2625919001, 2625919002, 2625919003, 2625919004, 2625919005, 2625919006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.541 ± 0.343 (0.642) C:76% T:91%	pCi/L	12/10/19 11:06	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2625919
Pace Project No.: 30337333

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA
 Cert. Needed: Yes No

Owner Received Date: 11/20/2019 Results Requested By: 12/20/2019

Workorder: 2625919 Workorder Name: GA Power-Plant McManus

Subcontract To

Kevin Herring
 Pace Analytical Charlotte
 9800 Kinsey Ave.
 Suite 100
 Huntersville, NC 28078
 Phone (704)875-9092

Pace Analytical Pittsburgh
 1638 Roseytown Road
 Suites 2,3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600

Requested Analysis

WO#: 30337333



RAD 226/228

Preserved Containers

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NOI	LAB USE ONLY
1	MCM-18	PS	11/18/2019 15:10	2625919001	Water	X	001
2	MCM-19	PS	11/19/2019 09:36	2625919002	Water	X	002
3	MCM-20	PS	11/19/2019 11:00	2625919003	Water	X	003
4	DUP-1	PS	11/18/2019 00:00	2625919004	Water	X	004
5	FBL111819	PS	11/18/2019 16:04	2625919005	Water	X	005
6	EQBL111819	PS	11/18/2019 16:10	2625919006	Water	X	006

Comments

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	[Signature]	11.21.19	[Signature]	11/21/19 09:50				
2								
3								

Cooler Temperature on Receipt °C Custody Seal Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace GA

Project # 30337333

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1069 9309 1935

Label	<u>SP</u>
LIMS Login	<u>SP</u>

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

Thermometer Used n/a Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1000391</u>	<u>SP 11/25/19</u>
Chain of Custody Present:	/				
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:	/				
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):	/				
Rush Turn Around Time Requested:	/				
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered	/				
Hex Cr Aqueous sample field filtered	/				
Organic Samples checked for dechlorination:	/				
Filtered volume received for Dissolved tests	/				
All containers have been checked for preservation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				<u>pH 7</u>	
All containers meet method preservation requirements.	/			Initial when completed <u>SP</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	/				
Trip Blank Present:	/				
Trip Blank Custody Seals Present	/				
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>SP</u>	Date: <u>11/25/19</u>

Client Notification/ Resolution:

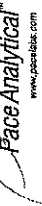
Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: LAL
Date: 12/6/2019
Worklist: 51324
Matrix: DW

Method Blank Assessment	
MB Sample ID	1813888
MB Concentration:	0.281
MB Counting Uncertainty:	0.161
MB MDC:	0.210
MB Numerical Performance Indicator:	3.41
MB Status vs. Numerical Indicator:	N/A
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	
LCS# (Y or N)?	Y
LCS51324	LCS051324
Count Date:	12/9/2019
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.052
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.509
Target Conc. (pCi/L, g, F):	4.729
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	4.949
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.619
Numerical Performance Indicator:	0.69
Percent Recovery:	104.65%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	LCS051324
Duplicate Sample I.D.:	LCS051324
Sample Result (pCi/L, g, F):	4.949
Sample Result Counting Uncertainty (pCi/L, g, F):	0.619
Sample Duplicate Result (pCi/L, g, F):	5.014
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.635
Ave sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-0.144
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	0.09%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

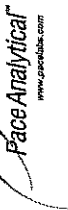
*The method blank result is below the reporting limit for this analysis and is acceptable.

Sample Matrix Spike Control Assessment	
Sample Collection Date:	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Spike I.D.:	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	
Spike Volume Used in MS (mL):	
Spike Volume Used in MSD (mL):	
MS Aliquot (L, g, F):	
MS Target Conc. (pCi/L, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (pCi/L, g, F):	
MS Spike Uncertainty (calculated):	
MSD Spike Uncertainty (calculated):	
Sample Result:	
Sample Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Result:	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):	
MS Numerical Performance Indicator:	
MSD Numerical Performance Indicator:	
MS Percent Recovery:	
MSD Percent Recovery:	
MS Status vs Numerical Indicator:	
MSD Status vs Numerical Indicator:	
MS Status vs Recovery:	
MSD Status vs Recovery:	
MS/MSD Upper % Recovery Limits:	
MS/MSD Lower % Recovery Limits:	

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:	
MS/MSD Duplicate Status vs Numerical Indicator:	
MS/MSD Duplicate Status vs RPD:	
% RPD Limit:	

Handwritten signature and date: LAM 12/19/19

Quality Control Sample Performance Assessment



Test: Ra-228
Analyst: LAL
Date: 12/17/2019
Worklist: 51448
Matrix: DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1822073
MB concentration:	0.505
MIB Counting Uncertainty:	0.234
MB MDC:	0.361
MB Numerical Performance Indicator:	4.23
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment		Y
Count Date:	12/17/2019	LCS051448
Spike I.D.:	19-033	12/17/2019
Decay Corrected Spike Concentration (pCi/mL):	24.052	24.052
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.509	0.514
Target Conc. (pCi/L, g, F):	4.727	4.684
Uncertainty (Calculated):	0.057	0.056
Result (pCi/L, g, F):	4.575	4.807
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.347	0.365
Numerical Performance Indicator:	-0.85	0.65
Percent Recovery:	96.78%	102.63%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	125%	125%
Lower % Recovery Limits:	75%	75%

Duplicate Sample Assessment	
Sample I.D.:	LCS051448
Duplicate Sample I.D.:	LCS051448
Sample Result (pCi/L, g, F):	4.575
Sample Result Counting Uncertainty (pCi/L, g, F):	0.347
Sample Duplicate Result (pCi/L, g, F):	4.807
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.365
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-0.904
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	5.86%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:
*The method blank result is below the reporting limit for this analysis and is acceptable.

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc.(pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator:		
MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator:		
MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

MSB
12-18-19
LAM 12/18/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 12/6/2019
Worklist: 51312
Matrix: WT

Method Blank Assessment	
MB Sample ID	1813920
MB concentration:	0.541
M/B 2 Sigma CSU:	0.343
MB MDC:	0.642
MB Numerical Performance Indicator:	3.10
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCSD51312	LCSD51312
Count Date:	12/10/2019	12/10/2019
Spike I.D.:	19-026	19-026
Decay Corrected Spike Concentration (pCi/mL):	34.420	34.420
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.803	0.819
Target Conc. (pCi/L, g, F):	4.286	4.203
Uncertainty (Calculated):	0.210	0.206
Result (pCi/L, g, F):	4.681	4.872
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.081	1.116
Numerical Performance Indicator:	0.70	1.16
Percent Recovery:	109.20%	115.92%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	LCSD (Y or N)?	
	LCSD51312	LCSD51312
Sample I.D.:	LCSD51312	LCSD51312
Duplicate Sample I.D.:	4.681	4.681
Sample Result (pCi/L, g, F):	1.081	1.081
Sample Duplicate Result (pCi/L, g, F):	4.872	4.872
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.116	1.116
Ave sample and/or duplicate results below RL?	NO	NO
Duplicate Numerical Performance Indicator:	-0.241	-0.241
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	5.97%	5.97%
Duplicate Status vs Numerical Indicator:	Pass	Pass
Duplicate Status vs RPD:	Pass	Pass
% RPD Limit:	36%	36%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

if the lowest-activity sample in this batch is greater than ten times the blank value, the blank is acceptable; otherwise this batch must be re-prepped 12/10/19

12/10/19

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:		
Sample I.D.:		
Sample MS I.D.:		
Sample MSD I.D.:		
Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
Spike Volume Used in MS (mL):		
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):		
MS Target Conc. (pCi/L, g, F):		
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):		
MSD Spike Uncertainty (calculated):		
Sample Result:		
Sample Result 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Result:		
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
MS Numerical Performance Indicator:		
MSD Numerical Performance Indicator:		
MS Percent Recovery:		
MSD Percent Recovery:		
MS Status vs Numerical Indicator:		
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:		
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:		
MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:
Sample MS I.D.:
Sample MSD I.D.:
Sample Matrix Spike Result:
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):
Sample Matrix Spike Duplicate Result:
Sample Matrix Spike Duplicate Duplicate Result:
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Duplicate Numerical Performance Indicator:
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:
MS/MSD Duplicate Status vs Numerical Indicator:
MS/MSD Duplicate Status vs RPD:
% RPD Limit:

December 20, 2019

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 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,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



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CERTIFICATIONS

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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SAMPLE SUMMARY

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2626485001	MCM-18	Water	12/05/19 16:00	12/06/19 09:35
2626485002	MCM-19	Water	12/04/19 14:56	12/06/19 09:35
2626485003	MCM-20	Water	12/04/19 16:10	12/06/19 09:35
2626485004	DUP-1	Water	12/04/19 00:00	12/06/19 09:35
2626485005	FBL120519	Water	12/05/19 14:54	12/06/19 09:35
2626485006	EQBL120519	Water	12/05/19 14:58	12/06/19 09:35

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SAMPLE ANALYTE COUNT

Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2626485001	MCM-18	EPA 6020B	CSW	14	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2626485002	MCM-19	EPA 6020B	CSW	14	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2626485003	MCM-20	EPA 6020B	CSW	14	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2626485004	DUP-1	EPA 6020B	CSW	14	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2626485005	FBL120519	EPA 6020B	CSW	14	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2626485006	EQBL120519	EPA 6020B	CSW	14	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA

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ANALYTICAL RESULTS

Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

Sample: MCM-18		Lab ID: 2626485001		Collected: 12/05/19 16:00		Received: 12/06/19 09:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/09/19 15:01	12/10/19 16:35	7440-36-0		
Arsenic	0.0055	mg/L	0.0050	0.00035	1	12/09/19 15:01	12/10/19 16:35	7440-38-2		
Barium	0.12	mg/L	0.010	0.00049	1	12/09/19 15:01	12/10/19 16:35	7440-39-3		
Beryllium	0.0045	mg/L	0.0030	0.000074	1	12/09/19 15:01	12/10/19 16:35	7440-41-7		
Boron	0.23	mg/L	0.040	0.0049	1	12/09/19 15:01	12/10/19 16:35	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/09/19 15:01	12/10/19 16:35	7440-43-9		
Calcium	40.5	mg/L	5.0	0.55	50	12/09/19 15:01	12/10/19 16:41	7440-70-2	M6	
Chromium	0.0046J	mg/L	0.010	0.00039	1	12/09/19 15:01	12/10/19 16:35	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/09/19 15:01	12/10/19 16:35	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	12/09/19 15:01	12/10/19 16:35	7439-92-1		
Lithium	0.0042J	mg/L	0.030	0.00078	1	12/09/19 15:01	12/10/19 16:35	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/09/19 15:01	12/10/19 16:35	7439-98-7		
Selenium	0.032	mg/L	0.010	0.0013	1	12/09/19 15:01	12/10/19 16:35	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/09/19 15:01	12/10/19 16:35	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/10/19 17:58	12/11/19 12:06	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	3840	mg/L	10.0	10.0	1		12/11/19 17:47			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	2130	mg/L	100	2.4	100		12/11/19 16:36	16887-00-6		
Fluoride	0.50	mg/L	0.30	0.029	1		12/11/19 08:43	16984-48-8		
Sulfate	351	mg/L	100	1.7	100		12/11/19 16:36	14808-79-8		

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ANALYTICAL RESULTS

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Sample: MCM-19		Lab ID: 2626485002		Collected: 12/04/19 14:56		Received: 12/06/19 09:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	0.00041J	mg/L	0.0030	0.00027	1	12/09/19 15:01	12/10/19 17:28	7440-36-0		
Arsenic	0.016	mg/L	0.0050	0.00035	1	12/09/19 15:01	12/10/19 17:28	7440-38-2		
Barium	0.14	mg/L	0.010	0.00049	1	12/09/19 15:01	12/10/19 17:28	7440-39-3		
Beryllium	0.010	mg/L	0.0030	0.000074	1	12/09/19 15:01	12/10/19 17:28	7440-41-7		
Boron	0.68	mg/L	0.040	0.0049	1	12/09/19 15:01	12/10/19 17:28	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/09/19 15:01	12/10/19 17:28	7440-43-9		
Calcium	142	mg/L	5.0	0.55	50	12/09/19 15:01	12/10/19 17:33	7440-70-2		
Chromium	0.0073J	mg/L	0.010	0.00039	1	12/09/19 15:01	12/10/19 17:28	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/09/19 15:01	12/10/19 17:28	7440-48-4		
Lead	0.000053J	mg/L	0.0050	0.000046	1	12/09/19 15:01	12/10/19 17:28	7439-92-1		
Lithium	0.016J	mg/L	0.030	0.00078	1	12/09/19 15:01	12/10/19 17:28	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/09/19 15:01	12/10/19 17:28	7439-98-7		
Selenium	0.12	mg/L	0.010	0.0013	1	12/09/19 15:01	12/10/19 17:28	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/09/19 15:01	12/10/19 17:28	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/10/19 17:58	12/11/19 12:20	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	11000	mg/L	10.0	10.0	1		12/11/19 17:46			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	6100	mg/L	500	12.0	500		12/11/19 15:03	16887-00-6		
Fluoride	0.22J	mg/L	0.30	0.029	1		12/11/19 09:05	16984-48-8		
Sulfate	810	mg/L	500	8.5	500		12/11/19 15:03	14808-79-8		

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ANALYTICAL RESULTS

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Sample: MCM-20		Lab ID: 2626485003		Collected: 12/04/19 16:10		Received: 12/06/19 09:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/09/19 15:01	12/10/19 17:39	7440-36-0		
Arsenic	0.026	mg/L	0.0050	0.00035	1	12/09/19 15:01	12/10/19 17:39	7440-38-2		
Barium	0.14	mg/L	0.010	0.00049	1	12/09/19 15:01	12/10/19 17:39	7440-39-3		
Beryllium	0.011	mg/L	0.0030	0.000074	1	12/09/19 15:01	12/10/19 17:39	7440-41-7		
Boron	0.81	mg/L	0.040	0.0049	1	12/09/19 15:01	12/10/19 17:39	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/09/19 15:01	12/10/19 17:39	7440-43-9		
Calcium	140	mg/L	5.0	0.55	50	12/09/19 15:01	12/10/19 17:45	7440-70-2		
Chromium	0.0099J	mg/L	0.010	0.00039	1	12/09/19 15:01	12/10/19 17:39	7440-47-3		
Cobalt	0.022	mg/L	0.0050	0.00030	1	12/09/19 15:01	12/10/19 17:39	7440-48-4		
Lead	0.00045J	mg/L	0.0050	0.000046	1	12/09/19 15:01	12/10/19 17:39	7439-92-1		
Lithium	0.019J	mg/L	0.030	0.00078	1	12/09/19 15:01	12/10/19 17:39	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/09/19 15:01	12/10/19 17:39	7439-98-7		
Selenium	0.11	mg/L	0.010	0.0013	1	12/09/19 15:01	12/10/19 17:39	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/09/19 15:01	12/10/19 17:39	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/10/19 17:58	12/11/19 12:23	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	13200	mg/L	10.0	10.0	1		12/11/19 17:46			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	7410	mg/L	500	12.0	500		12/11/19 15:25	16887-00-6		
Fluoride	1.4	mg/L	0.30	0.029	1		12/11/19 09:27	16984-48-8		
Sulfate	1020	mg/L	500	8.5	500		12/11/19 15:25	14808-79-8		

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ANALYTICAL RESULTS

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Sample: DUP-1		Lab ID: 2626485004		Collected: 12/04/19 00:00		Received: 12/06/19 09:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/09/19 15:01	12/10/19 17:56	7440-36-0		
Arsenic	0.017	mg/L	0.0050	0.00035	1	12/09/19 15:01	12/10/19 17:56	7440-38-2		
Barium	0.14	mg/L	0.010	0.00049	1	12/09/19 15:01	12/10/19 17:56	7440-39-3		
Beryllium	0.011	mg/L	0.0030	0.000074	1	12/09/19 15:01	12/10/19 17:56	7440-41-7		
Boron	0.71	mg/L	0.040	0.0049	1	12/09/19 15:01	12/10/19 17:56	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/09/19 15:01	12/10/19 17:56	7440-43-9		
Calcium	148	mg/L	5.0	0.55	50	12/09/19 15:01	12/10/19 17:51	7440-70-2		
Chromium	0.0077J	mg/L	0.010	0.00039	1	12/09/19 15:01	12/10/19 17:56	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/09/19 15:01	12/10/19 17:56	7440-48-4		
Lead	0.000062J	mg/L	0.0050	0.000046	1	12/09/19 15:01	12/10/19 17:56	7439-92-1		
Lithium	0.017J	mg/L	0.030	0.00078	1	12/09/19 15:01	12/10/19 17:56	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/09/19 15:01	12/10/19 17:56	7439-98-7		
Selenium	0.13	mg/L	0.010	0.0013	1	12/09/19 15:01	12/10/19 17:56	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/09/19 15:01	12/10/19 17:56	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/10/19 17:58	12/11/19 12:25	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	11000	mg/L	10.0	10.0	1		12/11/19 17:46			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	5700	mg/L	500	12.0	500		12/11/19 15:47	16887-00-6		
Fluoride	0.13J	mg/L	0.30	0.029	1		12/11/19 09:49	16984-48-8		
Sulfate	775	mg/L	500	8.5	500		12/11/19 15:47	14808-79-8		

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ANALYTICAL RESULTS

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Sample: FBL120519		Lab ID: 2626485005		Collected: 12/05/19 14:54		Received: 12/06/19 09:35		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	12/09/19 15:01	12/10/19 18:02	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	12/09/19 15:01	12/10/19 18:02	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	12/09/19 15:01	12/10/19 18:02	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	12/09/19 15:01	12/10/19 18:02	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	12/09/19 15:01	12/10/19 18:02	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	12/09/19 15:01	12/10/19 18:02	7440-43-9	
Calcium	0.019J	mg/L	0.10	0.011	1	12/09/19 15:01	12/10/19 18:02	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	12/09/19 15:01	12/10/19 18:02	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	12/09/19 15:01	12/10/19 18:02	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	12/09/19 15:01	12/10/19 18:02	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	12/09/19 15:01	12/10/19 18:02	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	12/09/19 15:01	12/10/19 18:02	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	12/09/19 15:01	12/10/19 18:02	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	12/09/19 15:01	12/10/19 18:02	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	12/10/19 17:58	12/11/19 12:27	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12.0	mg/L	10.0	10.0	1		12/11/19 17:47		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	ND	mg/L	1.0	0.024	1		12/11/19 06:53	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		12/11/19 06:53	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		12/11/19 06:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Sample: EQBL120519		Lab ID: 2626485006		Collected: 12/05/19 14:58		Received: 12/06/19 09:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/09/19 15:01	12/10/19 18:08	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	12/09/19 15:01	12/10/19 18:08	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	12/09/19 15:01	12/10/19 18:08	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	12/09/19 15:01	12/10/19 18:08	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	12/09/19 15:01	12/10/19 18:08	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/09/19 15:01	12/10/19 18:08	7440-43-9		
Calcium	0.037J	mg/L	0.10	0.011	1	12/09/19 15:01	12/10/19 18:08	7440-70-2		
Chromium	0.00060J	mg/L	0.010	0.00039	1	12/09/19 15:01	12/10/19 18:08	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/09/19 15:01	12/10/19 18:08	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	12/09/19 15:01	12/10/19 18:08	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	12/09/19 15:01	12/10/19 18:08	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/09/19 15:01	12/10/19 18:08	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	12/09/19 15:01	12/10/19 18:08	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/09/19 15:01	12/10/19 18:08	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/10/19 17:58	12/11/19 12:30	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	10.0	mg/L	10.0	10.0	1		12/11/19 17:47			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.029J	mg/L	1.0	0.024	1		12/11/19 07:15	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		12/11/19 07:15	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		12/11/19 07:15	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

QC Batch: 40285 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

METHOD BLANK: 183097 Matrix: Water
Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	12/11/19 12:01	

LABORATORY CONTROL SAMPLE: 183098

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 183099 183100

Parameter	Units	2626485001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0023	0.0023	93	93	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.

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QUALITY CONTROL DATA

Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

QC Batch: 40168 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

METHOD BLANK: 182552 Matrix: Water
Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	12/10/19 16:24	
Arsenic	mg/L	ND	0.0050	0.00035	12/10/19 16:24	
Barium	mg/L	ND	0.010	0.00049	12/10/19 16:24	
Beryllium	mg/L	ND	0.0030	0.000074	12/10/19 16:24	
Boron	mg/L	ND	0.040	0.0049	12/10/19 16:24	
Cadmium	mg/L	ND	0.0025	0.00011	12/10/19 16:24	
Calcium	mg/L	ND	0.10	0.011	12/10/19 16:24	
Chromium	mg/L	ND	0.010	0.00039	12/10/19 16:24	
Cobalt	mg/L	ND	0.0050	0.00030	12/10/19 16:24	
Lead	mg/L	ND	0.0050	0.000046	12/10/19 16:24	
Lithium	mg/L	ND	0.030	0.00078	12/10/19 16:24	
Molybdenum	mg/L	ND	0.010	0.00095	12/10/19 16:24	
Selenium	mg/L	ND	0.010	0.0013	12/10/19 16:24	
Thallium	mg/L	ND	0.0010	0.000052	12/10/19 16:24	

LABORATORY CONTROL SAMPLE: 182553

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.096	96	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	1.0	100	80-120	
Cadmium	mg/L	0.1	0.098	98	80-120	
Calcium	mg/L	1	0.96	96	80-120	
Chromium	mg/L	0.1	0.098	98	80-120	
Cobalt	mg/L	0.1	0.095	95	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.095	95	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 182554 182555

Parameter	Units	2626485001 Result	MS		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.							
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	101	103	75-125	2	20

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QUALITY CONTROL DATA

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 182554			182555			% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		2626485001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Arsenic	mg/L	0.0055	0.1	0.1	0.097	0.10	92	94	75-125	3	20			
Barium	mg/L	0.12	0.1	0.1	0.20	0.21	88	91	75-125	1	20			
Beryllium	mg/L	0.0045	0.1	0.1	0.084	0.089	79	84	75-125	6	20			
Boron	mg/L	0.23	1	1	0.98	1.0	75	82	75-125	6	20			
Cadmium	mg/L	ND	0.1	0.1	0.091	0.093	91	93	75-125	3	20			
Calcium	mg/L	40.5	1	1	39.8	40.9	-65	39	75-125	3	20	M6		
Chromium	mg/L	0.0046J	0.1	0.1	0.099	0.10	95	99	75-125	4	20			
Cobalt	mg/L	ND	0.1	0.1	0.090	0.096	90	96	75-125	6	20			
Lead	mg/L	ND	0.1	0.1	0.082	0.085	82	85	75-125	3	20			
Lithium	mg/L	0.0042J	0.1	0.1	0.089	0.095	85	91	75-125	7	20			
Molybdenum	mg/L	ND	0.1	0.1	0.097	0.10	96	100	75-125	3	20			
Selenium	mg/L	0.032	0.1	0.1	0.12	0.13	90	97	75-125	6	20			
Thallium	mg/L	ND	0.1	0.1	0.084	0.086	84	86	75-125	3	20			

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QUALITY CONTROL DATA

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

QC Batch: 40338 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

LABORATORY CONTROL SAMPLE: 183338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	401	100	84-108	

SAMPLE DUPLICATE: 183339

Parameter	Units	2626485002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	11000	11000	0	10	

SAMPLE DUPLICATE: 183340

Parameter	Units	2626496001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	9910	10400	4	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GA POWER PLANT MCMANUS CCR

Pace Project No.: 2626485

QC Batch: 40294 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

METHOD BLANK: 183133 Matrix: Water
 Associated Lab Samples: 2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	12/11/19 05:47	
Fluoride	mg/L	ND	0.30	0.029	12/11/19 05:47	
Sulfate	mg/L	ND	1.0	0.017	12/11/19 05:47	

LABORATORY CONTROL SAMPLE: 183134

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Fluoride	mg/L	5	4.7	95	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 183135 183136

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2625930003 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	30.0	10	10	34.7	34.7	46	47	90-110	0	15 M1
Fluoride	mg/L	0.80	10	10	8.4	8.9	76	81	90-110	6	15 M1
Sulfate	mg/L	ND	10	10	ND	ND	0	0	90-110		15 M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

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.

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GA POWER PLANT MCMANUS CCR
Pace Project No.: 2626485

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2626485001	MCM-18	EPA 3005A	40168	EPA 6020B	40183
2626485002	MCM-19	EPA 3005A	40168	EPA 6020B	40183
2626485003	MCM-20	EPA 3005A	40168	EPA 6020B	40183
2626485004	DUP-1	EPA 3005A	40168	EPA 6020B	40183
2626485005	FBL120519	EPA 3005A	40168	EPA 6020B	40183
2626485006	EQBL120519	EPA 3005A	40168	EPA 6020B	40183
2626485001	MCM-18	EPA 7470A	40285	EPA 7470A	40291
2626485002	MCM-19	EPA 7470A	40285	EPA 7470A	40291
2626485003	MCM-20	EPA 7470A	40285	EPA 7470A	40291
2626485004	DUP-1	EPA 7470A	40285	EPA 7470A	40291
2626485005	FBL120519	EPA 7470A	40285	EPA 7470A	40291
2626485006	EQBL120519	EPA 7470A	40285	EPA 7470A	40291
2626485001	MCM-18	SM 2540C	40338		
2626485002	MCM-19	SM 2540C	40338		
2626485003	MCM-20	SM 2540C	40338		
2626485004	DUP-1	SM 2540C	40338		
2626485005	FBL120519	SM 2540C	40338		
2626485006	EQBL120519	SM 2540C	40338		
2626485001	MCM-18	EPA 300.0	40294		
2626485002	MCM-19	EPA 300.0	40294		
2626485003	MCM-20	EPA 300.0	40294		
2626485004	DUP-1	EPA 300.0	40294		
2626485005	FBL120519	EPA 300.0	40294		
2626485006	EQBL120519	EPA 300.0	40294		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: Georgia Power Address: 2480 Manor Road Atlanta, GA 30339 Email: jsherman@southpower.com Phone: (404) 506-7239 Fax: Requested Due Date:

Section B Required Project Information: Report To: Jui Abraham Copy To: [Handwritten] Purchase Order #: [Handwritten] Project Name: Georgia Power - Plant Mcdonough CCR Scope Project #: [Handwritten]

Section C Invoice Information: Attention: [Handwritten] Company Name: [Handwritten] Address: [Handwritten] POC Name: [Handwritten] POC Title: [Handwritten] POC Project Manager: [Handwritten] POC Profile #: 334

Page: 1 of 1

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		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analyses Test	Residual Chlorine (Y/N)	TEMP in C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)	
				START DATE	END DATE			Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol							Other
1	NCCM-18	G	GRAB	12/19/19	12/19/19	41	3								X	X	X				
2	NCCM-19	G	GRAB	12/19/19	12/19/19	41	3								X	X	X				
3	NCCM-20	G	GRAB	12/19/19	12/19/19	41	3								X	X	X				
4	Dug-1	G	GRAB	12/19/19	12/19/19	41	3								X	X	X				
5	FD01A120519	G	GRAB	12/19/19	12/19/19	41	3								X	X	X				
6	FD01A120519	G	GRAB	12/19/19	12/19/19	41	3								X	X	X				
7																					
8																					
9																					
10																					
11																					
12																					

Printer Copy from Will at Southpower
W0#: 2626485
2626485

ADDITIONAL COMMENTS: [Handwritten]

RELINQUISHED BY / AFFILIATION: [Handwritten]

DATE: [Handwritten]

TIME: [Handwritten]

ACCEPTED BY / AFFILIATION: [Handwritten]

DATE: [Handwritten]

TIME: [Handwritten]

SAMPLER NAME AND SIGNATURE: [Handwritten]

PRINT NAME OF SAMPLER: [Handwritten]

SIGNATURE OF SAMPLER: [Handwritten]

DATE SAMPLED: [Handwritten]

TEMP in C: [Handwritten]

Received on ice (Y/N): [Handwritten]

Custody Sealed Cooler (Y/N): [Handwritten]

Samples Intact (Y/N): [Handwritten]



Client Name: _____

WO#: 2626485

PH: KH

Due Date: 12/13/19

CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Ot
Tracking #: 7786 3959 6780

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

Packing Material: Bubble Wrap Bubble Bags None Other plastic bags

Thermometer Used THRU 83 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.8/5.4 Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: _____

Temp should be above freezing to 6°C Comments: _____

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Field Data Required? Y / N

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____

Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-ALLC003rev 3, 11September2006

January 06, 2020

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2626485
Pace Project No.: 30342110

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on December 12, 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: 2626485
Pace Project No.: 30342110

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2626485

Pace Project No.: 30342110

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2626485001	MCM-18	Water	12/05/19 16:00	12/12/19 09:30
2626485002	MCM-19	Water	12/04/19 14:56	12/12/19 09:30
2626485003	MCM-20	Water	12/04/19 16:10	12/12/19 09:30
2626485004	DUP-1	Water	12/04/19 00:01	12/12/19 09:30
2626485005	FBL120519	Water	12/05/19 14:54	12/12/19 09:30
2626485006	EQBL120519	Water	12/05/19 14:58	12/12/19 09:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2626485
Pace Project No.: 30342110

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2626485001	MCM-18	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626485002	MCM-19	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626485003	MCM-20	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626485004	DUP-1	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626485005	FBL120519	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2626485006	EQBL120519	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2626485
Pace Project No.: 30342110

Sample: MCM-18		Lab ID: 2626485001	Collected: 12/05/19 16:00	Received: 12/12/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	7.25 ± 1.41	(0.418)	pCi/L	12/31/19 08:33	13982-63-3	
		C:95% T:NA					
Radium-228	EPA 9320	6.95 ± 1.59	(1.22)	pCi/L	01/02/20 15:03	15262-20-1	
		C:66% T:85%					
Total Radium	Total Radium Calculation	14.2 ± 3.00	(1.64)	pCi/L	01/03/20 10:58	7440-14-4	

Sample: MCM-19		Lab ID: 2626485002	Collected: 12/04/19 14:56	Received: 12/12/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	6.58 ± 1.31	(0.378)	pCi/L	12/31/19 08:33	13982-63-3	
		C:92% T:NA					
Radium-228	EPA 9320	12.0 ± 2.44	(1.17)	pCi/L	01/02/20 15:03	15262-20-1	
		C:67% T:92%					
Total Radium	Total Radium Calculation	18.6 ± 3.75	(1.55)	pCi/L	01/03/20 10:58	7440-14-4	

Sample: MCM-20		Lab ID: 2626485003	Collected: 12/04/19 16:10	Received: 12/12/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	11.1 ± 1.96	(0.363)	pCi/L	12/31/19 08:33	13982-63-3	
		C:100% T:NA					
Radium-228	EPA 9320	34.0 ± 6.35	(1.19)	pCi/L	01/02/20 15:04	15262-20-1	
		C:67% T:87%					
Total Radium	Total Radium Calculation	45.1 ± 8.31	(1.55)	pCi/L	01/03/20 10:58	7440-14-4	

Sample: DUP-1		Lab ID: 2626485004	Collected: 12/04/19 00:01	Received: 12/12/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	6.67 ± 1.30	(0.390)	pCi/L	12/31/19 08:33	13982-63-3	
		C:101% T:NA					
Radium-228	EPA 9320	13.1 ± 2.64	(1.06)	pCi/L	01/02/20 15:04	15262-20-1	
		C:66% T:89%					
Total Radium	Total Radium Calculation	19.8 ± 3.94	(1.45)	pCi/L	01/03/20 10:58	7440-14-4	

Sample: FBL120519		Lab ID: 2626485005	Collected: 12/05/19 14:54	Received: 12/12/19 09:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.530 ± 0.275	(0.295)	pCi/L	12/31/19 08:33	13982-63-3	
		C:98% T:NA					
Radium-228	EPA 9320	0.917 ± 0.590	(1.12)	pCi/L	01/02/20 15:04	15262-20-1	
		C:65% T:92%					

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2626485
Pace Project No.: 30342110

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.45 ± 0.865 (1.42)	pCi/L	01/03/20 10:58	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.328 ± 0.224 (0.302) C:91% T:NA	pCi/L	12/31/19 08:34	13982-63-3	
Radium-228	EPA 9320	0.705 ± 0.716 (1.49) C:66% T:76%	pCi/L	01/02/20 15:04	15262-20-1	
Total Radium	Total Radium Calculation	1.03 ± 0.940 (1.79)	pCi/L	01/03/20 10:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2626485
Pace Project No.: 30342110

QC Batch:	377002	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006		

METHOD BLANK:	1828861	Matrix:	Water
Associated Lab Samples:	2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.249 ± 0.216 (0.370) C:94% T:NA	pCi/L	12/31/19 08:33	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2626485
Pace Project No.: 30342110

QC Batch:	376994	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006		

METHOD BLANK:	1828831	Matrix:	Water
Associated Lab Samples:	2626485001, 2626485002, 2626485003, 2626485004, 2626485005, 2626485006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.605 ± 0.407 (0.773) C:65% T:84%	pCi/L	01/02/20 11:57	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2626485
Pace Project No.: 30342110

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA

Cert. Needed: Yes No

Owner Received Date: 12/6/2019 Results Requested By: 12/13/2019

Workorder: 2626485 Workorder Name: GA POWER PLANT MCMANUS CCR

Subcontract To:

Kevin Herring
Pace Analytical Charlotte
9800 Kinney Ave.
Suite 100
Huntersville, NC 28078
Phone (704)875-9092

Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601
Phone (724)850-5600



WO#: 30342110



Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						NO		
1	MCM-18	PS	12/5/2019 16:00	2626485001	Water	1		X
2	MCM-19	PS	12/4/2019 14:56	2626485002	Water	1		X
3	MCM-20	PS	12/4/2019 16:10	2626485003	Water	1		X
4	DUP-1	PS	12/4/2019 00:00	2626485004	Water	1		X
5	FBL120519	PS	12/5/2019 14:54	2626485005	Water	1		X
6	EQBL120519	PS	12/5/2019 14:58	2626485006	Water	1		X

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice (Y) or N	Samples Intact (Y) or N	Comments
1	[Signature]	12.11.19	[Signature]	12/12/19 0930			
2							
3							

Cooler Temperature on Receipt 2.4 °C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Chain of Custody

30342190



Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA
 Cert. Needed: Yes No

Workorder: 2626485 Workorder Name: GA POWER PLANT MCMANUS CCR Results Requested By: 12/13/2019

Owner Received Date: 12/6/2019 Requested Analysis

Kevin Herring
 Pace Analytical Charlotte
 9800 Kincey Ave.
 Suite 100
 Huntersville, NC 28078
 Phone (704)875-9092

Pace Analytical Pittsburgh
 1638 Roseytown Road
 Suites 2,3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Subbed work within PAST RAD	LAB USE ONLY
1	MCM-18	PS	12/5/2019 16:00	2626485001	Water	1	X	
2	MCM-19	PS	12/4/2019 14:56	2626485002	Water	1	X	
3	MCM-20	PS	12/4/2019 16:10	2626485003	Water	1	X	
4	DUP-1	PS	12/4/2019 00:00	2626485004	Water	1	X	
5	FBL120519	PS	12/5/2019 14:54	2626485005	Water	1	X	
6	EQBL120519	PS	12/5/2019 14:58	2626485006	Water	1	X	

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Custody Seal	Y or N	Samples Intact	Y or N
1	[Signature]	12/6/2019	[Signature]	12/07/2019		N			Y	N
2										
3										

Cooler Temperature on Receipt: _____ °C

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt

30342110



Client Name: Pace Analytical Charlotte

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1069 9309 7429

Label _____
LIMS Login _____

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

Thermometer Used 10 Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 2.6 °C Correction Factor: 0 °C Final Temp: 2.6 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and initials of person examining contents: <u>BA 12-13-19</u>
	Yes	No	N/A	
Chain of Custody Present:	/			1. <u>10D0391</u>
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC: <u>BA 12/13/19</u>	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):	/			7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9. <u>See Comments below</u>
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16. <u>PHL2</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>BA</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:				18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>BA</u> Date: <u>12-13-19</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: Received sample MCM-18 volume is a little over 50ml. Received 1 full BPIW for the other samples.

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace GA

Project # 30342110

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1069 9309 5780

Label _____
LIMS Login _____

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

Thermometer Used 9 Type of Ice: Wet Blue None melting

Cooler Temperature Observed Temp 11.8 °C Correction Factor: 0 °C Final Temp: 11.8 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	/			1000391
Chain of Custody Filled Out:	/			12/10/15 JVB
Chain of Custody Relinquished:	/			
Sampler Name & Signature on COC:	/			
Sample Labels match COC:	/			
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			
Short Hold Time Analysis (<72hr remaining):		/		
Rush Turn Around Time Requested:		/		
Sufficient Volume:	/			
Correct Containers Used:	/			
-Pace Containers Used:	/			
Containers Intact:	/			
Orthophosphate field filtered			/	
Hex Cr Aqueous sample field filtered			/	
Organic Samples checked for dechlorination:			/	
Filtered volume received for Dissolved tests			/	
All containers have been checked for preservation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>JVB</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	
Trip Blank Present:		/		
Trip Blank Custody Seals Present		/		
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>DVD</u> Date: <u>12/10/15</u>

Client Notification/ Resolution:

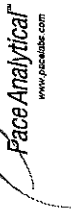
Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
 Analyst: JJY
 Date: 12/30/2019
 Worklist: 51601
 Matrix: DW

Method Blank Assessment	
MB Sample ID	1628861
MB Concentration:	0.249
MB Counting Uncertainty:	0.213
MB MDC:	0.370
MB Numerical Performance Indicator:	2.29
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS (Y or N)?		N
	LCS51601	LCS51601	
Count Date:	12/30/2019		
Spike I.D.:	19-033		
Decay Corrected Spike Concentration (pCi/mL):	24.052		
Volume Used (mL):	0.10		
Aliquot Volume (L, g, F):	0.509		
Target Conc. (pCi/L, g, F):	4.729		
Uncertainty (Calculated):	0.057		
Result (pCi/L, g, F):	4.697		
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.362		
Numerical Performance Indicator:	-0.17		
Percent Recovery:	99.32%		
Status vs Numerical Indicator:	N/A		
Status vs Recovery:	Pass		
Upper % Recovery Limits:	125%		
Lower % Recovery Limits:	75%		

Duplicate Sample Assessment	
Sample I.D.:	2626485005
Duplicate Sample I.D.:	2626485005DUP
Sample Result (pCi/L, g, F):	0.530
Sample Duplicate Result (pCi/L, g, F):	0.265
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	0.387
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.250
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	0.773
Duplicate RPD:	31.30%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Fail***
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Batch must be re-assessed due to unacceptable precision N/A LAM 12/31/19

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

LAM 12/31/19

LAM 12/31/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
 Analyst: JULY
 Date: 12/30/2019
 Worklist: 51601
 Matrix: DW

Method Blank Assessment	
MB Sample ID	1828861
MB concentration:	0.249
M/B Counting Uncertainty:	0.213
MB MDC:	0.370
MB Numerical Performance Indicator:	2.29
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS (Y or N)?	
	LCS51601	LCS51601
Count Date:	12/30/2019	12/30/2019
Spike I.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.052	24.052
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.509	0.509
Target Conc. (pCi/L, g, F):	4.729	4.729
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	4.697	4.955
Numerical Performance Indicator:	0.362	0.380
Percent Recovery:	99.32%	103.75%
Status vs Numerical Indicator:	N/A	N/A
Upper % Recovery Limits:	Pass	Pass
Lower % Recovery Limits:	125%	125%
	75%	75%

Duplicate Sample Assessment	LCS (Y or N)?	
	LCS51601	LCS51601
Sample I.D.:	LCS51601	LCS51601
Duplicate Sample I.D.:	4.697	4.697
Sample Result Counting Uncertainty (pCi/L, g, F):	0.362	0.362
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	4.955	4.955
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.380	0.380
Are sample and/or duplicate results below RL?	NO	NO
Duplicate Numerical Performance Indicator:	-0.966	-0.966
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	4.36%	4.36%
Duplicate Status vs Numerical Indicator:	N/A	N/A
Duplicate Status vs RPD:	Pass	Pass
% RPD Limit:	25%	25%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:		
Sample I.D.:		
Sample MS I.D.:		
Sample MSD I.D.:		
Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
Spike Volume Used in MS (mL):		
MS Aliquot (L, g, F):		
MS Target Conc. (pCi/L, g, F):		
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):		
MSD Spike Uncertainty (calculated):		
Sample Result Counting Uncertainty (pCi/L, g, F):		
Sample Matrix Spike Result:		
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:		
MSD Numerical Performance Indicator:		
MS Percent Recovery:		
MSD Percent Recovery:		
MS Status vs Numerical Indicator:		
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:		
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:		
MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:	
MS/MSD Duplicate Status vs Numerical Indicator:	
MS/MSD Duplicate Status vs RPD:	
% RPD Limit:	

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

AM 12/31/19

Quality Control Sample Performance Assessment

Analyst **Must Manually Enter All Fields Highlighted in Yellow.**

Test: Ra-228
Analyst: VAL
Date: 12/30/2019
Worklist: 51607
Matrix: WT



Method Blank Assessment	
MB Sample ID	1828905
MB concentration:	0.606
MB 2 Sigma CSU:	0.407
MB MDC:	0.774
MB Numerical Performance Indicator:	Warning
MB Status vs. Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS/D (Y or N)?	
	LCS51607	YCS51607
Count Date:	1/2/2020	1/2/2020
Spike I.D.:	19-057	19-057
Decay Corrected Spike Concentration (pCi/mL):	35.684	35.684
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.815	0.808
Target Conc. (pCi/L, g, F):	4.391	4.418
Uncertainty (Calculated):	0.315	0.318
Result (pCi/L, g, F):	3.941	4.004
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.988	0.961
Numerical Performance Indicator:	-0.83	-0.80
Percent Recovery:	89.96%	90.63%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	
Sample I.D.:	LCS51607
Duplicate Sample I.D.:	LCS51607
Sample Result (pCi/L, g, F):	3.941
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.988
Sample Duplicate Result (pCi/L, g, F):	4.004
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.961
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-0.089
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	0.74%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Pass
% RPD Limit:	36%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Am 1/3/20

Sample Matrix Spike Control Assessment		MS/MSD 1	MS/MSD 2
Sample Collection Date:		12/10/2019	
Sample I.D.:		30340726001	
Sample MS I.D.:		30340726001MS	
Sample MSD I.D.:			
Spike I.D.:		19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):		35.959	
Spike Volume Used in MS (mL):		0.20	
Spike Volume Used in MSD (mL):		0.813	
MS Aliquot (L, g, F):		8.844	
MS Target Conc. (pCi/L, g, F):			
MSD Aliquot (L, g, F):			
MSD Target Conc. (pCi/L, g, F):			
MS Spike Uncertainty (calculated):		0.637	
MSD Spike Uncertainty (calculated):			
Sample Result:		0.663	
Sample Result 2 Sigma CSU (pCi/L, g, F):		0.363	
Sample Matrix Spike Result:		9.971	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		2.027	
Sample Matrix Spike Duplicate Result:			
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):			
MS Numerical Performance Indicator:		0.422	
MSD Numerical Performance Indicator:			
MS Percent Recovery:		105.25%	
MSD Percent Recovery:			
MS Status vs Numerical Indicator:		Pass	
MSD Status vs Numerical Indicator:		Pass	
MS Status vs Recovery:			
MSD Status vs Recovery:			
MS/MSD Upper % Recovery Limits:		135%	
MS/MSD Lower % Recovery Limits:		60%	

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:	
MS/MSD Duplicate Status vs Numerical Indicator:	
MS/MSD Duplicate Status vs RPD:	
% RPD Limit:	

January 17, 2020

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Dear Joju Abraham:

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



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Rebecca Thornton, Pace Analytical Atlanta
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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

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SAMPLE SUMMARY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2627109001	MCM-18	Water	12/18/19 09:12	12/19/19 11:35
2627109002	MCM-19	Water	12/17/19 07:54	12/19/19 11:35
2627109003	MCM-20	Water	12/18/19 08:04	12/19/19 11:35
2627109004	DUP-1	Water	12/17/19 00:00	12/19/19 11:35
2627109005	FBL121719	Water	12/17/19 09:10	12/19/19 11:35
2627109006	EQBL121719	Water	12/17/19 09:14	12/19/19 11:35

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627109001	MCM-18	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2627109002	MCM-19	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2627109003	MCM-20	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2627109004	DUP-1	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
2627109005	FBL121719	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627109006	EQBL121719	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0	MWB	3	PASI-GA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Sample: MCM-18		Lab ID: 2627109001		Collected: 12/18/19 09:12		Received: 12/19/19 11:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	0.11	mg/L	0.010	0.0062	1	12/31/19 10:03	12/31/19 17:52	7440-39-3		
Calcium	42.0	mg/L	0.50	0.14	1	12/31/19 10:03	12/31/19 17:52	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/23/19 19:54	12/24/19 19:52	7440-36-0		
Arsenic	0.0031J	mg/L	0.0050	0.00035	1	12/23/19 19:54	12/24/19 19:52	7440-38-2	B	
Beryllium	0.0048	mg/L	0.0030	0.000074	1	12/23/19 19:54	12/24/19 19:52	7440-41-7		
Boron	0.23	mg/L	0.040	0.0049	1	12/23/19 19:54	12/24/19 19:52	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/23/19 19:54	12/24/19 19:52	7440-43-9		
Chromium	0.0045J	mg/L	0.010	0.00039	1	12/23/19 19:54	12/24/19 19:52	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/23/19 19:54	12/24/19 19:52	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	12/23/19 19:54	12/24/19 19:52	7439-92-1		
Lithium	0.0045J	mg/L	0.030	0.00078	1	12/23/19 19:54	12/24/19 19:52	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/23/19 19:54	12/24/19 19:52	7439-98-7		
Selenium	0.010	mg/L	0.010	0.0013	1	12/23/19 19:54	12/24/19 19:52	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/23/19 19:54	12/24/19 19:52	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/23/19 17:58	12/24/19 10:09	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	3880	mg/L	10.0	10.0	1		12/20/19 16:51			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	2090	mg/L	250	6.0	250		01/08/20 15:16	16887-00-6	M6	
Fluoride	0.33	mg/L	0.30	0.029	1		01/08/20 11:35	16984-48-8		
Sulfate	274	mg/L	50.0	0.85	50		01/08/20 00:11	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Sample: MCM-19		Lab ID: 2627109002		Collected: 12/17/19 07:54		Received: 12/19/19 11:35		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.14	mg/L	0.010	0.0062	1	12/31/19 10:03	12/31/19 17:57	7440-39-3	
Calcium	136	mg/L	5.0	1.4	10	12/31/19 10:03	01/02/20 18:07	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	12/23/19 19:54	12/26/19 18:59	7440-36-0	D3
Arsenic	0.011J	mg/L	0.025	0.0018	5	12/23/19 19:54	12/26/19 18:59	7440-38-2	B,D3
Beryllium	0.012	mg/L	0.0030	0.000074	1	12/23/19 19:54	12/24/19 20:15	7440-41-7	
Boron	0.57	mg/L	0.040	0.0049	1	12/23/19 19:54	12/24/19 20:15	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	12/23/19 19:54	12/26/19 18:59	7440-43-9	D3
Chromium	0.0090J	mg/L	0.050	0.0020	5	12/23/19 19:54	12/26/19 18:59	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	12/23/19 19:54	12/26/19 18:59	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.000046	1	12/23/19 19:54	12/24/19 20:15	7439-92-1	
Lithium	0.018J	mg/L	0.030	0.00078	1	12/23/19 19:54	12/24/19 20:15	7439-93-2	
Molybdenum	ND	mg/L	0.050	0.0047	5	12/23/19 19:54	12/26/19 18:59	7439-98-7	D3
Selenium	0.031J	mg/L	0.050	0.0063	5	12/23/19 19:54	12/26/19 18:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	12/23/19 19:54	12/24/19 20:15	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	12/23/19 17:58	12/24/19 10:11	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	9860	mg/L	10.0	10.0	1		12/20/19 16:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	5660	mg/L	500	12.0	500		01/08/20 16:45	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		01/08/20 11:57	16984-48-8	M6
Sulfate	535	mg/L	100	1.7	100		01/08/20 01:17	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Sample: MCM-20		Lab ID: 2627109003		Collected: 12/18/19 08:04		Received: 12/19/19 11:35		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.15	mg/L	0.010	0.0062	1	12/31/19 10:03	12/31/19 18:02	7440-39-3	
Calcium	145	mg/L	5.0	1.4	10	12/31/19 10:03	01/02/20 18:12	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	12/23/19 19:54	12/26/19 19:05	7440-36-0	D3
Arsenic	0.019J	mg/L	0.025	0.0018	5	12/23/19 19:54	12/26/19 19:05	7440-38-2	B,D3
Beryllium	0.012	mg/L	0.0030	0.000074	1	12/23/19 19:54	12/24/19 20:26	7440-41-7	
Boron	0.77	mg/L	0.040	0.0049	1	12/23/19 19:54	12/24/19 20:26	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	12/23/19 19:54	12/26/19 19:05	7440-43-9	D3
Chromium	0.011J	mg/L	0.050	0.0020	5	12/23/19 19:54	12/26/19 19:05	7440-47-3	D3
Cobalt	0.031	mg/L	0.025	0.0015	5	12/23/19 19:54	12/26/19 19:05	7440-48-4	
Lead	0.00023J	mg/L	0.0050	0.000046	1	12/23/19 19:54	12/24/19 20:26	7439-92-1	
Lithium	0.020J	mg/L	0.030	0.00078	1	12/23/19 19:54	12/24/19 20:26	7439-93-2	
Molybdenum	ND	mg/L	0.050	0.0047	5	12/23/19 19:54	12/26/19 19:05	7439-98-7	D3
Selenium	0.032J	mg/L	0.050	0.0063	5	12/23/19 19:54	12/26/19 19:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	12/23/19 19:54	12/24/19 20:26	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	12/23/19 17:58	12/24/19 10:14	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12500	mg/L	10.0	10.0	1		12/20/19 16:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	7170	mg/L	500	12.0	500		01/08/20 16:01	16887-00-6	
Fluoride	1.5	mg/L	0.30	0.029	1		01/08/20 12:19	16984-48-8	
Sulfate	444J	mg/L	500	8.5	500		01/08/20 16:01	14808-79-8	

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ANALYTICAL RESULTS

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Sample: DUP-1		Lab ID: 2627109004		Collected: 12/17/19 00:00		Received: 12/19/19 11:35		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.13	mg/L	0.010	0.0062	1	12/31/19 10:03	12/31/19 18:06	7440-39-3	
Calcium	139	mg/L	5.0	1.4	10	12/31/19 10:03	01/02/20 18:16	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	12/23/19 19:54	12/26/19 19:11	7440-36-0	D3
Arsenic	0.011J	mg/L	0.025	0.0018	5	12/23/19 19:54	12/26/19 19:11	7440-38-2	B,D3
Beryllium	0.013	mg/L	0.0030	0.000074	1	12/23/19 19:54	12/24/19 20:38	7440-41-7	
Boron	0.65	mg/L	0.040	0.0049	1	12/23/19 19:54	12/24/19 20:38	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	12/23/19 19:54	12/26/19 19:11	7440-43-9	D3
Chromium	0.0099J	mg/L	0.050	0.0020	5	12/23/19 19:54	12/26/19 19:11	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	12/23/19 19:54	12/26/19 19:11	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.000046	1	12/23/19 19:54	12/24/19 20:38	7439-92-1	
Lithium	0.019J	mg/L	0.030	0.00078	1	12/23/19 19:54	12/24/19 20:38	7439-93-2	
Molybdenum	ND	mg/L	0.050	0.0047	5	12/23/19 19:54	12/26/19 19:11	7439-98-7	D3
Selenium	0.040J	mg/L	0.050	0.0063	5	12/23/19 19:54	12/26/19 19:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	12/23/19 19:54	12/24/19 20:38	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	12/23/19 17:58	12/24/19 10:16	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	9760	mg/L	10.0	10.0	1		12/20/19 16:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	5680	mg/L	500	12.0	500		01/08/20 16:23	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		01/08/20 12:41	16984-48-8	
Sulfate	6.1	mg/L	1.0	0.017	1		01/08/20 12:41	14808-79-8	

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ANALYTICAL RESULTS

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Sample: FBL121719		Lab ID: 2627109005		Collected: 12/17/19 09:10	Received: 12/19/19 11:35	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	12/31/19 10:03	12/31/19 18:11	7440-39-3		
Calcium	ND	mg/L	0.50	0.14	1	12/31/19 10:03	12/31/19 18:11	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/23/19 19:54	12/24/19 20:55	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	12/23/19 19:54	12/24/19 20:55	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	12/23/19 19:54	12/24/19 20:55	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	12/23/19 19:54	12/24/19 20:55	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/23/19 19:54	12/24/19 20:55	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	12/23/19 19:54	12/24/19 20:55	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/23/19 19:54	12/24/19 20:55	7440-48-4		
Lead	0.000088J	mg/L	0.0050	0.000046	1	12/23/19 19:54	12/24/19 20:55	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	12/23/19 19:54	12/24/19 20:55	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/23/19 19:54	12/24/19 20:55	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	12/23/19 19:54	12/24/19 20:55	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/23/19 19:54	12/24/19 20:55	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/23/19 17:58	12/24/19 10:19	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	27.0	mg/L	10.0	10.0	1		12/20/19 16:51			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	ND	mg/L	1.0	0.024	1		01/08/20 02:23	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		01/08/20 02:23	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		01/08/20 02:23	14808-79-8		

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ANALYTICAL RESULTS

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Sample: EQBL121719		Lab ID: 2627109006		Collected: 12/17/19 09:14		Received: 12/19/19 11:35		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	12/31/19 10:03	12/31/19 18:16	7440-39-3		
Calcium	ND	mg/L	0.50	0.14	1	12/31/19 10:03	12/31/19 18:16	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	12/23/19 19:54	12/24/19 21:00	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	12/23/19 19:54	12/24/19 21:00	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	12/23/19 19:54	12/24/19 21:00	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	12/23/19 19:54	12/24/19 21:00	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	12/23/19 19:54	12/24/19 21:00	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	12/23/19 19:54	12/24/19 21:00	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	12/23/19 19:54	12/24/19 21:00	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	12/23/19 19:54	12/24/19 21:00	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	12/23/19 19:54	12/24/19 21:00	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	12/23/19 19:54	12/24/19 21:00	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	12/23/19 19:54	12/24/19 21:00	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	12/23/19 19:54	12/24/19 21:00	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	12/23/19 17:58	12/24/19 10:21	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	16.0	mg/L	10.0	10.0	1		12/20/19 16:51		D6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	ND	mg/L	1.0	0.024	1		01/08/20 02:45	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		01/08/20 02:45	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		01/08/20 02:45	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

QC Batch: 41045 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
 Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 187261 Matrix: Water
 Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	12/24/19 09:05	

LABORATORY CONTROL SAMPLE: 187262

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 187263 187264

Parameter	Units	MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		2627234001 Result	Spike Conc.	Spike Conc.	Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0027	0.0026	109	105	75-125	4	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

QC Batch: 41378 Analysis Method: EPA 6010D
 QC Batch Method: EPA 3010A Analysis Description: 6010D MET
 Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 188300 Matrix: Water
 Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	0.0062	12/31/19 16:54	
Calcium	mg/L	ND	0.50	0.14	12/31/19 16:54	

LABORATORY CONTROL SAMPLE: 188301

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	101	80-120	
Calcium	mg/L	1	1.1	111	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 188302 188303

Parameter	Units	2627183024 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	96.1 ug/L	1	1	1.1	1.1	101	102	75-125	1	20	
Calcium	mg/L	1490 ug/L	1	1	2.5	2.6	99	107	75-125	3	20	

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QUALITY CONTROL DATA

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

QC Batch: 41105 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 187463 Matrix: Water
Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	12/24/19 18:03	
Arsenic	mg/L	0.00045J	0.0050	0.00035	12/24/19 18:03	
Beryllium	mg/L	ND	0.0030	0.000074	12/24/19 18:03	
Boron	mg/L	ND	0.040	0.0049	12/24/19 18:03	
Cadmium	mg/L	ND	0.0025	0.00011	12/24/19 18:03	
Chromium	mg/L	ND	0.010	0.00039	12/24/19 18:03	
Cobalt	mg/L	ND	0.0050	0.00030	12/24/19 18:03	
Lead	mg/L	ND	0.0050	0.000046	12/24/19 18:03	
Lithium	mg/L	ND	0.030	0.00078	12/24/19 18:03	
Molybdenum	mg/L	ND	0.010	0.00095	12/24/19 18:03	
Selenium	mg/L	ND	0.010	0.0013	12/24/19 18:03	
Thallium	mg/L	ND	0.0010	0.000052	12/24/19 18:03	

LABORATORY CONTROL SAMPLE: 187464

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	105	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	1.0	103	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.11	105	80-120	
Lithium	mg/L	0.1	0.10	104	80-120	
Molybdenum	mg/L	0.1	0.11	106	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 187465 187466

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2626961001 Result	Spike Conc.	Spike Conc.	Result							Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	103	104	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	104	103	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Boron	mg/L	2.5	1	1	3.4	3.5	84	95	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	

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QUALITY CONTROL DATA

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 187465												187466	
Parameter	Units	2626961001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual		
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD			
Chromium	mg/L	0.00083J	0.1	0.1	0.10	0.10	103	100	75-125	3	20		
Cobalt	mg/L	0.00052J	0.1	0.1	0.10	0.10	100	99	75-125	1	20		
Lead	mg/L	0.00024J	0.1	0.1	0.10	0.10	102	102	75-125	1	20		
Lithium	mg/L	0.00098J	0.1	0.1	0.10	0.10	99	103	75-125	4	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.11	104	106	75-125	2	20		
Selenium	mg/L	0.013	0.1	0.1	0.11	0.11	101	102	75-125	0	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20		

SAMPLE DUPLICATE: 187467

Parameter	Units	2627176001	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Antimony	mg/L	ND	ND		20	
Arsenic	mg/L	ND	ND		20	
Beryllium	mg/L	ND	ND		20	
Boron	mg/L	ND	0.035J		20	
Cadmium	mg/L	ND	ND		20	
Chromium	mg/L	ND	0.00077J		20	
Cobalt	mg/L	ND	ND		20	
Lead	mg/L	ND	0.00022J		20	
Lithium	mg/L	ND	0.0020J		20	
Molybdenum	mg/L	ND	0.0073J		20	
Selenium	mg/L	ND	ND		20	
Thallium	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

QC Batch: 40929 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

LABORATORY CONTROL SAMPLE: 186865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	398	100	84-108	

SAMPLE DUPLICATE: 186866

Parameter	Units	2627035001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	268	278	4	10	

SAMPLE DUPLICATE: 186867

Parameter	Units	2627109006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	16.0	10.0	46	10	D6

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

QC Batch: 41598 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 189136 Matrix: Water
Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	01/07/20 23:27	
Fluoride	mg/L	ND	0.30	0.029	01/07/20 23:27	
Sulfate	mg/L	ND	1.0	0.017	01/07/20 23:27	

LABORATORY CONTROL SAMPLE: 189137

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Fluoride	mg/L	5	4.5	90	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 189138 189139

Parameter	Units	2627109001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2090	500	500	2150	2150	93	93	90-110	0	15	M6
Fluoride	mg/L	0.33	500	500	409	410	81	81	90-110	0	15	
Sulfate	mg/L	158J	500	500	782	780	102	101	90-110	0	15	

MATRIX SPIKE SAMPLE: 189140

Parameter	Units	2627109002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5660	1000	4350	39	90-110	
Fluoride	mg/L	ND	1000	797	78	90-110	M6
Sulfate	mg/L	535	1000	1440	90	90-110	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Sample: MCM-18 **Lab ID: 2627109001** Collected: 12/18/19 09:12 Received: 12/19/19 11:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	9.01 ± 1.67 (0.389) C:92% T:NA	pCi/L	12/31/19 08:34	13982-63-3	
Radium-228	EPA 9320	7.98 ± 1.78 (1.25) C:64% T:84%	pCi/L	01/02/20 15:04	15262-20-1	
Total Radium	Total Radium Calculation	17.0 ± 3.45 (1.64)	pCi/L	01/14/20 13:41	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Sample: MCM-19 **Lab ID: 2627109002** Collected: 12/17/19 07:54 Received: 12/19/19 11:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	10.8 ± 1.91 (0.406) C:95% T:NA	pCi/L	12/31/19 08:09	13982-63-3	
Radium-228	EPA 9320	11.0 ± 2.29 (1.13) C:71% T:89%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium	Total Radium Calculation	21.8 ± 4.20 (1.54)	pCi/L	01/14/20 13:41	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Sample: MCM-20 **Lab ID: 2627109003** Collected: 12/18/19 08:04 Received: 12/19/19 11:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	22.3 ± 3.59 (0.397) C:98% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228	EPA 9320	33.5 ± 6.30 (1.26) C:71% T:88%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium	Total Radium Calculation	55.8 ± 9.89 (1.66)	pCi/L	01/14/20 13:41	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Sample: DUP-1 **Lab ID: 2627109004** Collected: 12/17/19 00:00 Received: 12/19/19 11:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	9.18 ± 1.68 (0.368) C:97% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228	EPA 9320	12.2 ± 2.57 (1.48) C:71% T:84%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium	Total Radium Calculation	21.4 ± 4.25 (1.85)	pCi/L	01/14/20 13:41	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Sample: FBL121719 **Lab ID: 2627109005** Collected: 12/17/19 09:10 Received: 12/19/19 11:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.534 ± 0.310 (0.471) C:95% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228	EPA 9320	0.855 ± 0.682 (1.36) C:71% T:80%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium	Total Radium Calculation	1.39 ± 0.992 (1.83)	pCi/L	01/14/20 13:41	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.133 ± 0.253 (0.581) C:94% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228	EPA 9320	0.161 ± 0.589 (1.33) C:69% T:77%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium	Total Radium Calculation	0.294 ± 0.842 (1.91)	pCi/L	01/14/20 13:41	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

QC Batch: 377002 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 1828861 Matrix: Water

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.249 ± 0.216 (0.370) C:94% T:NA	pCi/L	12/31/19 08:33	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

QC Batch: 376994

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 1828831

Matrix: Water

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.605 ± 0.407 (0.773) C:65% T:84%	pCi/L	01/02/20 11:57	

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QUALIFIERS

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

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.

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

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GEORGIA POWER PLANT MCMANUS
Pace Project No.: 2627109

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2627109001	MCM-18	EPA 3010A	41378	EPA 6010D	41390
2627109002	MCM-19	EPA 3010A	41378	EPA 6010D	41390
2627109003	MCM-20	EPA 3010A	41378	EPA 6010D	41390
2627109004	DUP-1	EPA 3010A	41378	EPA 6010D	41390
2627109005	FBL121719	EPA 3010A	41378	EPA 6010D	41390
2627109006	EQBL121719	EPA 3010A	41378	EPA 6010D	41390
2627109001	MCM-18	EPA 3005A	41105	EPA 6020B	41107
2627109002	MCM-19	EPA 3005A	41105	EPA 6020B	41107
2627109003	MCM-20	EPA 3005A	41105	EPA 6020B	41107
2627109004	DUP-1	EPA 3005A	41105	EPA 6020B	41107
2627109005	FBL121719	EPA 3005A	41105	EPA 6020B	41107
2627109006	EQBL121719	EPA 3005A	41105	EPA 6020B	41107
2627109001	MCM-18	EPA 7470A	41045	EPA 7470A	41119
2627109002	MCM-19	EPA 7470A	41045	EPA 7470A	41119
2627109003	MCM-20	EPA 7470A	41045	EPA 7470A	41119
2627109004	DUP-1	EPA 7470A	41045	EPA 7470A	41119
2627109005	FBL121719	EPA 7470A	41045	EPA 7470A	41119
2627109006	EQBL121719	EPA 7470A	41045	EPA 7470A	41119
2627109001	MCM-18	EPA 9315	377002		
2627109002	MCM-19	EPA 9315	377002		
2627109003	MCM-20	EPA 9315	377002		
2627109004	DUP-1	EPA 9315	377002		
2627109005	FBL121719	EPA 9315	377002		
2627109006	EQBL121719	EPA 9315	377002		
2627109001	MCM-18	EPA 9320	376994		
2627109002	MCM-19	EPA 9320	376994		
2627109003	MCM-20	EPA 9320	376994		
2627109004	DUP-1	EPA 9320	376994		
2627109005	FBL121719	EPA 9320	376994		
2627109006	EQBL121719	EPA 9320	376994		
2627109001	MCM-18	Total Radium Calculation	379303		
2627109002	MCM-19	Total Radium Calculation	379303		
2627109003	MCM-20	Total Radium Calculation	379303		
2627109004	DUP-1	Total Radium Calculation	379303		
2627109005	FBL121719	Total Radium Calculation	379303		
2627109006	EQBL121719	Total Radium Calculation	379303		
2627109001	MCM-18	SM 2540C	40929		
2627109002	MCM-19	SM 2540C	40929		
2627109003	MCM-20	SM 2540C	40929		
2627109004	DUP-1	SM 2540C	40929		
2627109005	FBL121719	SM 2540C	40929		
2627109006	EQBL121719	SM 2540C	40929		
2627109001	MCM-18	EPA 300.0	41598		
2627109002	MCM-19	EPA 300.0	41598		
2627109003	MCM-20	EPA 300.0	41598		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GEORGIA POWER PLANT MCMANUS

Pace Project No.: 2627109

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2627109004	DUP-1	EPA 300.0	41598		
2627109005	FBL121719	EPA 300.0	41598		
2627109006	EQBL121719	EPA 300.0	41598		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 Of 1

Section A	Section B	Section C
Required Client Information:	Required Project Information:	Invoice Information:
Company: Georgia Power	Report To: Joju Abraham <i>Kevin Petty</i>	Attention: _____
Address: 2480 Maner Road Atlanta, GA 30339	Copy To: <i>Lan McManus (Vendor Representative)</i>	Company Name: _____
Email: j Abraham@southernco.com	Purchase Order #: _____	Address: _____
Phone: (404) 506-7239 Fax: _____	Project Name: Georgia Power - Plant McManus CCR Scope	Pace Quote: _____
Requested Due Date: _____	Project #: _____	Pace Project Manager: betsy.mcdaniel@pacelabs.com
		Pace Profile #: 334

Regulatory Agency
State / Location
GA

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				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Requested Analysis Filtered (Y/N)					Residual Chlorine (Y/N)			
				START		END				Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Radium 226/228	Metals (CCR App III & App	TDS, Cl, F, SO4					
				DATE	TIME	DATE	TIME																			
1	MCM-18	G	G	12/18/19	09:12			F	1	U																
2	MCM-19	G	G	12/18/19	07:54			F	1	U																
3	MCM-20	G	G	12/19/19	08:04			F	1	U																
4	Dug-1	G	G	12/17/19	-			F	1	U																
6	EBL12/7/19	G	G	12/17/19	09:10			F	1	U																
6	ERBL12/7/19	G	G	12/17/19	09:14			F	1	U																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Kevin Stophard</i>	12/18/19	12:36	<i>F. J. Pace</i>	12/19	11:35	

SAMPLER NAME AND SIGNATURE	TEMP IN C	Received on Ice (Y/N)	Coolbody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <i>Kevin Stophard</i> SIGNATURE of SAMPLER: <i>Kevin Stophard</i>				
DATE signed: <i>12/18/19</i>				



Document Name: Document Issued: March 14, 2019
 Bottle Identification Form (BIF) Page 1 of 1
 Document No.: Issuing Authority:
 F-CAR-CJ-043-Rev-00 Pace Carolinas Quality Office

Project # 1041
 *Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHG
 **Bottom half of box is to list number of bottle

Item#	Matrix	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFLU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 Kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A - lab)	SPZT-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	1000 30 mL Irradiation Vials (N/A)		
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

SampleID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office. Out of hold, incorrect preservative, out of temp, incorrect containers.

Sample Condition Upon Receipt

Peace Analytical

Client Name: Georgia Power Project # _____

Optional Proj. Due Date: Proj. Name:
--

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____
 Tracking #: 77906312459c

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

Packing Material: Bubble Wrap Bubble Bags None Other Plastic Bag

Thermometer Used THR214 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.4°C Biological Tissue Is Frozen: Yes No

Comments: Date and Initials of person examining contents: <u>WRK</u>

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	<u>Georgia Power</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix: <u>WT</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: _____ Date/Time: _____ Field Data Required? Y / N

Person Contacted: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

January 14, 2020

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2627109
Pace Project No.: 30342107

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on December 21, 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2627109

Pace Project No.: 30342107

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2627109
Pace Project No.: 30342107

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2627109001	MCM-18	Water	12/18/19 09:12	12/21/19 10:30
2627109002	MCM-19	Water	12/17/19 07:54	12/21/19 10:30
2627109003	MCM-20	Water	12/18/19 08:04	12/21/19 10:30
2627109004	DUP-1	Water	12/17/19 00:00	12/21/19 10:30
2627109005	FBL121719	Water	12/17/19 09:10	12/21/19 10:30
2627109006	EQBL121719	Water	12/17/19 09:14	12/21/19 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2627109
Pace Project No.: 30342107

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627109001	MCM-18	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2627109002	MCM-19	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2627109003	MCM-20	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2627109004	DUP-1	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2627109005	FBL121719	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2627109006	EQBL121719	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2627109
Pace Project No.: 30342107

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	9.01 ± 1.67 (0.389) C:92% T:NA	pCi/L	12/31/19 08:34	13982-63-3	
Radium-228		EPA 9320	7.98 ± 1.78 (1.25) C:64% T:84%	pCi/L	01/02/20 15:04	15262-20-1	
Total Radium		Total Radium Calculation	17.0 ± 3.45 (1.64)	pCi/L	01/14/20 13:41	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	10.8 ± 1.91 (0.406) C:95% T:NA	pCi/L	12/31/19 08:09	13982-63-3	
Radium-228		EPA 9320	11.0 ± 2.29 (1.13) C:71% T:89%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium		Total Radium Calculation	21.8 ± 4.20 (1.54)	pCi/L	01/14/20 13:41	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	22.3 ± 3.59 (0.397) C:98% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228		EPA 9320	33.5 ± 6.30 (1.26) C:71% T:88%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium		Total Radium Calculation	55.8 ± 9.89 (1.66)	pCi/L	01/14/20 13:41	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	9.18 ± 1.68 (0.368) C:97% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228		EPA 9320	12.2 ± 2.57 (1.48) C:71% T:84%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium		Total Radium Calculation	21.4 ± 4.25 (1.85)	pCi/L	01/14/20 13:41	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 9315	0.534 ± 0.310 (0.471) C:95% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228		EPA 9320	0.855 ± 0.682 (1.36) C:71% T:80%	pCi/L	01/02/20 19:31	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2627109
Pace Project No.: 30342107

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	1.39 ± 0.992 (1.83)	pCi/L	01/14/20 13:41	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.133 ± 0.253 (0.581) C:94% T:NA	pCi/L	12/31/19 08:10	13982-63-3	
Radium-228	EPA 9320	0.161 ± 0.589 (1.33) C:69% T:77%	pCi/L	01/02/20 19:31	15262-20-1	
Total Radium	Total Radium Calculation	0.294 ± 0.842 (1.91)	pCi/L	01/14/20 13:41	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2627109

Pace Project No.: 30342107

QC Batch: 377002

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 1828861

Matrix: Water

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.249 ± 0.216 (0.370) C:94% T:NA	pCi/L	12/31/19 08:33	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2627109

Pace Project No.: 30342107

QC Batch: 376994

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

METHOD BLANK: 1828831

Matrix: Water

Associated Lab Samples: 2627109001, 2627109002, 2627109003, 2627109004, 2627109005, 2627109006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.605 ± 0.407 (0.773) C:65% T:84%	pCi/L	01/02/20 11:57	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2627109
Pace Project No.: 30342107

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA

Cert. Needed: Yes No

Owner Received Date: 12/19/2019

Results Requested By: 4/8/2020

Workorder: 2627109 Workorder Name: GEORGIA POWER PLANT MCMANUS

Report To: Subcontract To

Kevin Herring
Pace Analytical Charlotte
9800 Kinsey Ave.
Suite 100
Huntersville, NC 28078
Phone (704)875-9092

Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601
Phone (724)850-5600



Requested Analysis

NO#: 30342107



30342107

Preserved Containers

9315

9320

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	HNO3	9315	9320	LAB USE ONLY
1	MCM-18	PS	12/18/2019 09:12	2627109001	Water	1	X	X	031
2	MCM-19	PS	12/17/2019 07:54	2627109002	Water	1	X	X	033
3	MCM-20	PS	12/18/2019 08:04	2627109003	Water	1	X	X	033
4	DUP-1	PS	12/17/2019 00:00	2627109004	Water	1	X	X	034
5	FBL121719	PS	12/17/2019 09:10	2627109005	Water	1	X	X	035
6	EQBL121719	PS	12/17/2019 09:14	2627109006	Water	1	X	X	034

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	[Signature]	12/20/19	[Signature]	12/23/19		Y		
2				12/20/19		Y		
3						N		

Cooler Temperature on Receipt 3.0 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: PAUGA

Project # # 30342107

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 106993100337

Label <u>DB</u>
LIMS Login <u>DB</u>

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

Thermometer Used 11 Type of Ice: Wet Blue None mixed

Cooler Temperature Observed Temp 3.0 °C Correction Factor: 0 °C Final Temp: 30 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	/			1000391 12/23/14 DB
Chain of Custody Filled Out:	/			
Chain of Custody Relinquished:	/			
Sampler Name & Signature on COC:	/			
Sample Labels match COC:	/			
-Includes date/time/ID Matrix: <u>WT</u>	/			
Samples Arrived within Hold Time:	/			
Short Hold Time Analysis (<72hr remaining):	/			
Rush Turn Around Time Requested:	/			
Sufficient Volume:	/			
Correct Containers Used:	/			
-Pace Containers Used:	/			
Containers Intact:	/			
Orthophosphate field filtered			/	
Hex Cr Aqueous sample field filtered			/	
Organic Samples checked for dechlorination:			/	
Filtered volume received for Dissolved tests			/	
All containers have been checked for preservation.	/			
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			
				Initial when completed <u>DB</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	
Trip Blank Present:			/	
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>DB</u> Date: <u>12/23/14</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

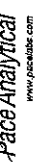
Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
 Analyst: JJY
 Date: 12/30/2019
 Worklist: 51601
 Matrix: DW

Method Blank Assessment	
MB Sample ID	1628861
MB Concentration:	0.249
M/B Counting Uncertainty:	0.213
MB MDC:	0.370
MB Numerical Performance Indicator:	2.29
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCS/D (Y or N)?	N
Count Date:		12/30/2019	LCS/D51601
Spike I.D.:		19-033	
Decay Corrected Spike Concentration (pCi/mL):		24.052	
Volume Used (mL):		0.10	
Aliquot Volume (L, g, F):		0.509	
Target Conc. (pCi/L, g, F):		4.729	
Uncertainty (Calculated):		0.057	
Result (pCi/L, g, F):		4.697	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):		0.362	
Numerical Performance Indicator:		-0.17	
Percent Recovery:		99.32%	
Status vs Numerical Indicator:		N/A	
Status vs Recovery:		Pass	
Upper % Recovery Limits:		125%	
Lower % Recovery Limits:		75%	

Duplicate Sample Assessment	
Sample I.D.:	2626485005
Duplicate Sample I.D.:	2626485005DUP
Sample Result (pCi/L, g, F):	0.530
Sample Result Counting Uncertainty (pCi/L, g, F):	0.265
Sample Duplicate Result (pCi/L, g, F):	0.387
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.250
Are sample and/or duplicate results below RL?	
Duplicate Numerical Performance Indicator:	0.773
Duplicate RPD:	31.30%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Fail***
% RPD Limit:	25%

*** Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Batch must be re-assessed due to unacceptable precision N/A LAM 12/31/19

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:		
Sample I.D.:		
Sample MS I.D.:		
Sample MSD I.D.:		
Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
Spike Volume Used in MS (mL):		
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):		
MS Target Conc. (pCi/L, g, F):		
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (calculated):		
MSD Spike Uncertainty (calculated):		
Sample Result:		
Sample Result Counting Uncertainty (pCi/L, g, F):		
Sample Matrix Spike Result:		
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):		
MS Numerical Performance Indicator:		
MSD Numerical Performance Indicator:		
MS Percent Recovery:		
MSD Percent Recovery:		
MS Status vs Numerical Indicator:		
MSD Status vs Numerical Indicator:		
MS Status vs Recovery:		
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:		
MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):	
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:	
MS/MSD Duplicate Status vs Numerical Indicator:	
MS/MSD Duplicate Status vs RPD:	
% RPD Limit:	

LAM 12/31/19

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
 Analyst: JULY
 Date: 12/30/2019
 Worklist: 51601
 Matrix: DW

Method Blank Assessment	
MB Sample ID	1828861
MB concentration:	0.249
M/B Counting Uncertainty:	0.213
MB MDC:	0.370
MB Numerical Performance Indicator:	2.29
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCS (Y or N)?	Y
Count Date:	12/30/2019	LCS51601	LCS51601
Spike I.D.:	19-033	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.052	24.052	24.052
Volume Used (mL):	0.10	0.10	0.10
Aliquot Volume (L, g, F):	0.509	0.509	0.504
Target Conc. (pCi/L, g, F):	4.729	4.729	4.776
Uncertainty (Calculated):	0.057	0.057	0.057
Result (pCi/L, g, F):	4.697	4.697	4.955
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.362	0.362	0.380
Numerical Performance Indicator:	-0.17	-0.17	0.91
Percent Recovery:	99.32%	99.32%	103.75%
Status vs Numerical Indicator:	N/A	N/A	N/A
Status vs Recovery:	Pass	Pass	Pass
Upper % Recovery Limits:	125%	125%	125%
Lower % Recovery Limits:	75%	75%	75%

Duplicate Sample Assessment		Enter Duplicate sample IDs if other than LCS/LCSD in the space below.	
Sample I.D.:	LCS51601	2626485005	
Duplicate Sample I.D.:	LCS51601	2626485005DUP	
Sample Result (pCi/L, g, F):	4.697		
Sample Result Counting Uncertainty (pCi/L, g, F):	0.362		
Sample Duplicate Result (pCi/L, g, F):	4.955		
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.380		
Are sample and/or duplicate results below RL?	NO		
Duplicate Numerical Performance Indicator:	-0.966		
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	4.36%		
Duplicate Status vs Numerical Indicator:	N/A		
Duplicate Status vs RPD:	Pass		
% RPD Limit:	25%		

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

AM 12/31/19

Quality Control Sample Performance Assessment

Analyst **Must Manually Enter All Fields Highlighted in Yellow.**



Test: Ra-228
Analyst: VAL
Date: 12/30/2019
Worklist: 51607
Matrix: WT

Method Blank Assessment	
MB Sample ID	1828905
MB concentration:	0.606
MB 2 Sigma CSU:	0.407
MB MDC:	0.774
MB Numerical Performance Indicator:	Warning
MB Status vs. Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS/D (Y or N)?	
	LCS51607	YCS51607
Count Date:	1/2/2020	1/2/2020
Spike I.D.:	19-057	19-057
Decay Corrected Spike Concentration (pCi/mL):	35.684	35.684
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.815	0.808
Target Conc. (pCi/L, g, F):	4.391	4.418
Uncertainty (Calculated):	0.315	0.318
Result (pCi/L, g, F):	3.941	4.004
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.988	0.961
Numerical Performance Indicator:	-0.83	-0.80
Percent Recovery:	89.96%	90.63%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:	Sample I.D.:
Duplicate Sample I.D.:	Sample MS I.D.:
Sample Result (pCi/L, g, F):	Sample MSD I.D.:
Sample Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Result:
Sample Duplicate Result (pCi/L, g, F):	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:
Are sample and/or duplicate results below RL?	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Duplicate Numerical Performance Indicator:	Duplicate Numerical Performance Indicator:
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:
Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:
Duplicate Status vs RPD:	% RPD Limit:
% RPD Limit:	% RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Am 1/3/20

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date:	12/10/2019	
Sample I.D.:	30340726001	
Sample MS I.D.:	30340726001MS	
Sample MSD I.D.:		
Spike I.D.:	19-057	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	35.959	
Spike Volume Used in MS (mL):	0.20	
Spike Volume Used in MSD (mL):		
MS Aliquot (L, g, F):	0.813	
MS Target Conc. (pCi/L, g, F):	8.844	
MSD Aliquot (L, g, F):		
MSD Target Conc. (pCi/L, g, F):		
MS Spike Uncertainty (Calculated):	0.637	
MSD Spike Uncertainty (Calculated):		
Sample Result:	0.663	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.363	
Sample Matrix Spike Result:	9.971	
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	2.027	
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.422	
MS Numerical Performance Indicator:		
MSD Numerical Performance Indicator:	105.25%	
MS Percent Recovery:	Pass	
MSD Percent Recovery:	Pass	
MS Status vs Numerical Indicator:	135%	
MSD Status vs Numerical Indicator:	60%	
MS Status vs Recovery:		
MSD Status vs Recovery:		
MS/MSD Upper % Recovery Limits:		
MS/MSD Lower % Recovery Limits:		

January 24, 2020

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: MCMANUS CCR
Pace Project No.: 2627719

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on January 10, 2020. 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,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MCMANUS CCR

Pace Project No.: 2627719

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: MCMANUS CCR

Pace Project No.: 2627719

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2627719001	MCM-18	Water	01/09/20 09:36	01/10/20 09:20
2627719002	MCM-19	Water	01/08/20 10:02	01/10/20 09:20
2627719003	MCM-20	Water	01/08/20 08:45	01/10/20 09:20
2627719004	DUP-1	Water	01/09/20 00:00	01/10/20 09:20
2627719005	FBL010920	Water	01/09/20 11:30	01/10/20 09:20
2627719006	EQBL010920	Water	01/09/20 11:35	01/10/20 09:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: MCMANUS CCR
Pace Project No.: 2627719

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627719001	MCM-18	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2627719002	MCM-19	EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2627719003	MCM-20	EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2627719004	DUP-1	EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2627719005	FBL010920	EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2627719006	EQBL010920	EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: MCMANUS CCR

Pace Project No.: 2627719

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2627719001	MCM-18					
EPA 6010D	Barium	0.096	mg/L	0.010	01/20/20 14:15	
EPA 6010D	Calcium	37.1	mg/L	1.0	01/20/20 14:15	M1
EPA 6020B	Arsenic	0.0034J	mg/L	0.0050	01/21/20 18:43	
EPA 6020B	Beryllium	0.0043	mg/L	0.0030	01/21/20 18:43	
EPA 6020B	Boron	0.20	mg/L	0.10	01/21/20 18:43	
EPA 6020B	Chromium	0.0040J	mg/L	0.010	01/21/20 18:43	
EPA 6020B	Lithium	0.0041J	mg/L	0.030	01/21/20 18:43	
EPA 6020B	Selenium	0.010	mg/L	0.010	01/21/20 18:43	
SM 2540C	Total Dissolved Solids	3520	mg/L	10.0	01/14/20 19:36	
EPA 300.0 Rev 2.1 1993	Chloride	1750	mg/L	50.0	01/16/20 05:15	
EPA 300.0 Rev 2.1 1993	Fluoride	0.12J	mg/L	0.30	01/16/20 01:32	
EPA 300.0 Rev 2.1 1993	Sulfate	254	mg/L	50.0	01/16/20 05:15	
2627719002	MCM-19					
EPA 6010D	Barium	0.14	mg/L	0.010	01/20/20 14:49	
EPA 6010D	Calcium	147	mg/L	10.0	01/20/20 14:54	
EPA 6020B	Arsenic	0.015J	mg/L	0.025	01/22/20 10:23	D3
EPA 6020B	Beryllium	0.015J	mg/L	0.015	01/22/20 10:23	D3
EPA 6020B	Boron	0.73	mg/L	0.50	01/22/20 10:23	M1
EPA 6020B	Chromium	0.0077J	mg/L	0.050	01/22/20 10:23	D3
EPA 6020B	Lithium	0.022J	mg/L	0.15	01/22/20 10:23	D3
EPA 6020B	Selenium	0.066	mg/L	0.050	01/22/20 10:23	
SM 2540C	Total Dissolved Solids	9760	mg/L	10.0	01/14/20 19:36	
EPA 300.0 Rev 2.1 1993	Chloride	5070	mg/L	100	01/16/20 05:29	
EPA 300.0 Rev 2.1 1993	Sulfate	603	mg/L	100	01/16/20 05:29	
2627719003	MCM-20					
EPA 6010D	Barium	0.14	mg/L	0.010	01/20/20 15:09	
EPA 6010D	Calcium	157	mg/L	10.0	01/20/20 15:14	
EPA 6020B	Arsenic	0.022J	mg/L	0.025	01/22/20 10:40	D3
EPA 6020B	Beryllium	0.017	mg/L	0.015	01/22/20 10:40	
EPA 6020B	Boron	0.90	mg/L	0.50	01/22/20 10:40	
EPA 6020B	Chromium	0.0092J	mg/L	0.050	01/22/20 10:40	D3
EPA 6020B	Cobalt	0.035	mg/L	0.025	01/22/20 10:40	
EPA 6020B	Lead	0.00029J	mg/L	0.025	01/22/20 10:40	D3
EPA 6020B	Lithium	0.024J	mg/L	0.15	01/22/20 10:40	D3
EPA 6020B	Selenium	0.044J	mg/L	0.050	01/22/20 10:40	D3
SM 2540C	Total Dissolved Solids	12300	mg/L	10.0	01/14/20 19:36	
EPA 300.0 Rev 2.1 1993	Chloride	6480	mg/L	100	01/16/20 05:44	
EPA 300.0 Rev 2.1 1993	Sulfate	747	mg/L	100	01/16/20 05:44	
2627719004	DUP-1					
EPA 6010D	Barium	0.11	mg/L	0.010	01/20/20 15:18	
EPA 6010D	Calcium	41.5	mg/L	1.0	01/20/20 15:18	
EPA 6020B	Arsenic	0.0049J	mg/L	0.0050	01/21/20 19:17	
EPA 6020B	Beryllium	0.0044	mg/L	0.0030	01/21/20 19:17	
EPA 6020B	Boron	0.21	mg/L	0.10	01/21/20 19:17	
EPA 6020B	Chromium	0.0041J	mg/L	0.010	01/21/20 19:17	
EPA 6020B	Lithium	0.0042J	mg/L	0.030	01/21/20 19:17	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: MCMANUS CCR

Pace Project No.: 2627719

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2627719004	DUP-1					
EPA 6020B	Selenium	0.014	mg/L	0.010	01/21/20 19:17	
SM 2540C	Total Dissolved Solids	3480	mg/L	10.0	01/14/20 19:36	
EPA 300.0 Rev 2.1 1993	Chloride	1750	mg/L	100	01/16/20 05:59	
EPA 300.0 Rev 2.1 1993	Fluoride	0.13J	mg/L	0.30	01/16/20 02:17	
EPA 300.0 Rev 2.1 1993	Sulfate	234	mg/L	100	01/16/20 05:59	
2627719005	FBL010920					
SM 2540C	Total Dissolved Solids	11.0	mg/L	10.0	01/14/20 19:36	
EPA 300.0 Rev 2.1 1993	Chloride	3.3	mg/L	1.0	01/16/20 02:32	
EPA 300.0 Rev 2.1 1993	Sulfate	1.9	mg/L	1.0	01/16/20 02:32	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2627719

Sample: MCM-18		Lab ID: 2627719001		Collected: 01/09/20 09:36		Received: 01/10/20 09:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.096	mg/L	0.010	0.0062	1	01/14/20 18:08	01/20/20 14:15	7440-39-3	
Calcium	37.1	mg/L	1.0	0.14	1	01/14/20 18:08	01/20/20 14:15	7440-70-2	M1
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	01/20/20 13:53	01/21/20 18:43	7440-36-0	
Arsenic	0.0034J	mg/L	0.0050	0.00035	1	01/20/20 13:53	01/21/20 18:43	7440-38-2	
Beryllium	0.0043	mg/L	0.0030	0.000074	1	01/20/20 13:53	01/21/20 18:43	7440-41-7	
Boron	0.20	mg/L	0.10	0.0049	1	01/20/20 13:53	01/21/20 18:43	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	01/20/20 13:53	01/21/20 18:43	7440-43-9	
Chromium	0.0040J	mg/L	0.010	0.00039	1	01/20/20 13:53	01/21/20 18:43	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	01/20/20 13:53	01/21/20 18:43	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	01/20/20 13:53	01/21/20 18:43	7439-92-1	
Lithium	0.0041J	mg/L	0.030	0.00078	1	01/20/20 13:53	01/21/20 18:43	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	01/20/20 13:53	01/21/20 18:43	7439-98-7	
Selenium	0.010	mg/L	0.010	0.0013	1	01/20/20 13:53	01/21/20 18:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	01/20/20 13:53	01/21/20 18:43	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/15/20 14:22	01/16/20 13:27	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3520	mg/L	10.0	10.0	1		01/14/20 19:36		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	1750	mg/L	50.0	30.0	50		01/16/20 05:15	16887-00-6	
Fluoride	0.12J	mg/L	0.30	0.050	1		01/16/20 01:32	16984-48-8	
Sulfate	254	mg/L	50.0	25.0	50		01/16/20 05:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2627719

Sample: MCM-19		Lab ID: 2627719002		Collected: 01/08/20 10:02		Received: 01/10/20 09:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.14	mg/L	0.010	0.0062	1	01/14/20 18:08	01/20/20 14:49	7440-39-3	
Calcium	147	mg/L	10.0	1.4	10	01/14/20 18:08	01/20/20 14:54	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	01/20/20 13:53	01/22/20 10:23	7440-36-0	D3
Arsenic	0.015J	mg/L	0.025	0.0018	5	01/20/20 13:53	01/22/20 10:23	7440-38-2	D3
Beryllium	0.015J	mg/L	0.015	0.00037	5	01/20/20 13:53	01/22/20 10:23	7440-41-7	D3
Boron	0.73	mg/L	0.50	0.025	5	01/20/20 13:53	01/22/20 10:23	7440-42-8	M1
Cadmium	ND	mg/L	0.012	0.00057	5	01/20/20 13:53	01/22/20 10:23	7440-43-9	D3
Chromium	0.0077J	mg/L	0.050	0.0020	5	01/20/20 13:53	01/22/20 10:23	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	01/20/20 13:53	01/22/20 10:23	7440-48-4	D3
Lead	ND	mg/L	0.025	0.00023	5	01/20/20 13:53	01/22/20 10:23	7439-92-1	D3,M1
Lithium	0.022J	mg/L	0.15	0.0039	5	01/20/20 13:53	01/22/20 10:23	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	01/20/20 13:53	01/22/20 10:23	7439-98-7	D3
Selenium	0.066	mg/L	0.050	0.0063	5	01/20/20 13:53	01/22/20 10:23	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	01/20/20 13:53	01/22/20 10:23	7440-28-0	D3,M1
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/15/20 14:22	01/16/20 13:30	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	9760	mg/L	10.0	10.0	1		01/14/20 19:36		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	5070	mg/L	100	60.0	100		01/16/20 05:29	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		01/16/20 01:47	16984-48-8	
Sulfate	603	mg/L	100	50.0	100		01/16/20 05:29	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2627719

Sample: MCM-20		Lab ID: 2627719003		Collected: 01/08/20 08:45		Received: 01/10/20 09:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.14	mg/L	0.010	0.0062	1	01/14/20 18:08	01/20/20 15:09	7440-39-3	
Calcium	157	mg/L	10.0	1.4	10	01/14/20 18:08	01/20/20 15:14	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	01/20/20 13:53	01/22/20 10:40	7440-36-0	D3
Arsenic	0.022J	mg/L	0.025	0.0018	5	01/20/20 13:53	01/22/20 10:40	7440-38-2	D3
Beryllium	0.017	mg/L	0.015	0.00037	5	01/20/20 13:53	01/22/20 10:40	7440-41-7	
Boron	0.90	mg/L	0.50	0.025	5	01/20/20 13:53	01/22/20 10:40	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	01/20/20 13:53	01/22/20 10:40	7440-43-9	D3
Chromium	0.0092J	mg/L	0.050	0.0020	5	01/20/20 13:53	01/22/20 10:40	7440-47-3	D3
Cobalt	0.035	mg/L	0.025	0.0015	5	01/20/20 13:53	01/22/20 10:40	7440-48-4	
Lead	0.00029J	mg/L	0.025	0.00023	5	01/20/20 13:53	01/22/20 10:40	7439-92-1	D3
Lithium	0.024J	mg/L	0.15	0.0039	5	01/20/20 13:53	01/22/20 10:40	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	01/20/20 13:53	01/22/20 10:40	7439-98-7	D3
Selenium	0.044J	mg/L	0.050	0.0063	5	01/20/20 13:53	01/22/20 10:40	7782-49-2	D3
Thallium	ND	mg/L	0.0050	0.00026	5	01/20/20 13:53	01/22/20 10:40	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/15/20 14:22	01/16/20 13:32	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12300	mg/L	10.0	10.0	1		01/14/20 19:36		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	6480	mg/L	100	60.0	100		01/16/20 05:44	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		01/16/20 02:02	16984-48-8	
Sulfate	747	mg/L	100	50.0	100		01/16/20 05:44	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2627719

Sample: DUP-1		Lab ID: 2627719004		Collected: 01/09/20 00:00		Received: 01/10/20 09:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.11	mg/L	0.010	0.0062	1	01/14/20 18:08	01/20/20 15:18	7440-39-3	
Calcium	41.5	mg/L	1.0	0.14	1	01/14/20 18:08	01/20/20 15:18	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	01/20/20 13:53	01/21/20 19:17	7440-36-0	
Arsenic	0.0049J	mg/L	0.0050	0.00035	1	01/20/20 13:53	01/21/20 19:17	7440-38-2	
Beryllium	0.0044	mg/L	0.0030	0.000074	1	01/20/20 13:53	01/21/20 19:17	7440-41-7	
Boron	0.21	mg/L	0.10	0.0049	1	01/20/20 13:53	01/21/20 19:17	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	01/20/20 13:53	01/21/20 19:17	7440-43-9	
Chromium	0.0041J	mg/L	0.010	0.00039	1	01/20/20 13:53	01/21/20 19:17	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	01/20/20 13:53	01/21/20 19:17	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	01/20/20 13:53	01/21/20 19:17	7439-92-1	
Lithium	0.0042J	mg/L	0.030	0.00078	1	01/20/20 13:53	01/21/20 19:17	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	01/20/20 13:53	01/21/20 19:17	7439-98-7	
Selenium	0.014	mg/L	0.010	0.0013	1	01/20/20 13:53	01/21/20 19:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	01/20/20 13:53	01/21/20 19:17	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/15/20 14:22	01/16/20 13:39	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3480	mg/L	10.0	10.0	1		01/14/20 19:36		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	1750	mg/L	100	60.0	100		01/16/20 05:59	16887-00-6	
Fluoride	0.13J	mg/L	0.30	0.050	1		01/16/20 02:17	16984-48-8	
Sulfate	234	mg/L	100	50.0	100		01/16/20 05:59	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2627719

Sample: FBL010920		Lab ID: 2627719005		Collected: 01/09/20 11:30		Received: 01/10/20 09:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	01/14/20 18:08	01/20/20 15:33	7440-39-3		
Calcium	ND	mg/L	1.0	0.14	1	01/14/20 18:08	01/20/20 15:33	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	01/20/20 13:53	01/21/20 19:23	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	01/20/20 13:53	01/21/20 19:23	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	01/20/20 13:53	01/21/20 19:23	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	01/20/20 13:53	01/21/20 19:23	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	01/20/20 13:53	01/21/20 19:23	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	01/20/20 13:53	01/21/20 19:23	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	01/20/20 13:53	01/21/20 19:23	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	01/20/20 13:53	01/21/20 19:23	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	01/20/20 13:53	01/21/20 19:23	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	01/20/20 13:53	01/21/20 19:23	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	01/20/20 13:53	01/21/20 19:23	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	01/20/20 13:53	01/21/20 19:23	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	01/15/20 14:22	01/16/20 13:41	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	11.0	mg/L	10.0	10.0	1		01/14/20 19:36			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	3.3	mg/L	1.0	0.60	1		01/16/20 02:32	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		01/16/20 02:32	16984-48-8		
Sulfate	1.9	mg/L	1.0	0.50	1		01/16/20 02:32	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2627719

Sample: EQBL010920		Lab ID: 2627719006		Collected: 01/09/20 11:35		Received: 01/10/20 09:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	ND	mg/L	0.010	0.0062	1	01/14/20 18:08	01/20/20 15:38	7440-39-3	
Calcium	ND	mg/L	1.0	0.14	1	01/14/20 18:08	01/20/20 15:38	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	01/20/20 13:53	01/21/20 19:40	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	01/20/20 13:53	01/21/20 19:40	7440-38-2	
Beryllium	ND	mg/L	0.0030	0.000074	1	01/20/20 13:53	01/21/20 19:40	7440-41-7	
Boron	ND	mg/L	0.10	0.0049	1	01/20/20 13:53	01/21/20 19:40	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	01/20/20 13:53	01/21/20 19:40	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	01/20/20 13:53	01/21/20 19:40	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	01/20/20 13:53	01/21/20 19:40	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	01/20/20 13:53	01/21/20 19:40	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	01/20/20 13:53	01/21/20 19:40	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	01/20/20 13:53	01/21/20 19:40	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	01/20/20 13:53	01/21/20 19:40	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	01/20/20 13:53	01/21/20 19:40	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/15/20 14:22	01/16/20 13:44	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		01/14/20 19:36		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	ND	mg/L	1.0	0.60	1		01/16/20 02:47	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		01/16/20 02:47	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		01/16/20 02:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR
Pace Project No.: 2627719

QC Batch: 41982 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

METHOD BLANK: 191018 Matrix: Water
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	01/16/20 12:44	

LABORATORY CONTROL SAMPLE: 191019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	105	80-120	

MATRIX SPIKE SAMPLE: 191020

Parameter	Units	2627649039 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	ND	0.0025	0.0025	99	75-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR
Pace Project No.: 2627719

QC Batch: 41942 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

METHOD BLANK: 190943 Matrix: Water
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	0.0062	01/20/20 13:37	
Calcium	mg/L	ND	1.0	0.14	01/20/20 13:37	

LABORATORY CONTROL SAMPLE: 190944

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	102	80-120	
Calcium	mg/L	1	1.0	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 190945 190946

Parameter	Units	2627719001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.096	1	1	1.1	1.1	97	97	75-125	0	20	
Calcium	mg/L	37.1	1	1	38.4	39.0	124	186	75-125	2	20 M1	

SAMPLE DUPLICATE: 190961

Parameter	Units	2627751002 Result	Dup Result	RPD	Max RPD	Qualifiers
Barium	mg/L	12.5 ug/L	0.0088J		20	
Calcium	mg/L	1820 ug/L	1.4	24	20 D6	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2627719

QC Batch: 42135 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

METHOD BLANK: 192056 Matrix: Water
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	01/21/20 18:32	
Arsenic	mg/L	ND	0.0050	0.00035	01/21/20 18:32	
Beryllium	mg/L	ND	0.0030	0.000074	01/21/20 18:32	
Boron	mg/L	ND	0.10	0.0049	01/21/20 18:32	
Cadmium	mg/L	ND	0.0025	0.00011	01/21/20 18:32	
Chromium	mg/L	ND	0.010	0.00039	01/21/20 18:32	
Cobalt	mg/L	ND	0.0050	0.00030	01/21/20 18:32	
Lead	mg/L	ND	0.0050	0.000046	01/21/20 18:32	
Lithium	mg/L	ND	0.030	0.00078	01/21/20 18:32	
Molybdenum	mg/L	ND	0.010	0.00095	01/21/20 18:32	
Selenium	mg/L	ND	0.010	0.0013	01/21/20 18:32	
Thallium	mg/L	ND	0.0010	0.000052	01/21/20 18:32	

LABORATORY CONTROL SAMPLE: 192057

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	110	80-120	
Arsenic	mg/L	0.1	0.10	102	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	1.1	105	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	105	80-120	
Molybdenum	mg/L	0.1	0.11	107	80-120	
Selenium	mg/L	0.1	0.10	104	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 192148 192149

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2627719002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	114	104	75-125	9	20	
Arsenic	mg/L	0.015J	0.1	0.1	0.12	0.11	107	98	75-125	8	20	
Beryllium	mg/L	0.015J	0.1	0.1	0.12	0.10	101	90	75-125	10	20	
Boron	mg/L	0.73	1	1	1.7	1.5	94	80	75-125	9	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.091	106	91	75-125	15	20	

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2627719

Parameter	Units	192148		192149		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2627719002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Chromium	mg/L	0.0077J	0.1	0.1	0.12	0.10	110	95	75-125	13	20	
Cobalt	mg/L	ND	0.1	0.1	0.11	0.095	108	95	75-125	13	20	
Lead	mg/L	ND	0.1	0.1	0.091	0.084	91	84	75-125	8	20	
Lithium	mg/L	0.022J	0.1	0.1	0.13J	0.11J	105	92	75-125		20	
Molybdenum	mg/L	ND	0.1	0.1	0.12	0.11	118	107	75-125	10	20	
Selenium	mg/L	0.066	0.1	0.1	0.17	0.15	103	88	75-125	9	20	
Thallium	mg/L	ND	0.1	0.1	0.093	0.084	93	84	75-125	10	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR
Pace Project No.: 2627719

QC Batch: 41948 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

LABORATORY CONTROL SAMPLE: 190962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	397	99	84-108	

SAMPLE DUPLICATE: 190963

Parameter	Units	2627732001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	264	266	1	10	

SAMPLE DUPLICATE: 190964

Parameter	Units	2627751004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	57.0	51.0	11	10	D6

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2627719

QC Batch: 519543 Analysis Method: EPA 300.0 Rev 2.1 1993

QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

METHOD BLANK: 2780521 Matrix: Water

Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	01/15/20 23:32	
Fluoride	mg/L	ND	0.10	0.050	01/15/20 23:32	
Sulfate	mg/L	ND	1.0	0.50	01/15/20 23:32	

LABORATORY CONTROL SAMPLE: 2780522

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.3	103	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	51.5	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2780523 2780524

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2627099003 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	ND	50	50	52.5	53.2	105	106	90-110	1	10
Fluoride	mg/L	ND	2.5	2.5	2.5	2.6	101	102	90-110	2	10
Sulfate	mg/L	ND	50	50	52.6	53.2	105	106	90-110	1	10

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: MCMANUS CCR

Pace Project No.: 2627719

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.

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS CCR
Pace Project No.: 2627719

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2627719001	MCM-18	EPA 3010A	41942	EPA 6010D	41946
2627719002	MCM-19	EPA 3010A	41942	EPA 6010D	41946
2627719003	MCM-20	EPA 3010A	41942	EPA 6010D	41946
2627719004	DUP-1	EPA 3010A	41942	EPA 6010D	41946
2627719005	FBL010920	EPA 3010A	41942	EPA 6010D	41946
2627719006	EQBL010920	EPA 3010A	41942	EPA 6010D	41946
2627719001	MCM-18	EPA 3005A	42135	EPA 6020B	42152
2627719002	MCM-19	EPA 3005A	42135	EPA 6020B	42152
2627719003	MCM-20	EPA 3005A	42135	EPA 6020B	42152
2627719004	DUP-1	EPA 3005A	42135	EPA 6020B	42152
2627719005	FBL010920	EPA 3005A	42135	EPA 6020B	42152
2627719006	EQBL010920	EPA 3005A	42135	EPA 6020B	42152
2627719001	MCM-18	EPA 7470A	41982	EPA 7470A	42002
2627719002	MCM-19	EPA 7470A	41982	EPA 7470A	42002
2627719003	MCM-20	EPA 7470A	41982	EPA 7470A	42002
2627719004	DUP-1	EPA 7470A	41982	EPA 7470A	42002
2627719005	FBL010920	EPA 7470A	41982	EPA 7470A	42002
2627719006	EQBL010920	EPA 7470A	41982	EPA 7470A	42002
2627719001	MCM-18	SM 2540C	41948		
2627719002	MCM-19	SM 2540C	41948		
2627719003	MCM-20	SM 2540C	41948		
2627719004	DUP-1	SM 2540C	41948		
2627719005	FBL010920	SM 2540C	41948		
2627719006	EQBL010920	SM 2540C	41948		
2627719001	MCM-18	EPA 300.0 Rev 2.1 1993	519543		
2627719002	MCM-19	EPA 300.0 Rev 2.1 1993	519543		
2627719003	MCM-20	EPA 300.0 Rev 2.1 1993	519543		
2627719004	DUP-1	EPA 300.0 Rev 2.1 1993	519543		
2627719005	FBL010920	EPA 300.0 Rev 2.1 1993	519543		
2627719006	EQBL010920	EPA 300.0 Rev 2.1 1993	519543		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power	Report To: Kevin Stephenson	Company Name: <i>Georgia Power</i>	Attention: <i>Kevin Stephenson</i>	Company Name: <i>Georgia Power</i>	Attention: <i>Kevin Stephenson</i>
Address: 1003 Wetherstone Parkway	Copy To: <i>Len Miller, Sigrid Wilson</i>	Address: <i>Woodstock, GA 30188</i>	Project Name: <i>McMarius COR</i>	Address: <i>Woodstock, GA 30188</i>	Project Name: <i>McMarius COR</i>
Email: <i>kevin.stephenson@resoluteenv.com</i>	Purchase Order #: <i>McMarius COR</i>	Project Name: <i>McMarius COR</i>	Project #: <i>2918-1</i>	Project Name: <i>McMarius COR</i>	Project #: <i>2918-1</i>
Phone: (678)548-9415	Requested Due Date:	Requested Due Date:	Requested Due Date:	Requested Due Date:	Requested Due Date:

Page: 1 Of 1

ITEM #	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						ANALYSIS TEST	RECEIVED ON	TEMP °C
		START DATE-TIME	END DATE-TIME				H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol			
1	MCM-18	01.09.20 09:36		G	52										
2	MCM-19	01.08.20 10:02		G	32										
3	MCM-20	01.08.20 08:45		G	32										
4	Q4p-1	01.09.20		G	32										
5	FBL010920	01.09.20 11:30		G	32										
6	EQB1010920	01.09.20 11:35		G	32										

APPROVED BY	DATE	TIME	ACCEPTED BY / APPLICATION	DATE	TIME	RECEIVED ON	TEMP °C
<i>Len Miller</i>	01.09.20	15:15	<i>Kevin Stephenson</i>	01.09.20	15:15		
			<i>Kevin Stephenson</i>	01.09.20	15:15		

SAMPLER NAME AND SIGNATURE	DATE SIGNED
<i>Kevin Stephenson</i>	01.09.20

PRINT Name of SAMPLER	DATE SIGNED
<i>Kevin Stephenson</i>	01.09.20

SIGNATURE OF SAMPLER	DATE SIGNED
<i>Kevin Stephenson</i>	01.09.20

WO#: 2627719



Client Name: Georgia Power

WO#: **2627719**

PM: KH

Due Date: 01/24/20

CLIENT: 26-GA Power

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 7295 5420 1150

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

Packing Material: Bubble Wrap Bubble Bags None Other Plastic Bag

Thermometer Used THR214 Type of Ice: Ice Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: [Signature]

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7. <u>GA Power</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ Date: _____

February 05, 2020

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2627719
Pace Project No.: 30345307

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on January 15, 2020. 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 2627719
Pace Project No.: 30345307

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2627719
Pace Project No.: 30345307

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2627719001	MCM-18	Water	01/09/20 09:36	01/15/20 09:20
2627719002	MCM-19	Water	01/08/20 10:02	01/15/20 09:20
2627719003	MCM-20	Water	01/08/20 08:45	01/15/20 09:20
2627719004	DUP-1	Water	01/09/20 00:01	01/15/20 09:20
2627719005	FBL010920	Water	01/09/20 11:30	01/15/20 09:20
2627719006	EQBL010920	Water	01/09/20 11:35	01/15/20 09:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2627719
Pace Project No.: 30345307

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627719001	MCM-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2627719002	MCM-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2627719003	MCM-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2627719004	DUP-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2627719005	FBL010920	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2627719006	EQBL010920	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2627719
Pace Project No.: 30345307

Sample: MCM-18		Lab ID: 2627719001	Collected: 01/09/20 09:36	Received: 01/15/20 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	8.43 ± 1.41 (0.261) C:96% T:NA	pCi/L	01/23/20 08:10	13982-63-3	
Radium-228	EPA 9320	3.85 ± 0.908 (0.739) C:82% T:85%	pCi/L	01/29/20 13:59	15262-20-1	
Total Radium	Total Radium Calculation	12.3 ± 2.32 (1.000)	pCi/L	01/30/20 11:48	7440-14-4	

Sample: MCM-19		Lab ID: 2627719002	Collected: 01/08/20 10:02	Received: 01/15/20 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	9.36 ± 1.56 (0.350) C:93% T:NA	pCi/L	01/23/20 08:10	13982-63-3	
Radium-228	EPA 9320	7.56 ± 1.60 (0.928) C:82% T:73%	pCi/L	01/29/20 13:59	15262-20-1	
Total Radium	Total Radium Calculation	16.9 ± 3.16 (1.28)	pCi/L	01/30/20 11:48	7440-14-4	

Sample: MCM-20		Lab ID: 2627719003	Collected: 01/08/20 08:45	Received: 01/15/20 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	21.4 ± 3.30 (0.250) C:94% T:NA	pCi/L	01/23/20 08:10	13982-63-3	
Radium-228	EPA 9320	25.1 ± 4.69 (0.790) C:83% T:86%	pCi/L	01/29/20 13:59	15262-20-1	
Total Radium	Total Radium Calculation	46.5 ± 7.99 (1.04)	pCi/L	01/30/20 11:57	7440-14-4	

Sample: DUP-1		Lab ID: 2627719004	Collected: 01/09/20 00:01	Received: 01/15/20 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	8.55 ± 1.44 (0.289) C:88% T:NA	pCi/L	01/23/20 08:10	13982-63-3	
Radium-228	EPA 9320	3.94 ± 0.966 (0.873) C:80% T:77%	pCi/L	01/29/20 13:59	15262-20-1	
Total Radium	Total Radium Calculation	12.5 ± 2.41 (1.16)	pCi/L	01/30/20 11:57	7440-14-4	

Sample: FBL010920		Lab ID: 2627719005	Collected: 01/09/20 11:30	Received: 01/15/20 09:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.391 ± 0.201 (0.303) C:92% T:NA	pCi/L	01/23/20 08:10	13982-63-3	
Radium-228	EPA 9320	0.266 ± 0.390 (0.841) C:81% T:86%	pCi/L	01/29/20 13:59	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2627719

Pace Project No.: 30345307

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.657 ± 0.591 (1.14)	pCi/L	01/30/20 11:57	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.411 ± 0.223 (0.369) C:95% T:NA	pCi/L	01/23/20 08:11	13982-63-3	
Radium-228	EPA 9320	0.0103 ± 0.365 (0.846) C:79% T:80%	pCi/L	01/29/20 14:00	15262-20-1	
Total Radium	Total Radium Calculation	0.421 ± 0.588 (1.22)	pCi/L	01/30/20 11:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2627719
Pace Project No.: 30345307

QC Batch: 380216 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

METHOD BLANK: 1843428 Matrix: Water
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.186 ± 0.279 (0.601) C:88% T:85%	pCi/L	01/29/20 10:55	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2627719
Pace Project No.: 30345307

QC Batch: 380188 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

METHOD BLANK: 1843343 Matrix: Water
Associated Lab Samples: 2627719001, 2627719002, 2627719003, 2627719004, 2627719005, 2627719006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.287 ± 0.189 (0.326) C:97% T:NA	pCi/L	01/23/20 08:10	

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

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QUALIFIERS

Project: 2627719
Pace Project No.: 30345307

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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WO#: 30345307



Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA
Cert. Needed: Yes
Owner Received Date: 1/10/2020 Results Requested By: 1/24/2020

Workorder: 2627719 Workorder Name: MCMANUS CCR

Report To		Subcontract To		Preserved Containers		Comments	
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	NO3	LAB USE ONLY
1	MCM-18	PS	1/9/2020 09:36	2627719001	Water	1	001
2	MCM-19	PS	1/8/2020 10:02	2627719002	Water	1	002
3	MCM-20	PS	1/8/2020 08:45	2627719003	Water	1	003
4	DUP-1	PS	1/9/2020 00:00	2627719004	Water	1	004
5	FBL010920	PS	1/9/2020 11:30	2627719005	Water	1	005
6	EQBL010920	PS	1/9/2020 11:35	2627719006	Water	1	006

Transfers	Released By	Date/Time	Received By	Date/Time
1	<i>[Signature]</i>	1/14/20 17:00	<i>[Signature]</i>	1/15/20 09:30
2				
3				

Cooler Temperature on Receipt	°C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact	Y or N
			Y	Y	N	Y	N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace NC

Project # #-30345307

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 1069 9310 4630

Label JSM
LIMS Login JSM

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

Thermometer Used _____ Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>JSM 1/16/20</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. <u>pH < 3</u>
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date: <u>1/16/20</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

February 06, 2020

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: MCMANUS CCR
Pace Project No.: 2628247

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on January 24, 2020. 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,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water
Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water
Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MCMANUS CCR

Pace Project No.: 2628247

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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SAMPLE SUMMARY

Project: MCMANUS CCR

Pace Project No.: 2628247

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628247001	MCM-18	Water	01/21/20 14:40	01/24/20 09:40
2628247002	MCM-19	Water	01/21/20 13:36	01/24/20 09:40
2628247003	MCM-20	Water	01/21/20 12:10	01/24/20 09:40
2628247004	FBL012120	Water	01/21/20 16:30	01/24/20 09:40
2628247005	EQBL012120	Water	01/21/20 16:45	01/24/20 09:40
2628247006	DUP-1	Water	01/21/20 00:00	01/24/20 09:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: MCMANUS CCR

Pace Project No.: 2628247

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2628247001	MCM-18	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2628247002	MCM-19	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2628247003	MCM-20	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2628247004	FBL012120	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2628247005	EQBL012120	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
2628247006	DUP-1	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: MCMANUS CCR

Pace Project No.: 2628247

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
2628247001	MCM-18					
EPA 6010D	Barium	0.098	mg/L	0.010	01/28/20 23:51	
EPA 6010D	Calcium	40.1	mg/L	1.0	01/28/20 23:51	
EPA 6020B	Arsenic	0.0031J	mg/L	0.025	02/03/20 14:03	D3
EPA 6020B	Beryllium	0.0041J	mg/L	0.015	02/03/20 14:03	D3
EPA 6020B	Boron	0.24J	mg/L	0.50	02/03/20 14:03	
EPA 6020B	Chromium	0.0036J	mg/L	0.050	02/03/20 14:03	D3
EPA 6020B	Selenium	0.023J	mg/L	0.050	02/03/20 14:03	D3
SM 2540C	Total Dissolved Solids	3280	mg/L	10.0	01/24/20 16:13	
EPA 300.0 Rev 2.1 1993	Chloride	1630	mg/L	20.0	01/29/20 17:59	
EPA 300.0 Rev 2.1 1993	Fluoride	0.13J	mg/L	0.30	01/29/20 09:09	
EPA 300.0 Rev 2.1 1993	Sulfate	254	mg/L	20.0	01/29/20 17:59	
2628247002	MCM-19					
EPA 6010D	Barium	0.14	mg/L	0.010	01/29/20 00:10	
EPA 6010D	Calcium	167	mg/L	10.0	01/29/20 00:15	
EPA 6020B	Arsenic	0.015J	mg/L	0.025	02/03/20 14:25	D3
EPA 6020B	Beryllium	0.012J	mg/L	0.015	02/03/20 14:25	D3
EPA 6020B	Boron	0.75	mg/L	0.50	02/03/20 14:25	
EPA 6020B	Chromium	0.0070J	mg/L	0.050	02/03/20 14:25	D3
EPA 6020B	Lithium	0.018J	mg/L	0.15	02/03/20 14:25	D3
EPA 6020B	Selenium	0.13	mg/L	0.050	02/03/20 14:25	
SM 2540C	Total Dissolved Solids	10100	mg/L	10.0	01/24/20 16:13	
EPA 300.0 Rev 2.1 1993	Chloride	5010	mg/L	70.0	01/29/20 18:13	
EPA 300.0 Rev 2.1 1993	Fluoride	0.11J	mg/L	0.30	01/29/20 09:23	
EPA 300.0 Rev 2.1 1993	Sulfate	611	mg/L	70.0	01/29/20 18:13	
2628247003	MCM-20					
EPA 6010D	Barium	0.14	mg/L	0.010	01/29/20 00:20	
EPA 6010D	Calcium	152	mg/L	10.0	01/29/20 00:25	
EPA 6020B	Arsenic	0.024J	mg/L	0.025	02/03/20 14:34	D3
EPA 6020B	Beryllium	0.015	mg/L	0.015	02/03/20 14:34	
EPA 6020B	Boron	0.94	mg/L	0.50	02/03/20 14:34	
EPA 6020B	Chromium	0.0090J	mg/L	0.050	02/03/20 14:34	D3
EPA 6020B	Cobalt	0.031	mg/L	0.025	02/03/20 14:34	
EPA 6020B	Lead	0.00033J	mg/L	0.025	02/03/20 14:34	D3
EPA 6020B	Lithium	0.022J	mg/L	0.15	02/03/20 14:34	D3
EPA 6020B	Selenium	0.089	mg/L	0.050	02/03/20 14:34	
SM 2540C	Total Dissolved Solids	12000	mg/L	10.0	01/24/20 16:13	
EPA 300.0 Rev 2.1 1993	Chloride	6000	mg/L	80.0	01/29/20 18:55	
EPA 300.0 Rev 2.1 1993	Fluoride	0.53	mg/L	0.30	01/29/20 09:37	
EPA 300.0 Rev 2.1 1993	Sulfate	798	mg/L	80.0	01/29/20 18:55	
2628247004	FBL012120					
EPA 300.0 Rev 2.1 1993	Chloride	0.95J	mg/L	1.0	01/29/20 09:51	
EPA 300.0 Rev 2.1 1993	Sulfate	0.56J	mg/L	1.0	01/29/20 09:51	
2628247005	EQBL012120					
EPA 6020B	Chromium	0.0012J	mg/L	0.010	01/31/20 21:01	
SM 2540C	Total Dissolved Solids	13.0	mg/L	10.0	01/24/20 16:14	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: MCMANUS CCR

Pace Project No.: 2628247

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628247006	DUP-1					
EPA 6010D	Barium	0.13	mg/L	0.010	01/29/20 00:39	
EPA 6010D	Calcium	158	mg/L	10.0	01/29/20 00:44	
EPA 6020B	Arsenic	0.025	mg/L	0.025	02/03/20 14:40	
EPA 6020B	Beryllium	0.015J	mg/L	0.015	02/03/20 14:40	D3
EPA 6020B	Boron	0.92	mg/L	0.50	02/03/20 14:40	
EPA 6020B	Chromium	0.0088J	mg/L	0.050	02/03/20 14:40	D3
EPA 6020B	Cobalt	0.031	mg/L	0.025	02/03/20 14:40	
EPA 6020B	Lead	0.00033J	mg/L	0.025	02/03/20 14:40	D3
EPA 6020B	Lithium	0.022J	mg/L	0.15	02/03/20 14:40	D3
EPA 6020B	Selenium	0.10	mg/L	0.050	02/03/20 14:40	
SM 2540C	Total Dissolved Solids	12100	mg/L	10.0	01/24/20 16:14	
EPA 300.0 Rev 2.1 1993	Chloride	5980	mg/L	80.0	01/29/20 19:09	
EPA 300.0 Rev 2.1 1993	Sulfate	875	mg/L	80.0	01/29/20 19:09	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2628247

Sample: MCM-18		Lab ID: 2628247001		Collected: 01/21/20 14:40		Received: 01/24/20 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.098	mg/L	0.010	0.0062	1	01/27/20 14:02	01/28/20 23:51	7440-39-3	
Calcium	40.1	mg/L	1.0	0.14	1	01/27/20 14:02	01/28/20 23:51	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	01/30/20 17:00	02/03/20 14:03	7440-36-0	D3
Arsenic	0.0031J	mg/L	0.025	0.0018	5	01/30/20 17:00	02/03/20 14:03	7440-38-2	D3
Beryllium	0.0041J	mg/L	0.015	0.00037	5	01/30/20 17:00	02/03/20 14:03	7440-41-7	D3
Boron	0.24J	mg/L	0.50	0.025	5	01/30/20 17:00	02/03/20 14:03	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	01/30/20 17:00	02/03/20 14:03	7440-43-9	D3
Chromium	0.0036J	mg/L	0.050	0.0020	5	01/30/20 17:00	02/03/20 14:03	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	01/30/20 17:00	02/03/20 14:03	7440-48-4	D3
Lead	ND	mg/L	0.025	0.00023	5	01/30/20 17:00	02/03/20 14:03	7439-92-1	D3
Lithium	ND	mg/L	0.15	0.0039	5	01/30/20 17:00	02/03/20 14:03	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	01/30/20 17:00	02/03/20 14:03	7439-98-7	D3
Selenium	0.023J	mg/L	0.050	0.0063	5	01/30/20 17:00	02/03/20 14:03	7782-49-2	D3
Thallium	ND	mg/L	0.0050	0.00026	5	01/30/20 17:00	02/03/20 14:03	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/28/20 16:30	01/29/20 14:59	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3280	mg/L	10.0	10.0	1		01/24/20 16:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	1630	mg/L	20.0	12.0	20		01/29/20 17:59	16887-00-6	
Fluoride	0.13J	mg/L	0.30	0.050	1		01/29/20 09:09	16984-48-8	
Sulfate	254	mg/L	20.0	10.0	20		01/29/20 17:59	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS CCR

Pace Project No.: 2628247

Sample: MCM-19		Lab ID: 2628247002		Collected: 01/21/20 13:36		Received: 01/24/20 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.14	mg/L	0.010	0.0062	1	01/27/20 14:02	01/29/20 00:10	7440-39-3	
Calcium	167	mg/L	10.0	1.4	10	01/27/20 14:02	01/29/20 00:15	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	01/30/20 17:00	02/03/20 14:25	7440-36-0	D3
Arsenic	0.015J	mg/L	0.025	0.0018	5	01/30/20 17:00	02/03/20 14:25	7440-38-2	D3
Beryllium	0.012J	mg/L	0.015	0.00037	5	01/30/20 17:00	02/03/20 14:25	7440-41-7	D3
Boron	0.75	mg/L	0.50	0.025	5	01/30/20 17:00	02/03/20 14:25	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	01/30/20 17:00	02/03/20 14:25	7440-43-9	D3
Chromium	0.0070J	mg/L	0.050	0.0020	5	01/30/20 17:00	02/03/20 14:25	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	01/30/20 17:00	02/03/20 14:25	7440-48-4	D3
Lead	ND	mg/L	0.025	0.00023	5	01/30/20 17:00	02/03/20 14:25	7439-92-1	D3
Lithium	0.018J	mg/L	0.15	0.0039	5	01/30/20 17:00	02/03/20 14:25	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	01/30/20 17:00	02/03/20 14:25	7439-98-7	D3
Selenium	0.13	mg/L	0.050	0.0063	5	01/30/20 17:00	02/03/20 14:25	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	01/30/20 17:00	02/03/20 14:25	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/28/20 16:30	01/29/20 18:24	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	10100	mg/L	10.0	10.0	1		01/24/20 16:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	5010	mg/L	70.0	42.0	70		01/29/20 18:13	16887-00-6	
Fluoride	0.11J	mg/L	0.30	0.050	1		01/29/20 09:23	16984-48-8	
Sulfate	611	mg/L	70.0	35.0	70		01/29/20 18:13	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS CCR

Pace Project No.: 2628247

Sample: MCM-20		Lab ID: 2628247003		Collected: 01/21/20 12:10		Received: 01/24/20 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.14	mg/L	0.010	0.0062	1	01/27/20 14:02	01/29/20 00:20	7440-39-3	
Calcium	152	mg/L	10.0	1.4	10	01/27/20 14:02	01/29/20 00:25	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	01/30/20 17:00	02/03/20 14:34	7440-36-0	D3
Arsenic	0.024J	mg/L	0.025	0.0018	5	01/30/20 17:00	02/03/20 14:34	7440-38-2	D3
Beryllium	0.015	mg/L	0.015	0.00037	5	01/30/20 17:00	02/03/20 14:34	7440-41-7	
Boron	0.94	mg/L	0.50	0.025	5	01/30/20 17:00	02/03/20 14:34	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	01/30/20 17:00	02/03/20 14:34	7440-43-9	D3
Chromium	0.0090J	mg/L	0.050	0.0020	5	01/30/20 17:00	02/03/20 14:34	7440-47-3	D3
Cobalt	0.031	mg/L	0.025	0.0015	5	01/30/20 17:00	02/03/20 14:34	7440-48-4	
Lead	0.00033J	mg/L	0.025	0.00023	5	01/30/20 17:00	02/03/20 14:34	7439-92-1	D3
Lithium	0.022J	mg/L	0.15	0.0039	5	01/30/20 17:00	02/03/20 14:34	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	01/30/20 17:00	02/03/20 14:34	7439-98-7	D3
Selenium	0.089	mg/L	0.050	0.0063	5	01/30/20 17:00	02/03/20 14:34	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	01/30/20 17:00	02/03/20 14:34	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/28/20 16:30	01/29/20 15:15	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12000	mg/L	10.0	10.0	1		01/24/20 16:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	6000	mg/L	80.0	48.0	80		01/29/20 18:55	16887-00-6	
Fluoride	0.53	mg/L	0.30	0.050	1		01/29/20 09:37	16984-48-8	
Sulfate	798	mg/L	80.0	40.0	80		01/29/20 18:55	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS CCR

Pace Project No.: 2628247

Sample: FBL012120		Lab ID: 2628247004		Collected: 01/21/20 16:30		Received: 01/24/20 09:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	01/27/20 14:02	01/29/20 00:30	7440-39-3		
Calcium	ND	mg/L	1.0	0.14	1	01/27/20 14:02	01/29/20 00:30	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	01/30/20 17:00	01/31/20 20:55	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	01/30/20 17:00	01/31/20 20:55	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	01/30/20 17:00	01/31/20 20:55	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	01/30/20 17:00	01/31/20 20:55	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	01/30/20 17:00	01/31/20 20:55	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	01/30/20 17:00	01/31/20 20:55	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	01/30/20 17:00	01/31/20 20:55	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	01/30/20 17:00	01/31/20 20:55	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	01/30/20 17:00	01/31/20 20:55	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	01/30/20 17:00	01/31/20 20:55	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	01/30/20 17:00	01/31/20 20:55	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	01/30/20 17:00	01/31/20 20:55	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	01/28/20 16:30	01/29/20 15:18	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		01/24/20 16:14			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	0.95J	mg/L	1.0	0.60	1		01/29/20 09:51	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		01/29/20 09:51	16984-48-8		
Sulfate	0.56J	mg/L	1.0	0.50	1		01/29/20 09:51	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR
Pace Project No.: 2628247

Sample: EQBL012120		Lab ID: 2628247005		Collected: 01/21/20 16:45		Received: 01/24/20 09:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	01/27/20 14:02	01/29/20 00:35	7440-39-3		
Calcium	ND	mg/L	1.0	0.14	1	01/27/20 14:02	01/29/20 00:35	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	01/30/20 17:00	01/31/20 21:01	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	01/30/20 17:00	01/31/20 21:01	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	01/30/20 17:00	01/31/20 21:01	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	01/30/20 17:00	01/31/20 21:01	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	01/30/20 17:00	01/31/20 21:01	7440-43-9		
Chromium	0.0012J	mg/L	0.010	0.00039	1	01/30/20 17:00	01/31/20 21:01	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	01/30/20 17:00	01/31/20 21:01	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	01/30/20 17:00	01/31/20 21:01	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	01/30/20 17:00	01/31/20 21:01	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	01/30/20 17:00	01/31/20 21:01	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	01/30/20 17:00	01/31/20 21:01	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	01/30/20 17:00	01/31/20 21:01	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	01/28/20 16:30	01/29/20 15:20	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	13.0	mg/L	10.0	10.0	1		01/24/20 16:14			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		01/29/20 10:05	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		01/29/20 10:05	16984-48-8		
Sulfate	ND	mg/L	1.0	0.50	1		01/29/20 10:05	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MCMANUS CCR

Pace Project No.: 2628247

Sample: DUP-1		Lab ID: 2628247006		Collected: 01/21/20 00:00		Received: 01/24/20 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.13	mg/L	0.010	0.0062	1	01/27/20 14:02	01/29/20 00:39	7440-39-3	
Calcium	158	mg/L	10.0	1.4	10	01/27/20 14:02	01/29/20 00:44	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	01/30/20 17:00	02/03/20 14:40	7440-36-0	D3
Arsenic	0.025	mg/L	0.025	0.0018	5	01/30/20 17:00	02/03/20 14:40	7440-38-2	
Beryllium	0.015J	mg/L	0.015	0.00037	5	01/30/20 17:00	02/03/20 14:40	7440-41-7	D3
Boron	0.92	mg/L	0.50	0.025	5	01/30/20 17:00	02/03/20 14:40	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	01/30/20 17:00	02/03/20 14:40	7440-43-9	D3
Chromium	0.0088J	mg/L	0.050	0.0020	5	01/30/20 17:00	02/03/20 14:40	7440-47-3	D3
Cobalt	0.031	mg/L	0.025	0.0015	5	01/30/20 17:00	02/03/20 14:40	7440-48-4	
Lead	0.00033J	mg/L	0.025	0.00023	5	01/30/20 17:00	02/03/20 14:40	7439-92-1	D3
Lithium	0.022J	mg/L	0.15	0.0039	5	01/30/20 17:00	02/03/20 14:40	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	01/30/20 17:00	02/03/20 14:40	7439-98-7	D3
Selenium	0.10	mg/L	0.050	0.0063	5	01/30/20 17:00	02/03/20 14:40	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	01/30/20 17:00	02/03/20 14:40	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	01/28/20 16:30	01/29/20 15:22	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12100	mg/L	10.0	10.0	1		01/24/20 16:14		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	5980	mg/L	80.0	48.0	80		01/29/20 19:09	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		01/29/20 16:17	16984-48-8	
Sulfate	875	mg/L	80.0	40.0	80		01/29/20 19:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2628247

QC Batch: 42462 Analysis Method: EPA 7470A
 QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
 Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

METHOD BLANK: 193829 Matrix: Water
 Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	01/29/20 14:16	

LABORATORY CONTROL SAMPLE: 193830

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0027	110	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 193831 193832

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2628247001 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury	mg/L	ND	0.0025	0.0025	0.0027	0.0028	110	112	75-125	2	20		

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2628247

QC Batch: 42426

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010A

Analysis Description: 6010D MET

Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

METHOD BLANK: 193673

Matrix: Water

Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	0.0062	01/28/20 22:15	
Calcium	mg/L	ND	1.0	0.14	01/28/20 22:15	

LABORATORY CONTROL SAMPLE: 193674

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	105	80-120	
Calcium	mg/L	1	1.0	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 193675 193676

Parameter	Units	2628255001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.36	1	1	1.4	1.4	105	105	75-125	0	20	
Calcium	mg/L	272	1	1	291	263	1870	-996	75-125	10	20 M6	

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QUALITY CONTROL DATA

Project: MCMANUS CCR
Pace Project No.: 2628247

QC Batch: 42642 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

METHOD BLANK: 194851 Matrix: Water
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	01/31/20 19:24	
Arsenic	mg/L	ND	0.0050	0.00035	01/31/20 19:24	
Beryllium	mg/L	ND	0.0030	0.000074	01/31/20 19:24	
Boron	mg/L	ND	0.10	0.0049	01/31/20 19:24	
Cadmium	mg/L	ND	0.0025	0.00011	01/31/20 19:24	
Chromium	mg/L	ND	0.010	0.00039	01/31/20 19:24	
Cobalt	mg/L	ND	0.0050	0.00030	01/31/20 19:24	
Lead	mg/L	ND	0.0050	0.000046	01/31/20 19:24	
Lithium	mg/L	ND	0.030	0.00078	01/31/20 19:24	
Molybdenum	mg/L	ND	0.010	0.00095	01/31/20 19:24	
Selenium	mg/L	ND	0.010	0.0013	01/31/20 19:24	
Thallium	mg/L	ND	0.0010	0.000052	01/31/20 19:24	

LABORATORY CONTROL SAMPLE: 194852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	103	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Beryllium	mg/L	0.1	0.11	105	80-120	
Boron	mg/L	1	1.1	108	80-120	
Cadmium	mg/L	0.1	0.10	104	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	103	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.11	109	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.11	107	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 194853 194854

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2628247001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	99	101	75-125	2	20	
Arsenic	mg/L	0.0031J	0.1	0.1	0.099	0.10	96	98	75-125	1	20	
Beryllium	mg/L	0.0041J	0.1	0.1	0.098	0.099	94	95	75-125	2	20	
Boron	mg/L	0.24J	1	1	1.2	1.2	94	94	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.094	0.097	94	97	75-125	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2628247

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 194853												194854	
Parameter	Units	2628247001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual	
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits				
Chromium	mg/L	0.0036J	0.1	0.1	0.11	0.10	102	101	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.089	0.091	89	91	75-125	2	20		
Lithium	mg/L	ND	0.1	0.1	0.10J	0.10J	97	97	75-125		20		
Molybdenum	mg/L	ND	0.1	0.1	0.097	0.10	96	100	75-125	4	20		
Selenium	mg/L	0.023J	0.1	0.1	0.12	0.12	100	93	75-125	6	20		
Thallium	mg/L	ND	0.1	0.1	0.091	0.094	91	94	75-125	3	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS CCR

Pace Project No.: 2628247

QC Batch: 42383 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

LABORATORY CONTROL SAMPLE: 193380

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	397	99	84-108	

SAMPLE DUPLICATE: 193381

Parameter	Units	2628090001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	98.0	86.0	13	10	D6

SAMPLE DUPLICATE: 193382

Parameter	Units	2628247001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3280	3260	0	10	

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QUALITY CONTROL DATA

Project: MCMANUS CCR
Pace Project No.: 2628247

QC Batch: 521921 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

METHOD BLANK: 2791918 Matrix: Water
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	01/29/20 16:03	
Fluoride	mg/L	ND	0.10	0.050	01/29/20 16:03	
Sulfate	mg/L	ND	1.0	0.50	01/29/20 16:03	

LABORATORY CONTROL SAMPLE: 2791919

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.6	101	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	49.8	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2791920 2791921

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2628159001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	187	50	50	224	226	73	76	90-110	1	10	M1	
Fluoride	mg/L	0.28	2.5	2.5	2.4	2.4	85	86	90-110	1	10	M1	
Sulfate	mg/L	5.1	50	50	52.6	54.1	95	98	90-110	3	10		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: MCMANUS CCR

Pace Project No.: 2628247

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.

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS CCR
Pace Project No.: 2628247

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628247001	MCM-18	EPA 3010A	42426	EPA 6010D	42444
2628247002	MCM-19	EPA 3010A	42426	EPA 6010D	42444
2628247003	MCM-20	EPA 3010A	42426	EPA 6010D	42444
2628247004	FBL012120	EPA 3010A	42426	EPA 6010D	42444
2628247005	EQBL012120	EPA 3010A	42426	EPA 6010D	42444
2628247006	DUP-1	EPA 3010A	42426	EPA 6010D	42444
2628247001	MCM-18	EPA 3005A	42642	EPA 6020B	42652
2628247002	MCM-19	EPA 3005A	42642	EPA 6020B	42652
2628247003	MCM-20	EPA 3005A	42642	EPA 6020B	42652
2628247004	FBL012120	EPA 3005A	42642	EPA 6020B	42652
2628247005	EQBL012120	EPA 3005A	42642	EPA 6020B	42652
2628247006	DUP-1	EPA 3005A	42642	EPA 6020B	42652
2628247001	MCM-18	EPA 7470A	42462	EPA 7470A	42518
2628247002	MCM-19	EPA 7470A	42462	EPA 7470A	42518
2628247003	MCM-20	EPA 7470A	42462	EPA 7470A	42518
2628247004	FBL012120	EPA 7470A	42462	EPA 7470A	42518
2628247005	EQBL012120	EPA 7470A	42462	EPA 7470A	42518
2628247006	DUP-1	EPA 7470A	42462	EPA 7470A	42518
2628247001	MCM-18	SM 2540C	42383		
2628247002	MCM-19	SM 2540C	42383		
2628247003	MCM-20	SM 2540C	42383		
2628247004	FBL012120	SM 2540C	42383		
2628247005	EQBL012120	SM 2540C	42383		
2628247006	DUP-1	SM 2540C	42383		
2628247001	MCM-18	EPA 300.0 Rev 2.1 1993	521921		
2628247002	MCM-19	EPA 300.0 Rev 2.1 1993	521921		
2628247003	MCM-20	EPA 300.0 Rev 2.1 1993	521921		
2628247004	FBL012120	EPA 300.0 Rev 2.1 1993	521921		
2628247005	EQBL012120	EPA 300.0 Rev 2.1 1993	521921		
2628247006	DUP-1	EPA 300.0 Rev 2.1 1993	521921		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: Georgia Power Address: 1003 Weatherstone Parkway Suite 320, Woodstock, GA 30188 Phone: (678)548-9415 Fax: Email: kevin.stephenson@pacelabs.com Requested Due Date:

Section B Required Project Information: Report To: Stephenson, Kevin, Acs A.I.I.F. Copy To: *Kevin Stephenson* Purchase Order #: Mckennas CCR Project Name: Project #:

Section C Invoice Information: Attention: Company Name: Address: Pace Quote: Pace Project Manager: kevin.herring@pacelabs.com, Pace Profile #: 2919-1

Regulatory Agency: GA
State / Location:

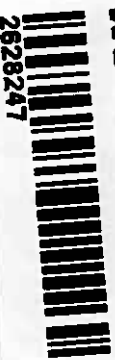
ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9, /, -) Sample IDs must be unique	MATRIX Drinking Water Water Waste Water Process Oil Air Other Tissue	CODE DW WW P SL OL WP AK OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analytes Test				Residual Chlorine (Y/N)
						START DATE TIME	END DATE TIME			Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	App. III & IV Metals	TDS by 2540C	
1	MCMA-18			YG	G	01/21/20	1440	52	3							X	X	X	X		
2	MCMA-19			WG	G	01/21/20	1338	52	3							X	X	X	X		
3	MCMA-20			YG	G	01/21/20	1210	52	3							X	X	X	X		
4	FBLO12120			YG	G	01/21/20	1630	52	3							X	X	X	X		
5	FBLO12120			YG	G	01/21/20	1645	52	3							X	X	X	X		
6	DUP-1			YG	G	01/21/20		52	3							X	X	X	X		
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS: *Task 17, 18, 15* RELINQUISHED BY / AFFILIATION: DATE: 01.22.1930 TIME: 1:50 PM ACCEPTED BY / AFFILIATION: *Kevin Stephenson* DATE: 01/21/2020 TIME: 2:00 PM

SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: *Tornton A. Godwin* SIGNATURE of SAMPLER: *Tornton A. Godwin* DATE Signed: 01.21.20

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

MO#: 2628247



2628247

Sample Condition Upon Receipt

MO#: 2628247

PM: KH
Due Date: 02/07/20
CLIENT: 26-GA Power

Face Analytical

Client Name: *Off Power*

Courier: Fed Ex UPS USPS Client Commercial Pace Other
Tracking #: _____
Custody Seal on Cooler/Box Present: yes no
Seals intact: yes no

Proj. Due Date
Proj. Name

Packing Material: Bubble Wrap Bubble Bags None Other
Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Thermometer Used *230*
Cooler Temperature *2-0°C*
Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: *1/23/20*

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Filtered volume received for Dissolved tests:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
-Includes date/time/D/Analysis Matrix:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
All containers needing preservation have been checked:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
All containers needing preservation are found to be in compliance with EPA recommendation:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
exceptions: VOA, colorm, TOC, O&G, W-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	17.
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	18.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	19.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	20.
Trip Blank Custody Seals Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	21.
Face Trip Blank Lot # (if purchased):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	22.

Client Notification/ Resolution: _____
Field Data Required? Y / N

Person Contacted: _____
Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

February 17, 2020

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 2628247
Pace Project No.: 30346946

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on January 27, 2020. 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,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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

Project: 2628247
Pace Project No.: 30346946

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Florida: Cert E871149 SEKS WET

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 2628247
Pace Project No.: 30346946

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628247001	MCM-18	Water	01/21/20 14:40	01/27/20 09:15
2628247002	MCM-19	Water	01/21/20 13:36	01/27/20 09:15
2628247003	MCM-20	Water	01/21/20 12:10	01/27/20 09:15
2628247004	FBL012120	Water	01/21/20 16:30	01/27/20 09:15
2628247005	EQBL012120	Water	01/21/20 16:45	01/27/20 09:15
2628247006	DUP-1	Water	01/21/20 00:01	01/27/20 09:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 2628247
Pace Project No.: 30346946

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2628247001	MCM-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628247002	MCM-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628247003	MCM-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628247004	FBL012120	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628247005	EQBL012120	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628247006	DUP-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2628247
Pace Project No.: 30346946

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: MCM-18 Lab ID: 2628247001 Collected: 01/21/20 14:40 Received: 01/27/20 09:15 Matrix: Water PWS: Site ID: Sample Type:							
Radium-226		EPA 9315	6.02 ± 1.12 (0.273) C:94% T:NA	pCi/L	02/10/20 08:34	13982-63-3	
Radium-228		EPA 9320	5.67 ± 1.22 (0.749) C:83% T:81%	pCi/L	02/07/20 10:56	15262-20-1	
Total Radium		Total Radium Calculation	11.7 ± 2.34 (1.02)	pCi/L	02/11/20 10:37	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: MCM-19 Lab ID: 2628247002 Collected: 01/21/20 13:36 Received: 01/27/20 09:15 Matrix: Water PWS: Site ID: Sample Type:							
Radium-226		EPA 9315	6.89 ± 1.25 (0.209) C:93% T:NA	pCi/L	02/10/20 08:34	13982-63-3	
Radium-228		EPA 9320	8.74 ± 1.77 (0.789) C:80% T:77%	pCi/L	02/07/20 10:56	15262-20-1	
Total Radium		Total Radium Calculation	15.6 ± 3.02 (0.998)	pCi/L	02/11/20 10:37	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: MCM-20 Lab ID: 2628247003 Collected: 01/21/20 12:10 Received: 01/27/20 09:15 Matrix: Water PWS: Site ID: Sample Type:							
Radium-226		EPA 9315	9.65 ± 1.64 (0.190) C:96% T:NA	pCi/L	02/10/20 08:31	13982-63-3	
Radium-228		EPA 9320	28.0 ± 5.19 (0.747) C:84% T:76%	pCi/L	02/07/20 10:56	15262-20-1	
Total Radium		Total Radium Calculation	37.7 ± 6.83 (0.937)	pCi/L	02/11/20 10:37	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: FBL012120 Lab ID: 2628247004 Collected: 01/21/20 16:30 Received: 01/27/20 09:15 Matrix: Water PWS: Site ID: Sample Type:							
Radium-226		EPA 9315	0.145 ± 0.151 (0.297) C:96% T:NA	pCi/L	02/10/20 10:06	13982-63-3	
Radium-228		EPA 9320	0.204 ± 0.374 (0.818) C:80% T:82%	pCi/L	02/07/20 10:56	15262-20-1	
Total Radium		Total Radium Calculation	0.349 ± 0.525 (1.12)	pCi/L	02/11/20 10:37	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: EQBL012120 Lab ID: 2628247005 Collected: 01/21/20 16:45 Received: 01/27/20 09:15 Matrix: Water PWS: Site ID: Sample Type:							
Radium-226		EPA 9315	0.471 ± 0.212 (0.228) C:95% T:NA	pCi/L	02/10/20 10:06	13982-63-3	
Radium-228		EPA 9320	0.433 ± 0.466 (0.974) C:77% T:73%	pCi/L	02/07/20 14:01	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2628247
Pace Project No.: 30346946

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Total Radium	Total Radium Calculation	0.904 ± 0.678 (1.20)	pCi/L	02/11/20 10:37	7440-14-4	

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	10.2 ± 1.72 (0.256) C:98% T:NA	pCi/L	02/10/20 09:59	13982-63-3	
Radium-228	EPA 9320	20.5 ± 3.88 (0.877) C:77% T:78%	pCi/L	02/07/20 14:01	15262-20-1	
Total Radium	Total Radium Calculation	30.7 ± 5.60 (1.13)	pCi/L	02/11/20 10:37	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2628247
Pace Project No.: 30346946

QC Batch: 382555 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

METHOD BLANK: 1853918 Matrix: Water
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.333 ± 0.191 (0.268) C:98% T:NA	pCi/L	02/10/20 08:28	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2628247
Pace Project No.: 30346946

QC Batch: 381918 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

METHOD BLANK: 1850739 Matrix: Water
Associated Lab Samples: 2628247001, 2628247002, 2628247003, 2628247004, 2628247005, 2628247006

Table with 5 columns: Parameter, Act ± Unc (MDC) Carr Trac, Units, Analyzed, Qualifiers. Row 1: Radium-228, 0.326 ± 0.419 (0.891) C:80% T:64%, pCi/L, 02/07/20 10:56

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2628247
Pace Project No.: 30346946

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: GA
 Cert. Needed: Yes No
 Owner Received Date: 1/24/2020 Results Requested By: 2/7/2020

Workorder: 2628247 Workorder Name: MCMANUS CCR

Report To: Subcontract To: Requested Analysis:

Kevin Herring
 Pace Analytical Charlotte
 9800 Kinney Ave.
 Suite 100
 Huntersville, NC 28078
 Phone (704)875-9092

Pace Analytical Pittsburgh
 1638 Roseytown Road
 Suites 2,3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600

RADIUM 9315/9320

WO#: 30346946



Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	CONH	Present/Containers	Subbed	Comments
1	MCM-18	PS	1/21/2020 14:40	2628247001	Water	1	2	X	CO1
2	MCM-19	PS	1/21/2020 13:36	2628247002	Water	1	2	X	CO2
3	MCM-20	PS	1/21/2020 12:10	2628247003	Water	1	2	X	CO3
4	FBL012120	PS	1/21/2020 16:30	2628247004	Water	1	2	X	CO4
5	EOBL012120	PS	1/21/2020 16:45	2628247005	Water	1	2	X	CO5
6	DUP-1	PS	1/21/2020 00:00	2628247006	Water	1	2	X	CO6

Transfers	Released By	Date/Time	Received By	Date/Time
1	[Signature]	1/24/20	[Signature]	1/27/2020
2				
3				

Cooler Temperature on Receipt 11°C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace NC

Project # #-30346946

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1069 9310 6828

Label	<u>DL</u>
LIMS Login	<u>MM</u>

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

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

pH paper Lot# <u>1C D0391</u>	Date and Initials of person examining contents: <u>DL 1-27-20</u>
----------------------------------	--

Comments:

	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				<u>ptoc</u>
All containers meet method preservation requirements.	/			Initial when completed: <u>DL</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: <u>DL</u> Date: <u>1-27-20</u>

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 2/7/2020
Worklist: 52215
Matrix: DW

Method Blank Assessment	
MB Sample ID	1863918
MB concentration:	0.333
M/B Counting Uncertainty:	0.185
MB MDC:	0.268
MB Numerical Performance Indicator:	3.52
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCS/D (Y or N)?	
	LCS52215	YCS52215
Count Date:	2/10/2020	2/10/2020
Spike I.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.051	24.051
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.507	0.503
Target Conc. (pCi/L, g, F):	4.742	4.783
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	5.951	4.863
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.655	0.604
Numerical Performance Indicator:	3.60	101.68%
Percent Recovery:	125.49%	0.26
Status vs Numerical Indicator:	N/A	N/A
Upper % Recovery Limits:	Fail High****	Pass
Lower % Recovery Limits:	75%	125%

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	LCS52215
Duplicate Sample I.D.:	LCS52215
Sample Result (pCi/L, g, F):	5.951
Sample Duplicate Result (pCi/L, g, F):	0.655
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	4.863
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	2.393
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	20.96%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:
*The method blank result is below the reporting limit for this analysis and is acceptable.

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D.: Sample MS I.D.: Sample MSD I.D.: Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator:		
MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:
Sample MS I.D.:
Sample MSD I.D.:
Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Chaitin

52-1020

Quality Control Sample Performance Assessment



Analyst **Must Manually Enter All Fields Highlighted in Yellow.**

Test: Ra-226
Analyst: LAL
Date: 2/7/2020
Worklist: 52215
Matrix: DW

Method Blank Assessment	
MB Sample ID	1853918
MB Concentration:	0.333
M/B Counting Uncertainty:	0.185
MB MDC:	0.268
MB Numerical Performance Indicator:	3.52
MB Status vs Numerical Indicator:	N/A
MB Status vs MDC:	See Comment*

Laboratory Control Sample Assessment	
Count Date:	2/10/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.051
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.507
Target Conc. (pCi/L, g, F):	4.742
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	5.951
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.655
Numerical Performance Indicator:	3.60
Percent Recovery:	125.49%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Fail High***
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	2628329001
Duplicate Sample I.D.:	2628329001DUP
Sample Result (pCi/L, g, F):	1.022
Sample Duplicate Result (pCi/L, g, F):	0.295
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	1.143
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.301
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	-0.566
Duplicate RPD:	11.24%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
2628329001
2628329001DUP

Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
2628329001
2628329001DUP

Comments:

*The method blank result is below the reporting limit for this analysis and is acceptable.
#DIV/0!

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Handwritten signature/initials

Handwritten initials: JTL 2-6-20

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 2/3/2020
Worklist: 52128
Matrix: WT



Method Blank Assessment	
MB Sample ID	1850739
MB Concentration:	0.326
MB 2 Sigma CSU:	0.419
MB MDC:	0.891
MB Numerical Performance Indicator:	1.53
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS (Y or N)?	
	LCS52128	Y
Count Date:	27/2020	LCS52128
Spike I.D.:	19-057	27/2020
Decay Corrected Spike Concentration (pCi/mL):	35.265	35.265
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.811	0.810
Target Conc. (pCi/L, g, F):	4.350	4.353
Uncertainty (Calculated):	0.313	0.313
Result (pCi/L, g, F):	4.873	4.833
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.117	1.080
Numerical Performance Indicator:	0.88	0.84
Percent Recovery:	112.01%	111.04%
Status vs Numerical Indicator:	N/A	N/A
Upper % Recovery Limits:	Pass	Pass
Lower % Recovery Limits:	135%	135%
	80%	80%

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	LCS52128
Duplicate Sample I.D.:	LCS52128
Sample Result (pCi/L, g, F):	4.873
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.117
Sample Duplicate Result (pCi/L, g, F):	4.833
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.080
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	0.049
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	0.87%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Pass
% RPD Limit:	35%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result Sample Matrix Spike Result Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

*00010118
MVA*

5/16/20

March 05, 2020

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 05, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1 - This report replaces the February 27, 2020 report. This project was revised on March 5, 2020 to include the 226/228 calc for Sample 2628642001. (Greensburg, PA)

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

Sincerely,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Veronica Fay, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC

Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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 Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628642001	MCM-19	Water	02/04/20 10:25	02/05/20 09:53
2628642002	MCM-20	Water	02/04/20 10:48	02/05/20 09:53
2628642003	MCM-18	Water	02/04/20 12:02	02/05/20 09:53
2628642004	EQBL020420	Water	02/04/20 11:00	02/05/20 09:53
2628642005	FBL020420	Water	02/04/20 12:36	02/05/20 09:53
2628642006	DUP-1	Water	02/04/20 00:00	02/05/20 09:53

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2628642001	MCM-19	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
2628642002	MCM-20	EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2628642003	MCM-18	SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
2628642004	EQBL020420	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
2628642005	FBL020420	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2628642006	DUP-1	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
2628642001	MCM-19					
EPA 6010D	Barium	0.13	mg/L	0.010	02/11/20 02:33	
EPA 6010D	Calcium	142	mg/L	10.0	02/12/20 11:50	
EPA 6020B	Arsenic	0.0092J	mg/L	0.050	02/17/20 16:43	D3
EPA 6020B	Beryllium	0.015J	mg/L	0.030	02/17/20 16:43	D3
EPA 6020B	Boron	0.79J	mg/L	1.0	02/17/20 16:43	D3
EPA 6020B	Chromium	0.0057J	mg/L	0.10	02/17/20 16:43	D3
EPA 6020B	Lithium	0.020J	mg/L	0.30	02/17/20 16:43	D3
EPA 6020B	Selenium	0.065J	mg/L	0.10	02/17/20 16:43	D3
EPA 9315	Radium-226	9.98 ± 1.70 (0.266)	pCi/L		02/17/20 08:41	
EPA 9320	Radium-228	12.4 ± 2.39 (0.552) C:88% T:NA	pCi/L		02/25/20 11:49	
Total Radium Calculation	Total Radium	22.4 ± 4.09 (0.818)	pCi/L		03/04/20 14:44	
SM 2540C	Total Dissolved Solids	10600	mg/L	10.0	02/07/20 11:37	
EPA 300.0 Rev 2.1 1993	Chloride	5030	mg/L	100	02/11/20 12:24	
EPA 300.0 Rev 2.1 1993	Sulfate	599	mg/L	100	02/11/20 12:24	
2628642002	MCM-20					
EPA 6010D	Barium	0.12	mg/L	0.010	02/11/20 02:38	
EPA 6010D	Calcium	139	mg/L	10.0	02/12/20 12:02	
EPA 6020B	Arsenic	0.022J	mg/L	0.050	02/17/20 16:48	D3
EPA 6020B	Beryllium	0.017J	mg/L	0.030	02/17/20 16:48	D3
EPA 6020B	Boron	0.96J	mg/L	1.0	02/17/20 16:48	D3
EPA 6020B	Chromium	0.0078J	mg/L	0.10	02/17/20 16:48	D3
EPA 6020B	Cobalt	0.031J	mg/L	0.050	02/17/20 16:48	D3
EPA 6020B	Lithium	0.024J	mg/L	0.30	02/17/20 16:48	D3
EPA 6020B	Selenium	0.049J	mg/L	0.10	02/17/20 16:48	D3
EPA 9315	Radium-226	18.0 ± 2.87 (0.287)	pCi/L		02/17/20 08:41	
EPA 9320	Radium-228	29.9 ± 5.52 (0.607) C:81% T:82%	pCi/L		02/25/20 11:49	
Total Radium Calculation	Total Radium	47.9 ± 8.39 (0.894)	pCi/L		02/26/20 09:48	
SM 2540C	Total Dissolved Solids	12300	mg/L	10.0	02/07/20 11:37	
EPA 300.0 Rev 2.1 1993	Chloride	5700	mg/L	80.0	02/11/20 14:35	
EPA 300.0 Rev 2.1 1993	Sulfate	1120	mg/L	80.0	02/11/20 14:35	
2628642003	MCM-18					
EPA 6010D	Barium	0.091	mg/L	0.010	02/11/20 02:43	
EPA 6010D	Calcium	36.2	mg/L	1.0	02/11/20 02:43	M1
EPA 6020B	Beryllium	0.0049J	mg/L	0.030	02/17/20 16:54	D3
EPA 6020B	Boron	0.24J	mg/L	1.0	02/17/20 16:54	D3
EPA 6020B	Selenium	0.017J	mg/L	0.10	02/17/20 16:54	D3

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
2628642003	MCM-18					
EPA 9315	Radium-226	7.33 ± 1.32 (0.265)	pCi/L		02/17/20 08:41	
EPA 9320	Radium-228	5.39 ± 1.14 (0.549) C:90% T:NA	pCi/L		02/25/20 11:49	
Total Radium Calculation	Total Radium	12.7 ± 2.46 (0.814)	pCi/L		02/26/20 09:48	
SM 2540C	Total Dissolved Solids	3220	mg/L	10.0	02/07/20 11:37	
EPA 300.0 Rev 2.1 1993	Chloride	1760	mg/L	36.0	02/11/20 15:01	
EPA 300.0 Rev 2.1 1993	Fluoride	0.18J	mg/L	0.30	02/11/20 04:18	
EPA 300.0 Rev 2.1 1993	Sulfate	432	mg/L	36.0	02/11/20 15:01	
2628642004	EQBL020420					
EPA 9315	Radium-226	0.446 ± 0.215 (0.241)	pCi/L		02/17/20 08:41	
EPA 9320	Radium-228	0.178 ± 0.252 (0.539) C:91% T:NA	pCi/L		02/25/20 11:49	
Total Radium Calculation	Total Radium	0.624 ± 0.467 (0.780)	pCi/L		02/26/20 09:48	
EPA 300.0 Rev 2.1 1993	Chloride	1.4	mg/L	1.0	02/11/20 04:32	
EPA 300.0 Rev 2.1 1993	Sulfate	0.57J	mg/L	1.0	02/11/20 04:32	
2628642005	FBL020420					
EPA 9315	Radium-226	0.386 ± 0.203 (0.257)	pCi/L		02/17/20 08:41	
EPA 9320	Radium-228	0.201 ± 0.337 (0.733) C:93% T:NA	pCi/L		02/25/20 14:52	
Total Radium Calculation	Total Radium	0.587 ± 0.540 (0.990)	pCi/L		02/26/20 09:48	
2628642006	DUP-1					
EPA 6010D	Barium	0.13	mg/L	0.010	02/11/20 03:31	
EPA 6010D	Calcium	140	mg/L	50.0	02/12/20 12:39	
EPA 6020B	Arsenic	0.010J	mg/L	0.050	02/17/20 17:11	D3
EPA 6020B	Beryllium	0.015J	mg/L	0.030	02/17/20 17:11	D3
EPA 6020B	Boron	0.76J	mg/L	1.0	02/17/20 17:11	D3
EPA 6020B	Chromium	0.0055J	mg/L	0.10	02/17/20 17:11	D3
EPA 6020B	Lithium	0.021J	mg/L	0.30	02/17/20 17:11	D3
EPA 6020B	Selenium	0.065J	mg/L	0.10	02/17/20 17:11	D3

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628642006	DUP-1					
EPA 9315	Radium-226	6.93 ± 1.24 (0.317)	pCi/L		02/17/20 08:41	
EPA 9320	Radium-228	C:95% T:NA 10.9 ± 2.12 (0.678) C:81% T:91%	pCi/L		02/25/20 14:52	
Total Radium Calculation	Total Radium	17.8 ± 3.36 (0.995)	pCi/L		02/26/20 09:48	
SM 2540C	Total Dissolved Solids	10200	mg/L	10.0	02/07/20 11:38	
EPA 300.0 Rev 2.1 1993	Chloride	4840	mg/L	80.0	02/11/20 15:15	
EPA 300.0 Rev 2.1 1993	Sulfate	1050	mg/L	80.0	02/11/20 15:15	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: MCM-19		Lab ID: 2628642001		Collected: 02/04/20 10:25		Received: 02/05/20 09:53		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.13	mg/L	0.010	0.0062	1	02/10/20 16:00	02/11/20 02:33	7440-39-3	
Calcium	142	mg/L	10.0	1.4	10	02/10/20 16:00	02/12/20 11:50	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.030	0.0027	10	02/17/20 11:15	02/17/20 16:43	7440-36-0	D3
Arsenic	0.0092J	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 16:43	7440-38-2	D3
Beryllium	0.015J	mg/L	0.030	0.00074	10	02/17/20 11:15	02/17/20 16:43	7440-41-7	D3
Boron	0.79J	mg/L	1.0	0.049	10	02/17/20 11:15	02/17/20 16:43	7440-42-8	D3
Cadmium	ND	mg/L	0.025	0.0011	10	02/17/20 11:15	02/17/20 16:43	7440-43-9	D3
Chromium	0.0057J	mg/L	0.10	0.0039	10	02/17/20 11:15	02/17/20 16:43	7440-47-3	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 16:43	7440-48-4	D3
Lead	ND	mg/L	0.050	0.00046	10	02/17/20 11:15	02/17/20 16:43	7439-92-1	D3
Lithium	0.020J	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 16:43	7439-93-2	D3
Molybdenum	ND	mg/L	0.10	0.0095	10	02/17/20 11:15	02/17/20 16:43	7439-98-7	D3
Selenium	0.065J	mg/L	0.10	0.013	10	02/17/20 11:15	02/17/20 16:43	7782-49-2	D3
Thallium	ND	mg/L	0.010	0.00052	10	02/17/20 11:15	02/17/20 16:43	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/07/20 09:12	02/07/20 13:42	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	10600	mg/L	10.0	10.0	1		02/07/20 11:37		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	5030	mg/L	100	60.0	100		02/11/20 12:24	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		02/11/20 03:50	16984-48-8	
Sulfate	599	mg/L	100	50.0	100		02/11/20 12:24	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: MCM-20		Lab ID: 2628642002		Collected: 02/04/20 10:48		Received: 02/05/20 09:53		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.12	mg/L	0.010	0.0062	1	02/10/20 16:00	02/11/20 02:38	7440-39-3	
Calcium	139	mg/L	10.0	1.4	10	02/10/20 16:00	02/12/20 12:02	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.030	0.0027	10	02/17/20 11:15	02/17/20 16:48	7440-36-0	D3
Arsenic	0.022J	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 16:48	7440-38-2	D3
Beryllium	0.017J	mg/L	0.030	0.00074	10	02/17/20 11:15	02/17/20 16:48	7440-41-7	D3
Boron	0.96J	mg/L	1.0	0.049	10	02/17/20 11:15	02/17/20 16:48	7440-42-8	D3
Cadmium	ND	mg/L	0.025	0.0011	10	02/17/20 11:15	02/17/20 16:48	7440-43-9	D3
Chromium	0.0078J	mg/L	0.10	0.0039	10	02/17/20 11:15	02/17/20 16:48	7440-47-3	D3
Cobalt	0.031J	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 16:48	7440-48-4	D3
Lead	ND	mg/L	0.050	0.00046	10	02/17/20 11:15	02/17/20 16:48	7439-92-1	D3
Lithium	0.024J	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 16:48	7439-93-2	D3
Molybdenum	ND	mg/L	0.10	0.0095	10	02/17/20 11:15	02/17/20 16:48	7439-98-7	D3
Selenium	0.049J	mg/L	0.10	0.013	10	02/17/20 11:15	02/17/20 16:48	7782-49-2	D3
Thallium	ND	mg/L	0.010	0.00052	10	02/17/20 11:15	02/17/20 16:48	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/07/20 09:12	02/07/20 13:52	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12300	mg/L	10.0	10.0	1		02/07/20 11:37		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	5700	mg/L	80.0	48.0	80		02/11/20 14:35	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		02/11/20 04:04	16984-48-8	
Sulfate	1120	mg/L	80.0	40.0	80		02/11/20 14:35	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: MCM-18		Lab ID: 2628642003		Collected: 02/04/20 12:02		Received: 02/05/20 09:53		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	0.091	mg/L	0.010	0.0062	1	02/10/20 16:00	02/11/20 02:43	7440-39-3		
Calcium	36.2	mg/L	1.0	0.14	1	02/10/20 16:00	02/11/20 02:43	7440-70-2	M1	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.030	0.0027	10	02/17/20 11:15	02/17/20 16:54	7440-36-0	D3	
Arsenic	ND	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 16:54	7440-38-2	D3	
Beryllium	0.0049J	mg/L	0.030	0.00074	10	02/17/20 11:15	02/17/20 16:54	7440-41-7	D3	
Boron	0.24J	mg/L	1.0	0.049	10	02/17/20 11:15	02/17/20 16:54	7440-42-8	D3	
Cadmium	ND	mg/L	0.025	0.0011	10	02/17/20 11:15	02/17/20 16:54	7440-43-9	D3	
Chromium	ND	mg/L	0.10	0.0039	10	02/17/20 11:15	02/17/20 16:54	7440-47-3	D3	
Cobalt	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 16:54	7440-48-4	D3	
Lead	ND	mg/L	0.050	0.00046	10	02/17/20 11:15	02/17/20 16:54	7439-92-1	D3	
Lithium	ND	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 16:54	7439-93-2	D3	
Molybdenum	ND	mg/L	0.10	0.0095	10	02/17/20 11:15	02/17/20 16:54	7439-98-7	D3	
Selenium	0.017J	mg/L	0.10	0.013	10	02/17/20 11:15	02/17/20 16:54	7782-49-2	D3	
Thallium	ND	mg/L	0.010	0.00052	10	02/17/20 11:15	02/17/20 16:54	7440-28-0	D3	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	02/07/20 09:12	02/07/20 13:54	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	3220	mg/L	10.0	10.0	1		02/07/20 11:37			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	1760	mg/L	36.0	21.6	36		02/11/20 15:01	16887-00-6		
Fluoride	0.18J	mg/L	0.30	0.050	1		02/11/20 04:18	16984-48-8		
Sulfate	432	mg/L	36.0	18.0	36		02/11/20 15:01	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

Sample: EQBL020420		Lab ID: 2628642004		Collected: 02/04/20 11:00		Received: 02/05/20 09:53		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	02/10/20 16:00	02/11/20 03:22	7440-39-3		
Calcium	ND	mg/L	1.0	0.14	1	02/10/20 16:00	02/11/20 03:22	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	02/17/20 11:15	02/17/20 17:00	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	02/17/20 11:15	02/17/20 17:00	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	02/17/20 11:15	02/17/20 17:00	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	02/17/20 11:15	02/17/20 17:00	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	02/17/20 11:15	02/17/20 17:00	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	02/17/20 11:15	02/17/20 17:00	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	02/17/20 11:15	02/17/20 17:00	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	02/17/20 11:15	02/17/20 17:00	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	02/17/20 11:15	02/17/20 17:00	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	02/17/20 11:15	02/17/20 17:00	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	02/17/20 11:15	02/17/20 17:00	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	02/17/20 11:15	02/17/20 17:00	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	02/07/20 09:12	02/07/20 13:57	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		02/07/20 11:38			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	1.4	mg/L	1.0	0.60	1		02/11/20 04:32	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		02/11/20 04:32	16984-48-8		
Sulfate	0.57J	mg/L	1.0	0.50	1		02/11/20 04:32	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: FBL020420		Lab ID: 2628642005		Collected: 02/04/20 12:36		Received: 02/05/20 09:53		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Barium	ND	mg/L	0.010	0.0062	1	02/10/20 16:00	02/11/20 03:26	7440-39-3		
Calcium	ND	mg/L	1.0	0.14	1	02/10/20 16:00	02/11/20 03:26	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	02/17/20 11:15	02/17/20 17:05	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	02/17/20 11:15	02/17/20 17:05	7440-38-2		
Beryllium	ND	mg/L	0.0030	0.000074	1	02/17/20 11:15	02/17/20 17:05	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	02/17/20 11:15	02/17/20 17:05	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	02/17/20 11:15	02/17/20 17:05	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	02/17/20 11:15	02/17/20 17:05	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	02/17/20 11:15	02/17/20 17:05	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	02/17/20 11:15	02/17/20 17:05	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	02/17/20 11:15	02/17/20 17:05	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	02/17/20 11:15	02/17/20 17:05	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	02/17/20 11:15	02/17/20 17:05	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	02/17/20 11:15	02/17/20 17:05	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	02/07/20 09:12	02/07/20 14:04	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		02/07/20 11:38			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		02/11/20 04:46	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		02/11/20 04:46	16984-48-8		
Sulfate	ND	mg/L	1.0	0.50	1		02/11/20 04:46	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: DUP-1		Lab ID: 2628642006		Collected: 02/04/20 00:00		Received: 02/05/20 09:53		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Barium	0.13	mg/L	0.010	0.0062	1	02/10/20 16:00	02/11/20 03:31	7440-39-3	
Calcium	140	mg/L	50.0	7.1	50	02/10/20 16:00	02/12/20 12:39	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.030	0.0027	10	02/17/20 11:15	02/17/20 17:11	7440-36-0	D3
Arsenic	0.010J	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 17:11	7440-38-2	D3
Beryllium	0.015J	mg/L	0.030	0.00074	10	02/17/20 11:15	02/17/20 17:11	7440-41-7	D3
Boron	0.76J	mg/L	1.0	0.049	10	02/17/20 11:15	02/17/20 17:11	7440-42-8	D3
Cadmium	ND	mg/L	0.025	0.0011	10	02/17/20 11:15	02/17/20 17:11	7440-43-9	D3
Chromium	0.0055J	mg/L	0.10	0.0039	10	02/17/20 11:15	02/17/20 17:11	7440-47-3	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 17:11	7440-48-4	D3
Lead	ND	mg/L	0.050	0.00046	10	02/17/20 11:15	02/17/20 17:11	7439-92-1	D3
Lithium	0.021J	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 17:11	7439-93-2	D3
Molybdenum	ND	mg/L	0.10	0.0095	10	02/17/20 11:15	02/17/20 17:11	7439-98-7	D3
Selenium	0.065J	mg/L	0.10	0.013	10	02/17/20 11:15	02/17/20 17:11	7782-49-2	D3
Thallium	ND	mg/L	0.010	0.00052	10	02/17/20 11:15	02/17/20 17:11	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/07/20 09:12	02/07/20 14:06	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	10200	mg/L	10.0	10.0	1		02/07/20 11:38		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	4840	mg/L	80.0	48.0	80		02/11/20 15:15	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		02/11/20 05:00	16984-48-8	
Sulfate	1050	mg/L	80.0	40.0	80		02/11/20 15:15	14808-79-8	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

QC Batch: 43004

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

METHOD BLANK: 196557

Matrix: Water

Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	02/07/20 13:38	

LABORATORY CONTROL SAMPLE: 196558

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 196559 196560

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2628642001 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury	mg/L	ND	0.0025	0.0025	0.0026	0.0024	103	98	75-125	5	20		

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

QC Batch: 43094 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

METHOD BLANK: 197039 Matrix: Water
Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	0.0062	02/11/20 01:55	
Calcium	mg/L	ND	1.0	0.14	02/11/20 01:55	

LABORATORY CONTROL SAMPLE: 197040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	1.0	100	80-120	
Calcium	mg/L	1	1.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197041 197042

Parameter	Units	2628642003		197042		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Barium	mg/L	0.091	1	1	1.1	101	98	75-125	3	20	
Calcium	mg/L	36.2	1	1	39.9	367	207	75-125	4	20 M1	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

QC Batch: 43407 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

METHOD BLANK: 198741 Matrix: Water
Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	02/17/20 14:58	
Arsenic	mg/L	ND	0.0050	0.00035	02/17/20 14:58	
Beryllium	mg/L	ND	0.0030	0.000074	02/17/20 14:58	
Boron	mg/L	ND	0.10	0.0049	02/17/20 14:58	
Cadmium	mg/L	ND	0.0025	0.00011	02/17/20 14:58	
Chromium	mg/L	ND	0.010	0.00039	02/17/20 14:58	
Cobalt	mg/L	ND	0.0050	0.00030	02/17/20 14:58	
Lead	mg/L	ND	0.0050	0.000046	02/17/20 14:58	
Lithium	mg/L	ND	0.030	0.00078	02/17/20 14:58	
Molybdenum	mg/L	ND	0.010	0.00095	02/17/20 14:58	
Selenium	mg/L	ND	0.010	0.0013	02/17/20 14:58	
Thallium	mg/L	ND	0.0010	0.000052	02/17/20 14:58	

LABORATORY CONTROL SAMPLE: 198742

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	101	80-120	
Arsenic	mg/L	0.1	0.097	97	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.99	99	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.099	99	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.094	94	80-120	
Thallium	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 198743 198744

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2629097001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Arsenic	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Beryllium	mg/L	0.0067	0.1	0.1	0.097	0.10	90	93	75-125	3	20	
Boron	mg/L	4.3	1	1	5.1	5.4	85	115	75-125	6	20	
Cadmium	mg/L	0.00088J	0.1	0.1	0.098	0.10	97	100	75-125	2	20	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Parameter	Units	198743		198744		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2629097001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Chromium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	1	20		
Cobalt	mg/L	0.017	0.1	0.1	0.11	0.11	95	95	75-125	0	20		
Lead	mg/L	0.00013J	0.1	0.1	0.092	0.092	92	92	75-125	0	20		
Lithium	mg/L	0.019J	0.1	0.1	0.12	0.11	97	94	75-125	2	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	104	104	75-125	0	20		
Selenium	mg/L	0.0035J	0.1	0.1	0.10	0.10	96	98	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.092	0.093	92	93	75-125	1	20		

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

QC Batch: 43015

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

LABORATORY CONTROL SAMPLE: 196605

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	392	98	84-108	

SAMPLE DUPLICATE: 196606

Parameter	Units	2628706001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	184	255	32	10	D6

SAMPLE DUPLICATE: 196607

Parameter	Units	2628761001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4760	4610	3	10	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 2628642

QC Batch: 524107 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

METHOD BLANK: 2801959 Matrix: Water
Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	02/11/20 01:44	
Fluoride	mg/L	ND	0.10	0.050	02/11/20 01:44	
Sulfate	mg/L	ND	1.0	0.50	02/11/20 01:44	

LABORATORY CONTROL SAMPLE: 2801960

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.4	99	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	49.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2801961 2801962

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92464186002	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	12.4	50	50	62.1	62.8	99	101	90-110	1	10		
Fluoride	mg/L	ND	2.5	2.5	2.6	2.7	105	107	90-110	2	10		
Sulfate	mg/L	4.5	50	50	54.4	55.0	100	101	90-110	1	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2801963 2801964

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92464256001	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	559	50	50	606	669	95	219	90-110	10	10	M6	
Fluoride	mg/L	19.3	2.5	2.5	16.6	16.8	-106	-99	90-110	1	10	M6	
Sulfate	mg/L	38.8	50	50	88.7	88.8	100	100	90-110	0	10		

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: MCM-19 **Lab ID: 2628642001** Collected: 02/04/20 10:25 Received: 02/05/20 09:53 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	9.98 ± 1.70 (0.266) C:88% T:NA	pCi/L	02/17/20 08:41	13982-63-3	
Radium-228	EPA 9320	12.4 ± 2.39 (0.552) C:84% T:86%	pCi/L	02/25/20 11:49	15262-20-1	
Total Radium	Total Radium Calculation	22.4 ± 4.09 (0.818)	pCi/L	03/04/20 14:44	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: MCM-20 **Lab ID: 2628642002** Collected: 02/04/20 10:48 Received: 02/05/20 09:53 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	18.0 ± 2.87 (0.287) C:93% T:NA	pCi/L	02/17/20 08:41	13982-63-3	
Radium-228	EPA 9320	29.9 ± 5.52 (0.607) C:81% T:82%	pCi/L	02/25/20 11:49	15262-20-1	
Total Radium	Total Radium Calculation	47.9 ± 8.39 (0.894)	pCi/L	02/26/20 09:48	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: MCM-18 **Lab ID: 2628642003** Collected: 02/04/20 12:02 Received: 02/05/20 09:53 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	7.33 ± 1.32 (0.265) C:90% T:NA	pCi/L	02/17/20 08:41	13982-63-3	
Radium-228	EPA 9320	5.39 ± 1.14 (0.549) C:83% T:86%	pCi/L	02/25/20 11:49	15262-20-1	
Total Radium	Total Radium Calculation	12.7 ± 2.46 (0.814)	pCi/L	02/26/20 09:48	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.446 ± 0.215 (0.241) C:91% T:NA	pCi/L	02/17/20 08:41	13982-63-3	
Radium-228	EPA 9320	0.178 ± 0.252 (0.539) C:80% T:87%	pCi/L	02/25/20 11:49	15262-20-1	
Total Radium	Total Radium Calculation	0.624 ± 0.467 (0.780)	pCi/L	02/26/20 09:48	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: FBL020420 **Lab ID: 2628642005** Collected: 02/04/20 12:36 Received: 02/05/20 09:53 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.386 ± 0.203 (0.257) C:93% T:NA	pCi/L	02/17/20 08:41	13982-63-3	
Radium-228	EPA 9320	0.201 ± 0.337 (0.733) C:83% T:86%	pCi/L	02/25/20 14:52	15262-20-1	
Total Radium	Total Radium Calculation	0.587 ± 0.540 (0.990)	pCi/L	02/26/20 09:48	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Sample: DUP-1 **Lab ID: 2628642006** Collected: 02/04/20 00:00 Received: 02/05/20 09:53 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	6.93 ± 1.24 (0.317) C:95% T:NA	pCi/L	02/17/20 08:41	13982-63-3	
Radium-228	EPA 9320	10.9 ± 2.12 (0.678) C:81% T:91%	pCi/L	02/25/20 14:52	15262-20-1	
Total Radium	Total Radium Calculation	17.8 ± 3.36 (0.995)	pCi/L	02/26/20 09:48	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

QC Batch:	383364	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006		

METHOD BLANK:	1857754	Matrix:	Water
Associated Lab Samples:	2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.264 ± 0.262 (0.536) C:85% T:86%	pCi/L	02/25/20 11:49	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

QC Batch: 383365 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium

Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

METHOD BLANK: 1857759 Matrix: Water

Associated Lab Samples: 2628642001, 2628642002, 2628642003, 2628642004, 2628642005, 2628642006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.280 ± 0.176 (0.250) C:95% T:NA	pCi/L	02/17/20 08:41	

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QUALIFIERS

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

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.

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

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628642001	MCM-19	EPA 3010A	43094	EPA 6010D	43129
2628642002	MCM-20	EPA 3010A	43094	EPA 6010D	43129
2628642003	MCM-18	EPA 3010A	43094	EPA 6010D	43129
2628642004	EQBL020420	EPA 3010A	43094	EPA 6010D	43129
2628642005	FBL020420	EPA 3010A	43094	EPA 6010D	43129
2628642006	DUP-1	EPA 3010A	43094	EPA 6010D	43129
2628642001	MCM-19	EPA 3005A	43407	EPA 6020B	43433
2628642002	MCM-20	EPA 3005A	43407	EPA 6020B	43433
2628642003	MCM-18	EPA 3005A	43407	EPA 6020B	43433
2628642004	EQBL020420	EPA 3005A	43407	EPA 6020B	43433
2628642005	FBL020420	EPA 3005A	43407	EPA 6020B	43433
2628642006	DUP-1	EPA 3005A	43407	EPA 6020B	43433
2628642001	MCM-19	EPA 7470A	43004	EPA 7470A	43025
2628642002	MCM-20	EPA 7470A	43004	EPA 7470A	43025
2628642003	MCM-18	EPA 7470A	43004	EPA 7470A	43025
2628642004	EQBL020420	EPA 7470A	43004	EPA 7470A	43025
2628642005	FBL020420	EPA 7470A	43004	EPA 7470A	43025
2628642006	DUP-1	EPA 7470A	43004	EPA 7470A	43025
2628642001	MCM-19	EPA 9315	383365		
2628642002	MCM-20	EPA 9315	383365		
2628642003	MCM-18	EPA 9315	383365		
2628642004	EQBL020420	EPA 9315	383365		
2628642005	FBL020420	EPA 9315	383365		
2628642006	DUP-1	EPA 9315	383365		
2628642001	MCM-19	EPA 9320	383364		
2628642002	MCM-20	EPA 9320	383364		
2628642003	MCM-18	EPA 9320	383364		
2628642004	EQBL020420	EPA 9320	383364		
2628642005	FBL020420	EPA 9320	383364		
2628642006	DUP-1	EPA 9320	383364		
2628642001	MCM-19	Total Radium Calculation	386500		
2628642002	MCM-20	Total Radium Calculation	385327		
2628642003	MCM-18	Total Radium Calculation	385327		
2628642004	EQBL020420	Total Radium Calculation	385327		
2628642005	FBL020420	Total Radium Calculation	385327		
2628642006	DUP-1	Total Radium Calculation	385327		
2628642001	MCM-19	SM 2540C	43015		
2628642002	MCM-20	SM 2540C	43015		
2628642003	MCM-18	SM 2540C	43015		
2628642004	EQBL020420	SM 2540C	43015		
2628642005	FBL020420	SM 2540C	43015		
2628642006	DUP-1	SM 2540C	43015		
2628642001	MCM-19	EPA 300.0 Rev 2.1 1993	524107		
2628642002	MCM-20	EPA 300.0 Rev 2.1 1993	524107		
2628642003	MCM-18	EPA 300.0 Rev 2.1 1993	524107		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR

Pace Project No.: 2628642

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628642004	EQBL020420	EPA 300.0 Rev 2.1 1993	524107		
2628642005	FBL020420	EPA 300.0 Rev 2.1 1993	524107		
2628642006	DUP-1	EPA 300.0 Rev 2.1 1993	524107		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power	Report To: Kevin Stephenson	Company Name	Attention:	Company Name	Attention:
Address: 1003 Weatherstone Parkway	Copy To:	Address:	Project Name:	State / Location:	Regulatory Agency:
Woodstock, GA 30188	Purchase Order #:	Woodstock, GA 30188	Project Name: Plant McManus CCR	GA	
Email: kevin.stephenson@ge.com	Project #:	Phone: (678)548-9415	Requested Due Date		
Fax:					

ITEM #	MATRIX CODE Drinking Water Water Waste Water Product Soil/Sediment Oil Wipe Air Other Tissue	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analyses Test Y/N	Chloride/Sulfide/Sulfate	TDS by 2540C	Metals 6020/6010/7470	Radium 226/228	Residual Chlorine (Y/N)
				START DATE TIME	END DATE TIME			Unpreserved	K2S04	HNO3	HCl	NaOH	Na2S2O3						
1	MCM-19	WG	G	2/4/2015 10:25			2							X	X	X	X		
2	MCM-20	WG	G	2/4/2015 10:40			2							X	X	X	X		
3	MCM-18	WG	G	2/4/2015 10:07			2							X	X	X	X		
4	FDL020120	WG	G	2/4/2015 11:00			2							X	X	X	X		
5	FDL020120	WG	G	2/4/2015 12:26			2							X	X	X	X		
6	Dug-1	WG	G	2/4/2015			2							X	X	X	X		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Kevin Stephenson	2/4/2015	11:00	K. Wellington / FACE	2/5/2015	3:40	Y Y Y
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: Kevin Stephenson SIGNATURE OF SAMPLER: <i>[Signature]</i> DATE of Sample: 2/4/2015							

WO#: 2628642

2628642



Sample Condition Upon Receipt

WO#: 2628642

Client Name: Georgia Power

PM: KH Due Date: 02/19/20
CLIENT: 26-GA Power

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: 3901 4441 2854 + 3901 4441 2345

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

Packing Material: Bubble Wrap Bubble Bags None Other Plastic bag

Thermometer Used THR 230 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 4.6/3.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: KW 2/15/20

Table with 16 rows of inspection items and checkboxes. Items include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot # (if purchased).

Client Notification/ Resolution: Field Data Required? Y / N
Person Contacted: Date/Time:
Comments/ Resolution:

Project Manager Review: Date:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

March 03, 2020

Joju Abraham
Georgia Power - Coal Combustion Residuals
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 14, 2020. 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,



Kevin Herring
kevin.herring@pacelabs.com
(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Veronica Fay, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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 Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2629073001	MCM-19	Water	02/13/20 12:27	02/14/20 10:45
2629073002	MCM-18	Water	02/13/20 13:58	02/14/20 10:45
2629073003	MCM-20	Water	02/13/20 14:08	02/14/20 10:45
2629073004	FBL021320	Water	02/13/20 15:02	02/14/20 10:45
2629073005	EQBL021320	Water	02/13/20 15:08	02/14/20 10:45
2629073006	DUP-1	Water	02/13/20 00:00	02/14/20 10:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2629073001	MCM-19	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
2629073002	MCM-18	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2629073003	MCM-20	SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
2629073004	FBL021320	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
2629073005	EQBL021320	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2629073006	DUP-1	Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
2629073001	MCM-19					
EPA 6010D	Calcium	148	mg/L	10.0	02/21/20 22:08	M6
EPA 6020B	Arsenic	0.021J	mg/L	0.025	02/21/20 13:48	B,D3
EPA 6020B	Barium	0.13	mg/L	0.050	02/21/20 13:48	
EPA 6020B	Beryllium	0.013J	mg/L	0.015	02/21/20 13:48	D3
EPA 6020B	Boron	0.74	mg/L	0.50	02/21/20 13:48	
EPA 6020B	Chromium	0.0063J	mg/L	0.050	02/21/20 13:48	D3
EPA 6020B	Lithium	0.018J	mg/L	0.15	02/21/20 13:48	D3
EPA 6020B	Selenium	0.15	mg/L	0.050	02/21/20 13:48	
EPA 9315	Radium-226	19.8 ± 3.25 (0.436)	pCi/L		02/20/20 08:47	
EPA 9320	Radium-228	11.3 ± 2.19 (0.741) C:85% T:83%	pCi/L		02/25/20 11:46	
Total Radium Calculation	Total Radium	31.1 ± 5.44 (1.18)	pCi/L		03/02/20 15:58	
SM 2540C	Total Dissolved Solids	10900	mg/L	10.0	02/19/20 11:12	
EPA 300.0 Rev 2.1 1993	Chloride	6140	mg/L	65.0	02/23/20 22:36	
EPA 300.0 Rev 2.1 1993	Sulfate	761	mg/L	65.0	02/23/20 22:36	
2629073002	MCM-18					
EPA 6010D	Calcium	38.9	mg/L	1.0	02/21/20 22:32	
EPA 6020B	Arsenic	0.0066	mg/L	0.0050	02/20/20 21:28	B
EPA 6020B	Barium	0.098	mg/L	0.010	02/20/20 21:28	
EPA 6020B	Beryllium	0.0043	mg/L	0.0030	02/20/20 21:28	
EPA 6020B	Boron	0.22	mg/L	0.10	02/20/20 21:28	
EPA 6020B	Chromium	0.0036J	mg/L	0.010	02/20/20 21:28	
EPA 6020B	Lithium	0.0040J	mg/L	0.030	02/20/20 21:28	
EPA 6020B	Selenium	0.015	mg/L	0.010	02/20/20 21:28	
EPA 9315	Radium-226	12.4 ± 2.16 (0.338)	pCi/L		02/20/20 08:47	
EPA 9320	Radium-228	5.83 ± 1.22 (0.639) C:84% T:90%	pCi/L		02/25/20 11:46	
Total Radium Calculation	Total Radium	18.2 ± 3.38 (0.977)	pCi/L		03/02/20 15:58	
SM 2540C	Total Dissolved Solids	3580	mg/L	10.0	02/19/20 11:12	
EPA 300.0 Rev 2.1 1993	Chloride	1850	mg/L	25.0	02/22/20 22:41	
EPA 300.0 Rev 2.1 1993	Fluoride	0.077J	mg/L	0.30	02/22/20 13:04	
EPA 300.0 Rev 2.1 1993	Sulfate	300	mg/L	25.0	02/22/20 22:41	
2629073003	MCM-20					
EPA 6010D	Calcium	146	mg/L	10.0	02/21/20 22:47	
EPA 6020B	Arsenic	0.029	mg/L	0.025	02/21/20 13:54	B
EPA 6020B	Barium	0.12	mg/L	0.050	02/21/20 13:54	
EPA 6020B	Beryllium	0.015J	mg/L	0.015	02/21/20 13:54	D3
EPA 6020B	Boron	0.88	mg/L	0.50	02/21/20 13:54	
EPA 6020B	Chromium	0.0091J	mg/L	0.050	02/21/20 13:54	D3

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR SCOPE
 Pace Project No.: 2629073

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2629073003	MCM-20					
EPA 6020B	Cobalt	0.031	mg/L	0.025	02/21/20 13:54	
EPA 6020B	Lead	0.00023J	mg/L	0.025	02/21/20 13:54	D3
EPA 6020B	Lithium	0.021J	mg/L	0.15	02/21/20 13:54	D3
EPA 6020B	Selenium	0.11	mg/L	0.050	02/21/20 13:54	
EPA 9315	Radium-226	51.6 ± 7.86 (0.374)	pCi/L		02/20/20 08:56	
EPA 9320	Radium-228	C:94% T:NA 24.7 ± 4.59 (0.707) C:79% T:87%	pCi/L		02/25/20 11:49	
Total Radium Calculation	Total Radium	76.3 ± 12.5 (1.08)	pCi/L		03/02/20 15:51	
SM 2540C	Total Dissolved Solids	12400	mg/L	10.0	02/19/20 11:12	
EPA 300.0 Rev 2.1 1993	Chloride	7060	mg/L	80.0	02/22/20 23:02	
EPA 300.0 Rev 2.1 1993	Sulfate	833	mg/L	80.0	02/22/20 23:02	
2629073004	FBL021320					
EPA 6020B	Arsenic	0.0031J	mg/L	0.0050	02/20/20 21:51	B
EPA 9315	Radium-226	0.407 ± 0.264 (0.391)	pCi/L		02/20/20 08:56	
EPA 9320	Radium-228	C:90% T:NA 0.609 ± 0.343 (0.634) C:88% T:95%	pCi/L		02/25/20 11:49	
Total Radium Calculation	Total Radium	1.02 ± 0.607 (1.03)	pCi/L		03/02/20 15:51	
2629073005	EQBL021320					
EPA 6020B	Arsenic	0.0030J	mg/L	0.0050	02/20/20 21:57	B
EPA 9315	Radium-226	0.558 ± 0.302 (0.415)	pCi/L		02/20/20 08:56	
EPA 9320	Radium-228	C:95% T:NA 0.882 ± 0.404 (0.684) C:83% T:86%	pCi/L		02/25/20 11:46	
Total Radium Calculation	Total Radium	1.44 ± 0.706 (1.10)	pCi/L		03/02/20 15:51	
EPA 300.0 Rev 2.1 1993	Sulfate	0.69J	mg/L	1.0	02/22/20 13:48	
2629073006	DUP-1					
EPA 6010D	Calcium	154	mg/L	10.0	02/21/20 23:06	
EPA 6020B	Arsenic	0.021J	mg/L	0.025	02/21/20 14:21	B,D3
EPA 6020B	Barium	0.14	mg/L	0.050	02/21/20 14:21	
EPA 6020B	Beryllium	0.014J	mg/L	0.015	02/21/20 14:21	D3

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2629073006	DUP-1					
EPA 6020B	Boron	0.77	mg/L	0.50	02/21/20 14:21	
EPA 6020B	Chromium	0.0063J	mg/L	0.050	02/21/20 14:21	D3
EPA 6020B	Lithium	0.020J	mg/L	0.15	02/21/20 14:21	D3
EPA 6020B	Selenium	0.15	mg/L	0.050	02/21/20 14:21	
EPA 9315	Radium-226	21.0 ± 3.42 (0.376)	pCi/L		02/20/20 08:56	
EPA 9320	Radium-228	10.2 ± 1.99 (0.600) C:85% T:92%	pCi/L		02/25/20 11:46	
Total Radium Calculation	Total Radium	31.2 ± 5.41 (0.976)	pCi/L		03/02/20 15:51	
SM 2540C	Total Dissolved Solids	11000	mg/L	10.0	02/19/20 11:13	
EPA 300.0 Rev 2.1 1993	Chloride	6090	mg/L	80.0	02/22/20 23:22	
EPA 300.0 Rev 2.1 1993	Sulfate	847	mg/L	80.0	02/22/20 23:22	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Sample: MCM-19		Lab ID: 2629073001		Collected: 02/13/20 12:27		Received: 02/14/20 10:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Calcium	148	mg/L	10.0	1.4	10	02/18/20 17:36	02/21/20 22:08	7440-70-2	M6
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	02/19/20 13:38	02/21/20 13:48	7440-36-0	D3
Arsenic	0.021J	mg/L	0.025	0.0018	5	02/19/20 13:38	02/21/20 13:48	7440-38-2	B,D3
Barium	0.13	mg/L	0.050	0.0024	5	02/19/20 13:38	02/21/20 13:48	7440-39-3	
Beryllium	0.013J	mg/L	0.015	0.00037	5	02/19/20 13:38	02/21/20 13:48	7440-41-7	D3
Boron	0.74	mg/L	0.50	0.025	5	02/19/20 13:38	02/21/20 13:48	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	02/19/20 13:38	02/21/20 13:48	7440-43-9	D3
Chromium	0.0063J	mg/L	0.050	0.0020	5	02/19/20 13:38	02/21/20 13:48	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	02/19/20 13:38	02/21/20 13:48	7440-48-4	D3
Lead	ND	mg/L	0.025	0.00023	5	02/19/20 13:38	02/21/20 13:48	7439-92-1	D3
Lithium	0.018J	mg/L	0.15	0.0039	5	02/19/20 13:38	02/21/20 13:48	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	02/19/20 13:38	02/21/20 13:48	7439-98-7	D3
Selenium	0.15	mg/L	0.050	0.0063	5	02/19/20 13:38	02/21/20 13:48	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	02/19/20 13:38	02/21/20 13:48	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/18/20 16:17	02/19/20 17:45	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	10900	mg/L	10.0	10.0	1		02/19/20 11:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	6140	mg/L	65.0	39.0	65		02/23/20 22:36	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		02/22/20 12:49	16984-48-8	
Sulfate	761	mg/L	65.0	32.5	65		02/23/20 22:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Sample: MCM-18		Lab ID: 2629073002		Collected: 02/13/20 13:58		Received: 02/14/20 10:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Calcium	38.9	mg/L	1.0	0.14	1	02/18/20 17:36	02/21/20 22:32	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	02/19/20 13:38	02/20/20 21:28	7440-36-0	
Arsenic	0.0066	mg/L	0.0050	0.00035	1	02/19/20 13:38	02/20/20 21:28	7440-38-2	B
Barium	0.098	mg/L	0.010	0.00049	1	02/19/20 13:38	02/20/20 21:28	7440-39-3	
Beryllium	0.0043	mg/L	0.0030	0.000074	1	02/19/20 13:38	02/20/20 21:28	7440-41-7	
Boron	0.22	mg/L	0.10	0.0049	1	02/19/20 13:38	02/20/20 21:28	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	02/19/20 13:38	02/20/20 21:28	7440-43-9	
Chromium	0.0036J	mg/L	0.010	0.00039	1	02/19/20 13:38	02/20/20 21:28	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	02/19/20 13:38	02/20/20 21:28	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	02/19/20 13:38	02/20/20 21:28	7439-92-1	
Lithium	0.0040J	mg/L	0.030	0.00078	1	02/19/20 13:38	02/20/20 21:28	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	02/19/20 13:38	02/20/20 21:28	7439-98-7	
Selenium	0.015	mg/L	0.010	0.0013	1	02/19/20 13:38	02/20/20 21:28	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	02/19/20 13:38	02/20/20 21:28	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/18/20 16:17	02/19/20 17:47	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	3580	mg/L	10.0	10.0	1		02/19/20 11:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	1850	mg/L	25.0	15.0	25		02/22/20 22:41	16887-00-6	
Fluoride	0.077J	mg/L	0.30	0.050	1		02/22/20 13:04	16984-48-8	
Sulfate	300	mg/L	25.0	12.5	25		02/22/20 22:41	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Sample: MCM-20		Lab ID: 2629073003		Collected: 02/13/20 14:08		Received: 02/14/20 10:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Calcium	146	mg/L	10.0	1.4	10	02/18/20 17:36	02/21/20 22:47	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	02/19/20 13:38	02/21/20 13:54	7440-36-0	D3
Arsenic	0.029	mg/L	0.025	0.0018	5	02/19/20 13:38	02/21/20 13:54	7440-38-2	B
Barium	0.12	mg/L	0.050	0.0024	5	02/19/20 13:38	02/21/20 13:54	7440-39-3	
Beryllium	0.015J	mg/L	0.015	0.00037	5	02/19/20 13:38	02/21/20 13:54	7440-41-7	D3
Boron	0.88	mg/L	0.50	0.025	5	02/19/20 13:38	02/21/20 13:54	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	02/19/20 13:38	02/21/20 13:54	7440-43-9	D3
Chromium	0.0091J	mg/L	0.050	0.0020	5	02/19/20 13:38	02/21/20 13:54	7440-47-3	D3
Cobalt	0.031	mg/L	0.025	0.0015	5	02/19/20 13:38	02/21/20 13:54	7440-48-4	
Lead	0.00023J	mg/L	0.025	0.00023	5	02/19/20 13:38	02/21/20 13:54	7439-92-1	D3
Lithium	0.021J	mg/L	0.15	0.0039	5	02/19/20 13:38	02/21/20 13:54	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	02/19/20 13:38	02/21/20 13:54	7439-98-7	D3
Selenium	0.11	mg/L	0.050	0.0063	5	02/19/20 13:38	02/21/20 13:54	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	02/19/20 13:38	02/21/20 13:54	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/18/20 16:17	02/19/20 17:49	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	12400	mg/L	10.0	10.0	1		02/19/20 11:12		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	7060	mg/L	80.0	48.0	80		02/22/20 23:02	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		02/22/20 13:19	16984-48-8	
Sulfate	833	mg/L	80.0	40.0	80		02/22/20 23:02	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Sample: FBL021320		Lab ID: 2629073004		Collected: 02/13/20 15:02	Received: 02/14/20 10:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Calcium	ND	mg/L	1.0	0.14	1	02/18/20 17:36	02/21/20 22:52	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	02/19/20 13:38	02/20/20 21:51	7440-36-0		
Arsenic	0.0031J	mg/L	0.0050	0.00035	1	02/19/20 13:38	02/20/20 21:51	7440-38-2	B	
Barium	ND	mg/L	0.010	0.00049	1	02/19/20 13:38	02/20/20 21:51	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	02/19/20 13:38	02/20/20 21:51	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	02/19/20 13:38	02/20/20 21:51	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	02/19/20 13:38	02/20/20 21:51	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	02/19/20 13:38	02/20/20 21:51	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	02/19/20 13:38	02/20/20 21:51	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	02/19/20 13:38	02/20/20 21:51	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	02/19/20 13:38	02/20/20 21:51	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	02/19/20 13:38	02/20/20 21:51	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	02/19/20 13:38	02/20/20 21:51	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	02/19/20 13:38	02/20/20 21:51	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	02/24/20 11:27	02/25/20 09:42	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		02/19/20 11:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		02/22/20 14:48	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		02/22/20 14:48	16984-48-8		
Sulfate	ND	mg/L	1.0	0.50	1		02/22/20 14:48	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Sample: EQBL021320		Lab ID: 2629073005		Collected: 02/13/20 15:08		Received: 02/14/20 10:45		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Calcium	ND	mg/L	1.0	0.14	1	02/18/20 17:36	02/21/20 22:57	7440-70-2		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	02/19/20 13:38	02/20/20 21:57	7440-36-0		
Arsenic	0.0030J	mg/L	0.0050	0.00035	1	02/19/20 13:38	02/20/20 21:57	7440-38-2	B	
Barium	ND	mg/L	0.010	0.00049	1	02/19/20 13:38	02/20/20 21:57	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	02/19/20 13:38	02/20/20 21:57	7440-41-7		
Boron	ND	mg/L	0.10	0.0049	1	02/19/20 13:38	02/20/20 21:57	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	02/19/20 13:38	02/20/20 21:57	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	02/19/20 13:38	02/20/20 21:57	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	02/19/20 13:38	02/20/20 21:57	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	02/19/20 13:38	02/20/20 21:57	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	02/19/20 13:38	02/20/20 21:57	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	02/19/20 13:38	02/20/20 21:57	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	02/19/20 13:38	02/20/20 21:57	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	02/19/20 13:38	02/20/20 21:57	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	02/24/20 11:27	02/25/20 09:44	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		02/19/20 11:12			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		02/22/20 13:48	16887-00-6		
Fluoride	ND	mg/L	0.30	0.050	1		02/22/20 13:48	16984-48-8		
Sulfate	0.69J	mg/L	1.0	0.50	1		02/22/20 13:48	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Sample: DUP-1		Lab ID: 2629073006		Collected: 02/13/20 00:00		Received: 02/14/20 10:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Calcium	154	mg/L	10.0	1.4	10	02/18/20 17:36	02/21/20 23:06	7440-70-2	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.015	0.0014	5	02/19/20 13:38	02/21/20 14:21	7440-36-0	D3
Arsenic	0.021J	mg/L	0.025	0.0018	5	02/19/20 13:38	02/21/20 14:21	7440-38-2	B,D3
Barium	0.14	mg/L	0.050	0.0024	5	02/19/20 13:38	02/21/20 14:21	7440-39-3	
Beryllium	0.014J	mg/L	0.015	0.00037	5	02/19/20 13:38	02/21/20 14:21	7440-41-7	D3
Boron	0.77	mg/L	0.50	0.025	5	02/19/20 13:38	02/21/20 14:21	7440-42-8	
Cadmium	ND	mg/L	0.012	0.00057	5	02/19/20 13:38	02/21/20 14:21	7440-43-9	D3
Chromium	0.0063J	mg/L	0.050	0.0020	5	02/19/20 13:38	02/21/20 14:21	7440-47-3	D3
Cobalt	ND	mg/L	0.025	0.0015	5	02/19/20 13:38	02/21/20 14:21	7440-48-4	D3
Lead	ND	mg/L	0.025	0.00023	5	02/19/20 13:38	02/21/20 14:21	7439-92-1	D3
Lithium	0.020J	mg/L	0.15	0.0039	5	02/19/20 13:38	02/21/20 14:21	7439-93-2	D3
Molybdenum	ND	mg/L	0.050	0.0047	5	02/19/20 13:38	02/21/20 14:21	7439-98-7	D3
Selenium	0.15	mg/L	0.050	0.0063	5	02/19/20 13:38	02/21/20 14:21	7782-49-2	
Thallium	ND	mg/L	0.0050	0.00026	5	02/19/20 13:38	02/21/20 14:21	7440-28-0	D3
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	02/24/20 11:27	02/25/20 09:47	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	11000	mg/L	10.0	10.0	1		02/19/20 11:13		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993							
Chloride	6090	mg/L	80.0	48.0	80		02/22/20 23:22	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		02/22/20 14:03	16984-48-8	
Sulfate	847	mg/L	80.0	40.0	80		02/22/20 23:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

QC Batch: 43498

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2629073001, 2629073002, 2629073003

METHOD BLANK: 199117

Matrix: Water

Associated Lab Samples: 2629073001, 2629073002, 2629073003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	0.00016J	0.00050	0.00014	02/19/20 16:43	

LABORATORY CONTROL SAMPLE: 199118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0029	115	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 199119 199120

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2628972001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0025	95	98	75-125	3	20		

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

QC Batch: 43742 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2629073004, 2629073005, 2629073006

METHOD BLANK: 200407 Matrix: Water

Associated Lab Samples: 2629073004, 2629073005, 2629073006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	02/25/20 09:37	

LABORATORY CONTROL SAMPLE: 200408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 200409 200410

Parameter	Units	200409		200410		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2628972006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0020	97	82	75-125	17	20

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

QC Batch: 43506 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

METHOD BLANK: 199151 Matrix: Water
Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.14	02/21/20 17:23	

LABORATORY CONTROL SAMPLE: 199152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.97J	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 199153 199154

Parameter	Units	2629073001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	148	1	1	163	148	1520	26	75-125	10	20	M6

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

QC Batch: 43544 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

METHOD BLANK: 199284 Matrix: Water
Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	02/20/20 19:28	
Arsenic	mg/L	0.00079J	0.0050	0.00035	02/20/20 19:28	
Barium	mg/L	ND	0.010	0.00049	02/20/20 19:28	
Beryllium	mg/L	ND	0.0030	0.000074	02/20/20 19:28	
Boron	mg/L	ND	0.10	0.0049	02/20/20 19:28	
Cadmium	mg/L	ND	0.0025	0.00011	02/20/20 19:28	
Chromium	mg/L	ND	0.010	0.00039	02/20/20 19:28	
Cobalt	mg/L	ND	0.0050	0.00030	02/20/20 19:28	
Lead	mg/L	ND	0.0050	0.000046	02/20/20 19:28	
Lithium	mg/L	ND	0.030	0.00078	02/20/20 19:28	
Molybdenum	mg/L	ND	0.010	0.00095	02/20/20 19:28	
Selenium	mg/L	ND	0.010	0.0013	02/20/20 19:28	
Thallium	mg/L	ND	0.0010	0.000052	02/20/20 19:28	

LABORATORY CONTROL SAMPLE: 199285

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	103	80-120	
Arsenic	mg/L	0.1	0.10	102	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Boron	mg/L	1	1.0	102	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.11	108	80-120	
Cobalt	mg/L	0.1	0.10	105	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.11	107	80-120	
Selenium	mg/L	0.1	0.10	103	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 199286 199287

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2628972001	Result	Spike Conc.	Spike Conc.								
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20		
Arsenic	mg/L	0.00050J	0.1	0.1	0.10	0.10	101	102	75-125	1	20		
Barium	mg/L	0.0091J	0.1	0.1	0.11	0.11	102	103	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Parameter	Units	199286		199287		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2628972001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Beryllium	mg/L	ND	0.1	0.1	0.095	0.090	95	90	75-125	5	20		
Boron	mg/L	ND	1	1	0.97	0.92	96	91	75-125	5	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20		
Chromium	mg/L	ND	0.1	0.1	0.11	0.11	105	106	75-125	0	20		
Cobalt	mg/L	0.0016J	0.1	0.1	0.11	0.10	104	103	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	1	20		
Lithium	mg/L	0.0023J	0.1	0.1	0.096	0.095	94	92	75-125	1	20		
Molybdenum	mg/L	0.0062J	0.1	0.1	0.11	0.11	107	108	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	103	100	75-125	2	20		
Thallium	mg/L	0.000055J	0.1	0.1	0.10	0.10	102	102	75-125	1	20		

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

QC Batch:	43522	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006		

LABORATORY CONTROL SAMPLE: 199213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	402	100	84-108	

SAMPLE DUPLICATE: 199214

Parameter	Units	2629095001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	10.0 U	ND		10	

SAMPLE DUPLICATE: 199215

Parameter	Units	2629095009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	532	525	1	10	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

QC Batch: 526050 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

METHOD BLANK: 2811613 Matrix: Water
Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	02/22/20 01:26	
Fluoride	mg/L	ND	0.10	0.050	02/22/20 01:26	
Sulfate	mg/L	ND	1.0	0.50	02/22/20 01:26	

LABORATORY CONTROL SAMPLE: 2811614

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.5	103	90-110	
Fluoride	mg/L	2.5	2.3	94	90-110	
Sulfate	mg/L	50	50.1	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2811615 2811616

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92465785003	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	1.3	50	50	53.4	53.1	104	104	90-110	0	10		
Fluoride	mg/L	0.064J	2.5	2.5	2.1	2.1	83	83	90-110	1	10	M1	
Sulfate	mg/L	3.2	50	50	54.1	53.8	102	101	90-110	1	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2811617 2811618

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92465598001	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	39.3	50	50	91.6	91.3	105	104	90-110	0	10		
Fluoride	mg/L	0.22	2.5	2.5	2.4	2.4	88	87	90-110	1	10	M1	
Sulfate	mg/L	6.7	50	50	58.4	58.0	103	102	90-110	1	10		

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Sample: MCM-19 **Lab ID: 2629073001** Collected: 02/13/20 12:27 Received: 02/14/20 10:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	19.8 ± 3.25 (0.436) C:90% T:NA	pCi/L	02/20/20 08:47	13982-63-3	
Radium-228	EPA 9320	11.3 ± 2.19 (0.741) C:85% T:83%	pCi/L	02/25/20 11:46	15262-20-1	
Total Radium	Total Radium Calculation	31.1 ± 5.44 (1.18)	pCi/L	03/02/20 15:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Sample: MCM-18 **Lab ID: 2629073002** Collected: 02/13/20 13:58 Received: 02/14/20 10:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	12.4 ± 2.16 (0.338) C:95% T:NA	pCi/L	02/20/20 08:47	13982-63-3	
Radium-228	EPA 9320	5.83 ± 1.22 (0.639) C:84% T:90%	pCi/L	02/25/20 11:46	15262-20-1	
Total Radium	Total Radium Calculation	18.2 ± 3.38 (0.977)	pCi/L	03/02/20 15:58	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	51.6 ± 7.86 (0.374) C:94% T:NA	pCi/L	02/20/20 08:56	13982-63-3	
Radium-228	EPA 9320	24.7 ± 4.59 (0.707) C:79% T:87%	pCi/L	02/25/20 11:49	15262-20-1	
Total Radium	Total Radium Calculation	76.3 ± 12.5 (1.08)	pCi/L	03/02/20 15:51	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.407 ± 0.264 (0.391) C:90% T:NA	pCi/L	02/20/20 08:56	13982-63-3	
Radium-228	EPA 9320	0.609 ± 0.343 (0.634) C:88% T:95%	pCi/L	02/25/20 11:49	15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 0.607 (1.03)	pCi/L	03/02/20 15:51	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Sample: EQBL021320 **Lab ID: 2629073005** Collected: 02/13/20 15:08 Received: 02/14/20 10:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.558 ± 0.302 (0.415) C:95% T:NA	pCi/L	02/20/20 08:56	13982-63-3	
Radium-228	EPA 9320	0.882 ± 0.404 (0.684) C:83% T:86%	pCi/L	02/25/20 11:46	15262-20-1	
Total Radium	Total Radium Calculation	1.44 ± 0.706 (1.10)	pCi/L	03/02/20 15:51	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

Sample: DUP-1 **Lab ID: 2629073006** Collected: 02/13/20 00:00 Received: 02/14/20 10:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	21.0 ± 3.42 (0.376) C:92% T:NA	pCi/L	02/20/20 08:56	13982-63-3	
Radium-228	EPA 9320	10.2 ± 1.99 (0.600) C:85% T:92%	pCi/L	02/25/20 11:46	15262-20-1	
Total Radium	Total Radium Calculation	31.2 ± 5.41 (0.976)	pCi/L	03/02/20 15:51	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

QC Batch: 384193 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium

Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

METHOD BLANK: 1861676 Matrix: Water

Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.237 ± 0.233 (0.437) C:93% T:NA	pCi/L	02/20/20 08:46	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT MCMANUS CCR SCOPE

Pace Project No.: 2629073

QC Batch: 384192 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

METHOD BLANK: 1861675 Matrix: Water

Associated Lab Samples: 2629073001, 2629073002, 2629073003, 2629073004, 2629073005, 2629073006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.811 ± 0.392 (0.669) C:85% T:80%	pCi/L	02/25/20 11:46	

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QUALIFIERS

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

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.
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

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA
PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.
D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2629073001	MCM-19	EPA 3010A	43506	EPA 6010D	43539
2629073002	MCM-18	EPA 3010A	43506	EPA 6010D	43539
2629073003	MCM-20	EPA 3010A	43506	EPA 6010D	43539
2629073004	FBL021320	EPA 3010A	43506	EPA 6010D	43539
2629073005	EQBL021320	EPA 3010A	43506	EPA 6010D	43539
2629073006	DUP-1	EPA 3010A	43506	EPA 6010D	43539
2629073001	MCM-19	EPA 3005A	43544	EPA 6020B	43556
2629073002	MCM-18	EPA 3005A	43544	EPA 6020B	43556
2629073003	MCM-20	EPA 3005A	43544	EPA 6020B	43556
2629073004	FBL021320	EPA 3005A	43544	EPA 6020B	43556
2629073005	EQBL021320	EPA 3005A	43544	EPA 6020B	43556
2629073006	DUP-1	EPA 3005A	43544	EPA 6020B	43556
2629073001	MCM-19	EPA 7470A	43498	EPA 7470A	43503
2629073002	MCM-18	EPA 7470A	43498	EPA 7470A	43503
2629073003	MCM-20	EPA 7470A	43498	EPA 7470A	43503
2629073004	FBL021320	EPA 7470A	43742	EPA 7470A	43802
2629073005	EQBL021320	EPA 7470A	43742	EPA 7470A	43802
2629073006	DUP-1	EPA 7470A	43742	EPA 7470A	43802
2629073001	MCM-19	EPA 9315	384193		
2629073002	MCM-18	EPA 9315	384193		
2629073003	MCM-20	EPA 9315	384193		
2629073004	FBL021320	EPA 9315	384193		
2629073005	EQBL021320	EPA 9315	384193		
2629073006	DUP-1	EPA 9315	384193		
2629073001	MCM-19	EPA 9320	384192		
2629073002	MCM-18	EPA 9320	384192		
2629073003	MCM-20	EPA 9320	384192		
2629073004	FBL021320	EPA 9320	384192		
2629073005	EQBL021320	EPA 9320	384192		
2629073006	DUP-1	EPA 9320	384192		
2629073001	MCM-19	Total Radium Calculation	386127		
2629073002	MCM-18	Total Radium Calculation	386127		
2629073003	MCM-20	Total Radium Calculation	386129		
2629073004	FBL021320	Total Radium Calculation	386129		
2629073005	EQBL021320	Total Radium Calculation	386129		
2629073006	DUP-1	Total Radium Calculation	386129		
2629073001	MCM-19	SM 2540C	43522		
2629073002	MCM-18	SM 2540C	43522		
2629073003	MCM-20	SM 2540C	43522		
2629073004	FBL021320	SM 2540C	43522		
2629073005	EQBL021320	SM 2540C	43522		
2629073006	DUP-1	SM 2540C	43522		
2629073001	MCM-19	EPA 300.0 Rev 2.1 1993	526050		
2629073002	MCM-18	EPA 300.0 Rev 2.1 1993	526050		

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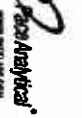
QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR SCOPE
Pace Project No.: 2629073

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2629073003	MCM-20	EPA 300.0 Rev 2.1 1993	526050		
2629073004	FBL021320	EPA 300.0 Rev 2.1 1993	526050		
2629073005	EQBL021320	EPA 300.0 Rev 2.1 1993	526050		
2629073006	DUP-1	EPA 300.0 Rev 2.1 1993	526050		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
 Client Information: Resolute Environmental & Water Resources
 Address: 1 Chipman Island Drive
 City: Roswell, GA 31823
 Phone: (678)648-9415
 Fax: (678)648-9415
 Email: kevin.stephenson@resoluteenv.com
 Project Name: Plant Mechanism CCR Scope
 Project #: [blank]

Section B
 Required Project Information:
 Report To: Stephenson, Kevin
 Copy To: [blank]
 Purchase Order #: [blank]
 Project Name: Plant Mechanism CCR Scope
 Project #: [blank]

Section C
 Invoice Information:
 Attention: [blank]
 Company Name: [blank]
 Address: [blank]
 City: [blank]
 State: [blank]
 Zip: [blank]
 POC Name: Kevin Stephenson
 POC Title: Project Manager
 POC Email: kevin.stephenson@resolute.com
 POC Phone: [blank]
 POC Fax: [blank]

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		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				START DATE	END DATE						
1	MCNM-19	Q	G	2/14/20			5	2	3		
2	MCNM-18	Q	G	2/14/20			5	2	3		
3	MCNM-20	Q	G	2/14/20			5	2	3		
4	FR1021570	Q	G	2/14/20			5	2	3		
5	FR1021570	Q	G	2/14/20			5	2	3		
6	FR1021570	Q	G	2/14/20			5	2	3		
7											
8											
9											
10											
11											
12											

REQUIREMENT BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
[Signature]	2/14/20	10:45	[Signature]	2/14/20	0:4	Y Y X

MO#: 2629073

2629073

SAMPLER NAME AND SPOK TUBE: [blank]

PRINT NAME OF SAMPLER: [blank]

DATE SIGNED: [blank]

DATE SIGNED: [blank]

TEMP IN C: [blank]

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

Face Analytical

Client Name: GA Power

MO# : 2629073
 PM: KH
 Due Date: 02/28/20
 CLIENT: 26-GA Power

Counter: Fed Ex UPS USPS Client Commercial Pace

Tracking #: 3903758210

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

Packing Material: Bubble Wrap Bubble Bags None Other

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

Date and initials of person examining contents: [Signature]

Thermometer Used 214
 Cooler Temperature 014
 Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Face Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
-Includes date/time/ID/Analysis Matrix:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
exceptions: VOA, coliform, TOC, O&G, W/DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
Samples checked for dechlorination:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	17.
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	18.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	19.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	20.
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

April 20, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Asheville
- Pace Analytical Services - Charlotte

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

Sincerely,



Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Veronica Fay
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Pace Analytical Services Charlotte

9800 Kincey Ave. Ste 100, Huntersville, NC 28078

Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92471690001	MCM-01	Water	03/26/20 17:06	03/31/20 10:15
92471690002	FBL032620	Water	03/26/20 17:26	03/31/20 10:15
92471690003	MCM-02	Water	03/27/20 16:50	03/31/20 10:15
92471690004	MCM-11	Water	03/27/20 16:42	03/31/20 10:15
92471690006	MCM-14	Water	03/27/20 14:13	03/31/20 10:15
92471690007	MCM-15	Water	03/27/20 12:10	03/31/20 10:15
92471690008	MCM-16	Water	03/27/20 15:30	03/31/20 10:15
92471690010	MCM-18	Water	03/27/20 14:32	03/31/20 10:15
92471690011	MCM-19	Water	03/27/20 10:22	03/31/20 10:15
92471690012	MCM-20	Water	03/27/20 11:42	03/31/20 10:15
92471690013	DUP-1	Water	03/27/20 00:00	03/31/20 10:15
92471690014	FBL032720	Water	03/27/20 17:07	03/31/20 10:15
92471690015	EQBL032720	Water	03/27/20 17:18	03/31/20 10:15
92471690016	MCM-06	Water	03/28/20 14:18	03/31/20 10:15
92471690017	MCM-04	Water	03/28/20 12:45	03/31/20 10:15
92471690018	MCM-05	Water	03/28/20 13:05	03/31/20 10:15
92471690019	MCM-07	Water	03/28/20 11:24	03/31/20 10:15
92471690020	FBL032820	Water	03/28/20 14:30	03/31/20 10:15
92471690021	EQBL032820	Water	03/28/20 14:40	03/31/20 10:15
92471690022	DUP-2	Water	03/28/20 00:00	03/31/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471690001	MCM-01	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690002	FBL032620	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690003	MCM-02	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690004	MCM-11	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690006	MCM-14	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690007	MCM-15	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690008	MCM-16	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690010	MCM-18	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471690011	MCM-19	EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
92471690012	MCM-20	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
92471690013	DUP-1	EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
92471690014	FBL032720	SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690015	EQBL032720	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
92471690016	MCM-06	EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
92471690017	MCM-04	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471690018	MCM-05	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
92471690019	MCM-07	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
92471690020	FBL032820	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
92471690021	EQBL032820	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
92471690022	DUP-2	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92471690001	MCM-01					
	pH	5.45	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	10.1	mg/L	0.10	04/07/20 22:29	
EPA 6020B	Arsenic	0.0069	mg/L	0.0050	04/08/20 13:49	
EPA 6020B	Barium	0.070	mg/L	0.010	04/08/20 13:49	
EPA 6020B	Boron	0.064J	mg/L	0.10	04/08/20 13:49	
SM 2540C-2011	Total Dissolved Solids	114	mg/L	25.0	04/01/20 17:40	
EPA 300.0 Rev 2.1 1993	Chloride	23.0	mg/L	1.0	04/04/20 14:13	
EPA 300.0 Rev 2.1 1993	Sulfate	36.2	mg/L	1.0	04/04/20 14:13	
92471690003	MCM-02					
	pH	5.12	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	4.9	mg/L	0.10	04/07/20 22:36	
EPA 6020B	Barium	0.095	mg/L	0.010	04/08/20 14:00	
EPA 6020B	Boron	0.17J	mg/L	0.10	04/08/20 14:00	
SM 2540C-2011	Total Dissolved Solids	119	mg/L	25.0	04/01/20 17:41	
EPA 300.0 Rev 2.1 1993	Chloride	32.9	mg/L	1.0	04/04/20 15:13	
EPA 300.0 Rev 2.1 1993	Sulfate	28.6	mg/L	1.0	04/04/20 15:13	
92471690004	MCM-11					
	pH	5.09	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	3.3	mg/L	0.10	04/08/20 17:28	
EPA 6020B	Arsenic	0.0034J	mg/L	0.0050	04/08/20 14:04	
EPA 6020B	Barium	0.039	mg/L	0.010	04/08/20 14:04	
EPA 6020B	Boron	0.058J	mg/L	0.10	04/08/20 14:04	
SM 2540C-2011	Total Dissolved Solids	87.0	mg/L	25.0	04/02/20 16:26	
EPA 300.0 Rev 2.1 1993	Chloride	14.5	mg/L	1.0	04/04/20 15:27	
EPA 300.0 Rev 2.1 1993	Fluoride	0.066J	mg/L	0.10	04/04/20 15:27	
EPA 300.0 Rev 2.1 1993	Sulfate	23.4	mg/L	1.0	04/04/20 15:27	
92471690006	MCM-14					
	pH	6.59	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	286	mg/L	1.0	04/09/20 17:37	
EPA 6020B	Barium	0.13	mg/L	0.010	04/08/20 14:52	
EPA 6020B	Boron	1.3	mg/L	0.10	04/08/20 14:52	
EPA 6020B	Lithium	0.052	mg/L	0.030	04/08/20 14:52	
SM 2540C-2011	Total Dissolved Solids	16400	mg/L	2500	04/02/20 16:27	
EPA 300.0 Rev 2.1 1993	Chloride	7680	mg/L	100	04/05/20 03:37	
EPA 300.0 Rev 2.1 1993	Sulfate	899	mg/L	100	04/05/20 03:37	
92471690007	MCM-15					
	pH	5.30	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	5.9	mg/L	0.10	04/08/20 17:52	
EPA 6020B	Arsenic	0.0018J	mg/L	0.0050	04/08/20 15:00	
EPA 6020B	Barium	0.041	mg/L	0.010	04/08/20 15:00	
EPA 6020B	Boron	0.076J	mg/L	0.10	04/08/20 15:00	
SM 2540C-2011	Total Dissolved Solids	110	mg/L	25.0	04/02/20 16:27	
EPA 300.0 Rev 2.1 1993	Chloride	14.1	mg/L	1.0	04/04/20 16:12	
EPA 300.0 Rev 2.1 1993	Sulfate	14.6	mg/L	1.0	04/04/20 16:12	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92471690008	MCM-16					
	pH	5.12	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	5.4	mg/L	0.10	04/08/20 17:55	
EPA 6020B	Barium	0.13	mg/L	0.010	04/08/20 15:04	
EPA 6020B	Boron	0.088J	mg/L	0.10	04/08/20 15:04	
SM 2540C-2011	Total Dissolved Solids	110	mg/L	25.0	04/02/20 16:27	
EPA 300.0 Rev 2.1 1993	Chloride	23.6	mg/L	1.0	04/04/20 16:56	
EPA 300.0 Rev 2.1 1993	Sulfate	31.2	mg/L	1.0	04/04/20 16:56	
92471690010	MCM-18					
	pH	4.34	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	23.2	mg/L	0.10	04/08/20 18:01	
EPA 6020B	Arsenic	0.0043J	mg/L	0.0050	04/08/20 15:24	
EPA 6020B	Barium	0.076	mg/L	0.010	04/08/20 15:24	
EPA 6020B	Beryllium	0.0040	mg/L	0.0030	04/08/20 15:24	
EPA 6020B	Boron	0.24J	mg/L	0.10	04/08/20 15:24	
EPA 6020B	Selenium	0.0034J	mg/L	0.010	04/08/20 15:24	
SM 2540C-2011	Total Dissolved Solids	3090	mg/L	250	04/02/20 16:28	
EPA 300.0 Rev 2.1 1993	Chloride	1450	mg/L	30.0	04/05/20 04:48	
EPA 300.0 Rev 2.1 1993	Fluoride	0.060J	mg/L	0.10	04/04/20 17:26	
EPA 300.0 Rev 2.1 1993	Sulfate	219	mg/L	30.0	04/05/20 04:48	
92471690011	MCM-19					
	pH	5.14	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	122	mg/L	0.50	04/09/20 17:43	
EPA 6020B	Arsenic	0.017	mg/L	0.0050	04/08/20 15:27	
EPA 6020B	Barium	0.12	mg/L	0.010	04/08/20 15:27	
EPA 6020B	Beryllium	0.011	mg/L	0.0030	04/08/20 15:27	
EPA 6020B	Boron	0.96	mg/L	0.10	04/08/20 15:27	
EPA 6020B	Lithium	0.018J	mg/L	0.030	04/08/20 15:27	
EPA 6020B	Selenium	0.013	mg/L	0.010	04/08/20 15:27	
SM 2540C-2011	Total Dissolved Solids	14300	mg/L	2500	04/02/20 16:28	
EPA 300.0 Rev 2.1 1993	Chloride	6870	mg/L	126	04/05/20 19:49	
EPA 300.0 Rev 2.1 1993	Sulfate	836	mg/L	126	04/05/20 19:49	
92471690012	MCM-20					
	pH	3.81	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	113	mg/L	0.50	04/09/20 17:46	
EPA 6020B	Arsenic	0.027	mg/L	0.0050	04/08/20 15:35	
EPA 6020B	Barium	0.12	mg/L	0.010	04/08/20 15:35	
EPA 6020B	Beryllium	0.018	mg/L	0.0030	04/08/20 15:35	
EPA 6020B	Boron	0.94	mg/L	0.10	04/08/20 15:35	
EPA 6020B	Chromium	0.0095J	mg/L	0.010	04/08/20 15:35	
EPA 6020B	Cobalt	0.036	mg/L	0.0050	04/08/20 15:35	
EPA 6020B	Lithium	0.024J	mg/L	0.030	04/08/20 15:35	
EPA 6020B	Selenium	0.012	mg/L	0.010	04/08/20 15:35	
SM 2540C-2011	Total Dissolved Solids	14600	mg/L	2500	04/02/20 16:28	
EPA 300.0 Rev 2.1 1993	Chloride	7110	mg/L	500	04/05/20 15:51	
EPA 300.0 Rev 2.1 1993	Sulfate	700	mg/L	500	04/05/20 15:51	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92471690013	DUP-1					
EPA 6010D	Calcium	113	mg/L	0.50	04/09/20 18:01	
EPA 6020B	Arsenic	0.027	mg/L	0.0050	04/08/20 15:48	
EPA 6020B	Barium	0.12	mg/L	0.010	04/08/20 15:48	
EPA 6020B	Beryllium	0.017	mg/L	0.0030	04/08/20 15:48	
EPA 6020B	Boron	0.99	mg/L	0.10	04/08/20 15:48	
EPA 6020B	Chromium	0.010	mg/L	0.010	04/08/20 15:48	
EPA 6020B	Cobalt	0.037	mg/L	0.0050	04/08/20 15:48	
EPA 6020B	Lithium	0.024J	mg/L	0.030	04/08/20 15:48	
EPA 6020B	Selenium	0.012	mg/L	0.010	04/08/20 15:48	
SM 2540C-2011	Total Dissolved Solids	15100	mg/L	2500	04/02/20 16:28	
EPA 300.0 Rev 2.1 1993	Chloride	7090	mg/L	148	04/05/20 16:12	
EPA 300.0 Rev 2.1 1993	Sulfate	774	mg/L	148	04/05/20 16:12	
92471690014	FBL032720					
EPA 300.0 Rev 2.1 1993	Chloride	12.6	mg/L	1.0	04/05/20 20:59	
EPA 300.0 Rev 2.1 1993	Sulfate	1.3	mg/L	1.0	04/05/20 20:59	
92471690015	EQBL032720					
EPA 6020B	Barium	0.000063J	mg/L	0.010	04/09/20 15:08	
EPA 300.0 Rev 2.1 1993	Chloride	15.1	mg/L	1.0	04/05/20 21:14	
EPA 300.0 Rev 2.1 1993	Sulfate	1.6	mg/L	1.0	04/05/20 21:14	
92471690016	MCM-06					
	pH	6.80	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	286	mg/L	1.0	04/09/20 18:04	
EPA 6020B	Antimony	0.0029J	mg/L	0.0030	04/09/20 14:57	
EPA 6020B	Arsenic	0.30	mg/L	0.0050	04/09/20 14:57	
EPA 6020B	Barium	0.12	mg/L	0.010	04/09/20 14:57	
EPA 6020B	Boron	0.95	mg/L	0.10	04/09/20 14:57	
EPA 6020B	Lithium	0.064	mg/L	0.030	04/09/20 14:57	
SM 2540C-2011	Total Dissolved Solids	18800	mg/L	2500	04/02/20 16:29	
EPA 300.0 Rev 2.1 1993	Chloride	9190	mg/L	160	04/05/20 16:32	
EPA 300.0 Rev 2.1 1993	Sulfate	701	mg/L	160	04/05/20 16:32	
92471690017	MCM-04					
	pH	5.27	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	15.5	mg/L	0.10	04/08/20 18:34	
EPA 6020B	Arsenic	0.0034J	mg/L	0.0050	04/09/20 15:56	
EPA 6020B	Barium	0.039	mg/L	0.010	04/09/20 15:56	
EPA 6020B	Boron	0.067J	mg/L	0.10	04/09/20 15:56	
EPA 6020B	Cobalt	0.0041J	mg/L	0.0050	04/09/20 15:56	
SM 2540C-2011	Total Dissolved Solids	284	mg/L	25.0	04/02/20 16:30	
EPA 300.0 Rev 2.1 1993	Chloride	71.4	mg/L	1.0	04/04/20 20:09	
EPA 300.0 Rev 2.1 1993	Sulfate	86.6	mg/L	1.0	04/04/20 20:09	
92471690018	MCM-05					
	pH	6.60	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	25.8	mg/L	0.10	04/08/20 18:37	
EPA 6020B	Barium	0.0041J	mg/L	0.010	04/09/20 16:02	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92471690018	MCM-05					
EPA 6020B	Boron	0.28J	mg/L	0.10	04/09/20 16:02	
EPA 6020B	Lithium	0.014J	mg/L	0.030	04/09/20 16:02	
SM 2540C-2011	Total Dissolved Solids	1470	mg/L	125	04/02/20 16:30	
EPA 300.0 Rev 2.1 1993	Chloride	693	mg/L	14.0	04/05/20 20:09	
EPA 300.0 Rev 2.1 1993	Fluoride	0.34	mg/L	0.10	04/04/20 21:23	
EPA 300.0 Rev 2.1 1993	Sulfate	63.8	mg/L	1.0	04/04/20 21:23	
92471690019	MCM-07					
	pH	6.35	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	286	mg/L	1.0	04/09/20 18:07	
EPA 6020B	Arsenic	0.012	mg/L	0.0050	04/09/20 16:07	
EPA 6020B	Barium	0.11	mg/L	0.010	04/09/20 16:07	
EPA 6020B	Boron	0.79	mg/L	0.10	04/09/20 16:07	
EPA 6020B	Lithium	0.027J	mg/L	0.030	04/09/20 16:07	
SM 2540C-2011	Total Dissolved Solids	18300	mg/L	2500	04/02/20 16:30	
EPA 300.0 Rev 2.1 1993	Chloride	9070	mg/L	163	04/05/20 17:35	
EPA 300.0 Rev 2.1 1993	Sulfate	1090	mg/L	163	04/05/20 17:35	
92471690020	FBL032820					
EPA 6020B	Barium	0.000077J	mg/L	0.010	04/09/20 16:29	
EPA 300.0 Rev 2.1 1993	Chloride	1.5	mg/L	1.0	04/05/20 21:44	
92471690021	EQBL032820					
EPA 6010D	Calcium	0.035J	mg/L	0.10	04/08/20 18:46	
EPA 6020B	Barium	0.00054J	mg/L	0.010	04/09/20 16:34	
EPA 300.0 Rev 2.1 1993	Chloride	1.3	mg/L	1.0	04/05/20 21:59	
92471690022	DUP-2					
EPA 6010D	Calcium	286	mg/L	1.0	04/09/20 18:10	
EPA 6020B	Arsenic	0.013	mg/L	0.0050	04/09/20 16:18	
EPA 6020B	Barium	0.14	mg/L	0.010	04/09/20 16:18	
EPA 6020B	Boron	0.97	mg/L	0.10	04/09/20 16:18	
EPA 6020B	Lithium	0.032J	mg/L	0.030	04/09/20 16:18	
SM 2540C-2011	Total Dissolved Solids	18600	mg/L	2500	04/02/20 16:30	
EPA 300.0 Rev 2.1 1993	Chloride	9240	mg/L	164	04/05/20 17:55	
EPA 300.0 Rev 2.1 1993	Sulfate	1140	mg/L	164	04/05/20 17:55	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: MCM-01		Lab ID: 92471690001		Collected: 03/26/20 17:06		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.45	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	10.1	mg/L	0.10	0.024	1	04/07/20 01:06	04/07/20 22:29	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 13:49	7440-36-0	
Arsenic	0.0069	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 13:49	7440-38-2	
Barium	0.070	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 13:49	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 13:49	7440-41-7	
Boron	0.064J	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 13:49	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 13:49	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 13:49	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 13:49	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 13:49	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 13:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 13:49	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 13:49	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 13:49	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 16:41	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	114	mg/L	25.0	25.0	1		04/01/20 17:40		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	23.0	mg/L	1.0	0.60	1		04/04/20 14:13	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 14:13	16984-48-8	
Sulfate	36.2	mg/L	1.0	0.50	1		04/04/20 14:13	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: FBL032620		Lab ID: 92471690002		Collected: 03/26/20 17:26	Received: 03/31/20 10:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010 MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	ND	mg/L	0.10	0.024	1	04/07/20 01:06	04/07/20 22:33	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.00011	1	04/08/20 01:10	04/08/20 13:53	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/08/20 01:10	04/08/20 13:53	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/08/20 01:10	04/08/20 13:53	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/20 01:10	04/08/20 13:53	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/08/20 01:10	04/08/20 13:53	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.000070	1	04/08/20 01:10	04/08/20 13:53	7440-43-9		
Chromium	ND	mg/L	0.010	0.00042	1	04/08/20 01:10	04/08/20 13:53	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/08/20 13:53	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/08/20 13:53	7439-92-1		
Lithium	ND	mg/L	0.030	0.00042	1	04/08/20 01:10	04/08/20 13:53	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/08/20 01:10	04/08/20 13:53	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/08/20 01:10	04/08/20 13:53	7782-49-2		
Thallium	ND	mg/L	0.00010	0.000060	1	04/08/20 01:10	04/08/20 13:53	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 16:48	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		04/01/20 17:40			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		04/04/20 14:28	16887-00-6		
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 14:28	16984-48-8		
Sulfate	ND	mg/L	1.0	0.50	1		04/04/20 14:28	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: MCM-02		Lab ID: 92471690003		Collected: 03/27/20 16:50		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.12	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	4.9	mg/L	0.10	0.024	1	04/07/20 01:06	04/07/20 22:36	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 14:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 14:00	7440-38-2	
Barium	0.095	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 14:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 14:00	7440-41-7	
Boron	0.17J	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 14:00	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 14:00	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 14:00	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 14:00	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 14:00	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 14:00	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 14:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 14:00	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 14:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 16:50	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	119	mg/L	25.0	25.0	1		04/01/20 17:41		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	32.9	mg/L	1.0	0.60	1		04/04/20 15:13	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 15:13	16984-48-8	
Sulfate	28.6	mg/L	1.0	0.50	1		04/04/20 15:13	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: MCM-11		Lab ID: 92471690004		Collected: 03/27/20 16:42		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.09	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	3.3	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 17:28	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 14:04	7440-36-0	
Arsenic	0.0034J	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 14:04	7440-38-2	
Barium	0.039	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 14:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 14:04	7440-41-7	
Boron	0.058J	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 14:04	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 14:04	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 14:04	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 14:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 14:04	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 14:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 14:04	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 14:04	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 14:04	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 16:52	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	87.0	mg/L	25.0	25.0	1		04/02/20 16:26		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	14.5	mg/L	1.0	0.60	1		04/04/20 15:27	16887-00-6	
Fluoride	0.066J	mg/L	0.10	0.050	1		04/04/20 15:27	16984-48-8	
Sulfate	23.4	mg/L	1.0	0.50	1		04/04/20 15:27	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: MCM-14 **Lab ID: 92471690006** Collected: 03/27/20 14:13 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.59	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	286	mg/L	1.0	0.24	10	04/08/20 01:59	04/09/20 17:37	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 14:52	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 14:52	7440-38-2	
Barium	0.13	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 14:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 14:52	7440-41-7	
Boron	1.3	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 14:52	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 14:52	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 14:52	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 14:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 14:52	7439-92-1	
Lithium	0.052	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 14:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 14:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 14:52	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 14:52	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 16:57	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	16400	mg/L	2500	2500	1		04/02/20 16:27		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	7680	mg/L	100	60.0	100		04/05/20 03:37	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 15:57	16984-48-8	
Sulfate	899	mg/L	100	50.0	100		04/05/20 03:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: **MCM-15** Lab ID: **92471690007** Collected: 03/27/20 12:10 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.30	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	5.9	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 17:52	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 15:00	7440-36-0	
Arsenic	0.0018J	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 15:00	7440-38-2	
Barium	0.041	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 15:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 15:00	7440-41-7	
Boron	0.076J	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 15:00	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 15:00	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 15:00	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:00	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:00	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 15:00	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 15:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 15:00	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 15:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:04	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	110	mg/L	25.0	25.0	1		04/02/20 16:27		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	14.1	mg/L	1.0	0.60	1		04/04/20 16:12	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 16:12	16984-48-8	M1
Sulfate	14.6	mg/L	1.0	0.50	1		04/04/20 16:12	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: MCM-16 **Lab ID: 92471690008** Collected: 03/27/20 15:30 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.12	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	5.4	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 17:55	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 15:04	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 15:04	7440-38-2	
Barium	0.13	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 15:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 15:04	7440-41-7	
Boron	0.088J	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 15:04	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 15:04	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 15:04	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:04	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 15:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 15:04	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 15:04	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 15:04	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:07	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	110	mg/L	25.0	25.0	1		04/02/20 16:27		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	23.6	mg/L	1.0	0.60	1		04/04/20 16:56	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 16:56	16984-48-8	
Sulfate	31.2	mg/L	1.0	0.50	1		04/04/20 16:56	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: MCM-18 **Lab ID: 92471690010** Collected: 03/27/20 14:32 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	4.34	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	23.2	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:01	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 15:24	7440-36-0	
Arsenic	0.0043J	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 15:24	7440-38-2	
Barium	0.076	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 15:24	7440-39-3	
Beryllium	0.0040	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 15:24	7440-41-7	
Boron	0.24J	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 15:24	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 15:24	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 15:24	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:24	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:24	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 15:24	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 15:24	7439-98-7	
Selenium	0.0034J	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 15:24	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 15:24	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:11	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	3090	mg/L	250	250	1		04/02/20 16:28		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	1450	mg/L	30.0	18.0	30		04/05/20 04:48	16887-00-6	
Fluoride	0.060J	mg/L	0.10	0.050	1		04/04/20 17:26	16984-48-8	
Sulfate	219	mg/L	30.0	15.0	30		04/05/20 04:48	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: MCM-19		Lab ID: 92471690011		Collected: 03/27/20 10:22		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.14	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	122	mg/L	0.50	0.12	5	04/08/20 01:59	04/09/20 17:43	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 15:27	7440-36-0	
Arsenic	0.017	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 15:27	7440-38-2	
Barium	0.12	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 15:27	7440-39-3	
Beryllium	0.011	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 15:27	7440-41-7	
Boron	0.96	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 15:27	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 15:27	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 15:27	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:27	7439-92-1	
Lithium	0.018J	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 15:27	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 15:27	7439-98-7	
Selenium	0.013	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 15:27	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 15:27	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:14	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	14300	mg/L	2500	2500	1		04/02/20 16:28		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	6870	mg/L	126	75.6	126		04/05/20 19:49	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 18:10	16984-48-8	
Sulfate	836	mg/L	126	63.0	126		04/05/20 19:49	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: MCM-20		Lab ID: 92471690012		Collected: 03/27/20 11:42		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	3.81	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	113	mg/L	0.50	0.12	5	04/08/20 01:59	04/09/20 17:46	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 15:35	7440-36-0	
Arsenic	0.027	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 15:35	7440-38-2	
Barium	0.12	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 15:35	7440-39-3	
Beryllium	0.018	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 15:35	7440-41-7	
Boron	0.94	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 15:35	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 15:35	7440-43-9	
Chromium	0.0095J	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 15:35	7440-47-3	
Cobalt	0.036	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:35	7439-92-1	
Lithium	0.024J	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 15:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 15:35	7439-98-7	
Selenium	0.012	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 15:35	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 15:35	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:16	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	14600	mg/L	2500	2500	1		04/02/20 16:28		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	7110	mg/L	500	300	500		04/05/20 15:51	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 18:25	16984-48-8	
Sulfate	700	mg/L	500	250	500		04/05/20 15:51	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: DUP-1		Lab ID: 92471690013		Collected: 03/27/20 00:00	Received: 03/31/20 10:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010 MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	113	mg/L	0.50	0.12	5	04/08/20 01:59	04/09/20 18:01	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/08/20 15:48	7440-36-0		
Arsenic	0.027	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/08/20 15:48	7440-38-2		
Barium	0.12	mg/L	0.010	0.0012	20	04/08/20 01:10	04/08/20 15:48	7440-39-3		
Beryllium	0.017	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/08/20 15:48	7440-41-7		
Boron	0.99	mg/L	0.10	0.051	20	04/08/20 01:10	04/08/20 15:48	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/08/20 15:48	7440-43-9		
Chromium	0.010	mg/L	0.010	0.0084	20	04/08/20 01:10	04/08/20 15:48	7440-47-3		
Cobalt	0.037	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:48	7440-48-4		
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/08/20 15:48	7439-92-1		
Lithium	0.024J	mg/L	0.030	0.0084	20	04/08/20 01:10	04/08/20 15:48	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/08/20 15:48	7439-98-7		
Selenium	0.012	mg/L	0.010	0.0016	20	04/08/20 01:10	04/08/20 15:48	7782-49-2		
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/08/20 15:48	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:18	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	15100	mg/L	2500	2500	1		04/02/20 16:28			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	7090	mg/L	148	88.8	148		04/05/20 16:12	16887-00-6		
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 18:40	16984-48-8		
Sulfate	774	mg/L	148	74.0	148		04/05/20 16:12	14808-79-8		

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: FBL032720		Lab ID: 92471690014		Collected: 03/27/20 17:07	Received: 03/31/20 10:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010 MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	ND	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:25	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.00011	1	04/08/20 01:10	04/08/20 13:33	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/08/20 01:10	04/08/20 13:33	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/08/20 01:10	04/08/20 13:33	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/20 01:10	04/08/20 13:33	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/08/20 01:10	04/08/20 13:33	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.000070	1	04/08/20 01:10	04/08/20 13:33	7440-43-9		
Chromium	ND	mg/L	0.010	0.00042	1	04/08/20 01:10	04/08/20 13:33	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/08/20 13:33	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/08/20 13:33	7439-92-1		
Lithium	ND	mg/L	0.030	0.00042	1	04/08/20 01:10	04/08/20 13:33	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/08/20 01:10	04/08/20 13:33	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/08/20 01:10	04/08/20 13:33	7782-49-2		
Thallium	ND	mg/L	0.00010	0.000060	1	04/08/20 01:10	04/08/20 13:33	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:21	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		04/02/20 16:29			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	12.6	mg/L	1.0	0.60	1		04/05/20 20:59	16887-00-6		
Fluoride	ND	mg/L	0.10	0.050	1		04/05/20 20:59	16984-48-8		
Sulfate	1.3	mg/L	1.0	0.50	1		04/05/20 20:59	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: EQBL032720 **Lab ID: 92471690015** Collected: 03/27/20 17:18 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	ND	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:28	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.00011	1	04/08/20 01:10	04/09/20 15:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/08/20 01:10	04/09/20 15:08	7440-38-2	
Barium	0.000063J	mg/L	0.010	0.000060	1	04/08/20 01:10	04/09/20 15:08	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/20 01:10	04/09/20 15:08	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/08/20 01:10	04/09/20 15:08	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.000070	1	04/08/20 01:10	04/09/20 15:08	7440-43-9	
Chromium	ND	mg/L	0.010	0.00042	1	04/08/20 01:10	04/09/20 15:08	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/09/20 15:08	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/09/20 15:08	7439-92-1	
Lithium	ND	mg/L	0.030	0.00042	1	04/08/20 01:10	04/09/20 15:08	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/08/20 01:10	04/09/20 15:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/08/20 01:10	04/09/20 15:08	7782-49-2	
Thallium	ND	mg/L	0.00010	0.000060	1	04/08/20 01:10	04/09/20 15:08	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:23	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		04/02/20 16:29		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	15.1	mg/L	1.0	0.60	1		04/05/20 21:14	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/05/20 21:14	16984-48-8	
Sulfate	1.6	mg/L	1.0	0.50	1		04/05/20 21:14	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: MCM-06 **Lab ID: 92471690016** Collected: 03/28/20 14:18 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.80	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	286	mg/L	1.0	0.24	10	04/08/20 01:59	04/09/20 18:04	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	0.0029J	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/09/20 14:57	7440-36-0	
Arsenic	0.30	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/09/20 14:57	7440-38-2	
Barium	0.12	mg/L	0.010	0.0012	20	04/08/20 01:10	04/09/20 14:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/09/20 14:57	7440-41-7	D3
Boron	0.95	mg/L	0.10	0.051	20	04/08/20 01:10	04/09/20 14:57	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/09/20 14:57	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/09/20 14:57	7440-47-3	D3
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 14:57	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 14:57	7439-92-1	
Lithium	0.064	mg/L	0.030	0.0084	20	04/08/20 01:10	04/09/20 14:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/09/20 14:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/09/20 14:57	7782-49-2	
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/09/20 14:57	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:26	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	18800	mg/L	2500	2500	1		04/02/20 16:29		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	9190	mg/L	160	96.0	160		04/05/20 16:32	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 19:24	16984-48-8	
Sulfate	701	mg/L	160	80.0	160		04/05/20 16:32	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: MCM-04		Lab ID: 92471690017		Collected: 03/28/20 12:45		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.27	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	15.5	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:34	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/09/20 15:56	7440-36-0	
Arsenic	0.0034J	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/09/20 15:56	7440-38-2	
Barium	0.039	mg/L	0.010	0.0012	20	04/08/20 01:10	04/09/20 15:56	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/09/20 15:56	7440-41-7	D3
Boron	0.067J	mg/L	0.10	0.051	20	04/08/20 01:10	04/09/20 15:56	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/09/20 15:56	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/09/20 15:56	7440-47-3	D3
Cobalt	0.0041J	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 15:56	7440-48-4	
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 15:56	7439-92-1	
Lithium	ND	mg/L	0.030	0.0084	20	04/08/20 01:10	04/09/20 15:56	7439-93-2	D3
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/09/20 15:56	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/09/20 15:56	7782-49-2	D3
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/09/20 15:56	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:33	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	284	mg/L	25.0	25.0	1		04/02/20 16:30		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	71.4	mg/L	1.0	0.60	1		04/04/20 20:09	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 20:09	16984-48-8	
Sulfate	86.6	mg/L	1.0	0.50	1		04/04/20 20:09	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: MCM-05 Lab ID: 92471690018 Collected: 03/28/20 13:05 Received: 03/31/20 10:15 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.60	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	25.8	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:37	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/09/20 16:02	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/09/20 16:02	7440-38-2	D3
Barium	0.0041J	mg/L	0.010	0.0012	20	04/08/20 01:10	04/09/20 16:02	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/09/20 16:02	7440-41-7	D3
Boron	0.28J	mg/L	0.10	0.051	20	04/08/20 01:10	04/09/20 16:02	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/09/20 16:02	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/09/20 16:02	7440-47-3	D3
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 16:02	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 16:02	7439-92-1	
Lithium	0.014J	mg/L	0.030	0.0084	20	04/08/20 01:10	04/09/20 16:02	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/09/20 16:02	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/09/20 16:02	7782-49-2	D3
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/09/20 16:02	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:35	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	1470	mg/L	125	125	1		04/02/20 16:30		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	693	mg/L	14.0	8.4	14		04/05/20 20:09	16887-00-6	
Fluoride	0.34	mg/L	0.10	0.050	1		04/04/20 21:23	16984-48-8	
Sulfate	63.8	mg/L	1.0	0.50	1		04/04/20 21:23	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: MCM-07 **Lab ID: 92471690019** Collected: 03/28/20 11:24 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.35	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	286	mg/L	1.0	0.24	10	04/08/20 01:59	04/09/20 18:07	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/09/20 16:07	7440-36-0	
Arsenic	0.012	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/09/20 16:07	7440-38-2	
Barium	0.11	mg/L	0.010	0.0012	20	04/08/20 01:10	04/09/20 16:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/09/20 16:07	7440-41-7	D3
Boron	0.79	mg/L	0.10	0.051	20	04/08/20 01:10	04/09/20 16:07	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/09/20 16:07	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/09/20 16:07	7440-47-3	D3
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 16:07	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 16:07	7439-92-1	
Lithium	0.027J	mg/L	0.030	0.0084	20	04/08/20 01:10	04/09/20 16:07	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/09/20 16:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/09/20 16:07	7782-49-2	D3
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/09/20 16:07	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:37	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	18300	mg/L	2500	2500	1		04/02/20 16:30		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	9070	mg/L	163	97.8	163		04/05/20 17:35	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 21:37	16984-48-8	
Sulfate	1090	mg/L	163	81.5	163		04/05/20 17:35	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Sample: **FBL032820** Lab ID: **92471690020** Collected: 03/28/20 14:30 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	ND	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:43	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.00011	1	04/08/20 01:10	04/09/20 16:29	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/08/20 01:10	04/09/20 16:29	7440-38-2	
Barium	0.000077J	mg/L	0.010	0.000060	1	04/08/20 01:10	04/09/20 16:29	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/20 01:10	04/09/20 16:29	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/08/20 01:10	04/09/20 16:29	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.000070	1	04/08/20 01:10	04/09/20 16:29	7440-43-9	
Chromium	ND	mg/L	0.010	0.00042	1	04/08/20 01:10	04/09/20 16:29	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/09/20 16:29	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/09/20 16:29	7439-92-1	
Lithium	ND	mg/L	0.030	0.00042	1	04/08/20 01:10	04/09/20 16:29	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/08/20 01:10	04/09/20 16:29	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/08/20 01:10	04/09/20 16:29	7782-49-2	
Thallium	ND	mg/L	0.00010	0.000060	1	04/08/20 01:10	04/09/20 16:29	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:40	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		04/02/20 16:30		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	1.5	mg/L	1.0	0.60	1		04/05/20 21:44	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/05/20 21:44	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		04/05/20 21:44	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: EQBL032820		Lab ID: 92471690021		Collected: 03/28/20 14:40		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	0.035J	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 18:46	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.0030	0.00011	1	04/08/20 01:10	04/09/20 16:34	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/08/20 01:10	04/09/20 16:34	7440-38-2	
Barium	0.00054J	mg/L	0.010	0.000060	1	04/08/20 01:10	04/09/20 16:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/20 01:10	04/09/20 16:34	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/08/20 01:10	04/09/20 16:34	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.000070	1	04/08/20 01:10	04/09/20 16:34	7440-43-9	
Chromium	ND	mg/L	0.010	0.00042	1	04/08/20 01:10	04/09/20 16:34	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/09/20 16:34	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/08/20 01:10	04/09/20 16:34	7439-92-1	
Lithium	ND	mg/L	0.030	0.00042	1	04/08/20 01:10	04/09/20 16:34	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/08/20 01:10	04/09/20 16:34	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/08/20 01:10	04/09/20 16:34	7782-49-2	
Thallium	ND	mg/L	0.00010	0.000060	1	04/08/20 01:10	04/09/20 16:34	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:47	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		04/02/20 16:30		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	1.3	mg/L	1.0	0.60	1		04/05/20 21:59	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/05/20 21:59	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		04/05/20 21:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Sample: DUP-2		Lab ID: 92471690022		Collected: 03/28/20 00:00		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville							
Calcium	286	mg/L	1.0	0.24	10	04/08/20 01:59	04/09/20 18:10	7440-70-2	
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville							
Antimony	ND	mg/L	0.0030	0.0022	20	04/08/20 01:10	04/09/20 16:18	7440-36-0	
Arsenic	0.013	mg/L	0.0050	0.0012	20	04/08/20 01:10	04/09/20 16:18	7440-38-2	
Barium	0.14	mg/L	0.010	0.0012	20	04/08/20 01:10	04/09/20 16:18	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	04/08/20 01:10	04/09/20 16:18	7440-41-7	D3
Boron	0.97	mg/L	0.10	0.051	20	04/08/20 01:10	04/09/20 16:18	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0014	20	04/08/20 01:10	04/09/20 16:18	7440-43-9	
Chromium	ND	mg/L	0.010	0.0084	20	04/08/20 01:10	04/09/20 16:18	7440-47-3	D3
Cobalt	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 16:18	7440-48-4	D3
Lead	ND	mg/L	0.0050	0.0010	20	04/08/20 01:10	04/09/20 16:18	7439-92-1	
Lithium	0.032J	mg/L	0.030	0.0084	20	04/08/20 01:10	04/09/20 16:18	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0020	20	04/08/20 01:10	04/09/20 16:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	20	04/08/20 01:10	04/09/20 16:18	7782-49-2	D3
Thallium	ND	mg/L	0.0020	0.0012	20	04/08/20 01:10	04/09/20 16:18	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville							
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:54	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville							
Total Dissolved Solids	18600	mg/L	2500	2500	1		04/02/20 16:30		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville							
Chloride	9240	mg/L	164	98.4	164		04/05/20 17:55	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 22:22	16984-48-8	
Sulfate	1140	mg/L	164	82.0	164		04/05/20 17:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch:	536341	Analysis Method:	EPA 7470A
QC Batch Method:	EPA 7470A	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Asheville

Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020

METHOD BLANK: 2860973 Matrix: Water

Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00010	04/16/20 16:36	

LABORATORY CONTROL SAMPLE: 2860974

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860975 2860976

Parameter	Units	92471690001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0028	0.0027	113	109	75-125	4	25	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 536342 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690021, 92471690022

METHOD BLANK: 2860980 Matrix: Water
Associated Lab Samples: 92471690021, 92471690022

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00010	04/16/20 17:42	

LABORATORY CONTROL SAMPLE: 2860981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0027	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860982 2860983

Parameter	Units	2860982		2860983		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	mg/L	ND	0.0025	0.0028	0.0029	112	114	75-125	2	25	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 534676 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92471690001, 92471690002, 92471690003

METHOD BLANK: 2853410 Matrix: Water

Associated Lab Samples: 92471690001, 92471690002, 92471690003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.10	0.024	04/07/20 21:00	

LABORATORY CONTROL SAMPLE: 2853411

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	5	5.0	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2853412 2853413

Parameter	Units	2853412		2853413		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Calcium	mg/L	41400 ug/L	5	5	46.3	46.1	98	93	75-125	0	20

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch:	534935	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3010A	Analysis Description:	6010 MET
		Laboratory:	Pace Analytical Services - Asheville

Associated Lab Samples: 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

METHOD BLANK: 2854646 Matrix: Water

Associated Lab Samples: 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.10	0.024	04/08/20 17:22	

LABORATORY CONTROL SAMPLE: 2854647

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2854648 2854649

Parameter	Units	92471690004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	3.3	5	5	8.5	8.5	104	105	75-125	1	20	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 534937 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014

METHOD BLANK: 2854654 Matrix: Water
Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/08/20 13:14	
Arsenic	mg/L	ND	0.0050	0.000060	04/08/20 13:14	
Barium	mg/L	ND	0.010	0.000060	04/08/20 13:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/08/20 13:14	
Boron	mg/L	ND	0.10	0.0026	04/08/20 13:14	
Cadmium	mg/L	ND	0.0025	0.000070	04/08/20 13:14	
Chromium	mg/L	ND	0.010	0.00042	04/08/20 13:14	
Cobalt	mg/L	ND	0.0050	0.000050	04/08/20 13:14	
Lead	mg/L	ND	0.0050	0.000050	04/08/20 13:14	
Lithium	mg/L	ND	0.030	0.00042	04/08/20 13:14	
Molybdenum	mg/L	ND	0.010	0.00010	04/08/20 13:14	
Selenium	mg/L	ND	0.010	0.000080	04/08/20 13:14	
Thallium	mg/L	ND	0.00010	0.000060	04/08/20 13:14	

LABORATORY CONTROL SAMPLE: 2854655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.05	0.055	109	80-120	
Arsenic	mg/L	0.01	0.011	105	80-120	
Barium	mg/L	0.05	0.050	100	80-120	
Beryllium	mg/L	0.01	0.010	101	80-120	
Boron	mg/L	0.05	0.051J	102	80-120	
Cadmium	mg/L	0.01	0.010	104	80-120	
Chromium	mg/L	0.05	0.052	104	80-120	
Cobalt	mg/L	0.01	0.010	104	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.051	102	80-120	
Molybdenum	mg/L	0.05	0.051	103	80-120	
Selenium	mg/L	0.05	0.050	101	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2854656 2854657

Parameter	Units	92471690002 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Antimony	mg/L	ND	0.05	0.05	0.055	0.056	110	112	75-125	1	20	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Parameter	Units	2854656		2854657		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471690002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Arsenic	mg/L	ND	0.01	0.01	0.011	0.011	106	107	75-125	1	20		
Barium	mg/L	ND	0.05	0.05	0.050	0.050	100	100	75-125	1	20		
Beryllium	mg/L	ND	0.01	0.01	0.010	0.010	103	102	75-125	2	20		
Boron	mg/L	ND	0.05	0.05	0.053J	0.053J	104	104	75-125	1	20		
Cadmium	mg/L	ND	0.01	0.01	0.011	0.011	106	107	75-125	1	20		
Chromium	mg/L	ND	0.05	0.05	0.052	0.053	105	106	75-125	1	20		
Cobalt	mg/L	ND	0.01	0.01	0.010	0.011	104	106	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.051	0.051	102	101	75-125	0	20		
Lithium	mg/L	ND	0.05	0.05	0.052	0.051	105	102	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.053	105	105	75-125	1	20		
Selenium	mg/L	ND	0.05	0.05	0.049	0.050	98	100	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	102	102	75-125	0	20		

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 534939 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

METHOD BLANK: 2854664 Matrix: Water
Associated Lab Samples: 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/09/20 14:25	
Arsenic	mg/L	ND	0.0050	0.000060	04/09/20 14:25	
Barium	mg/L	ND	0.010	0.000060	04/09/20 14:25	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/20 14:25	
Boron	mg/L	ND	0.10	0.0026	04/09/20 14:25	
Cadmium	mg/L	ND	0.0025	0.000070	04/09/20 14:25	
Chromium	mg/L	ND	0.010	0.00042	04/09/20 14:25	
Cobalt	mg/L	ND	0.0050	0.000050	04/09/20 14:25	
Lead	mg/L	ND	0.0050	0.000050	04/09/20 14:25	
Lithium	mg/L	ND	0.030	0.00042	04/09/20 14:25	
Molybdenum	mg/L	ND	0.010	0.00010	04/09/20 14:25	
Selenium	mg/L	ND	0.010	0.000080	04/09/20 14:25	
Thallium	mg/L	ND	0.00010	0.000060	04/09/20 14:25	

LABORATORY CONTROL SAMPLE: 2854665

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.05	0.052	105	80-120	
Arsenic	mg/L	0.01	0.010	101	80-120	
Barium	mg/L	0.05	0.050	101	80-120	
Beryllium	mg/L	0.01	0.010	100	80-120	
Boron	mg/L	0.05	0.051J	101	80-120	
Cadmium	mg/L	0.01	0.011	106	80-120	
Chromium	mg/L	0.05	0.052	105	80-120	
Cobalt	mg/L	0.01	0.010	104	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.052	105	80-120	
Selenium	mg/L	0.05	0.049	98	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2854666 2854667

Parameter	Units	92471690015 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Antimony	mg/L	ND	0.05	0.05	0.054	0.055	108	110	75-125	1	20	

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Parameter	Units	2854666		2854667		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471690015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Arsenic	mg/L	ND	0.01	0.01	0.010	0.011	105	107	75-125	2	20		
Barium	mg/L	0.000063J	0.05	0.05	0.051	0.052	102	103	75-125	1	20		
Beryllium	mg/L	ND	0.01	0.01	0.010	0.010	101	103	75-125	2	20		
Boron	mg/L	ND	0.05	0.05	0.052J	0.055J	103	108	75-125	5	20		
Cadmium	mg/L	ND	0.01	0.01	0.011	0.011	108	109	75-125	2	20		
Chromium	mg/L	ND	0.05	0.05	0.054	0.055	108	109	75-125	1	20		
Cobalt	mg/L	ND	0.01	0.01	0.011	0.011	109	110	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.050	0.051	100	103	75-125	2	20		
Lithium	mg/L	ND	0.05	0.05	0.051	0.052	101	104	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.055	0.055	109	110	75-125	1	20		
Selenium	mg/L	ND	0.05	0.05	0.050	0.051	100	102	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	100	103	75-125	2	20		

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 533811 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690001, 92471690002, 92471690003

METHOD BLANK: 2849201 Matrix: Water
Associated Lab Samples: 92471690001, 92471690002, 92471690003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	04/01/20 17:39	

LABORATORY CONTROL SAMPLE: 2849202

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	264	106	90-110	

SAMPLE DUPLICATE: 2849402

Parameter	Units	92471571001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	242	232	4	25	

SAMPLE DUPLICATE: 2849403

Parameter	Units	92471575004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	188	185	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

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

QC Batch: 534107

Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

METHOD BLANK: 2850575

Matrix: Water

Associated Lab Samples: 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016, 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	04/02/20 16:25	

LABORATORY CONTROL SAMPLE: 2850576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	249	256	103	90-110	

SAMPLE DUPLICATE: 2850579

Parameter	Units	92471690004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	87.0	88.0	1	25	

SAMPLE DUPLICATE: 2850580

Parameter	Units	92471690014 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 534272 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016

METHOD BLANK: 2851222 Matrix: Water
Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690006, 92471690007, 92471690008, 92471690010, 92471690011, 92471690012, 92471690013, 92471690014, 92471690015, 92471690016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/04/20 12:15	
Fluoride	mg/L	ND	0.10	0.050	04/04/20 12:15	
Sulfate	mg/L	ND	1.0	0.50	04/04/20 12:15	

LABORATORY CONTROL SAMPLE: 2851223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.0	102	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	50.4	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2851224 2851225

Parameter	Units	92471979015		2851225		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Chloride	mg/L	9.3	50	50	62.0	63.5	105	108	90-110	2	10
Fluoride	mg/L	0.058J	2.5	2.5	2.6	2.7	101	105	90-110	4	10
Sulfate	mg/L	62.4	50	50	114	116	103	107	90-110	2	10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2851226 2851227

Parameter	Units	92471690007		2851227		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Chloride	mg/L	14.1	50	50	67.8	68.0	107	108	90-110	0	10
Fluoride	mg/L	ND	2.5	2.5	2.9	3.0	115	120	90-110	4	10 M1
Sulfate	mg/L	14.6	50	50	68.9	69.4	109	110	90-110	1	10

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

QC Batch: 534273 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

METHOD BLANK: 2851230 Matrix: Water
Associated Lab Samples: 92471690017, 92471690018, 92471690019, 92471690020, 92471690021, 92471690022

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/05/20 21:29	
Fluoride	mg/L	ND	0.10	0.050	04/05/20 21:29	
Sulfate	mg/L	ND	1.0	0.50	04/05/20 21:29	

LABORATORY CONTROL SAMPLE: 2851231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.7	103	90-110	
Fluoride	mg/L	2.5	2.6	103	90-110	
Sulfate	mg/L	50	51.0	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2851232 2851233

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471690017	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	71.4	50	50	50	122	122	102	102	90-110	0	10	
Fluoride	mg/L	ND	2.5	2.5	2.5	2.5	2.4	100	97	90-110	3	10	
Sulfate	mg/L	86.6	50	50	50	139	138	104	103	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2851234 2851235

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471917001	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	160	50	50	50	211	211	103	102	90-110	0	10	
Fluoride	mg/L	0.26	2.5	2.5	2.5	2.8	2.9	102	105	90-110	3	10	
Sulfate	mg/L	23.7	50	50	50	77.9	78.8	108	110	90-110	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92471690001	MCM-01				
92471690003	MCM-02				
92471690004	MCM-11				
92471690006	MCM-14				
92471690007	MCM-15				
92471690008	MCM-16				
92471690010	MCM-18				
92471690011	MCM-19				
92471690012	MCM-20				
92471690016	MCM-06				
92471690017	MCM-04				
92471690018	MCM-05				
92471690019	MCM-07				
92471690001	MCM-01	EPA 3010A	534676	EPA 6010D	534690
92471690002	FBL032620	EPA 3010A	534676	EPA 6010D	534690
92471690003	MCM-02	EPA 3010A	534676	EPA 6010D	534690
92471690004	MCM-11	EPA 3010A	534935	EPA 6010D	534961
92471690006	MCM-14	EPA 3010A	534935	EPA 6010D	534961
92471690007	MCM-15	EPA 3010A	534935	EPA 6010D	534961
92471690008	MCM-16	EPA 3010A	534935	EPA 6010D	534961
92471690010	MCM-18	EPA 3010A	534935	EPA 6010D	534961
92471690011	MCM-19	EPA 3010A	534935	EPA 6010D	534961
92471690012	MCM-20	EPA 3010A	534935	EPA 6010D	534961
92471690013	DUP-1	EPA 3010A	534935	EPA 6010D	534961
92471690014	FBL032720	EPA 3010A	534935	EPA 6010D	534961
92471690015	EQBL032720	EPA 3010A	534935	EPA 6010D	534961
92471690016	MCM-06	EPA 3010A	534935	EPA 6010D	534961
92471690017	MCM-04	EPA 3010A	534935	EPA 6010D	534961
92471690018	MCM-05	EPA 3010A	534935	EPA 6010D	534961
92471690019	MCM-07	EPA 3010A	534935	EPA 6010D	534961
92471690020	FBL032820	EPA 3010A	534935	EPA 6010D	534961
92471690021	EQBL032820	EPA 3010A	534935	EPA 6010D	534961
92471690022	DUP-2	EPA 3010A	534935	EPA 6010D	534961
92471690001	MCM-01	EPA 3010A	534937	EPA 6020B	534967
92471690002	FBL032620	EPA 3010A	534937	EPA 6020B	534967
92471690003	MCM-02	EPA 3010A	534937	EPA 6020B	534967
92471690004	MCM-11	EPA 3010A	534937	EPA 6020B	534967
92471690006	MCM-14	EPA 3010A	534937	EPA 6020B	534967
92471690007	MCM-15	EPA 3010A	534937	EPA 6020B	534967
92471690008	MCM-16	EPA 3010A	534937	EPA 6020B	534967
92471690010	MCM-18	EPA 3010A	534937	EPA 6020B	534967
92471690011	MCM-19	EPA 3010A	534937	EPA 6020B	534967
92471690012	MCM-20	EPA 3010A	534937	EPA 6020B	534967
92471690013	DUP-1	EPA 3010A	534937	EPA 6020B	534967
92471690014	FBL032720	EPA 3010A	534937	EPA 6020B	534967
92471690015	EQBL032720	EPA 3010A	534939	EPA 6020B	534969
92471690016	MCM-06	EPA 3010A	534939	EPA 6020B	534969

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS CCR
Pace Project No.: 92471690

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92471690017	MCM-04	EPA 3010A	534939	EPA 6020B	534969
92471690018	MCM-05	EPA 3010A	534939	EPA 6020B	534969
92471690019	MCM-07	EPA 3010A	534939	EPA 6020B	534969
92471690020	FBL032820	EPA 3010A	534939	EPA 6020B	534969
92471690021	EQBL032820	EPA 3010A	534939	EPA 6020B	534969
92471690022	DUP-2	EPA 3010A	534939	EPA 6020B	534969
92471690001	MCM-01	EPA 7470A	536341	EPA 7470A	536380
92471690002	FBL032620	EPA 7470A	536341	EPA 7470A	536380
92471690003	MCM-02	EPA 7470A	536341	EPA 7470A	536380
92471690004	MCM-11	EPA 7470A	536341	EPA 7470A	536380
92471690006	MCM-14	EPA 7470A	536341	EPA 7470A	536380
92471690007	MCM-15	EPA 7470A	536341	EPA 7470A	536380
92471690008	MCM-16	EPA 7470A	536341	EPA 7470A	536380
92471690010	MCM-18	EPA 7470A	536341	EPA 7470A	536380
92471690011	MCM-19	EPA 7470A	536341	EPA 7470A	536380
92471690012	MCM-20	EPA 7470A	536341	EPA 7470A	536380
92471690013	DUP-1	EPA 7470A	536341	EPA 7470A	536380
92471690014	FBL032720	EPA 7470A	536341	EPA 7470A	536380
92471690015	EQBL032720	EPA 7470A	536341	EPA 7470A	536380
92471690016	MCM-06	EPA 7470A	536341	EPA 7470A	536380
92471690017	MCM-04	EPA 7470A	536341	EPA 7470A	536380
92471690018	MCM-05	EPA 7470A	536341	EPA 7470A	536380
92471690019	MCM-07	EPA 7470A	536341	EPA 7470A	536380
92471690020	FBL032820	EPA 7470A	536341	EPA 7470A	536380
92471690021	EQBL032820	EPA 7470A	536342	EPA 7470A	536381
92471690022	DUP-2	EPA 7470A	536342	EPA 7470A	536381
92471690001	MCM-01	SM 2540C-2011	533811		
92471690002	FBL032620	SM 2540C-2011	533811		
92471690003	MCM-02	SM 2540C-2011	533811		
92471690004	MCM-11	SM 2540C-2011	534107		
92471690006	MCM-14	SM 2540C-2011	534107		
92471690007	MCM-15	SM 2540C-2011	534107		
92471690008	MCM-16	SM 2540C-2011	534107		
92471690010	MCM-18	SM 2540C-2011	534107		
92471690011	MCM-19	SM 2540C-2011	534107		
92471690012	MCM-20	SM 2540C-2011	534107		
92471690013	DUP-1	SM 2540C-2011	534107		
92471690014	FBL032720	SM 2540C-2011	534107		
92471690015	EQBL032720	SM 2540C-2011	534107		
92471690016	MCM-06	SM 2540C-2011	534107		
92471690017	MCM-04	SM 2540C-2011	534107		
92471690018	MCM-05	SM 2540C-2011	534107		
92471690019	MCM-07	SM 2540C-2011	534107		
92471690020	FBL032820	SM 2540C-2011	534107		
92471690021	EQBL032820	SM 2540C-2011	534107		
92471690022	DUP-2	SM 2540C-2011	534107		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: PLANT MCMANUS CCR

Pace Project No.: 92471690

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92471690001	MCM-01	EPA 300.0 Rev 2.1 1993	534272		
92471690002	FBL032620	EPA 300.0 Rev 2.1 1993	534272		
92471690003	MCM-02	EPA 300.0 Rev 2.1 1993	534272		
92471690004	MCM-11	EPA 300.0 Rev 2.1 1993	534272		
92471690006	MCM-14	EPA 300.0 Rev 2.1 1993	534272		
92471690007	MCM-15	EPA 300.0 Rev 2.1 1993	534272		
92471690008	MCM-16	EPA 300.0 Rev 2.1 1993	534272		
92471690010	MCM-18	EPA 300.0 Rev 2.1 1993	534272		
92471690011	MCM-19	EPA 300.0 Rev 2.1 1993	534272		
92471690012	MCM-20	EPA 300.0 Rev 2.1 1993	534272		
92471690013	DUP-1	EPA 300.0 Rev 2.1 1993	534272		
92471690014	FBL032720	EPA 300.0 Rev 2.1 1993	534272		
92471690015	EQBL032720	EPA 300.0 Rev 2.1 1993	534272		
92471690016	MCM-06	EPA 300.0 Rev 2.1 1993	534272		
92471690017	MCM-04	EPA 300.0 Rev 2.1 1993	534273		
92471690018	MCM-05	EPA 300.0 Rev 2.1 1993	534273		
92471690019	MCM-07	EPA 300.0 Rev 2.1 1993	534273		
92471690020	FBL032820	EPA 300.0 Rev 2.1 1993	534273		
92471690021	EQBL032820	EPA 300.0 Rev 2.1 1993	534273		
92471690022	DUP-2	EPA 300.0 Rev 2.1 1993	534273		

REPORT OF LABORATORY ANALYSIS

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	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
 Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name:

GA POWER - Coal Combustion Residuals Project #:

WO#: 92471690



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: NAF 3/31/20

Packing Material: Bubble Wrap Bubble Bags None Other

Biological Tissue Frozen? Yes No N/A

Thermometer: IR Gun ID: 937061 Type of Ice: Wet Blue None

Cooler Temp (°C): 3.8, 2.2, 14.9, 15.2, 1.9 Correction Factor: Add/Subtract (°C) 0.0

Temp should be above freezing to 6°C

Cooler Temp Corrected (°C): 3.8, 2.2, 14.9, 15.2, 1.9

Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

Yes No

	Comments/Discrepancy:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>	
Headspace in VOA Vials (>5-6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10.
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____

Date: _____

Project Manager SRF Review: _____

Date: _____



Document Name:
Sample Condition Upon Receipt(SCUR)
Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2
Issuing Authority:
Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO# : 92471690**

PM: KLH1

Due Date: 04/14/20

CLIENT: 26-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
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12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project **W0# : 92471690**

PM: KLH1 Due Date: 04/14/20

CLIENT: 26-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
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12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

April 20, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT MCMANUS CCR
Pace Project No.: 92474306

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Asheville
- Pace Analytical Services - Charlotte

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

Sincerely,



Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Veronica Fay
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Pace Analytical Services Charlotte

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

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SAMPLE SUMMARY

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92471690005	MCM-12	Water	03/27/20 16:17	03/31/20 10:15
92471690009	MCM-17	Water	03/27/20 13:30	03/31/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471690005	MCM-12	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92471690009	MCM-17	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville

PASI-C = Pace Analytical Services - Charlotte

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92471690005	MCM-12					
	pH	6.33	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	8.3	mg/L	0.10	04/08/20 17:46	
EPA 6020B	Barium	0.12	mg/L	0.015	04/08/20 14:48	
EPA 6020B	Boron	1.5	mg/L	1.2	04/08/20 14:48	
SM 2540C-2011	Total Dissolved Solids	1970	mg/L	250	04/02/20 16:26	
EPA 300.0 Rev 2.1 1993	Chloride	675	mg/L	14.0	04/05/20 02:47	
EPA 300.0 Rev 2.1 1993	Fluoride	1.1	mg/L	0.10	04/04/20 15:42	
92471690009	MCM-17					
	pH	6.93	Std. Units		04/08/20 10:17	
EPA 6010D	Calcium	222	mg/L	1.0	04/09/20 17:40	
EPA 6020B	Barium	0.16	mg/L	0.015	04/08/20 15:16	
EPA 6020B	Boron	1.8	mg/L	1.2	04/08/20 15:16	
EPA 6020B	Lithium	0.033J	mg/L	0.12	04/08/20 15:16	
SM 2540C-2011	Total Dissolved Solids	10200	mg/L	500	04/02/20 16:27	
EPA 300.0 Rev 2.1 1993	Chloride	4770	mg/L	60.0	04/05/20 03:58	
EPA 300.0 Rev 2.1 1993	Sulfate	504	mg/L	60.0	04/05/20 03:58	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Sample: MCM-12		Lab ID: 92471690005		Collected: 03/27/20 16:17		Received: 03/31/20 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.33	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Calcium	8.3	mg/L	0.10	0.024	1	04/08/20 01:59	04/08/20 17:46	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.025	0.0055	50	04/08/20 01:10	04/08/20 14:48	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0030	50	04/08/20 01:10	04/08/20 14:48	7440-38-2	
Barium	0.12	mg/L	0.015	0.0030	50	04/08/20 01:10	04/08/20 14:48	7440-39-3	
Beryllium	ND	mg/L	0.0050	0.0025	50	04/08/20 01:10	04/08/20 14:48	7440-41-7	
Boron	1.5	mg/L	1.2	0.13	50	04/08/20 01:10	04/08/20 14:48	7440-42-8	
Cadmium	ND	mg/L	0.0040	0.0035	50	04/08/20 01:10	04/08/20 14:48	7440-43-9	
Chromium	ND	mg/L	0.025	0.021	50	04/08/20 01:10	04/08/20 14:48	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0025	50	04/08/20 01:10	04/08/20 14:48	7440-48-4	
Lead	ND	mg/L	0.0050	0.0025	50	04/08/20 01:10	04/08/20 14:48	7439-92-1	
Lithium	ND	mg/L	0.12	0.021	50	04/08/20 01:10	04/08/20 14:48	7439-93-2	
Molybdenum	ND	mg/L	0.025	0.0050	50	04/08/20 01:10	04/08/20 14:48	7439-98-7	
Selenium	ND	mg/L	0.025	0.0040	50	04/08/20 01:10	04/08/20 14:48	7782-49-2	
Thallium	ND	mg/L	0.0050	0.0030	50	04/08/20 01:10	04/08/20 14:48	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 16:55	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011									
Pace Analytical Services - Asheville									
Total Dissolved Solids	1970	mg/L	250	250	1		04/02/20 16:26		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	675	mg/L	14.0	8.4	14		04/05/20 02:47	16887-00-6	
Fluoride	1.1	mg/L	0.10	0.050	1		04/04/20 15:42	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		04/04/20 15:42	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT MCMANUS CCR
Pace Project No.: 92474306

Sample: MCM-17 **Lab ID: 92471690009** Collected: 03/27/20 13:30 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.93	Std. Units			1		04/08/20 10:17		
6010 MET ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Calcium	222	mg/L	1.0	0.24	10	04/08/20 01:59	04/09/20 17:40	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville									
Antimony	ND	mg/L	0.025	0.0055	50	04/08/20 01:10	04/08/20 15:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0030	50	04/08/20 01:10	04/08/20 15:16	7440-38-2	
Barium	0.16	mg/L	0.015	0.0030	50	04/08/20 01:10	04/08/20 15:16	7440-39-3	
Beryllium	ND	mg/L	0.0050	0.0025	50	04/08/20 01:10	04/08/20 15:16	7440-41-7	
Boron	1.8	mg/L	1.2	0.13	50	04/08/20 01:10	04/08/20 15:16	7440-42-8	
Cadmium	ND	mg/L	0.0040	0.0035	50	04/08/20 01:10	04/08/20 15:16	7440-43-9	
Chromium	ND	mg/L	0.025	0.021	50	04/08/20 01:10	04/08/20 15:16	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0025	50	04/08/20 01:10	04/08/20 15:16	7440-48-4	
Lead	ND	mg/L	0.0050	0.0025	50	04/08/20 01:10	04/08/20 15:16	7439-92-1	
Lithium	0.033J	mg/L	0.12	0.021	50	04/08/20 01:10	04/08/20 15:16	7439-93-2	
Molybdenum	ND	mg/L	0.025	0.0050	50	04/08/20 01:10	04/08/20 15:16	7439-98-7	
Selenium	ND	mg/L	0.025	0.0040	50	04/08/20 01:10	04/08/20 15:16	7782-49-2	
Thallium	ND	mg/L	0.0050	0.0030	50	04/08/20 01:10	04/08/20 15:16	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville									
Mercury	ND	mg/L	0.00050	0.00010	1	04/15/20 14:04	04/16/20 17:09	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville									
Total Dissolved Solids	10200	mg/L	500	500	1		04/02/20 16:27		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	4770	mg/L	60.0	36.0	60		04/05/20 03:58	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		04/04/20 17:11	16984-48-8	
Sulfate	504	mg/L	60.0	30.0	60		04/05/20 03:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

QC Batch: 536341

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92471690005, 92471690009

METHOD BLANK: 2860973

Matrix: Water

Associated Lab Samples: 92471690005, 92471690009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00010	04/16/20 16:36	

LABORATORY CONTROL SAMPLE: 2860974

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860975 2860976

Parameter	Units	2860975		2860976		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	mg/L	ND	0.0025	0.0028	0.0027	113	109	75-125	4	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

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

QC Batch: 534935

Analysis Method: EPA 6010D

QC Batch Method: EPA 3010A

Analysis Description: 6010 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92471690005, 92471690009

METHOD BLANK: 2854646

Matrix: Water

Associated Lab Samples: 92471690005, 92471690009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.10	0.024	04/08/20 17:22	

LABORATORY CONTROL SAMPLE: 2854647

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2854648 2854649

Parameter	Units	2854648		2854649		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Calcium	mg/L	3.3	5	8.5	8.5	104	105	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.

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92474306

QC Batch: 534937 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92471690005, 92471690009

METHOD BLANK: 2854654 Matrix: Water

Associated Lab Samples: 92471690005, 92471690009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.00050	0.00011	04/08/20 13:14	
Arsenic	mg/L	ND	0.00010	0.000060	04/08/20 13:14	
Barium	mg/L	ND	0.00030	0.000060	04/08/20 13:14	
Beryllium	mg/L	ND	0.00010	0.000050	04/08/20 13:14	
Boron	mg/L	ND	0.025	0.0026	04/08/20 13:14	
Cadmium	mg/L	ND	0.000080	0.000070	04/08/20 13:14	
Chromium	mg/L	ND	0.00050	0.00042	04/08/20 13:14	
Cobalt	mg/L	ND	0.00010	0.000050	04/08/20 13:14	
Lead	mg/L	ND	0.00010	0.000050	04/08/20 13:14	
Lithium	mg/L	ND	0.0025	0.00042	04/08/20 13:14	
Molybdenum	mg/L	ND	0.00050	0.00010	04/08/20 13:14	
Selenium	mg/L	ND	0.00050	0.000080	04/08/20 13:14	
Thallium	mg/L	ND	0.00010	0.000060	04/08/20 13:14	

LABORATORY CONTROL SAMPLE: 2854655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.05	0.055	109	80-120	
Arsenic	mg/L	0.01	0.011	105	80-120	
Barium	mg/L	0.05	0.050	100	80-120	
Beryllium	mg/L	0.01	0.010	101	80-120	
Boron	mg/L	0.05	0.051	102	80-120	
Cadmium	mg/L	0.01	0.010	104	80-120	
Chromium	mg/L	0.05	0.052	104	80-120	
Cobalt	mg/L	0.01	0.010	104	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.051	102	80-120	
Molybdenum	mg/L	0.05	0.051	103	80-120	
Selenium	mg/L	0.05	0.050	101	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2854656 2854657

Parameter	Units	92471690002 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Conc.	Spike Conc.	Result	Result						
Antimony	mg/L	ND	0.05	0.05	0.055	0.056	110	112	75-125	1	20	
Arsenic	mg/L	ND	0.01	0.01	0.011	0.011	106	107	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2854656		2854657		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471690002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Barium	mg/L	ND	0.05	0.05	0.050	0.050	100	100	75-125	1	20		
Beryllium	mg/L	ND	0.01	0.01	0.010	0.010	103	102	75-125	2	20		
Boron	mg/L	ND	0.05	0.05	0.053	0.053	104	104	75-125	1	20		
Cadmium	mg/L	ND	0.01	0.01	0.011	0.011	106	107	75-125	1	20		
Chromium	mg/L	ND	0.05	0.05	0.052	0.053	105	106	75-125	1	20		
Cobalt	mg/L	ND	0.01	0.01	0.010	0.011	104	106	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.051	0.051	102	101	75-125	0	20		
Lithium	mg/L	ND	0.05	0.05	0.052	0.051	105	102	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.053	105	105	75-125	1	20		
Selenium	mg/L	ND	0.05	0.05	0.049	0.050	98	100	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	102	102	75-125	0	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

QC Batch: 534107

Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92471690005, 92471690009

METHOD BLANK: 2850575

Matrix: Water

Associated Lab Samples: 92471690005, 92471690009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	04/02/20 16:25	

LABORATORY CONTROL SAMPLE: 2850576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	249	256	103	90-110	

SAMPLE DUPLICATE: 2850579

Parameter	Units	92471690004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	87.0	88.0	1	25	

SAMPLE DUPLICATE: 2850580

Parameter	Units	92471690014 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT MCMANUS CCR
Pace Project No.: 92474306

QC Batch: 534272 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471690005, 92471690009

METHOD BLANK: 2851222 Matrix: Water
Associated Lab Samples: 92471690005, 92471690009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/04/20 12:15	
Fluoride	mg/L	ND	0.10	0.050	04/04/20 12:15	
Sulfate	mg/L	ND	1.0	0.50	04/04/20 12:15	

LABORATORY CONTROL SAMPLE: 2851223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.0	102	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	50.4	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2851224 2851225

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471979015 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	9.3	50	50	62.0	63.5	105	108	90-110	2	10		
Fluoride	mg/L	0.058J	2.5	2.5	2.6	2.7	101	105	90-110	4	10		
Sulfate	mg/L	62.4	50	50	114	116	103	107	90-110	2	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2851226 2851227

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92471690007 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	14.1	50	50	67.8	68.0	107	108	90-110	0	10		
Fluoride	mg/L	ND	2.5	2.5	2.9	3.0	115	120	90-110	4	10	M1	
Sulfate	mg/L	14.6	50	50	68.9	69.4	109	110	90-110	1	10		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE


Project: PLANT MCMANUS CCR

Pace Project No.: 92474306

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92471690005	MCM-12				
92471690009	MCM-17				
92471690005	MCM-12	EPA 3010A	534935	EPA 6010D	534961
92471690009	MCM-17	EPA 3010A	534935	EPA 6010D	534961
92471690005	MCM-12	EPA 3010A	534937	EPA 6020B	534967
92471690009	MCM-17	EPA 3010A	534937	EPA 6020B	534967
92471690005	MCM-12	EPA 7470A	536341	EPA 7470A	536380
92471690009	MCM-17	EPA 7470A	536341	EPA 7470A	536380
92471690005	MCM-12	SM 2540C-2011	534107		
92471690009	MCM-17	SM 2540C-2011	534107		
92471690005	MCM-12	EPA 300.0 Rev 2.1 1993	534272		
92471690009	MCM-17	EPA 300.0 Rev 2.1 1993	534272		

REPORT OF LABORATORY ANALYSIS

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	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name:

GA POWER - Coal Combustion Residuals

Project #:

WO#: 92471690



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: NAF 3/31/20

Packing Material: Bubble Wrap Bubble Bags None Other

Biological Tissue Frozen?

Yes No N/A

Thermometer:

IR Gun ID: 937061

Type of Ice: Wet Blue None

Cooler Temp (°C): 3.8, 2.2, 14.9, 15.2, 1.9 Correction Factor: Add/Subtract (°C) 0.0

Temp should be above freezing to 6°C

Cooler Temp Corrected (°C): 3.8, 2.2, 14.9, 15.2, 1.9

Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

Yes No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

	Comments/Discrepancy:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A -Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT	
Headspace in VOA Vials (>5-6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10.
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____

Date: _____

Project Manager SRF Review: _____

Date: _____



Document Name:
Sample Condition Upon Receipt(SCUR)
Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2
Issuing Authority:
Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO# : 92471690**

PM: KLH1

Due Date: 04/14/20

CLIENT: 26-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
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11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/
13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	2	/	/	/

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project **W0# : 92471690**

PM: KLH1 Due Date: 04/14/20

CLIENT: 26-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
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12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

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Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

3/26/20

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 of 3

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Latham Parry / JDU Abatement	Address: 2400 Manor Road Atlanta, GA 30338	Company Name: Stephen Wilson / Trent Cochran	Company Name:	Address:
Address: 2400 Manor Road Atlanta, GA 30338	Copy To: Whiting Law	Project Name: Plant Mechanics O&M	Project #:	Price Quote:	Price Profile #:
Email: lparry@ge.com	Phone: (404)506-7239	Project Name: Plant Mechanics O&M	Project #:	Price Project Manager: Kevin Hedrick	Price Profile #:
Requested Date: 3/26/20	Requested Date: 3/26/20	Project Name: Plant Mechanics O&M	Project #:	Price Project Manager: Kevin Hedrick	Price Profile #:
				Regulatory Agency: State Location: CA	

ITEM #	MCH-01	MCH-02	MCH-04	MCH-05	MCH-06	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45
1	MCH-01	MCH-02	MCH-04	MCH-05	MCH-06	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45
2	MCH-02	MCH-04	MCH-05	MCH-06	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45	
3	MCH-04	MCH-05	MCH-06	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45		
4	MCH-05	MCH-06	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45			
5	MCH-06	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45				
6	MCH-07	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45					
7	MCH-11	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45						
8	MCH-12	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45							
9	MCH-14	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45								
10	MCH-15	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45									
11	MCH-16	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45										
12	MCH-17	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45											
13	MCH-19	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45												
14	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45													
15	MCH-20	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45													
16	FB1032620	3/26/20	1726	5	2	3	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)	PH: 5.45														
17																																
18																																

REMOVED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
Veronica S. Rosaluk		3/26/20		11:00		Fed Rev		3/26/20		1:00		2-8	
NCS		APR 10 10 15		9/3/20		10/15		2-8		2-8		N Y	
TEMP in C		1-9		2-9		14-9		15-2		1-9		N Y	
Received on ice (Y/N)		Custody Sealed Cooler (Y/N)		Samples intact (Y/N)		PRINT Name of SAMPLER:		DATE Signed:		3/26/20		N Y	
SIGNATURE OF SAMPLER:		Kevin Stephenson / Veronica Fry / WBI Labtek		DATE Signed:		3/26/20		N Y		N Y		N Y	

April 21, 2020

Mr. Joju Abraham
Georgia Power
2480 Maner Road
Atlanta, GA 30339

RE: Project: 92471690
Pace Project No.: 30357067

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 01, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Greensburg

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

Sincerely,



Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 92471690
Pace Project No.: 30357067

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 92471690

Pace Project No.: 30357067

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92471690001	MCM-01	Water	03/26/20 17:06	04/01/20 09:10
92471690002	FBL032620	Water	03/26/20 17:26	04/01/20 09:10
92471690003	MCM-02	Water	03/27/20 16:50	04/01/20 09:10
92471690004	MCM-11	Water	03/27/20 16:42	04/01/20 09:10
92471690005	MCM-12	Water	03/27/20 16:17	04/01/20 09:10
92471690006	MCM-14	Water	03/27/20 14:13	04/01/20 09:10
92471690007	MCM-15	Water	03/27/20 12:10	04/01/20 09:10
92471690008	MCM-16	Water	03/27/20 15:30	04/01/20 09:10
92471690009	MCM-17	Water	03/27/20 13:30	04/01/20 09:10
92471690010	MCM-18	Water	03/27/20 14:32	04/01/20 09:10
92471690011	MCM-19	Water	03/27/20 10:22	04/01/20 09:10
92471690012	MCM-20	Water	03/27/20 11:42	04/01/20 09:10
92471690013	DUP-1	Water	03/27/20 00:01	04/01/20 09:10
92471690014	FBL032720	Water	03/27/20 17:07	04/01/20 09:10
92471690015	EQBL032720	Water	03/27/20 17:18	04/01/20 09:10
92471690016	MCM-06	Water	03/28/20 14:18	04/01/20 09:10
92471690017	MCM-04	Water	03/28/20 12:45	04/01/20 09:10
92471690018	MCM-05	Water	03/28/20 13:05	04/01/20 09:10
92471690019	MCM-07	Water	03/28/20 11:24	04/01/20 09:10
92471690020	FBL032820	Water	03/28/20 14:30	04/01/20 09:10
92471690021	EQBL032820	Water	03/28/20 14:40	04/01/20 09:10
92471690022	DUP-2	Water	03/28/20 00:00	04/01/20 09:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 92471690
Pace Project No.: 30357067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471690001	MCM-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690002	FBL032620	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690003	MCM-02	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690004	MCM-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690005	MCM-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690006	MCM-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690007	MCM-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690008	MCM-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690009	MCM-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690010	MCM-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690011	MCM-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690012	MCM-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690013	DUP-1	EPA 9315	LAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: 92471690
Pace Project No.: 30357067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471690014	FBL032720	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
92471690015	EQBL032720	Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690016	MCM-06	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
92471690017	MCM-04	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
92471690018	MCM-05	Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690019	MCM-07	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
92471690020	FBL032820	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
92471690021	EQBL032820	Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92471690022	DUP-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9315	LAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: MCM-01		Lab ID: 92471690001	Collected: 03/26/20 17:06	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.548 ± 0.313 (0.441) C:90% T:NA	pCi/L	04/08/20 07:57	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.604 ± 0.432 (0.840) C:74% T:75%	pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.15 ± 0.745 (1.28)	pCi/L	04/21/20 08:57	7440-14-4	

Sample: FBL032620		Lab ID: 92471690002	Collected: 03/26/20 17:26	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.0284 ± 0.209 (0.540) C:94% T:NA	pCi/L	04/08/20 07:57	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.322 ± 0.335 (0.698) C:74% T:99%	pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.350 ± 0.544 (1.24)	pCi/L	04/21/20 08:57	7440-14-4	

Sample: MCM-02		Lab ID: 92471690003	Collected: 03/27/20 16:50	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.395 ± 0.289 (0.492) C:92% T:NA	pCi/L	04/08/20 07:57	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.443 ± 0.364 (0.727) C:74% T:85%	pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.838 ± 0.653 (1.22)	pCi/L	04/21/20 08:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: MCM-11		Lab ID: 92471690004	Collected: 03/27/20 16:42	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	0.278 ± 0.239 (0.422) C:93% T:NA		pCi/L	04/08/20 07:57	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	0.331 ± 0.401 (0.847) C:76% T:74%		pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	0.609 ± 0.640 (1.27)		pCi/L	04/21/20 08:57	7440-14-4	

Sample: MCM-12		Lab ID: 92471690005	Collected: 03/27/20 16:17	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	1.46 ± 0.507 (0.512) C:98% T:NA		pCi/L	04/08/20 07:57	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	0.865 ± 0.439 (0.753) C:72% T:77%		pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	2.33 ± 0.946 (1.27)		pCi/L	04/21/20 08:57	7440-14-4	

Sample: MCM-14		Lab ID: 92471690006	Collected: 03/27/20 14:13	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	5.39 ± 1.13 (0.374) C:91% T:NA		pCi/L	04/08/20 07:57	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	4.24 ± 0.946 (0.629) C:72% T:99%		pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	9.63 ± 2.08 (1.00)		pCi/L	04/21/20 08:57	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: MCM-15		Lab ID: 92471690007	Collected: 03/27/20 12:10	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	1.24 ± 0.442 (0.437) C:96% T:NA	pCi/L	04/09/20 07:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.599 ± 0.328 (0.581) C:83% T:84%	pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.84 ± 0.770 (1.02)	pCi/L	04/21/20 12:17	7440-14-4	

Sample: MCM-16		Lab ID: 92471690008	Collected: 03/27/20 15:30	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.927 ± 0.405 (0.489) C:86% T:NA	pCi/L	04/09/20 07:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.587 ± 0.360 (0.664) C:75% T:86%	pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.51 ± 0.765 (1.15)	pCi/L	04/21/20 12:17	7440-14-4	

Sample: MCM-17		Lab ID: 92471690009	Collected: 03/27/20 13:30	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	5.86 ± 1.25 (0.505) C:78% T:NA	pCi/L	04/09/20 07:53	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	3.68 ± 0.870 (0.685) C:78% T:84%	pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	9.54 ± 2.12 (1.19)	pCi/L	04/21/20 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: MCM-18		Lab ID: 92471690010	Collected: 03/27/20 14:32	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	6.34 ± 1.30 (0.582) C:82% T:NA		pCi/L	04/09/20 07:53	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	3.84 ± 0.889 (0.652) C:77% T:86%		pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	10.2 ± 2.19 (1.23)		pCi/L	04/21/20 12:17	7440-14-4	

Sample: MCM-19		Lab ID: 92471690011	Collected: 03/27/20 10:22	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	11.6 ± 2.07 (0.524) C:86% T:NA		pCi/L	04/09/20 07:54	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	11.2 ± 2.19 (0.594) C:76% T:84%		pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	22.8 ± 4.26 (1.12)		pCi/L	04/21/20 12:17	7440-14-4	

Sample: MCM-20		Lab ID: 92471690012	Collected: 03/27/20 11:42	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	20.1 ± 3.28 (0.381) C:89% T:NA		pCi/L	04/09/20 07:54	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	27.1 ± 5.03 (0.688) C:76% T:85%		pCi/L	04/20/20 15:24	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	47.2 ± 8.31 (1.07)		pCi/L	04/21/20 12:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: DUP-1		Lab ID: 92471690013	Collected: 03/27/20 00:01	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	21.4 ± 3.49 (0.367) C:90% T:NA	pCi/L	04/09/20 07:54	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	23.5 ± 4.38 (0.669) C:77% T:88%	pCi/L	04/20/20 15:25	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	44.9 ± 7.87 (1.04)	pCi/L	04/21/20 12:17	7440-14-4	

Sample: FBL032720		Lab ID: 92471690014	Collected: 03/27/20 17:07	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.189 ± 0.206 (0.399) C:89% T:NA	pCi/L	04/09/20 07:54	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	2.79 ± 1.17 (2.03) C:72% T:83%	pCi/L	04/20/20 19:38	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	2.98 ± 1.38 (2.43)	pCi/L	04/21/20 12:17	7440-14-4	

Sample: EQBL032720		Lab ID: 92471690015	Collected: 03/27/20 17:18	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.241 ± 0.247 (0.485) C:88% T:NA	pCi/L	04/09/20 07:54	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.699 ± 0.789 (1.66) C:73% T:74%	pCi/L	04/20/20 19:38	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.940 ± 1.04 (2.15)	pCi/L	04/21/20 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: MCM-06		Lab ID: 92471690016	Collected: 03/28/20 14:18	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	7.28 ± 1.43 (0.595) C:87% T:NA		pCi/L	04/09/20 07:54	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	3.69 ± 1.17 (1.65) C:72% T:84%		pCi/L	04/20/20 19:38	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	11.0 ± 2.60 (2.25)		pCi/L	04/21/20 12:17	7440-14-4	

Sample: MCM-04		Lab ID: 92471690017	Collected: 03/28/20 12:45	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	2.96 ± 0.778 (0.397) C:78% T:NA		pCi/L	04/09/20 08:15	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	1.20 ± 0.864 (1.72) C:77% T:83%		pCi/L	04/20/20 19:38	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	4.16 ± 1.64 (2.12)		pCi/L	04/21/20 12:17	7440-14-4	

Sample: MCM-05		Lab ID: 92471690018	Collected: 03/28/20 13:05	Received: 04/01/20 09:10	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 9315	0.600 ± 0.306 (0.372) C:91% T:NA		pCi/L	04/09/20 08:15	13982-63-3	
Pace Analytical Services - Greensburg							
Radium-228	EPA 9320	0.838 ± 0.655 (1.30) C:75% T:84%		pCi/L	04/20/20 19:16	15262-20-1	
Pace Analytical Services - Greensburg							
Total Radium	Total Radium Calculation	1.44 ± 0.961 (1.67)		pCi/L	04/21/20 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690
Pace Project No.: 30357067

Sample: MCM-07		Lab ID: 92471690019	Collected: 03/28/20 11:24	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	8.12 ± 1.53 (0.315) C:96% T:NA	pCi/L	04/09/20 08:15	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	3.59 ± 1.05 (1.21) C:72% T:80%	pCi/L	04/20/20 19:17	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	11.7 ± 2.58 (1.53)	pCi/L	04/21/20 12:17	7440-14-4	

Sample: FBL032820		Lab ID: 92471690020	Collected: 03/28/20 14:30	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.197 ± 0.228 (0.454) C:82% T:NA	pCi/L	04/09/20 08:15	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.0502 ± 0.592 (1.36) C:76% T:78%	pCi/L	04/20/20 19:19	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.247 ± 0.820 (1.81)	pCi/L	04/21/20 12:17	7440-14-4	

Sample: EQBL032820		Lab ID: 92471690021	Collected: 03/28/20 14:40	Received: 04/01/20 09:10	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.135 ± 0.163 (0.313) C:88% T:NA	pCi/L	04/09/20 08:15	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.798 ± 0.586 (1.14) C:78% T:78%	pCi/L	04/20/20 19:20	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.933 ± 0.749 (1.45)	pCi/L	04/21/20 12:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92471690

Pace Project No.: 30357067

Sample: DUP-2 **Lab ID: 92471690022** Collected: 03/28/20 00:00 Received: 04/01/20 09:10 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	9.47 ± 1.75 (0.363) C:85% T:NA	pCi/L	04/09/20 08:15	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	3.61 ± 1.04 (1.25) C:77% T:83%	pCi/L	04/20/20 19:21	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	13.1 ± 2.79 (1.61)	pCi/L	04/21/20 12:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 92471690

Pace Project No.: 30357067

QC Batch: 391016

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690005, 92471690006

METHOD BLANK: 1893276

Matrix: Water

Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690005, 92471690006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.311 ± 0.302 (0.622) C:72% T:102%	pCi/L	04/20/20 12:19	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 92471690

Pace Project No.: 30357067

QC Batch: 391014

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690005, 92471690006

METHOD BLANK: 1893273

Matrix: Water

Associated Lab Samples: 92471690001, 92471690002, 92471690003, 92471690004, 92471690005, 92471690006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0879 ± 0.146 (0.316) C:93% T:NA	pCi/L	04/07/20 19:50	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 92471690

Pace Project No.: 30357067

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: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

REPORT OF LABORATORY ANALYSIS

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WO#: 30357067

Chain of Custody

Samples were sent directly to the Subcontracting Laboratory.

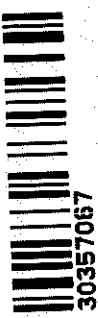
State Of Origin: GA
 Cert. Needed: Yes

Workorder: 92471690 Subcontract to: PLANT MCMANUS CCR

Results Requested By: -A/14/2020

Kevin Herring
 Pace Analytical Charlotte
 9800 Kinney Ave. Suite 100
 Huntersville, NC 28078
 Phone 1(704)875-9092

Pace Analytical Pittsburg
 1638 Roseytown Road
 Suites 2, 3, & 4
 Greensburg, PA 15601
 Phone (724)850-5600



tical
 30357067

Requested Analysis

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	LAB USE ONLY
1	MCM-01	PS	3/26/2020 17:06	92471690001	Water	1	001
2	FBL032620	PS	3/26/2020 17:26	92471690002	Water	1	002
3	MCM-02	PS	3/27/2020 16:50	92471690003	Water	1	003
4	MCM-11	PS	3/27/2020 16:42	92471690004	Water	1	004
5	MCM-12	PS	3/27/2020 16:17	92471690005	Water	1	005
6	MCM-14	PS	3/27/2020 14:13	92471690006	Water	1	006
7	MCM-15	PS	3/27/2020 12:10	92471690007	Water	1	007
8	MCM-16	PS	3/27/2020 15:30	92471690008	Water	1	008
9	MCM-17	PS	3/27/2020 13:30	92471690009	Water	1	009
10	MCM-18	PS	3/27/2020 14:32	92471690010	Water	1	010
11	MCM-19	PS	3/27/2020 10:22	92471690011	Water	1	011
12	MCM-20	PS	3/27/2020 11:42	92471690012	Water	1	012
13	DUP-1	PS	3/27/2020 00:00	92471690013	Water	1	013
14	FBL032720	PS	3/27/2020 17:07	92471690014	Water	1	014
15	EOBL032720	PS	3/27/2020 17:18	92471690015	Water	1	015
16	MCM-06	PS	3/28/2020 14:18	92471690016	Water	1	016
17	MCM-04	PS	3/28/2020 12:45	92471690017	Water	1	017
18	MCM-05	PS	3/28/2020 13:05	92471690018	Water	1	018
19	MCM-07	PS	3/28/2020 11:24	92471690019	Water	1	019

RAD 9315
 RAD 9320

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Pace NC

Project # 30357067

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 16516180 1150

Label <u>JSM</u>
LIMS Login <u>JSM</u>

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

Thermometer Used _____ Type of Ice: Wet Blue None

Cooler Temperature _____ Observed Temp _____ °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1002191</u>	<u>JSM 4/1/2020</u>
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC:	/			5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):	/			7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used:	/			10.	
-Pace Containers Used:	/				
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests			/	15.	
All containers have been checked for preservation.	/			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					<u>pH < 2</u>
All containers meet method preservation requirements.	/			Initial when completed <u>JSM</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:			/	18.	
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed <u>JSM</u>	Date: <u>4/1/2020</u>

Client Notification/ Resolution: _____
 Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
 *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 4/7/2020
Worklist: 53273
Matrix: DW

Method Blank Assessment	
MB Sample ID	1893273
MB concentration:	0.088
MB Counting Uncertainty:	0.145
MB MDC:	0.316
MB Numerical Performance Indicator:	1.19
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSD (Y or N)?	Y
LCSS53273	LCSD53273
Count Date:	4/8/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/L):	24.049
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.504
Target Conc. (pCi/L, g, F):	4.776
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	4.815
LCSD Counting Uncertainty (pCi/L, g, F):	0.784
Numerical Performance Indicator:	0.10
Percent Recovery:	100.82%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	LCSS53273
Duplicate Sample I.D.:	LCSD53273
Sample Result (pCi/L, g, F):	4.915
Sample Duplicate Result (pCi/L, g, F):	0.784
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	5.065
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.785
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	-0.441
Duplicate Percent Recoveries Duplicate RPD:	5.95%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Sample Matrix Spike Control Assessment	
Sample Collection Date:	Sample I.D.:
Sample MS I.D.:	Sample MS I.D.:
Sample MSD I.D.:	Sample MSD I.D.:
Spike I.D.:	MS/MSD 1
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	MS/MSD 2
Spike Volume Used in MS (mL):	
Spike Volume Used in MSD (mL):	
MS Aliquot (L, g, F):	
MS Target Conc. (pCi/L, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (pCi/L, g, F):	
MS Spike Uncertainty (calculated):	
MSD Spike Uncertainty (calculated):	
Sample Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Result:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
MS Numerical Performance Indicator:	
MSD Numerical Performance Indicator:	
MS Percent Recovery:	
MSD Percent Recovery:	
MS Status vs Numerical Indicator:	
MSD Status vs Numerical Indicator:	
MS Status vs Recovery:	
MSD Status vs Recovery:	
MS/MSD Upper % Recovery Limits:	
MS/MSD Lower % Recovery Limits:	

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	Sample I.D.:
Sample MS I.D.:	Sample MS I.D.:
Sample MSD I.D.:	Sample MSD I.D.:
Sample Matrix Spike Result:	Sample Matrix Spike Result:
Sample Matrix Spike Duplicate Result:	Sample Matrix Spike Duplicate Result:
Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):
Duplicate Numerical Performance Indicator:	Duplicate Numerical Performance Indicator:
Duplicate Percent Recoveries MS/MSD Duplicate RPD:	Duplicate Percent Recoveries MS/MSD Duplicate RPD:
MS/MSD Duplicate Status vs Numerical Indicator:	MS/MSD Duplicate Status vs Numerical Indicator:
MS/MSD Duplicate Status vs RPD:	MS/MSD Duplicate Status vs RPD:
% RPD Limit:	% RPD Limit:

UAM 4/8/20

CW 4/8/20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 4/7/2020
Worklist: 53273
Matrix: DW

Method Blank Assessment	
MB Sample ID	1893273
MB Concentration:	0.088
M/B Counting Uncertainty:	0.145
MB MDC:	0.316
MB Numerical Performance Indicator:	1.19
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?		N
	LCSD53273	LCSD53273	
Count Date:	4/8/2020		
Spike I.D.:	19-033		
Decay Corrected Spike Concentration (pCi/mL):	24.049		
Volume Used (mL):	0.10		
Aliquot Volume (L, g, F):	0.504		
Target Conc. (pCi/L, g, F):	4.776		
Uncertainty (Calculated):	0.057		
Result (pCi/L, g, F):	4.815		
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.10		
Numerical Performance Indicator:	100.82%		
Status vs Numerical Indicator:	N/A		
Status vs Recovery:	Pass		
Upper % Recovery Limits:	125%		
Lower % Recovery Limits:	75%		

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D.: Sample MS I.D.: Sample MSD I.D.: Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F): Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MS Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	2630325039
Duplicate Sample I.D.:	2630325039DUP
Sample Result (pCi/L, g, F):	0.637
Sample Duplicate Result (pCi/L, g, F):	0.246
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	0.140
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.251
Are sample and/or duplicate results below RL?	See Below ##
Duplicate Numerical Performance Indicator:	2.768
Duplicate RPD:	127.71%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Fail***
%RPD Limit:	25%

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:
Sample MS I.D.:
Sample MSD I.D.:
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):
Sample Matrix Spike Duplicate Result:
Sample Matrix Spike Duplicate Counting Uncertainty (pCi/L, g, F):
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):
Duplicate Numerical Performance Indicator:
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:
MS/MSD Duplicate Status vs Numerical Indicator:
MS/MSD Duplicate Status vs RPD:
% RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

***Batch must be re-prepped due to unacceptable precision. N/A CAM 4/8/20

Quality Control Sample Performance Assessment



Test: Ra-226
Analyst: LAL
Date: 4/8/2020
Worklist: 53275
Matrix: DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1893284
MB concentration:	0.237
MB Counting Uncertainty:	0.211
MB MDC:	0.384
MB Numerical Performance Indicator:	2.20
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSD (Y or N)?	N
LCSD53275	LCSD53275
Count Date:	4/9/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.049
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.516
Target Conc. (pCi/L, g, F):	4.665
Uncertainty (Calculated):	0.056
Result (pCi/L, g, F):	4.878
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.791
Numerical Performance Indicator:	0.53
Percent Recovery:	104.56%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	92471690009
Duplicate Sample I.D.:	92471690009DUP
Sample Result (pCi/L, g, F):	5.860
Sample Result Counting Uncertainty (pCi/L, g, F):	0.912
Sample Duplicate Result (pCi/L, g, F):	5.701
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.866
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	0.248
Duplicate RPD:	2.76%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass
% RPD Limit:	25%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

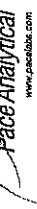
Comments:

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
<p>Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D.</p> <p>Spike I.D.:</p> <p>MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MSD Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):</p> <p>Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:</p>		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
<p>Sample I.D. Sample MS I.D. Sample MSD I.D.</p> <p>Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:</p>

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Quality Control Sample Performance Assessment



Test: Ra-226
Analyst: LAL
Date: 4/8/2020
Worklist: 53275
Matrix: DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1893284
MB concentration:	0.237
M/B Counting Uncertainty:	0.211
MB MDC:	0.384
MB Numerical Performance Indicator:	2.20
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCS53275	LCS53275
Count Date:	4/9/2020	4/9/2020
Spike ID:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.049	24.049
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.516	0.509
Target Conc. (pCi/L, g, F):	4.665	4.723
Uncertainty (Calculated):	0.056	0.057
Result (pCi/L, g, F):	4.878	4.715
LCSD Counting Uncertainty (pCi/L, g, F):	0.791	0.783
Numerical Performance Indicator:	0.53	-0.02
Percent Recovery:	104.58%	99.84%
Status vs Numerical Indicator:	N/A	N/A
Upper % Recovery Limits:	Pass	Pass
Lower % Recovery Limits:	125%	125%
	75%	75%

Duplicate Sample Assessment	Matrix Spike/Matrix Spike Duplicate Sample Assessment
<p>Sample I.D.: Duplicate Sample I.D.</p> <p>Sample Result (pCi/L, g, F): 4.878</p> <p>Sample Result Counting Uncertainty (pCi/L, g, F): 0.791</p> <p>Sample Duplicate Result (pCi/L, g, F): 4.715</p> <p>Sample Duplicate Result Counting Uncertainty (pCi/L, g, F): 0.783</p> <p>Are sample and/or duplicate results below RL? NO</p> <p>Duplicate Numerical Performance Indicator: 0.287</p> <p>(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD: 4.63%</p> <p>Duplicate Status vs Numerical Indicator: N/A</p> <p>Duplicate Status vs RPD: Pass</p> <p>% RPD Limit: 25%</p>	<p>Sample I.D.: Sample I.D.</p> <p>Sample MS I.D.: Sample MS I.D.</p> <p>Sample MSD I.D.: Sample MSD I.D.</p> <p>Sample Matrix Spike Result: Sample Matrix Spike Result</p> <p>Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result</p> <p>Sample Matrix Spike Duplicate Result: Sample Matrix Spike Duplicate Result</p> <p>Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator:</p> <p>(Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:</p>

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

manu/19/20

Ca 449/20

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 4/8/2020
Worklist: 53274
Matrix: WT



Method Blank Assessment	
MB Sample ID	1893276
MB concentration:	0.311
MB 2 Sigma CSU:	0.302
MB MDC:	0.622
MB Numerical Performance Indicator:	2.01
MB Status vs Numerical Indicator:	Warning
MB Status vs MDC:	Pass

Laboratory Control Sample Assessment	
Count Date:	4/20/2020
Spike I.D.:	19-057
Decay Corrected Spike Concentration (pCi/mL):	34.425
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.813
Target Conc. (pCi/L, g, F):	4.235
Uncertainty (Calculated):	0.306
Result (pCi/L, g, F):	4.402
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.007
Numerical Performance Indicator:	0.31
Percent Recovery:	103.95%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	135%
Lower % Recovery Limits:	60%

Duplicate Sample Assessment	
Sample I.D.:	LCS53274
Duplicate Sample I.D.:	LCS53274
Sample Result (pCi/L, g, F):	4.402
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.007
Sample Duplicate Result (pCi/L, g, F):	3.984
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.924
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	0.600
Duplicate (Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	10.32%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Pass
% RPD Limit:	36%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D.: Sample MS I.D.: Sample MSD I.D.: Spike I.D.: MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated): Sample Result: Sample Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

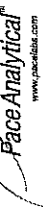
Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.: Sample MS I.D.: Sample MSD I.D.: Sample Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): Duplicate Numerical Performance Indicator: Duplicate (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Handwritten notes:
 53274
 4/20/20
 4/20/20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 4/9/2020
Worklist: 53276
Matrix: WT

Method Blank Assessment	
MB Sample ID	1893286
MB concentration:	0.771
M/B 2 Sigma CSU:	0.384
MB MDC:	0.663
MB Numerical Performance Indicator:	3.94
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCS (Y or N)?	
	LCS53276	LCS53276
Count Date:	4/20/2020	4/20/2020
Spike I.D.:	19-057	19-057
Decay Corrected Spike Concentration (pCi/mL):	34.425	34.424
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.802	0.807
Target Conc. (pCi/L, g, F):	4.291	4.286
Uncertainty (Calculated):	0.309	0.307
Result (pCi/L, g, F):	5.271	4.166
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.142	1.024
Numerical Performance Indicator:	1.62	-0.18
Percent Recovery:	122.84%	97.66%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	LCS53276
Duplicate Sample I.D.:	LCS53276
Sample Result (pCi/L, g, F):	5.271
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.142
Sample Duplicate Result (pCi/L, g, F):	4.166
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.024
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	1.413
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	22.85%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Pass
% RPD Limit:	36%

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:		

Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/MSD Duplicate RPD: MS/MSD Duplicate Status vs Numerical Indicator: MS/MSD Duplicate Status vs RPD: % RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:
*The method blank result is below the reporting limit for this analysis and is acceptable.

Handwritten signature: *Qu H 11/10/20*

Handwritten signature: *VAL 4/9/20*

**Stage 2A Data Verification Report
Georgia Power
McManus Fossil Plant
Coal Combustion Residuals Project
Groundwater Samples**

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the 21 groundwater samples collected as part of the 2019 Background Monitoring at the Georgia Power McManus Fossil Plant facility. These samples were collectively analyzed by Pace Analytical Services LLC (Pace) in Peachtree Corners, Georgia (Pace Atlanta), for total metals by SW-846 Method 6020B; for total mercury by SW-846 Method 7470A; for total dissolved solids (TDS) by Standard Method (SM) 2540C; and for anions (specifically, chloride, fluoride, and sulfate) by US EPA Method 300.0. In addition, these samples were collectively analyzed by Pace of Greensburg, Pennsylvania (Pace Pittsburgh), for total radium-226 by SW-846 Method 9315, for total radium-228 by SW-846 Method 9320, and for combined radium-226+228 by calculation.

This review was performed with guidance from the US EPA Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (November 2001); the US EPA Region IV Data Validation Standard Operating Procedures (SOPs; US EPA Region IV, September 2011); and the applied analytical methods. These validation guidance documents, with the exception of the analytical methods, specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the SM, SW-846, and US EPA methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the SM, SW-846, and US EPA methods utilized by the laboratory.

Summary

The analytical results and associated laboratory quality control (QC) samples were reviewed to determine the integrity of the reported analytical results and to verify that the data met the established data quality objectives.

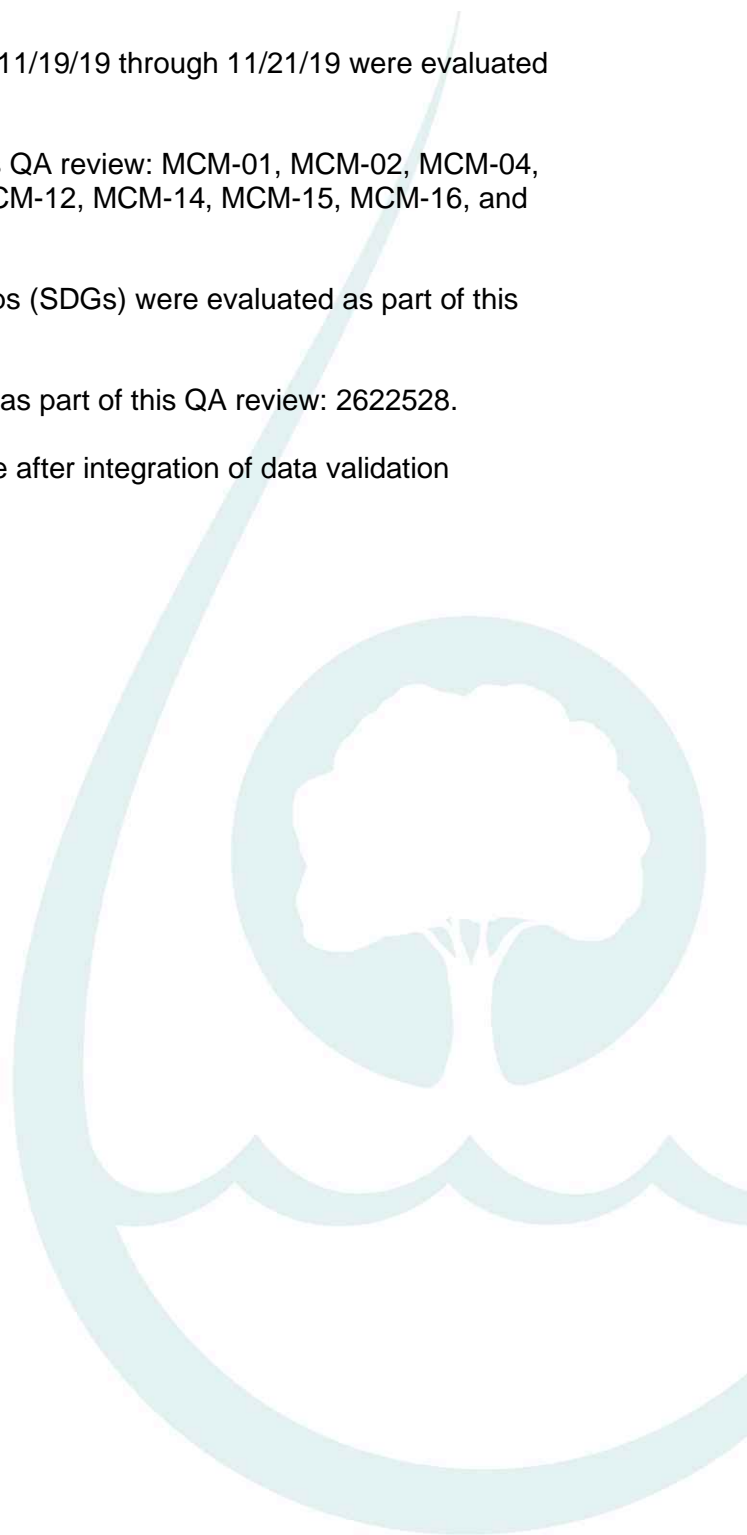
The samples collected 8/26/19 through 8/28/19 and 11/19/19 through 11/21/19 were evaluated as part of this QA review.

The following samples were evaluated as part of this QA review: MCM-01, MCM-02, MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, MCM-11, MCM-12, MCM-14, MCM-15, MCM-16, and MCM-17.

The following Pace inorganic Sample Delivery Groups (SDGs) were evaluated as part of this QA review: 2622524 and 2626070.

The following Pace radiological SDG was evaluated as part of this QA review: 2622528.

All data are considered usable as reported, or usable after integration of data validation qualifications.



Inorganic and Radiological Data Review

Data validation was performed for these samples based on the sample results, summary QC data, and raw data provided by the laboratory. The findings offered in this report for the inorganic and radiological analyses are based upon a review of the following QC measures:

- Sample condition upon laboratory receipt
- Chain-of-Custody (COC) Records
- Blank analysis results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries and precision
- Laboratory duplicate precision
- Sample holding times
- Case Narratives
- Chemical yield
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and precision
- Field duplicate precision

The above QC measures were evaluated against the analytical method requirements and QC acceptance criteria. The data were validated based on guidance from the US EPA Region IV Data Validation SOPs, the referenced procedures, and were qualified as appropriate as described in the sections below.

Comments and Exceptions

1. In all SDGs, the laboratory did not provide a Case Narrative associated with the inorganic and radiological analyses. As this item was not needed to complete the data validation, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
2. In SDG 2622528, the laboratory did not provide the subcontracted COC Record or the Sample Login Receipt Checklist from Pace Pittsburgh. As these items were not needed to complete the data validation, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
3. In the anion fraction of SDG 2622524, the laboratory performed matrix QC (MS/MSD) analyses on an associated equipment blank. Matrix QC analyses are performed to evaluate the impact of matrix interferences on target analyte results in investigative samples, which would not be present in a field blank sample. The data reviewer evaluated the MS/MSD analyses performed on the field blank as an LCS/LCSD analysis.
4. The data validator applied qualification to combined radium-226+228 based upon the QC samples associated with the analyses of the individual isotopes, radium-226 and radium-228. The electronic data deliverable (EDD) and the database only include the laboratory results for the combined radium-226+228; therefore, qualification of the individual isotopes is not addressed in this QA review.
5. SW-846 Method 9315 includes all alpha-emitting isotopes of radium. In order to analyze for only radium-226, a 21-day ingrowth period must be used. The radium-226 reported by the laboratory did not undergo a 21-day ingrowth; therefore, the results reported as

radium-226 potentially contain additional alpha-emitting radium isotopes and could be high biased.

6. Combined radium-226+228 was reported as the summation of the calculated activities for radium-226 and radium-228. As consistent with routine radiological reporting conventions, negative activities were reported for the radium-226 and radium-228 analyses; however, all negative activities were entered as zero in the calculation of combined radium-226+228 activity.
7. The combined radium-226+228 sample-specific minimum detectable concentration (MDC) was reported as the summation of the MDCs for radium-226 and radium-228. Consequently, there may be instances where a detection was observed in one of the individual isotopes but the combined radium-226+228 result was reported as “not-detected” due to the laboratory’s reporting convention for combined radium-226+228.
8. The combined radium-226+228 result uncertainty was reported as the summation of the calculated uncertainties for radium-226 and radium-228. If routine statistical uncertainty reporting conventions were followed, the result uncertainty would have been reported as the root sum square (RSS; the square root of the sum of the squared individual uncertainties).
9. The laboratory did not flag results < the MDC as “not-detected” in the data package provided. The data validator qualified these samples as “U” on the data tables.
10. The following field duplicate pairs (see table) were submitted and analyzed for inorganic and radiological parameters with this data set. Acceptable precision and sample representativeness were demonstrated by the reported results in the field duplicate pair evaluation (the relative percent difference [RPD] between results was $\leq 20\%$ when both results were $\geq 5\times$ the reporting limit [RL], the difference between results was \leq the RL when at least one result was $< 5\times$ the RL, or replicate error ratio [RER] < 3).

<u>Laboratory SDG(s)</u>	<u>Sample</u>	<u>Field Duplicate</u>
2622524 2622528	MCM-14	Dup-01
2622524 2622528	MCM-05	Dup-02
2626070	MCM-08	DUP-1

Overall Assessment of Data

Based on a review of the data, qualification of data was warranted as noted below.

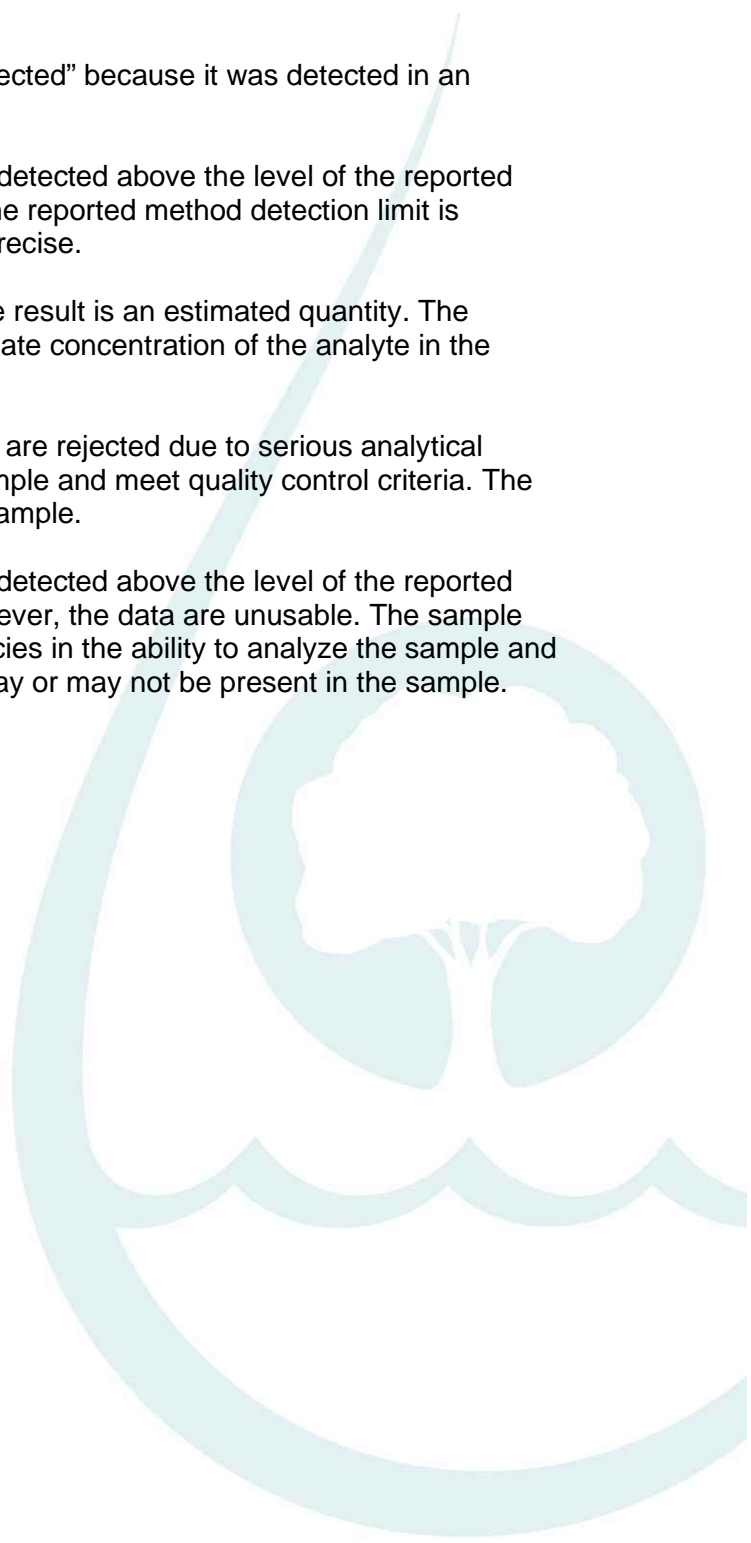
<u>Laboratory SDG(s)</u>	<u>Sample(s)</u>	<u>Analyte(s)</u>	<u>Qualifier(s)</u>	<u>Reason(s) for Qualification</u>
2622524	MCM-07 MCM-08, MCM-11, MCM-12, MCM-14, MCM-15, MCM-16, and MCM-17	fluoride	J/UR	M- – Very low MS/MSD recoveries
2622524	MCM-01, MCM-04, MCM-05, MCM-11, MCM-12, MCM-14, MCM-15, MCM-16, and MCM-17	arsenic	U*	BE – Equipment blank contamination BF – Field blank contamination
2622528	MCM-05	combined radium-226+228	U*	BE – Equipment blank contamination BL – Method blank contamination
2622528	MCM-02	combined radium-226+228	UJ	L- – Low LCSD recovery

- All inorganic positive results reported between the method detection limit (MDL) and RL have been flagged “J.”
- All radiological results reported below the MDC have been flagged “U.”

Report prepared by: Abigail P. Roselli, M.S., Quality Assurance Chemist
 Report reviewed by: Alyssa M. Reed, Senior Quality Assurance Chemist/Project Manager
 Report approved by: David I. Thal, CEAC, CQA, Principal Chemist
 Date: 1/6/2020

INORGANIC AND RADIOLOGICAL DATA QUALIFIERS

- U - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit.
- U* - This analyte should be considered “not-detected” because it was detected in an associated blank at a similar level.
- UJ - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J - The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R - The data are unusable. The sample results are rejected due to serious analytical deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.
- UR - The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.



Reason Codes and Explanations

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
FD	Field duplicate imprecision.
FG	Total versus dissolved imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
T	Temperature preservation issue.
SD	Serial dilution imprecision.
Y	Chemical yields outside of acceptance limits, indeterminate bias.
Y+	Chemical yield(s) outside of acceptance limits. The result may be biased high.
Y-	Chemical yield(s) outside of acceptance limits. The result may be biased low.
ZZ	Other

**Stage 2A Data Verification Report
Georgia Power
McManus Fossil Plant
Coal Combustion Residuals Project
Groundwater Samples**

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the 13 groundwater samples collected as part of the 2019 detection monitoring at the Georgia Power McManus Fossil Plant facility. These samples were collectively analyzed by Pace Analytical Services, LLC (Pace) in Peachtree Corners, Georgia (Pace Atlanta) for total metals by SW-846 Method 6020B; for total dissolved solids (TDS) by Standard Method (SM) 2540C; and for anions (specifically, chloride, fluoride, and sulfate) by US EPA Method 300.0.

This review was performed with guidance from the US EPA Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (November 2001); the US EPA Region IV Data Validation Standard Operating Procedures (SOPs; US EPA Region IV, September 2011); and the applied analytical methods. These validation guidance documents, with the exception of the analytical methods, specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the SM, SW-846, and US EPA methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the SM, SW-846, and US EPA methods utilized by the laboratory.

Summary

The analytical results and associated laboratory quality control (QC) samples were reviewed to determine the integrity of the reported analytical results and to verify that the data met the established data quality objectives.

The samples collected 10/15/2019 through 10/17/19 were evaluated as part of this QA review.

The following samples were evaluated as part of this QA review: MCM-01, MCM-02, MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, MCM-11, MCM-12, MCM-14, MCM-15, MCM-16, and MCM-17.

The following Pace inorganic SDGs were evaluated as part of this QA review: 2624541, 2624543, and 2624794.

All data are considered usable as reported, or usable after integration of data validation qualifications.

Inorganic Data Review

Data validation was performed for these samples based on the sample results, summary QC data, and raw data provided by the laboratory. The findings offered in this report for the inorganic analyses are based upon a review of the following QC measures:

- Sample condition upon laboratory receipt
- Chain-of-Custody (COC) Records
- Laboratory control sample (LCS) recoveries
- Laboratory duplicate precision
- Sample holding times
- Case Narratives
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and precision
- Field duplicate precision

The above QC measures were evaluated against the analytical method requirements and QC acceptance criteria. The data were validated based on guidance from the US EPA Region IV Data Validation SOPs, the referenced procedures, and were qualified as appropriate as described in the sections below.

Comments and Exceptions

1. In all SDGs, the laboratory did not provide a Case Narrative associated with the metals and general chemistry analyses. As this item was not needed to complete the data validation, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
2. The following field duplicate pairs (see table) were submitted and analyzed for inorganic parameters with this data set. Acceptable precision and sample representativeness were demonstrated by the reported results in the field duplicate pair evaluation. (The relative percent difference [RPD] between results was $\leq 20\%$ when both results were $\geq 5\times$ the reporting limit [RL], the difference between results was \leq the RL when at least one result was $< 5\times$ the RL.)

<u>Laboratory SDG(s)</u>	<u>Sample</u>	<u>Field Duplicate</u>
2624541	MCM-14	DUP-1
2624543	MCM-05	DUP-2

Overall Assessment of Data

Based on a review of the data, qualification of data was warranted as noted below.

<u>Laboratory SDG(s)</u>	<u>Sample(s)</u>	<u>Analyte(s)</u>	<u>Qualifier(s)</u>	<u>Reason(s) for Qualification</u>
2624541	MCM-04, MCM-12, and MCM-15	arsenic	U*	BF – Field blank contamination BE – Equipment blank contamination BL – Laboratory blank Contamination
2624541	MCM-14	arsenic	U*	BF – Field blank contamination BE – Equipment blank contamination
2624541	MCM-04 and MCM-15	fluoride	U*	BF – Field blank contamination
2624541	MCM-12	sulfate	U*	BE – Equipment blank contamination
2624543	MCM-02, MCM-05, MCM-16, MCM-17	arsenic	U*	BF – Field blank contamination BE – Equipment blank contamination BL – Laboratory blank Contamination
2624543	MCM-11	arsenic	U*	BF – Field blank contamination BE – Equipment blank contamination
2624794	MCM-06	antimony	U*	BL – Laboratory blank contamination
2624794	MCM-07	arsenic	U*	BF – Field blank contamination BE – Equipment blank contamination
2624794	all samples	TDS	J	H – Holding time exceeded
2624541	all samples	chloride	J	M- – Low MS recovery
2624543	all samples	chloride and sulfate	J	M- – Low MS/MSD recoveries
2624794	all samples	selenium	J	M- – Low MS/MSD recoveries

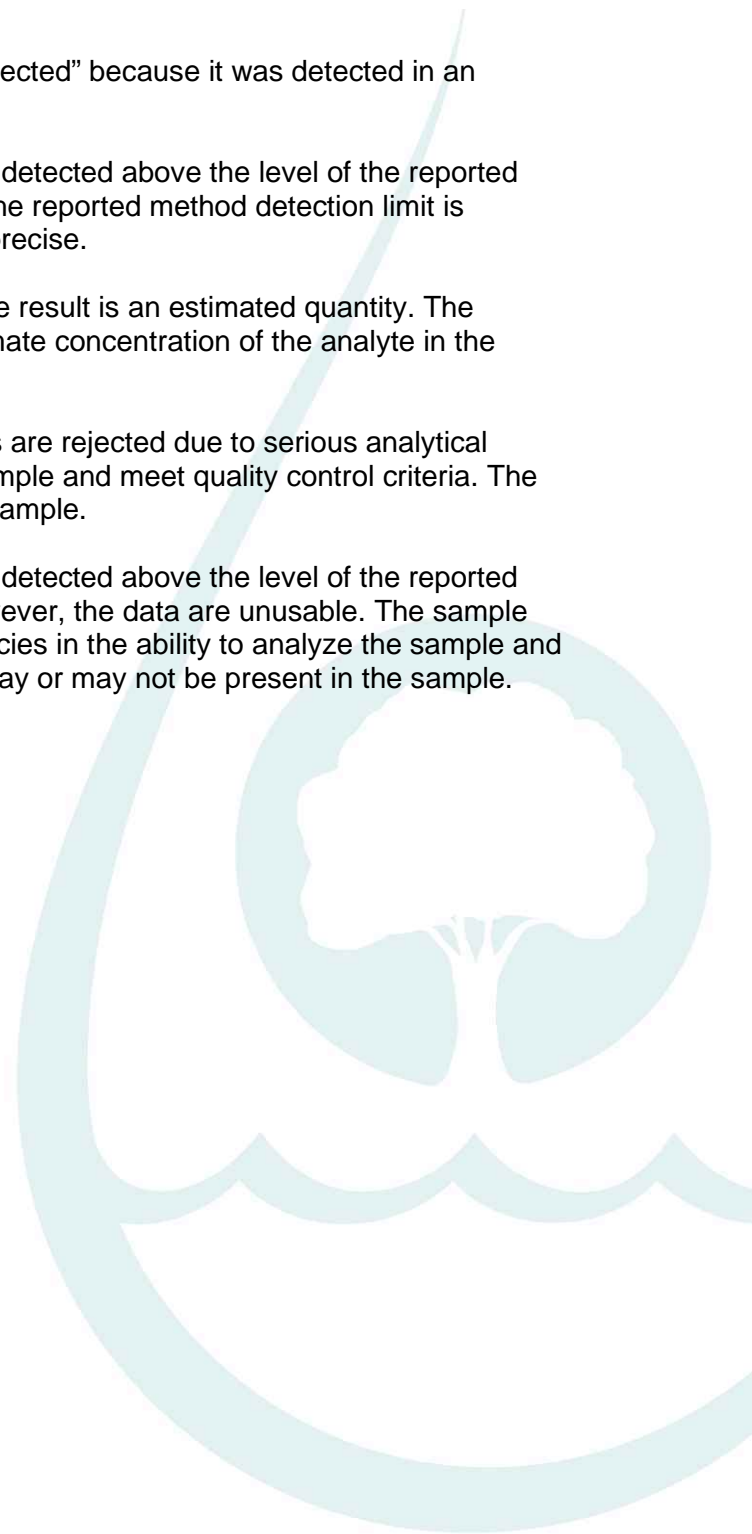
- All inorganic positive results reported between the method detection limit (MDL) and RL have been flagged "J" (unless previously flagged "U*").

Report prepared by: Abigail P. Roselli, Quality Assurance Chemist
Report reviewed by: Alyssa M. Reed, Senior Quality Assurance Chemist
Report reviewed by: Alyssa M. Reed, Senior Quality Assurance Chemist/Project Manager
Report approved by: David I. Thal, CEAC, CQA, Principal Chemist
Date: 12/16/2019



INORGANIC DATA QUALIFIERS

- U - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit.
- U* - This analyte should be considered “not-detected” because it was detected in an associated blank at a similar level.
- UJ - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J - The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R - The data are unusable. The sample results are rejected due to serious analytical deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.
- UR - The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.



Reason Codes and Explanations

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
FD	Field duplicate imprecision.
FG	Total versus dissolved imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
T	Temperature preservation issue.
SD	Serial dilution imprecision.
Y	Chemical yields outside of acceptance limits, indeterminate bias.
Y+	Chemical yield(s) outside of acceptance limits. The result may be biased high.
Y-	Chemical yield(s) outside of acceptance limits. The result may be biased low.
ZZ	Other

**Stage 2A Data Verification Report
Georgia Power
McManus Fossil Plant
Coal Combustion Residuals Project
Groundwater Samples**

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the 13 groundwater samples collected as part of the 2019 detection monitoring at the Georgia Power McManus Fossil Plant facility. These samples were collectively analyzed by Pace Analytical Services, LLC in Greensburg, Pennsylvania (Pace Pittsburgh) for total radium-226 by SW-846 Method 9315, for total radium-228 by SW-846 Method 9320, and for combined radium-226+228 by calculation.

This review was performed with guidance from the US EPA Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (November 2001); the US EPA Region IV Data Validation Standard Operating Procedures (SOPs; US EPA Region IV, September 2011); and the applied analytical methods. These validation guidance documents, with the exception of the analytical methods, specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the SM, SW-846, and US EPA methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the SM, SW-846, and US EPA methods utilized by the laboratory.

Summary

The analytical results and associated laboratory quality control (QC) samples were reviewed to determine the integrity of the reported analytical results and to verify that the data met the established data quality objectives.

The samples collected 10/15/2019 through 10/17/19 were evaluated as part of this QA review.

The following samples were evaluated as part of this QA review: MCM-01, MCM-02, MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, MCM-11, MCM-12, MCM-14, MCM-15, MCM-16, and MCM-17.

The following Pace radiological SDGs were evaluated as part of this QA review: 30331322, 30331305, and 30332802.

All data are considered usable as reported, or usable after integration of data validation qualifications.

Radiological Data Review

Data validation was performed for these samples based on the sample results, summary QC data, and raw data provided by the laboratory. The findings offered in this report for the radiological analyses are based upon a review of the following QC measures:

- Sample condition upon laboratory receipt
- Chain-of-Custody (COC) Records
- Blank analysis results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries and precision
- Laboratory duplicate precision
- Sample holding times
- Case Narratives
- Chemical yield
- Field duplicate precision

The above QC measures were evaluated against the analytical method requirements and QC acceptance criteria. The data were validated based on guidance from the US EPA Region IV Data Validation SOPs, the referenced procedures, and were qualified as appropriate as described in the sections below.

Comments and Exceptions

1. In all SDGs, the laboratory did not provide a Case Narrative associated with the radiological analyses. As this item was not needed to complete the data validation, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
2. In all SDGs, the laboratory only provided the subcontract Chain-of-Custody (COC) Record. As the original COC Record had been included in the associated inorganic data package, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
3. The data validator applied qualification to combined radium-226+228 based upon the QC samples associated with the analyses of the individual isotopes, radium-226 and radium-228. The electronic data deliverable (EDD) and the database only include the laboratory results for the combined radium-226+228; therefore, qualification of the individual isotopes is not addressed in this QA review.
4. SW-846 Method 9315 includes all alpha-emitting isotopes of radium. In order to analyze for only radium-226, a 21-day ingrowth period must be used. The radium-226 reported by the laboratory did not undergo a 21-day ingrowth; therefore, the results reported as radium-226 potentially contain additional alpha-emitting radium isotopes and could be high biased.
5. Combined radium-226+228 was reported as the summation of the calculated activities for radium-226 and radium-228. As consistent with routine radiological reporting conventions, negative activities were reported for the radium-226 and radium-228

analyses; however, all negative activities were entered as zero in the calculation of combined radium-226+228 activity.

6. The combined radium-226+228 sample-specific minimum detectable concentration (MDC) was reported as the summation of the MDCs for radium-226 and radium-228. Consequently, there may be instances where a detection was observed in one of the individual isotopes but the combined radium-226+228 result was reported as “not-detected” due to the laboratory’s reporting convention for combined radium-226+228.
7. The combined radium-226+228 result uncertainty was reported as the summation of the calculated uncertainties for radium-226 and radium-228. If routine statistical uncertainty reporting conventions were followed, the result uncertainty would have been reported as the root sum square (RSS; the square root of the sum of the squared individual uncertainties).
8. The laboratory did not flag results < the MDC as “not-detected” in the data package provided. The data validator qualified these samples as “U” on the data tables.
9. The following field duplicate pairs (see table) were submitted and analyzed for radiological parameters with this data set. Acceptable precision and sample representativeness were demonstrated by the reported results in the field duplicate pair evaluation (replicate error ratio [RER] < 3).

<u>Laboratory SDG(s)</u>	<u>Sample</u>	<u>Field Duplicate</u>
30331305	MCM-14	DUP-1
30331322	MCM-05	DUP-2

Overall Assessment of Data

Based on a review of the data, qualification of data was warranted as noted below.

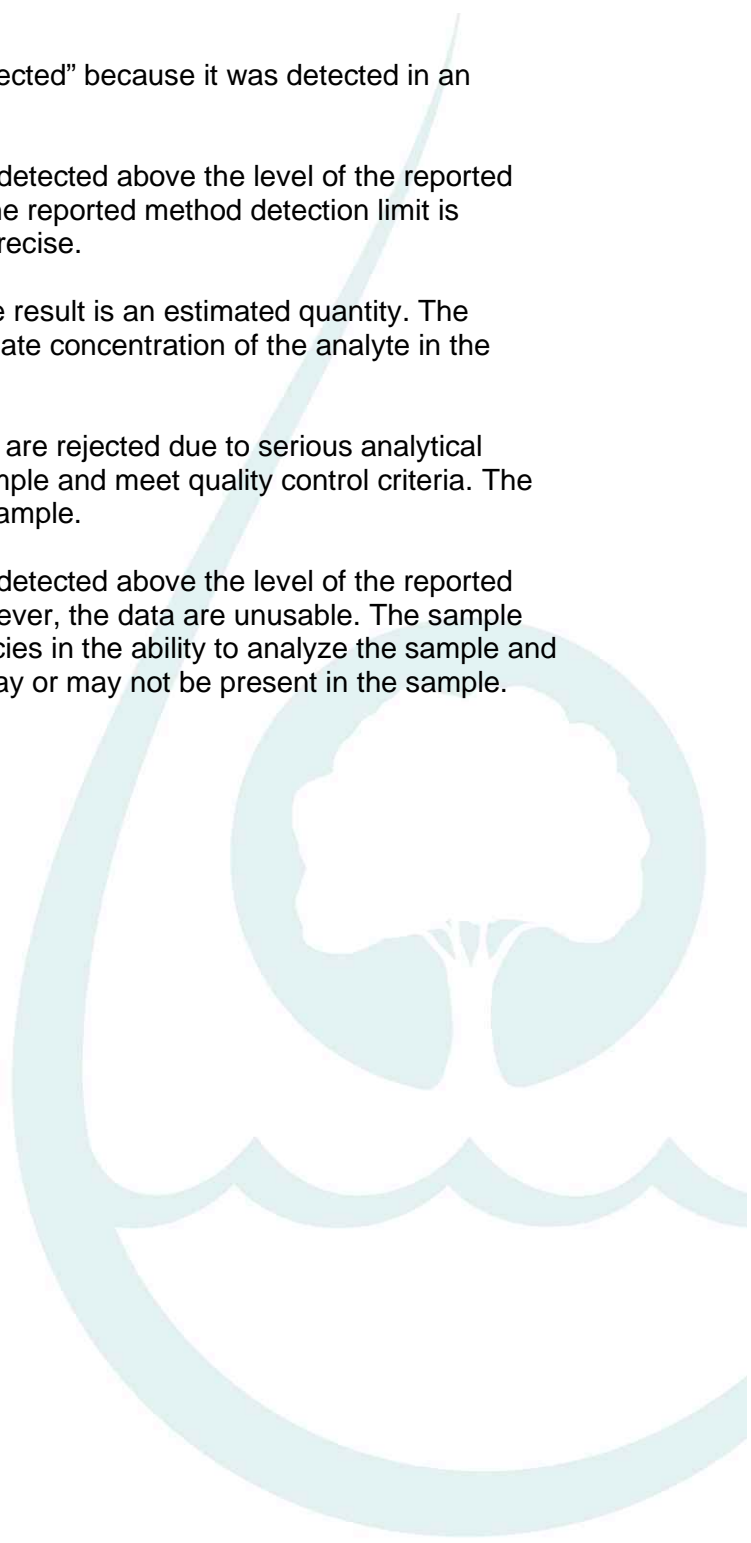
<u>Laboratory SDG(s)</u>	<u>Sample(s)</u>	<u>Analyte</u>	<u>Qualifier(s)</u>	<u>Reason(s) for Qualification</u>
30331322	MCM-05 and MCM-16	combined radium-226+228	U*	BE – Equipment blank contamination BF – Field blank contamination
30331305	all samples	combined radium-226+228	J/UJ	L- – Low LCS recovery
30331322	all samples	combined radium-226+228	J/UJ (unless previously flagged “U**”)	L- – Low LCS recovery

- All radiological results reported below the MDC have been flagged “U.”

Report prepared by: Abigail P. Roselli, M.S., Quality Assurance Chemist
 Report reviewed by: Alyssa M. Reed, Senior Quality Assurance Chemist/Project Manager
 Report approved by: David I. Thal, CEAC, CQA, Principal Chemist
 Date: 12/4/2019

INORGANIC AND RADIOLOGICAL DATA QUALIFIERS

- U - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit.
- U* - This analyte should be considered “not-detected” because it was detected in an associated blank at a similar level.
- UJ - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J - The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R - The data are unusable. The sample results are rejected due to serious analytical deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.
- UR - The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.



Reason Codes and Explanations

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered "not-detected."
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C-	Initial and/or continuing calibration issue. The result may be biased low.
FD	Field duplicate imprecision.
FG	Total versus dissolved imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
T	Temperature preservation issue.
SD	Serial dilution imprecision.
Y	Chemical yields outside of acceptance limits, indeterminate bias.
Y+	Chemical yield(s) outside of acceptance limits. The result may be biased high.
Y-	Chemical yield(s) outside of acceptance limits. The result may be biased low.
ZZ	Other

**Stage 2A Data Verification Report
Georgia Power
McManus Fossil Plant
Coal Combustion Residuals Project
Groundwater Samples**

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the 16 groundwater samples collected as part of the March 2020 semi-annual sampling at the Georgia Power McManus Fossil Plant facility. These samples were collectively analyzed by Pace Analytical Services, LLC (Pace) in Asheville, North Carolina (Pace Asheville) for total metals by SW-846 Method 6010D and 6020B; for mercury by SW-846 Method 7470A; for total dissolved solids (TDS) by Standard Method (SM) 2540C; and for anions (specifically, chloride, fluoride, and sulfate) by US EPA Method 300.0. The samples were also analyzed by Pace of Huntersville, North Carolina (Pace Charlotte) for pH. In addition, these samples were collectively analyzed by Pace of Greensburg, Pennsylvania (Pace Pittsburgh), for total radium-226 by SW-846 Method 9315, for total radium-228 by SW-846 Method 9320, and for combined radium-226+228 by calculation.

This review was performed with guidance from the US EPA Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (November 2001); the US EPA Region IV Data Validation Standard Operating Procedures (SOPs; US EPA Region IV, September 2011); and the applied analytical methods. These validation guidance documents, with the exception of the analytical methods, specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the SM, SW-846, and US EPA methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the SM, SW-846, and US EPA methods utilized by the laboratory.

Summary

The analytical results and associated laboratory quality control (QC) samples were reviewed to determine the integrity of the reported analytical results and to verify that the data met the established data quality objectives.

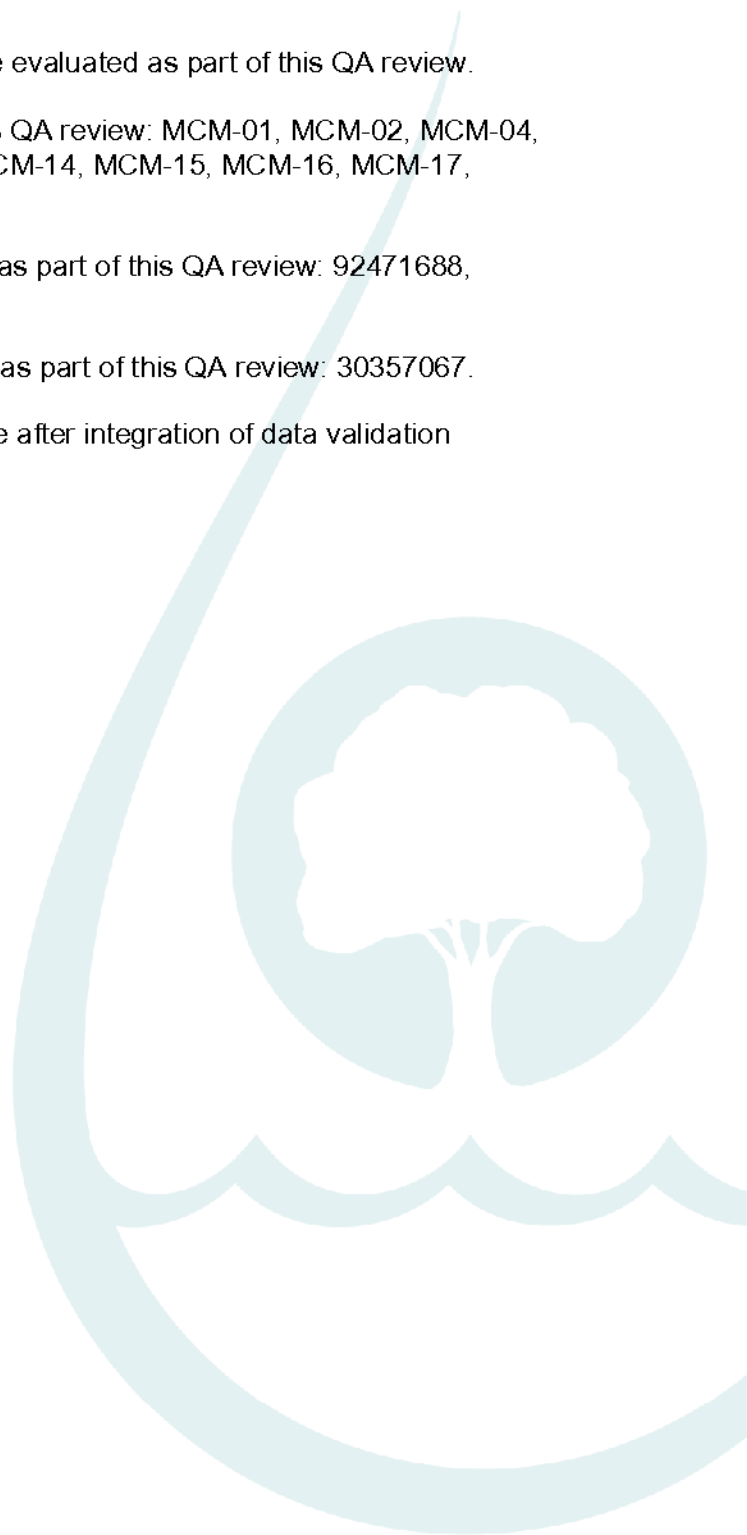
The samples collected 3/26/20 through 3/28/20 were evaluated as part of this QA review.

The following samples were evaluated as part of this QA review: MCM-01, MCM-02, MCM-04, MCM-05, MCM-06, MCM-07, MCM-11, MCM-12, MCM-14, MCM-15, MCM-16, MCM-17, MCM-18, MCM-19, MCM-20, and DPZ-2.

The following Pace inorganic SDGs were evaluated as part of this QA review: 92471688, 92471690, and 92474306.

The following Pace radiological SDG was evaluated as part of this QA review: 30357067.

All data are considered usable as reported, or usable after integration of data validation qualifications.



Inorganic and Radiological Data Review

Data validation was performed for these samples based on the sample results, summary QC data, and raw data provided by the laboratory. The findings offered in this report for the inorganic analyses are based upon a review of the following QC measures:

- Sample condition upon laboratory receipt
- Chain-of-Custody (COC) Records
- Blank analysis results
- Laboratory control sample (LCS) recoveries
- Laboratory duplicate precision
- Sample holding times
- Case Narratives
- Chemical yield
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and precision
- Field duplicate precision

The above QC measures were evaluated against the analytical method requirements and QC acceptance criteria. The data were validated based on guidance from the US EPA Region IV Data Validation SOPs, the referenced procedures, and were qualified as appropriate as described in the sections below.

Comments and Exceptions

1. In all SDGs, the laboratory did not provide a Case Narrative associated with the inorganic and radiological analyses. As this item was not needed to complete the data validation, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
2. In SDG 92471688, sample DPZ-3 had been received by the laboratory, but analytical results were not provided in the data package. Upon Environmental Standards' inquiry, Resolute Environmental indicated the sample was placed on hold at the client's request and was not analyzed. Qualification of data due to this issue was not warranted.
3. In SDGs 92471688, 92471690, and 92474306, the laboratory did not provide the subcontracted COC Record or the Sample Login Receipt Checklist from Pace Asheville to Pace Charlotte. As these items were not needed to complete the data validation, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
4. In SDG 30357067, the laboratory only provided the subcontract COC Record and Sample Login Receipt Checklist. As the original COC Record and SCUR checklists had been included in the associated inorganic data packages, the laboratory had not been requested to provide this information. Qualification of data due to this issue was not warranted.
5. In SDG 92471690, the data reviewer noted a few instances of a sample result above the laboratory reporting limit (RL) having been improperly been flagged as estimated ("J") in the analytical report and electronic data deliverable (EDD), indicating that the sample result was reported between the method detection limit (MDL) and RL. The data reviewer removed this qualification in the EDD provided to Resolute Environmental.

6. In the metals fraction of SDG 92471690, the laboratory performed matrix QC (MS/MSD) analyses on an associated field blank and equipment blank. Matrix QC analyses are performed to evaluate the impact of matrix interferences on target analyte results in investigative samples, which would not be present in a field or equipment blank sample. The data reviewer evaluated the MS/MSD analyses performed on the field blank and equipment blank as an LCS/LCSD analysis.
7. In the mercury fraction of SDG 92471690, the laboratory performed matrix QC (MS/MSD) analyses on an associated equipment blank. Matrix QC analyses are performed to evaluate the impact of matrix interferences on target analyte results in investigative samples, which would not be present in an equipment blank sample. The data reviewer evaluated the MS/MSD analyses performed on the equipment blank as an LCS/LCSD analysis.
8. The data validator applied qualification to combined radium-226+228 based upon the QC samples associated with the analyses of the individual isotopes, radium-226 and radium-228. The electronic data deliverable (EDD) and the database only include the laboratory results for the combined radium-226+228; therefore, qualification of the individual isotopes is not addressed in this QA review.
9. SW-846 Method 9315 includes all alpha-emitting isotopes of radium. In order to analyze for only radium-226, a 21-day ingrowth period must be used. The radium-226 reported by the laboratory did not undergo a 21-day ingrowth; therefore, the results reported as radium-226 potentially contain additional alpha-emitting radium isotopes and could be high biased.
10. Combined radium-226+228 was reported as the summation of the calculated activities for radium-226 and radium-228. As consistent with routine radiological reporting conventions, negative activities were reported for the radium-226 and radium-228 analyses; however, all negative activities were entered as zero in the calculation of combined radium-226+228 activity.
11. The combined radium-226+228 sample-specific minimum detectable concentration (MDC) was reported as the summation of the MDCs for radium-226 and radium-228. Consequently, there may be instances where a detection was observed in one of the individual isotopes but the combined radium-226+228 result was reported as “not-detected” due to the laboratory’s reporting convention for combined radium-226+228.
12. The combined radium-226+228 result uncertainty was reported as the summation of the calculated uncertainties for radium-226 and radium-228. If routine statistical uncertainty reporting conventions were followed, the result uncertainty would have been reported as the root sum square (RSS; the square root of the sum of the squared individual uncertainties).
13. The laboratory did not flag results < the MDC as “not-detected” in the data package provided. The data validator qualified these samples as “U” on the data tables.
14. The following field duplicate pairs (see table) were submitted and analyzed for inorganic and radiological parameters with this data set. Acceptable precision and sample

representativeness were demonstrated by the reported results in the field duplicate pair evaluation (the relative percent difference [RPD] between results was $\leq 20\%$ when both results were $\geq 5\times$ the reporting limit [RL], the difference between results was \leq the RL when at least one result was $< 5\times$ the RL, or replicate error ratio [RER] < 3).

<u>Laboratory SDG(s)</u>	<u>Sample</u>	<u>Field Duplicate</u>
92471690 30357067	MCM-20	DUP-1
92471690 30357067	MCM-07	DUP-2

Overall Assessment of Data

Based on a review of the data, qualification of data was warranted as noted below.

<u>Laboratory SDG(s)</u>	<u>Sample(s)</u>	<u>Analyte(s)</u>	<u>Qualifier</u>	<u>Reason(s) for Qualification</u>
92471690	MCM-01	chloride	U*	BE – Equipment blank contamination
92471690	MCM-02, MCM-11, MCM-15, and MCM-16	chloride	U*	BF – Field blank contamination BE – Equipment blank contamination
30357067	MCM-12 and MCM-14	combined radium-226+228	J	BF – Field blank contamination
30357067	MCM-17 and MCM-18	combined radium-226+228	J	BF – Field blank contamination L+ – High LCS recovery
30357067	MCM-15	combined radium-226+228	J	BL – Method blank contamination BF – Field blank contamination L+ – High LCS recovery
92471690	MCM-07	barium	J	FD – Field duplicate imprecision
92471690	MCM-11 and MCM-18	fluoride	J	M+ – High MS/MSD recoveries
92474306	MCM-12	fluoride	J	M+ – High MS/MSD recoveries
30357067	MCM-19, MCM-20, MCM-06, and MCM-07	combined radium-226+228	J	L+ – High LCS recovery

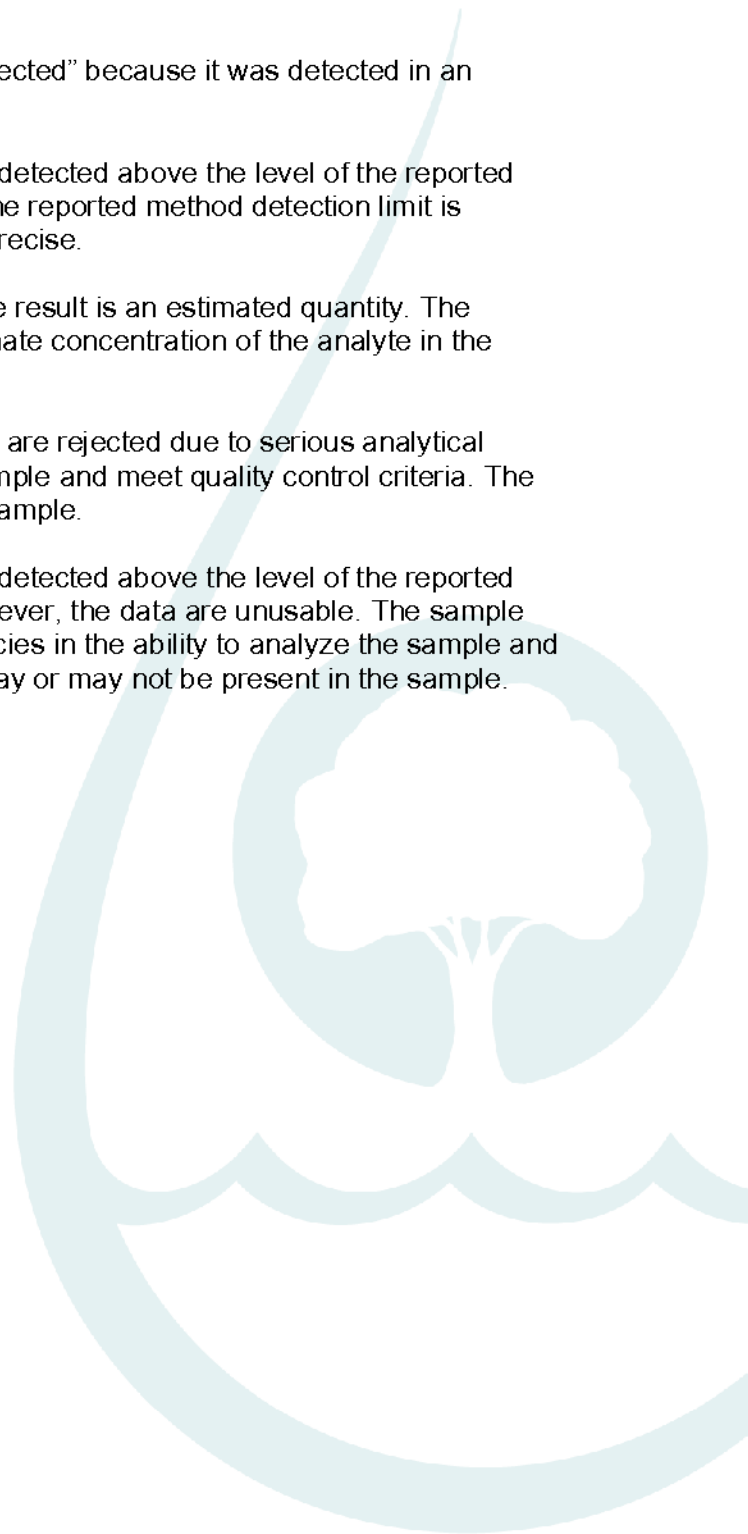
- All inorganic positive results reported between the method detection limit (MDL) and RL have been flagged "J" (unless previously flagged "U*").
- All radiological results reported below the MDC have been flagged "U."

Report prepared by: Abigail P. Roselli M.S., Quality Assurance Chemist
Report reviewed by: Alyssa M. Reed, Senior Quality Assurance Chemist/Project Manager
Report approved by: David I. Thal, CEAC, CQA, Principal Chemist
Date: 5/4/20



INORGANIC DATA QUALIFIERS

- U - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit.
- U* - This analyte should be considered “not-detected” because it was detected in an associated blank at a similar level.
- UJ - The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J - The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R - The data are unusable. The sample results are rejected due to serious analytical deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.
- UR - The analyte was analyzed for, but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.



Reason Codes and Explanations

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
FD	Field duplicate imprecision.
FG	Total versus dissolved imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
T	Temperature preservation issue.
SD	Serial dilution imprecision.
Y	Chemical yields outside of acceptance limits, indeterminate bias.
Y+	Chemical yield(s) outside of acceptance limits. The result may be biased high.
Y-	Chemical yield(s) outside of acceptance limits. The result may be biased low.
ZZ	Other

APPENDIX A2

Field Sampling Forms

Product Name: Low-Flow System

Date: 2019-10-16 13:30:16

Project Information:

Operator Name Joe Booth
Company Name Resolute
Project Name October CCR 2019
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Dedicated
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 27 ft

Pump placement from TOC 22.32 ft

Well Information:

Well ID MCM-01
Well diameter 2 in
Well Total Depth 27.32 ft
Screen Length 10 ft
Depth to Water 6.76 ft

Pumping Information:

Final Pumping Rate 145 mL/min
Total System Volume 0.2105124 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.84 in
Total Volume Pumped 2.9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	13:12:06	240.02	25.87	5.70	201.60	3.60	6.83	0.18	32.14
Last 5	13:16:06	480.02	25.95	5.72	199.11	2.70	6.83	0.19	32.58
Last 5	13:20:06	720.01	25.65	5.72	197.20	2.00	6.83	0.27	33.99
Last 5	13:24:06	960.00	25.70	5.72	198.54	1.92	6.83	0.23	34.90
Last 5	13:28:06	1199.99	25.97	5.72	198.46	1.30	6.83	0.28	35.51
Variance 0			-0.30	0.00	-1.91			0.08	1.41
Variance 1			0.05	0.00	1.35			-0.04	0.91
Variance 2			0.26	-0.00	-0.08			0.05	0.61

Notes

Prepurged 2 liters

Grab Samples

MCM-01
Metals, anions, TDS, radium

Product Name: Low-Flow System

Date: 2019-10-16 11:12:35

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type Peristaltic Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 29 ft

Pump placement from TOC 22.35 ft

Well Information:

Well ID MCM-02
Well diameter 2 in
Well Total Depth 27.35 ft
Screen Length 10 ft
Depth to Water 6.71 ft

Pumping Information:

Final Pumping Rate 190 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 2.28 in
Total Volume Pumped 3.42 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	10:57:28	360.02	23.26	4.99	196.24	1.08	6.90	0.14	32.60
Last 5	11:00:28	540.02	23.11	4.99	192.55	0.80	6.90	0.13	31.36
Last 5	11:03:28	720.02	23.13	4.98	192.60	0.81	6.90	0.12	31.01
Last 5	11:06:28	900.02	23.18	4.98	190.68	0.50	6.90	0.11	30.11
Last 5	11:09:28	1080.01	23.16	4.98	189.18	0.53	6.90	0.11	29.35
Variance 0			0.02	-0.00	0.05			-0.01	-0.35
Variance 1			0.05	0.00	-1.92			-0.01	-0.90
Variance 2			-0.03	-0.00	-1.50			-0.01	-0.76

Notes

Prepurged 2L
Well performed well

Grab Samples

MCM-02
Metals
MCM-02
Anions

MCM-02
TDS
MCM-02
Radium



Product Name: Low-Flow System

Date: 2019-10-15 15:07:42

Project Information:

Operator Name Joe Booth
Company Name Resolute
Project Name October CCR 2019
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23 ft

Well Information:

Well ID MCM-04
Well diameter 2 in
Well Total Depth 28.57 ft
Screen Length 10 ft
Depth to Water 11.26 ft

Pumping Information:

Final Pumping Rate 130 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 4.08 in
Total Volume Pumped 2.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	14:49:34	240.06	21.61	4.89	382.76	0.51	11.60	0.18	68.90
Last 5	14:53:34	480.02	21.60	4.90	377.79	0.52	11.61	0.16	66.22
Last 5	14:57:34	720.00	21.57	4.89	378.90	0.78	11.62	0.14	64.92
Last 5	15:01:34	960.00	21.55	4.89	377.13	0.57	11.63	0.13	64.40
Last 5	15:05:34	1199.99	21.53	4.89	379.68	0.54	11.63	0.12	64.27
Variance 0			-0.03	-0.00	1.11			-0.01	-1.30
Variance 1			-0.01	-0.00	-1.77			-0.01	-0.52
Variance 2			-0.03	-0.00	2.55			-0.00	-0.13

Notes

Prepurged 2 liters

Grab Samples

MCM-04 Metals, anions, TDS, radium

Product Name: Low-Flow System

Date: 2019-10-16 15:24:27

Project Information:

Operator Name Joe Booth
Company Name Resolute
Project Name October CCR 2019
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Dedicated
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 23.05 ft

Well Information:

Well ID MCM-05
Well diameter 2 in
Well Total Depth 28.05 ft
Screen Length 10 ft
Depth to Water 10.19 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3.84 in
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	15:05:55	240.02	24.59	6.62	4985.06	0.35	10.47	0.23	-43.26
Last 5	15:09:55	480.02	24.38	6.63	5006.68	0.23	10.48	0.11	-46.44
Last 5	15:13:55	720.01	24.60	6.63	5015.36	0.43	10.47	0.08	-49.23
Last 5	15:17:55	960.00	24.54	6.63	5025.38	0.28	10.51	0.08	-50.24
Last 5	15:21:55	1200.00	24.35	6.64	5030.49	0.30	10.51	0.09	-49.96
Variance 0			0.22	0.00	8.68			-0.02	-2.78
Variance 1			-0.06	0.00	10.02			0.00	-1.01
Variance 2			-0.19	0.00	5.11			0.00	0.28

Notes

Prepurged 2 liters

Grab Samples

MCM-05
Metals, anions, TDS, radium
DUP - 2
Metals, anions, TDS, radium

Product Name: Low-Flow System

Date: 2019-10-17 10:53:35

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 29 ft

Pump placement from TOC 22.2 ft

Well Information:

Well ID MCM-06
Well diameter 2 in
Well Total Depth 27.2 ft
Screen Length 10 ft
Depth to Water 9.8 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.4844393 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 0 in
Total Volume Pumped 3.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	10:38:02	540.02	23.16	6.86	24309.89	1.78	9.80	0.09	-383.01
Last 5	10:41:02	720.01	23.30	6.86	24494.54	2.27	9.75	0.09	-387.56
Last 5	10:44:02	900.01	23.37	6.86	24571.73	2.36	9.73	0.09	-390.51
Last 5	10:47:02	1080.01	23.25	6.86	24687.48	2.12	9.72	0.09	-392.38
Last 5	10:50:02	1260.01	23.34	6.86	24862.54	2.05	9.70	0.09	-394.14
Variance 0			0.07	-0.00	77.19			-0.00	-2.95
Variance 1			-0.12	-0.00	115.75			-0.00	-1.87
Variance 2			0.09	-0.00	175.06			-0.00	-1.76

Notes

Prepurged 1L
Well performed well. Well tidally influences. Felt the effects of incoming high tide.

Grab Samples

MCM-06
Metals
MCM-06
Anions

MCM-06
TDS
MCM-06
Radium



Product Name: Low-Flow System

Date: 2019-10-17 10:57:24

Project Information:

Operator Name Joe Booth
Company Name Resolute
Project Name October CCR 2019
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Dedicated
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23.75 ft

Pump placement from TOC 18.75 ft

Well Information:

Well ID MCM-07
Well diameter 2 in
Well Total Depth 23.75 ft1
Screen Length 0 ft
Depth to Water 9.18 ft

Pumping Information:

Final Pumping Rate 110 mL/min
Total System Volume 0.1960063 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 4.08 in
Total Volume Pumped 4.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	10:37:57	960.00	24.78	6.39	23063.51	6.95	9.80	0.05	12.39
Last 5	10:41:57	1199.99	24.82	6.40	22911.55	5.62	9.75	0.04	13.45
Last 5	10:45:57	1439.99	24.83	6.40	22921.42	4.21	9.52	0.05	13.93
Last 5	10:49:57	1679.98	24.87	6.40	22894.26	4.42	9.52	0.05	14.48
Last 5	10:53:57	1919.97	24.93	6.40	22819.83	4.61	9.52	0.05	15.38
Variance 0			0.01	0.00	9.86			0.01	0.48
Variance 1			0.04	-0.00	-27.15			0.00	0.55
Variance 2			0.06	0.00	-74.43			0.00	0.90

Notes

Prepurged 2 liters

Grab Samples

MCM-07
Metals, anions, TDS, radium

Product Name: Low-Flow System

Date: 2019-10-16 15:21:10

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type Peristaltic Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 23.29 ft

Well Information:

Well ID MCM-08
Well diameter 2 in
Well Total Depth 28.29 ft
Screen Length 10 ft
Depth to Water 6.07 ft

Pumping Information:

Final Pumping Rate 140 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 9.48 in
Total Volume Pumped 3.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	15:05:16	180.02	25.27	5.22	7239.21	0.72	6.77	0.16	93.09
Last 5	15:08:16	360.02	25.21	5.22	7195.60	0.58	6.81	0.15	86.59
Last 5	15:11:16	540.02	25.18	5.23	7032.78	0.76	6.83	0.13	81.35
Last 5	15:14:16	720.02	25.05	5.23	6998.98	0.61	6.85	0.12	77.53
Last 5	15:17:16	900.02	25.07	5.23	7018.50	0.47	6.86	0.11	74.41
Variance 0			-0.03	0.01	-162.81			-0.02	-5.24
Variance 1			-0.13	-0.00	-33.81			-0.01	-3.82
Variance 2			0.02	0.00	19.52			-0.01	-3.12

Notes

Prepurged 1L
Well performed well

Grab Samples

MCM-08
Metals
MCM-08
Anions

MCM-08
TDS
MCM-08
Radium



Product Name: Low-Flow System

Date: 2019-10-16 13:45:37

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type Peristaltic Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 25 ft

Pump placement from TOC 19 ft

Well Information:

Well ID MCM-11
Well diameter 2 in
Well Total Depth 24 ft
Screen Length 10 ft
Depth to Water 5.56 ft

Pumping Information:

Final Pumping Rate 155 mL/min
Total System Volume 0.2015856 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 14.4 in
Total Volume Pumped 3.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	13:29:57	540.02	27.36	5.05	118.39	11.40	6.72	0.15	44.61
Last 5	13:32:57	720.02	27.41	5.05	117.70	5.13	6.73	0.13	44.70
Last 5	13:35:57	900.02	27.46	5.05	117.34	2.55	6.75	0.12	44.89
Last 5	13:38:57	1080.01	27.44	5.04	117.37	2.06	6.76	0.12	45.21
Last 5	13:41:57	1260.01	27.50	5.05	117.41	1.85	6.76	0.11	45.46
Variance 0			0.05	-0.00	-0.36			-0.01	0.19
Variance 1			-0.02	-0.00	0.02			-0.01	0.33
Variance 2			0.07	0.00	0.04			-0.01	0.25

Notes

Prepurged 2L
Well performed well

Grab Samples

MCM-11
Metals
MCM-11
Anions

MCM-11
TDS
MCM-11
Radium



Product Name: Low-Flow System

Date: 2019-10-15 15:04:43

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 24 ft

Well Information:

Well ID MCM-12
Well diameter 2 in
Well Total Depth 29.0 ft
Screen Length 10 ft
Depth to Water 10.75 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.4889027 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 16.8 in
Total Volume Pumped 4.05 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	14:47:58	900.01	23.70	6.18	2850.37	1.34	12.10	0.02	93.57
Last 5	14:50:58	1080.01	23.70	6.18	2854.93	1.23	12.10	0.02	92.07
Last 5	14:53:58	1260.01	23.70	6.19	2856.91	1.49	12.13	0.02	90.75
Last 5	14:56:58	1440.01	23.65	6.19	2860.51	1.64	12.13	0.02	89.34
Last 5	14:59:58	1620.01	23.62	6.19	2864.64	1.56	12.15	0.02	87.94
Variance 0			-0.00	0.00	1.99			-0.00	-1.32
Variance 1			-0.05	0.00	3.60			0.00	-1.41
Variance 2			-0.03	0.00	4.13			0.00	-1.40

Notes

Prepurged 1L
Well performed well

Grab Samples

MCM-12
Metals
MCM-12
Anion

MCM-12
TDS
MCM-12
Radium



Product Name: Low-Flow System

Date: 2019-10-15 16:18:48

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 29 ft

Pump placement from TOC 23.11 ft

Well Information:

Well ID MCM-14
Well diameter 2 in
Well Total Depth 28.11 ft
Screen Length 10 ft
Depth to Water 12.06 ft

Pumping Information:

Final Pumping Rate 160 mL/min
Total System Volume 0.4844393 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 0.6 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	16:02:11	360.02	23.74	6.54	25034.06	0.25	12.11	0.43	-102.74
Last 5	16:05:11	540.02	23.71	6.55	25040.06	0.14	12.11	0.28	-142.78
Last 5	16:08:11	720.02	23.67	6.57	25036.46	0.10	12.11	0.16	-181.03
Last 5	16:11:11	900.01	23.63	6.58	25043.76	0.12	12.11	0.12	-210.91
Last 5	16:14:11	1080.01	23.61	6.58	25061.18	0.10	12.11	0.11	-226.00
Variance 0			-0.04	0.01	-3.61			-0.12	-38.25
Variance 1			-0.04	0.01	7.30			-0.04	-29.88
Variance 2			-0.02	0.01	17.43			-0.01	-15.09

Notes

Prepurged 0.5 L
Well performed well

Grab Samples

MCM-14
Metals
MCM-14
Anions

MCM-14
TDS
MCM-14
Radium
DUP-1
Metals
DUP-1
Anion
DUP-1
TDS
DUP-1
Radium

Product Name: Low-Flow System

Date: 2019-10-15 16:29:23

Project Information:

Operator Name Joe Booth
Company Name Resolute
Project Name October CCR 2019
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Dedicated
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 25 ft

Pump placement from TOC 21.67 ft

Well Information:

Well ID MCM-15
Well diameter 2 in
Well Total Depth 26.60 ft
Screen Length 10 ft
Depth to Water 11.23 ft

Pumping Information:

Final Pumping Rate 140 mL/min
Total System Volume 0.2015856 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.52 in
Total Volume Pumped 3.92 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	16:11:07	720.01	23.58	5.32	121.65	1.73	11.41	0.25	42.57
Last 5	16:15:07	960.00	23.52	5.32	120.91	2.06	11.41	0.23	39.60
Last 5	16:19:07	1199.99	23.44	5.32	122.93	2.00	11.43	0.21	38.32
Last 5	16:23:07	1439.99	23.43	5.32	125.94	2.31	11.43	0.19	37.15
Last 5	16:27:07	1679.98	23.39	5.32	127.77	2.65	11.44	0.17	35.72
Variance 0			-0.08	-0.01	2.02			-0.02	-1.27
Variance 1			-0.01	0.00	3.01			-0.02	-1.17
Variance 2			-0.04	-0.00	1.84			-0.01	-1.43

Notes

Prepurged 2 liters

Grab Samples

MCM-15
Metals, anions, TDS, radium

Product Name: Low-Flow System

Date: 2019-10-16 09:47:06

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name October 2019 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model 2020we LaMotte

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 23.39 ft

Well Information:

Well ID MCM-16
Well diameter 2 in
Well Total Depth 28.38 ft
Screen Length 10 ft
Depth to Water 11.39 ft

Pumping Information:

Final Pumping Rate 140 mL/min
Total System Volume 0.4889027 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 0.6 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	09:31:08	1080.01	22.13	4.87	158.76	3.26	11.43	0.73	41.33
Last 5	09:34:08	1260.01	22.27	4.88	159.79	2.39	11.43	0.23	40.54
Last 5	09:37:08	1440.01	22.30	4.89	159.55	1.54	11.44	0.21	38.62
Last 5	09:40:08	1620.01	22.31	4.89	158.35	1.55	11.44	0.18	37.37
Last 5	09:43:08	1800.01	22.31	4.89	159.02	1.09	11.44	0.17	36.00
Variance 0			0.03	0.01	-0.24			-0.02	-1.93
Variance 1			0.01	-0.00	-1.20			-0.04	-1.24
Variance 2			0.01	0.01	0.67			-0.01	-1.38

Notes

Prepurged 0.5 L

Well performed well. MP-50 had some issue regulating pressure. Pump rate dropped below 100 ml/min at 0926. Adjusted rate to 170ml/min

Grab Samples

MCM-16
Metals
MCM-16
Anions

MCM-16
TDS
MCM-16
Radium



Product Name: Low-Flow System

Date: 2019-10-16 10:37:44

Project Information:

Operator Name Joe Booth
Company Name Resolute
Project Name October CCR 2019
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Dedicated
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.44 ft

Well Information:

Well ID MCM-17
Well diameter 2 in
Well Total Depth 27.44 ft
Screen Length 10 ft
Depth to Water 10.98 ft

Pumping Information:

Final Pumping Rate 130 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 10.92 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	10:18:26	4079.92	24.33	6.49	12393.19	6.49	10.98	0.08	25.35
Last 5	10:22:26	4319.91	24.38	6.50	12473.06	5.29	10.98	0.08	25.11
Last 5	10:26:26	4559.90	24.41	6.52	12535.20	4.14	10.98	0.07	24.90
Last 5	10:30:26	4799.90	24.55	6.53	12662.60	4.40	10.98	0.04	24.87
Last 5	10:34:26	5039.89	24.81	6.54	12735.25	4.53	10.98	0.04	24.88
Variance 0			0.03	0.02	62.14			-0.01	-0.21
Variance 1			0.14	0.01	127.40			-0.03	-0.03
Variance 2			0.26	0.01	72.65			-0.00	0.01

Notes

Prepurged 2 liters

Grab Samples

MCM-17
Metals, anions, TDS, radium

Product Name: Low-Flow System

Date: 2019-11-20 15:10:06

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Bladder
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.32 ft

Well Information:

Well ID MCM-01
Well diameter 2 in
Well Total Depth 27.32 ft
Screen Length 10 ft
Depth to Water 5.61 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6049758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 5.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	14:52:02	720.02	24.04	5.80	199.71	2.46	5.62	1.06	90.41
Last 5	14:56:02	960.02	23.99	5.79	199.36	1.76	5.62	0.77	92.65
Last 5	15:00:02	1200.02	23.85	5.79	200.41	1.43	5.61	0.63	81.85
Last 5	15:04:02	1440.02	23.95	5.79	200.74	1.23	5.61	0.50	84.75
Last 5	15:08:02	1680.02	23.94	5.77	201.22	0.58	5.61	0.29	92.75
Variance 0			-0.14	0.00	1.06			-0.15	-10.80
Variance 1			0.09	-0.01	0.32			-0.13	2.90
Variance 2			-0.00	-0.02	0.49			-0.21	8.00

Notes

Pre-purged 2.5 liters

Grab Samples

MCM-01
Metals
MCM-01
Radium

Product Name: Low-Flow System

Date: 2019-11-19 15:48:16

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.40 ft

Well Information:

Well ID MCM-02
Well diameter 2 in
Well Total Depth 27.40 ft
Screen Length 10 ft
Depth to Water 5.47 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.52 in
Total Volume Pumped 5.76 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	15:30:15	480.02	21.43	5.15	211.68	0.02	5.68	0.10	80.13
Last 5	15:34:15	720.02	21.42	5.13	212.50	0.03	5.68	0.09	87.62
Last 5	15:38:15	960.02	21.40	5.13	208.56	0.06	5.68	0.08	82.91
Last 5	15:42:15	1200.02	21.35	5.12	200.82	0.05	5.68	0.08	91.46
Last 5	15:46:16	1441.02	21.35	5.11	199.55	0.07	5.68	0.07	90.68
Variance 0			-0.03	-0.01	-3.94			-0.01	-4.71
Variance 1			-0.05	-0.01	-7.74			-0.00	8.55
Variance 2			-0.00	-0.01	-1.27			-0.00	-0.78

Notes

Pre-purged 2 liters.

Grab Samples

MCM-02
Metals
MCM-02
Radium

Product Name: Low-Flow System

Date: 2019-11-20 09:22:29

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23.40 ft

Well Information:

Well ID MCM-04
Well diameter 2 in
Well Total Depth 28.40 ft
Screen Length 10 ft
Depth to Water 10.52 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	09:02:41	240.12	19.38	5.02	418.61	1.00	10.78	0.16	87.60
Last 5	09:06:41	480.02	19.57	5.02	416.35	1.47	10.80	0.15	90.31
Last 5	09:10:42	720.85	19.74	5.02	416.68	1.03	10.81	0.14	91.73
Last 5	09:14:42	960.85	20.01	5.02	415.59	1.23	10.81	0.12	94.56
Last 5	09:18:42	1200.85	20.06	5.03	415.40	0.71	10.82	0.13	94.59
Variance 0			0.18	0.00	0.33			-0.01	1.42
Variance 1			0.27	0.00	-1.09			-0.01	2.82
Variance 2			0.04	0.01	-0.19			0.01	0.03

Notes

Pre-purged 1.5 liters.

Grab Samples

MCM-04
Metals
MCM-04
Radium

Product Name: Low-Flow System

Date: 2019-11-20 11:14:01

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Bladder
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 23.10 ft

Well Information:

Well ID MCM-05
Well diameter 2 in
Well Total Depth 28.10 ft
Screen Length 10 ft
Depth to Water 10.12 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.6049758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	10:56:51	240.08	22.82	6.56	4799.18	0.21	10.12	0.24	9.02
Last 5	11:00:50	480.02	22.60	6.57	4810.03	0.14	10.12	0.16	-4.02
Last 5	11:04:50	720.02	22.38	6.58	4814.73	0.09	10.12	0.14	-1.20
Last 5	11:08:50	960.02	22.59	6.58	4827.41	0.06	10.12	0.12	2.67
Last 5	11:12:50	1200.02	22.64	6.58	4822.27	0.11	10.12	0.10	5.92
Variance 0			-0.22	0.00	4.70			-0.02	2.82
Variance 1			0.22	0.00	12.67			-0.02	3.87
Variance 2			0.05	0.00	-5.14			-0.01	3.26

Notes

Pre-purged 1 liter

Grab Samples

MCM-05
Metals
MCM-05
Radium

Product Name: Low-Flow System

Date: 2019-11-20 13:39:40

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Bladder
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 24 ft

Pump placement from TOC 18.55 ft

Well Information:

Well ID MCM-07
Well diameter 2 in
Well Total Depth 23.55 ft
Screen Length 10 ft
Depth to Water 8.78 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.5871222 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 4.8 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	13:18:04	240.08	24.96	6.25	26610.17	0.56	9.16	0.12	34.04
Last 5	13:22:04	480.02	24.76	6.26	26728.94	0.54	9.18	0.10	32.12
Last 5	13:26:04	720.21	24.88	6.26	26717.05	0.46	9.17	0.09	28.36
Last 5	13:30:04	960.21	24.71	6.26	26649.84	0.40	9.18	0.08	23.04
Last 5	13:34:04	1200.21	24.67	6.27	26673.22	0.43	9.18	0.09	20.58
Variance 0			0.12	0.00	-11.89			-0.01	-3.77
Variance 1			-0.16	0.00	-67.21			-0.01	-5.32
Variance 2			-0.05	0.00	23.38			0.01	-2.46

Notes

Pre-purged 2 liters.

Grab Samples

MCM-06
Metals
MCM-07
Inorganics
MCM-07
Radium

MCM-07
Metals



Product Name: Low-Flow System

Date: 2019-11-19 13:52:08

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23.29 ft

Well Information:

Well ID MCM-08
Well diameter 2 in
Well Total Depth 28.29 ft
Screen Length 10 ft
Depth to Water 5.07 ft

Pumping Information:

Final Pumping Rate 250 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 9 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	13:34:27	240.83	22.74	5.29	6912.93	0.12	5.79	0.11	83.48
Last 5	13:38:27	480.77	22.47	5.29	7018.32	0.11	5.81	0.11	83.52
Last 5	13:42:27	720.77	22.38	5.29	7097.76	0.15	5.81	0.11	83.97
Last 5	13:46:27	960.77	22.33	5.29	7139.78	0.10	5.80	0.10	82.91
Last 5	13:50:27	1200.77	22.38	5.29	7209.98	0.10	5.82	0.09	83.43
Variance 0			-0.10	-0.00	79.44			-0.01	0.45
Variance 1			-0.05	-0.00	42.01			-0.00	-1.07
Variance 2			0.05	-0.00	70.20			-0.01	0.52

Notes

Pre-purged 2.5 liters

Grab Samples

MCM-08
Metals
MCM-08
Radium
Dup-1
Metals

Dup-1
Radium



Product Name: Low-Flow System

Date: 2019-11-21 08:34:01

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Bladder
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23.11 ft

Well Information:

Well ID MCM-14
Well diameter 2 in
Well Total Depth 28.11 ft
Screen Length 10 ft
Depth to Water 11.30 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6094393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.8 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	08:12:55	240.11	21.40	6.67	26749.84	0.10	11.41	0.27	47.04
Last 5	08:16:55	480.02	21.53	6.67	26496.46	0.06	11.43	0.23	45.48
Last 5	08:20:55	720.02	21.62	6.67	26308.11	0.02	11.45	0.20	44.87
Last 5	08:24:55	960.02	21.76	6.67	26168.81	0.09	11.44	0.16	42.47
Last 5	08:28:55	1200.02	21.70	6.67	26056.95	0.06	11.45	0.14	40.56
Variance 0			0.08	-0.00	-188.35			-0.03	-0.61
Variance 1			0.14	0.00	-139.30			-0.05	-2.40
Variance 2			-0.06	-0.00	-111.86			-0.02	-1.91

Notes

Pre-purged 1 liter

Grab Samples

MCM-14
Metals
MCM-14
Inorganics
MCM-14
Radium

Product Name: Low-Flow System

Date: 2019-11-21 11:28:42

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Additional Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Bladder
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.44 ft

Well Information:

Well ID MCM-17
Well diameter 2 in
Well Total Depth 27.44 ft
Screen Length 10 ft
Depth to Water 10.40 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6049758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.28 in
Total Volume Pumped 16.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	11:08:23	4082.70	23.14	6.40	12719.26	5.81	10.59	0.02	27.03
Last 5	11:12:23	4322.70	23.14	6.41	12807.88	5.43	10.58	0.01	26.74
Last 5	11:16:23	4562.70	23.22	6.42	12850.18	4.98	10.59	0.01	26.68
Last 5	11:20:23	4802.70	23.23	6.43	12905.90	4.67	10.58	0.01	26.38
Last 5	11:24:23	5042.70	23.14	6.44	12936.77	4.55	10.59	0.01	26.02
Variance 0			0.08	0.01	42.30			-0.00	-0.06
Variance 1			0.00	0.01	55.72			-0.00	-0.31
Variance 2			-0.09	0.01	30.87			-0.00	-0.35

Notes

Pre-purged 1 liter

Grab Samples

MCM-17
Metals
MCM-17
Inorganics
MCM-17
Radium

Product Name: Low-Flow System

Date: 2019-11-07 13:27:45

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.25 ft

Pumping Information:

Final Pumping Rate 300 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3.24 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	13:10:14	240.21	23.77	4.26	7546.40	1.72	6.47	0.08	227.59
Last 5	13:14:14	480.16	23.37	4.25	7583.23	1.37	6.49	0.08	219.86
Last 5	13:18:14	720.15	23.47	4.25	7540.33	1.36	6.50	0.07	214.39
Last 5	13:22:14	960.15	23.51	4.25	7539.57	1.31	6.51	0.06	210.13
Last 5	13:26:14	1200.15	23.30	4.25	7549.04	1.18	6.52	0.06	206.32
Variance 0			0.11	-0.00	-42.90			-0.01	-5.47
Variance 1			0.04	-0.00	-0.76			-0.00	-4.26
Variance 2			-0.22	-0.00	9.47			-0.00	-3.81

Notes

Pre-purged 2 liters.

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-18
Radium

Product Name: Low-Flow System

Date: 2019-11-07 08:54:13

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23.32 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 6.12 ft

Pumping Information:

Final Pumping Rate 250 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 5.2 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	08:36:41	240.11	21.98	5.19	18754.99	6.03	6.50	0.11	133.70
Last 5	08:40:41	480.02	21.93	5.20	18847.91	4.90	6.52	0.10	132.72
Last 5	08:44:41	720.70	21.91	5.20	18804.68	4.75	6.54	0.09	131.49
Last 5	08:48:41	960.69	21.94	5.21	18859.96	3.89	6.55	0.08	130.57
Last 5	08:52:41	1200.69	21.96	5.21	18881.56	3.61	6.57	0.08	129.67
Variance 0			-0.02	0.01	-43.22			-0.01	-1.23
Variance 1			0.03	0.00	55.28			-0.01	-0.92
Variance 2			0.02	0.00	21.60			-0.00	-0.90

Notes

Pre-purged 3 liters.

Grab Samples

MCM-19 Dup-1
Metals Metals
MCM-19 Dup-1
Inorganics Inorganics
MCM-19 Dup-1
Radium Radium

Product Name: Low-Flow System

Date: 2019-11-07 10:59:51

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 8.44 ft

Pumping Information:

Final Pumping Rate 250 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 8.04 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	10:42:39	240.08	23.64	3.72	22919.16	7.87	9.09	0.44	269.26
Last 5	10:46:39	480.02	23.55	3.73	22952.67	6.20	9.09	0.44	309.09
Last 5	10:50:39	720.02	23.61	3.75	22934.08	4.33	9.10	0.44	318.96
Last 5	10:54:39	960.02	23.59	3.77	22930.27	4.15	9.10	0.43	320.00
Last 5	10:58:39	1200.02	23.55	3.79	22948.20	3.91	9.11	0.44	317.85
Variance 0			0.07	0.02	-18.60			-0.01	9.87
Variance 1			-0.02	0.02	-3.81			-0.00	1.04
Variance 2			-0.04	0.01	17.93			0.01	-2.15

Notes

Pre-purged 5 liters.

Grab Samples

MCM-20
Metals
MCM-20
Inorganics
MCM-20
Radium

Product Name: Low-Flow System

Date: 2019-11-18 15:07:37

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 4.88 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.76 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	14:50:18	240.08	22.40	4.09	7612.71	4.65	5.04	0.16	125.37
Last 5	14:54:18	480.02	22.15	4.09	7534.96	4.67	5.08	0.09	125.70
Last 5	14:58:18	720.02	22.05	4.10	7472.68	3.64	5.09	0.09	124.97
Last 5	15:02:18	960.02	22.01	4.11	7498.97	2.77	5.10	0.08	123.80
Last 5	15:06:18	1200.02	21.97	4.12	7486.89	2.53	5.11	0.07	122.48
Variance 0			-0.10	0.01	-62.29			-0.01	-0.74
Variance 1			-0.04	0.01	26.30			-0.01	-1.17
Variance 2			-0.04	0.01	-12.08			-0.00	-1.32

Notes

Pre-purged 3 liters.

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-18
Radium

Product Name: Low-Flow System

Date: 2019-11-19 09:34:33

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 32.32 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 6.63 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.64 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	09:16:05	240.08	20.01	5.14	18503.37	0.35	6.84	0.14	96.60
Last 5	09:20:06	480.73	20.55	5.14	17860.12	0.43	6.84	0.11	97.91
Last 5	09:24:06	720.72	20.81	5.14	17839.94	0.15	6.85	0.10	98.11
Last 5	09:28:06	960.72	20.82	5.15	17883.71	0.20	6.85	0.09	98.46
Last 5	09:32:06	1200.72	20.86	5.15	17746.14	0.15	6.85	0.08	98.47
Variance 0			0.27	-0.00	-20.18			-0.01	0.19
Variance 1			0.01	0.01	43.77			-0.01	0.35
Variance 2			0.04	0.00	-137.57			-0.01	0.01

Notes

Pre-purged 2 liters

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-19
Radium

Product Name: Low-Flow System

Date: 2019-11-19 10:56:28

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 7.62 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.64 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	10:38:48	240.08	23.05	3.80	22807.83	7.00	7.83	0.11	112.92
Last 5	10:42:48	480.02	23.05	3.79	22925.12	6.87	7.84	0.10	113.32
Last 5	10:46:48	720.02	23.14	3.79	22908.73	4.17	7.84	0.09	112.73
Last 5	10:50:48	960.02	22.99	3.79	22877.70	3.13	7.84	0.08	111.86
Last 5	10:54:48	1200.02	22.91	3.78	22920.93	3.20	7.84	0.08	111.31
Variance 0			0.09	-0.00	-16.39			-0.01	-0.58
Variance 1			-0.15	-0.00	-31.03			-0.01	-0.88
Variance 2			-0.07	-0.00	43.23			-0.01	-0.54

Notes

Pre-purged 2.75 liters.

Grab Samples

MCM-20
Metals
MCM-20
Inorganics
MCM-20
Radium

Product Name: Low-Flow System

Date: 2019-12-05 15:59:18

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.60 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.96 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	15:42:14	240.12	20.95	4.16	7459.62	4.23	6.61	0.54	106.07
Last 5	15:46:14	480.02	20.90	4.17	7400.50	4.22	6.70	0.52	106.19
Last 5	15:50:14	720.02	20.77	4.17	7401.84	4.30	6.69	0.52	106.35
Last 5	15:54:14	960.02	20.77	4.17	7422.47	2.45	6.68	0.43	106.23
Last 5	15:58:14	1200.02	20.70	4.17	7397.30	2.04	6.68	0.42	105.73
Variance 0			-0.13	0.00	1.34			-0.01	0.16
Variance 1			-0.00	0.00	20.62			-0.09	-0.12
Variance 2			-0.07	0.00	-25.17			-0.01	-0.50

Notes

Pre-purged 2 liters

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-18
Radium

Product Name: Low-Flow System

Date: 2019-12-04 14:53:39

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23.32 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 6.38 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.86 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	14:36:11	240.08	20.41	5.27	19563.94	4.30	6.47	0.15	60.88
Last 5	14:40:11	480.02	20.41	5.27	19542.66	4.19	6.47	0.13	61.52
Last 5	14:44:11	720.02	20.41	5.27	19466.46	2.83	6.46	0.11	61.80
Last 5	14:48:11	960.02	20.46	5.28	19488.84	2.77	6.45	0.10	62.07
Last 5	14:52:11	1200.02	20.36	5.28	19449.52	2.27	6.45	0.10	62.48
Variance 0			0.00	0.00	-76.20			-0.01	0.28
Variance 1			0.05	0.00	22.39			-0.01	0.27
Variance 2			-0.09	0.00	-39.33			-0.00	0.41

Notes

Pre-purged 1 liter.

Grab Samples

MCM-19
Metals
MCM-19
Inorganics
MCM-19
Radium

Dup-1
Metals
Dup-1
Inorganics
Dup-1
Radium



Product Name: Low-Flow System

Date: 2019-12-04 16:07:17

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 7.16 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 7.08 in
Total Volume Pumped 4.4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Stabilization									
Last 5	15:50:23	240.08	20.70	3.85	22867.12	6.41	7.68	0.16	67.76
Last 5	15:54:23	480.02	20.92	3.86	22686.92	3.54	7.69	0.14	69.09
Last 5	15:58:23	720.02	21.03	3.86	22662.18	3.36	7.71	0.13	70.25
Last 5	16:02:23	960.02	21.04	3.87	22631.42	2.37	7.73	0.12	71.09
Last 5	16:06:23	1200.02	21.10	3.87	22649.12	2.30	7.75	0.11	71.42
Variance 0			0.11	0.00	-24.74			-0.01	1.15
Variance 1			0.00	0.00	-30.75			-0.01	0.85
Variance 2			0.07	0.00	17.69			-0.01	0.33

Notes

Pre-purged 1 liter

Grab Samples

MCM-20
Metals
MCM-20
Inorganics
MCM-20
Radium

Product Name: Low-Flow System

Date: 2019-12-18 09:10:52

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Environmental
Project Name CCR Background
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642533
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.20 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.64 in
Total Volume Pumped 4.4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	08:52:33	240.03	17.77	4.21	7501.45	3.45	6.37	0.16	95.58
Last 5	08:56:33	479.99	18.34	4.21	7345.54	3.86	6.40	0.13	95.72
Last 5	09:00:33	719.98	18.53	4.20	7341.38	3.80	6.40	0.11	96.86
Last 5	09:04:33	959.97	18.56	4.20	7353.34	2.54	6.41	0.10	97.74
Last 5	09:08:33	1199.95	18.63	4.20	7326.55	2.63	6.42	0.10	98.50
Variance 0			0.19	-0.00	-4.17			-0.02	1.14
Variance 1			0.03	-0.01	11.96			-0.01	0.88
Variance 2			0.07	-0.00	-26.79			-0.00	0.76

Notes

Pre-purged 1 liter

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-18
Radium

Product Name: Low-Flow System

Date: 2019-12-17 07:54:47

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Environmental
Project Name CCR Background
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642533
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 30 ft

Pump placement from TOC 23.32 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 7.20 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	07:34:55	240.03	21.24	4.93	19057.67	6.70	7.43	0.15	144.06
Last 5	07:38:55	479.99	21.28	4.94	18651.35	4.91	7.43	0.13	141.40
Last 5	07:42:55	719.98	21.29	4.94	18732.50	4.78	7.44	0.12	139.93
Last 5	07:46:55	959.96	21.33	4.96	18633.99	4.37	7.44	0.11	139.01
Last 5	07:50:55	1199.95	21.36	4.96	18550.57	4.28	7.45	0.10	137.96
Variance 0			0.01	0.01	81.15			-0.01	-1.47
Variance 1			0.04	0.01	-98.51			-0.01	-0.91
Variance 2			0.04	0.00	-83.41			-0.01	-1.05

Notes

Pre-purged 2 liters

Grab Samples

MCM-19
Metals
MCM-19
Inorganics
MCM-19
Radium

Dup-1
Metals
Dup-1
Inorganics
Dup-1
Radium



Product Name: Low-Flow System

Date: 2019-12-18 08:07:00

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Environmental
Project Name CCR Background
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642533
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23.0 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 8.04 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 7.44 in
Total Volume Pumped 5.28 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	07:48:19	479.99	19.60	3.74	22942.16	9.52	8.62	0.18	133.30
Last 5	07:52:19	719.98	19.64	3.75	22849.99	6.19	8.64	0.13	133.77
Last 5	07:56:19	959.97	19.77	3.75	22895.43	4.56	8.64	0.12	134.26
Last 5	08:00:19	1199.95	19.86	3.75	22835.84	4.01	8.66	0.11	135.06
Last 5	08:04:19	1439.94	20.03	3.76	22777.62	2.85	8.66	0.10	135.54
Variance 0			0.13	0.00	45.45			-0.01	0.50
Variance 1			0.09	0.00	-59.59			-0.01	0.79
Variance 2			0.17	0.00	-58.22			-0.01	0.49

Notes

Pre-purged 1 liter

Grab Samples

MCM-20
Metals
MCM-20
Inorganics
MCM-20
Radium

Product Name: Low-Flow System

Date: 2020-01-09 09:42:29

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646773
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 26 ft

Pump placement from TOC 22.5 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 5.82 ft

Pumping Information:

Final Pumping Rate 165 mL/min
Total System Volume 0.2319251 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.21 in
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Last 5	09:24:37	1199.95	19.07	4.18	6512.89	0.84	6.03	0.11	111.90
Last 5	09:28:37	1439.93	19.10	4.19	6464.43	0.98	6.03	0.10	109.17
Last 5	09:32:37	1679.92	19.19	4.19	6487.17	0.96	6.03	0.09	107.14
Last 5	09:36:37	1919.91	19.28	4.19	6451.95	1.01	6.03	0.09	105.06
Last 5	09:40:37	2159.89	19.33	4.19	6420.27	--	--	0.09	103.17
Variance 0			0.08	-0.00	22.74			-0.01	-2.03
Variance 1			0.10	0.00	-35.22			-0.00	-2.08
Variance 2			0.04	0.00	-31.67			-0.00	-1.89

Notes

High Tide event

Grab Samples

MCM-18
Metals, Inorganics, Radium

DUP-1
Metals, Inorganics, Radium

Product Name: Low-Flow System

Date: 2020-01-08 10:04:53

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646773
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 26 ft

Pump placement from TOC 23 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 6.33 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.2319251 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 17.04 in
Total Volume Pumped 9.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Last 5	09:47:00	479.99	19.58	5.05	18071.93	2.37	6.74	0.11	104.04
Last 5	09:51:00	719.98	19.59	5.05	17639.06	1.91	6.74	0.10	100.92
Last 5	09:55:00	959.96	19.62	5.04	17303.42	1.44	6.75	0.09	98.22
Last 5	09:59:00	1199.95	19.86	5.04	17008.05	1.30	6.75	0.09	96.00
Last 5	10:03:00	1439.94	19.77	5.04	17111.55	--	--	0.08	94.37
Variance 0			0.03	-0.01	-335.64			-0.01	-2.70
Variance 1			0.24	-0.00	-295.37			-0.01	-2.22
Variance 2			-0.09	0.01	103.50			-0.00	-1.63

Notes

Grab Samples

MCM-19
Metals, Inorganics, Radium

Product Name: Low-Flow System

Date: 2020-01-08 08:44:56

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646773
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 20 ft

Pump placement from TOC 18 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 6.30 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.1991732 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 13.2 in
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Last 5	08:25:26	240.02	19.97	3.75	20523.37	2.71	7.19	0.11	158.87
Last 5	08:29:26	479.98	20.11	3.76	20453.14	2.24	7.25	0.10	153.26
Last 5	08:33:26	719.98	20.14	3.76	20487.71	1.22	7.30	0.09	148.34
Last 5	08:37:26	959.96	20.25	3.77	20432.64	1.06	7.35	0.09	143.73
Last 5	08:41:28	1201.94	20.17	3.77	20482.88	1.00	7.40	0.09	140.31
Variance 0			0.03	0.01	34.56			-0.00	-4.93
Variance 1			0.11	0.01	-55.07			-0.01	-4.60
Variance 2			-0.08	0.00	50.24			-0.00	-3.42

Notes

Grab Samples

MCM-20
Metals, Inorganics, Radium

Product Name: Low-Flow System

Date: 2020-01-21 14:43:16

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 588863
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 25.5 ft

Pump placement from TOC 22.5 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.11 ft

Pumping Information:

Final Pumping Rate 170 mL/min
Total System Volume 0.2291958 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.4 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Stabilization									
Last 5	14:24:00	479.99	14.21	4.31	6405.84	1.55	6.28	0.74	115.84
Last 5	14:28:00	719.98	14.44	4.30	6369.46	0.89	6.28	0.48	116.28
Last 5	14:32:00	959.96	14.44	4.30	6319.36	0.63	6.29	0.38	116.83
Last 5	14:36:00	1199.95	14.03	4.29	6367.64	0.73	6.30	0.33	117.68
Last 5	14:40:00	1439.93	13.86	4.28	6370.75	0.71	6.31	0.31	118.65
Variance 0			0.00	-0.00	-50.10			-0.11	0.55
Variance 1			-0.40	-0.01	48.28			-0.04	0.85
Variance 2			-0.17	-0.00	3.12			-0.02	0.97

Notes

Grab Samples

MCM-18
Metals, Inorganics, Radium

Product Name: Low-Flow System

Date: 2020-01-21 13:38:49

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 588863
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 25 ft

Pump placement from TOC 23 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 6.96 ft

Pumping Information:

Final Pumping Rate 170 mL/min
Total System Volume 0.2264664 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.88 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Stabilization									
Last 5	13:20:49	479.99	13.85	5.11	19270.08	2.00	7.17	0.22	147.95
Last 5	13:24:49	719.97	13.99	5.10	19106.20	2.18	7.18	0.20	146.11
Last 5	13:28:49	959.96	14.12	5.10	18908.68	1.69	7.18	0.18	144.83
Last 5	13:32:49	1199.95	14.20	5.10	18876.54	1.84	7.19	0.17	143.68
Last 5	13:36:49	1439.93	14.16	5.10	18831.93	2.19	7.20	0.16	142.68
Variance 0			0.13	0.00	-197.53			-0.02	-1.28
Variance 1			0.08	-0.00	-32.13			-0.01	-1.15
Variance 2			-0.04	0.00	-44.61			-0.01	-1.00

Notes

Grab Samples

MCM-19
Metals, Inorganics, Radium

Product Name: Low-Flow System

Date: 2020-01-21 12:14:02

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 588863
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 20 ft

Pump placement from TOC 18 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 8.04 ft

Pumping Information:

Final Pumping Rate 170 mL/min
Total System Volume 0.1991732 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.49 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Last 5	11:53:51	480.00	14.52	3.71	21796.02	4.12	8.50	0.18	159.87
Last 5	11:57:51	719.98	14.39	3.72	21759.97	3.26	8.50	0.16	158.92
Last 5	12:01:51	959.96	14.39	3.72	21763.11	3.55	8.51	0.16	158.23
Last 5	12:05:51	1199.95	14.17	3.73	21814.39	2.82	8.52	0.15	157.77
Last 5	12:09:51	1439.93	14.35	3.73	21808.43	2.06	8.53	0.14	157.39
Variance 0			0.00	0.00	3.14			-0.01	-0.70
Variance 1			-0.21	0.00	51.28			-0.01	-0.45
Variance 2			0.18	0.00	-5.96			-0.01	-0.39

Notes

Grab Samples

MCM-20
Metals, Inorganics, Radium
DUP-1
Metals, Inorganics, Radium

Product Name: Low-Flow System

Date: 2020-02-04 12:01:19

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Environmental
Project Name CCR Background
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 588863
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.57 ft

Pumping Information:

Final Pumping Rate 180 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.16 in
Total Volume Pumped 3.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	11:42:25	240.01	13.94	4.27	6417.07	0.41	6.73	0.16	100.99
Last 5	11:46:25	479.99	14.23	4.27	6322.98	0.37	6.73	0.13	97.85
Last 5	11:50:25	719.98	14.39	4.27	6279.75	0.30	6.74	0.11	96.51
Last 5	11:54:25	959.96	14.44	4.26	6245.48	0.28	6.74	0.11	95.68
Last 5	11:58:25	1199.95	14.54	4.26	6262.37	0.21	6.75	0.11	95.30
Variance 0			0.16	-0.00	-43.23			-0.01	-1.34
Variance 1			0.05	-0.01	-34.27			-0.00	-0.83
Variance 2			0.10	-0.00	16.89			-0.01	-0.39

Notes

Pre-purged 1 liter

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-18
Radium

Product Name: Low-Flow System

Date: 2020-02-04 10:22:40

Project Information:

Operator Name Scott Glenn
Company Name Resolute
Project Name Performance Monitoring
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Peristaltic Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 25 ft

Pump placement from TOC 17.5 ft

Well Information:

Well ID MCM 19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 7.28 ft

Pumping Information:

Final Pumping Rate 160 mL/min
Total System Volume 0.2015856 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.68 in
Total Volume Pumped 4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	09:56:48	240.03	18.90	5.14	17564.10	1.42	7.40	0.16	89.05
Last 5	10:00:48	479.99	18.97	5.14	17414.42	1.30	7.40	0.15	87.76
Last 5	10:04:48	719.97	19.08	5.15	17499.06	1.07	7.42	0.14	86.71
Last 5	10:08:48	959.96	19.15	5.15	17403.37	1.30	7.42	0.13	85.49
Last 5	10:12:48	1199.94	19.23	5.15	17398.71	1.20	7.42	0.12	84.34
Variance 0			0.11	0.00	84.64			-0.01	-1.06
Variance 1			0.06	0.00	-95.69			-0.01	-1.22
Variance 2			0.08	0.00	-4.65			-0.01	-1.15

Notes

Pre purged

Grab Samples

MCM 19
Metals inorganics
MCM-19
Metals
MCM-19
Radium

Product Name: Low-Flow System

Date: 2020-02-04 10:46:45

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Environmental
Project Name CCR Background
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 588863
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 8.40 ft

Pumping Information:

Final Pumping Rate 180 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 5.28 in
Total Volume Pumped 3.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	10:28:20	240.01	14.25	3.70	20931.92	0.75	8.82	0.13	157.26
Last 5	10:32:20	479.99	14.44	3.70	20873.44	0.74	8.83	0.12	149.88
Last 5	10:36:20	719.98	14.62	3.71	20792.88	0.67	8.84	0.11	145.52
Last 5	10:40:20	959.96	14.70	3.72	20809.97	0.69	8.84	0.11	142.68
Last 5	10:44:20	1199.95	14.80	3.72	20754.47	0.69	8.84	0.10	140.65
Variance 0			0.18	0.01	-80.56			-0.01	-4.37
Variance 1			0.08	0.00	17.09			-0.00	-2.84
Variance 2			0.10	0.00	-55.50			-0.01	-2.03

Notes

Pre-purged 1 liter

Grab Samples

MCM-20
Metals
MCM-20
Inorganics
MCM-20
Radium

Product Name: Low-Flow System

Date: 2020-02-13 13:57:04

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Environmental
Project Name CCR Background
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.06 ft

Pumping Information:

Final Pumping Rate 160 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.32 in
Total Volume Pumped 3.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000%
Last 5	13:40:06	240.02	21.47	4.19	6252.84	0.23	6.17	0.21	119.41
Last 5	13:44:06	479.99	21.11	4.20	6282.47	0.10	6.18	0.13	114.16
Last 5	13:48:06	719.98	21.06	4.20	6269.02	0.13	6.16	0.08	111.42
Last 5	13:52:06	959.96	20.93	4.20	6249.68	0.09	6.17	0.07	108.31
Last 5	13:56:06	1199.95	20.85	4.20	6236.62	0.04	6.17	0.06	105.57
Variance 0			-0.05	0.00	-13.45			-0.04	-2.74
Variance 1			-0.13	0.00	-19.34			-0.01	-3.11
Variance 2			-0.08	0.00	-13.06			-0.01	-2.74

Notes

Pre-purges .5 liters

Grab Samples

MCM-18
Metals
MCM-18
Inorganics
MCM-18
TDS

MCM-18
Radium



Product Name: Low-Flow System

Date: 2020-02-13 12:25:01

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte2020we

Pump Information:

Pump Model/Type Peristaltic pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 26 ft

Pump placement from TOC 23.32 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 5.92 ft

Pumping Information:

Final Pumping Rate 140 mL/min
Total System Volume 0.206049 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 0 in
Total Volume Pumped 2.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	12:03:34	180.03	21.28	5.04	18579.92	0.52	5.92	0.28	137.16
Last 5	12:06:34	360.01	21.21	5.05	18696.51	0.51	5.92	0.25	135.84
Last 5	12:09:34	539.99	21.28	5.06	18714.32	0.38	5.90	0.23	134.61
Last 5	12:12:34	719.97	21.33	5.06	18734.51	0.51	5.89	0.21	133.78
Last 5	12:15:34	899.96	21.35	5.07	18765.01	0.36	5.87	0.20	133.22
Variance 0			0.07	0.01	17.81			-0.03	-1.23
Variance 1			0.05	0.00	20.18			-0.02	-0.84
Variance 2			0.03	0.00	30.50			-0.01	-0.56

Notes

Prepurged 1.25L

Grab Samples

MCM-19
Metals
MCM-19
Inorganics
MCM-19
TDS

MCM-19
Radium
DUP-1
Metals
DUP-1
Inorganics
DUP-1
TDS
DUP-1
Radium

Product Name: Low-Flow System

Date: 2020-02-13 14:06:48

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Background Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte2020we

Pump Information:

Pump Model/Type Peristaltic pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 25 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 6.87 ft

Pumping Information:

Final Pumping Rate 160 mL/min
Total System Volume 0.2015856 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 7.44 in
Total Volume Pumped 2.4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	13:52:22	180.01	21.73	3.75	19479.23	0.93	7.35	0.18	162.57
Last 5	13:55:22	360.00	21.64	3.75	19410.33	0.86	7.40	0.13	163.07
Last 5	13:58:22	539.99	21.57	3.75	19429.12	0.47	7.44	0.10	163.52
Last 5	14:01:22	719.98	21.47	3.75	19447.06	0.42	7.49	0.09	163.93
Last 5	14:04:22	899.96	21.50	3.75	19485.94	0.51	7.49	0.08	164.26
Variance 0			-0.07	-0.00	18.79			-0.03	0.45
Variance 1			-0.10	0.00	17.94			-0.01	0.41
Variance 2			0.03	-0.00	38.88			-0.01	0.33

Notes

Prepurged 1.75L

Grab Samples

MCM-20
Metals
MCM-20
Inorganics
MCM-20
TDS

MCM-20
Radium



Product Name: Low-Flow System

Date: 2020-03-26 17:03:41

Project Information:

Operator Name William Laaker
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 597519
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 31.32 ft

Pump placement from TOC 22.32 ft

Well Information:

Well ID MCM-01
Well diameter 2 in
Well Total Depth 27.32 ft
Screen Length 10 ft
Depth to Water 4.87 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.6247944 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.48 in
Total Volume Pumped 15.26 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	16:43:42	4566.70	22.22	5.44	167.92	6.04	4.91	0.11	124.78
Last 5	16:47:42	4806.70	22.20	5.45	168.79	5.50	4.91	0.13	124.69
Last 5	16:51:42	5046.61	22.23	5.45	169.57	4.99	4.91	0.12	125.06
Last 5	16:55:42	5286.61	22.21	5.46	169.81	4.63	4.91	0.12	124.95
Last 5	16:59:42	5526.61	22.55	5.45	170.33	4.54	4.91	0.12	125.67
Variance 0			0.03	0.00	0.78			-0.01	0.37
Variance 1			-0.02	0.01	0.24			0.00	-0.11
Variance 2			0.34	-0.01	0.51			-0.00	0.72

Notes

Prepurged 0.5 L
Pump rate raised to 170 mL/min at time 1200.

Grab Samples

MCM-01
Metals
MCM-01
TDS

MCM-01
Inorganics
MCM-01
Radium



Product Name: Low-Flow System

Date: 2020-03-27 16:48:57

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646770
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Geotech Peristaltic Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 31 ft

Pump placement from TOC 23.35 ft

Well Information:

Well ID MCM-02
Well diameter 2 in
Well Total Depth 27.35 ft
Screen Length 10 ft
Depth to Water 4.82 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6233661 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.92 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	16:27:30	240.01	22.20	5.14	201.81	1.11	4.97	0.14	14.41
Last 5	16:31:29	479.99	22.34	5.13	199.41	0.96	4.96	0.13	12.64
Last 5	16:35:29	719.97	22.34	5.13	194.20	1.58	4.97	0.12	11.36
Last 5	16:39:29	959.96	22.27	5.13	192.23	0.91	4.98	0.12	10.56
Last 5	16:43:29	1199.95	22.20	5.12	196.99	1.17	4.98	0.11	10.79
Variance 0			-0.00	-0.00	-5.21			-0.01	-1.28
Variance 1			-0.07	-0.00	-1.97			-0.01	-0.80
Variance 2			-0.07	-0.01	4.76			-0.00	0.24

Notes

Prepurged 4L
Prepurged well to rust colored organics. Purging significantly helped to lower turbidity

Grab Samples

MCM-02
Metals
MCM-02
TDS

MCM-02
Inorganics
MCM-02
Radium



Product Name: Low-Flow System

Date: 2020-03-28 12:40:44

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646770
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Geotech Peristaltic Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 31 ft

Pump placement from TOC 23.57 ft

Well Information:

Well ID MCM-04
Well diameter 2 in
Well Total Depth 28.57 ft
Screen Length 10 ft
Depth to Water 9.92 ft

Pumping Information:

Final Pumping Rate 125 mL/min
Total System Volume 0.2283661 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	12:21:44	4559.74	22.69	5.27	484.09	5.49	9.65	0.13	54.34
Last 5	12:25:44	4799.73	22.58	5.26	484.40	5.29	9.64	0.13	54.12
Last 5	12:29:44	5039.72	22.79	5.25	483.56	4.79	9.63	0.13	54.19
Last 5	12:33:44	5279.70	22.78	5.26	487.57	4.75	9.63	0.13	54.21
Last 5	12:37:44	5519.70	22.88	5.27	484.14	4.48	9.62	0.14	53.82
Variance 0			0.21	-0.01	-0.84			0.00	0.07
Variance 1			-0.01	0.01	4.01			-0.00	0.02
Variance 2			0.10	0.01	-3.43			0.00	-0.38

Notes

Well purging rust colored organics. Prepurged 21L to try and lower turbidity
Well tidally influenced

Grab Samples

MCM-04
Metals
MCM-04
TDS

MCM-04
Inorganics
MCM-04
Radium



Product Name: Low-Flow System

Date: 2020-03-28 13:01:32

Project Information:

Operator Name William Laaker
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 597519
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 32.05 ft

Pump placement from TOC 23.05 ft

Well Information:

Well ID MCM-05
Well diameter 2 in
Well Total Depth 28.05 ft
Screen Length 10 ft
Depth to Water 7.96 ft

Pumping Information:

Final Pumping Rate 210 mL/min
Total System Volume 0.6280527 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.08 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	12:42:49	480.03	22.67	6.61	2659.36	0.71	8.05	0.15	-254.69
Last 5	12:46:49	720.65	22.69	6.60	2665.60	0.61	8.05	0.12	-253.56
Last 5	12:50:49	960.64	22.76	6.60	2668.34	0.68	8.05	0.09	-253.23
Last 5	12:54:49	1200.65	22.65	6.60	2675.09	0.82	8.05	0.08	-252.44
Last 5	12:58:49	1440.64	22.75	6.60	2679.03	0.82	8.05	0.08	-251.35
Variance 0			0.07	-0.00	2.74			-0.02	0.33
Variance 1			-0.11	-0.00	6.74			-0.01	0.79
Variance 2			0.11	-0.00	3.95			-0.00	1.09

Notes

Prepurged 1 L
Well performed well

Grab Samples

MCM-05
Metals
MCM-05
TDS

MCM-05
Inorganics
MCM-05
Radium



Product Name: Low-Flow System

Date: 2020-03-28 14:16:52

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 27 ft

Pump placement from TOC 22.20 ft

Well Information:

Well ID MCM-06
Well diameter 2 in
Well Total Depth 27.20 ft
Screen Length 10 ft
Depth to Water 8.38 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.6055124 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3.96 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	13:58:09	240.01	23.88	6.83	23760.37	1.90	8.61	0.08	-396.08
Last 5	14:02:09	479.99	23.83	6.81	24174.45	1.62	8.62	0.08	-397.18
Last 5	14:06:09	719.98	23.78	6.81	24375.30	2.67	8.65	0.08	-398.00
Last 5	14:10:09	959.96	23.74	6.80	24631.73	1.93	8.68	0.08	-398.73
Last 5	14:14:09	1199.95	23.70	6.80	24770.88	1.67	8.71	0.08	-398.75
Variance 0			-0.05	-0.01	200.84			-0.00	-0.82
Variance 1			-0.03	-0.00	256.44			-0.00	-0.72
Variance 2			-0.04	-0.00	139.15			0.00	-0.02

Notes

Pre-purged 4 liters.

Grab Samples

MCM-06
Metals
MCM-06
TDS
MCM-06
Inorganics

MCM-06
Radium



Product Name: Low-Flow System

Date: 2020-03-28 11:21:03

Project Information:

Operator Name William Laaker
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 597519
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 27.75 ft

Pump placement from TOC 18.75 ft

Well Information:

Well ID MCM-07
Well diameter 2 in
Well Total Depth 23.75 ft
Screen Length 10 ft
Depth to Water 8.59 ft

Pumping Information:

Final Pumping Rate 160 mL/min
Total System Volume 0.60886 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 7.8 in
Total Volume Pumped 20.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	11:00:05	5280.03	21.87	6.35	25942.43	5.33	9.28	0.09	-258.94
Last 5	11:04:05	5520.03	21.81	6.35	26015.75	5.03	9.24	0.09	-259.02
Last 5	11:08:05	5760.03	21.83	6.35	25995.67	4.74	9.26	0.09	-258.56
Last 5	11:12:05	6000.03	21.78	6.35	26025.40	4.35	9.26	0.09	-258.08
Last 5	11:16:05	6240.03	21.78	6.35	26013.13	4.29	9.24	0.09	-257.77
Variance 0			0.01	0.00	-20.08			-0.00	0.46
Variance 1			-0.05	-0.00	29.73			0.00	0.48
Variance 2			0.01	0.00	-12.27			0.00	0.31

Notes

Prepurged 0.5 L
Pump rate raised to 210 mL/min at time 1200.

Grab Samples

MCM-07
Metals
MCM-07
TDS

MCM-07
Inorganics
MCM-07
Radium
DUP-2
Metals
DUP-2
TDS
DUP-2
Inorganics
DUP-2
Radium

Product Name: Low-Flow System

Date: 2020-03-27 16:49:44

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 24 ft

Pump placement from TOC 19.0 ft

Well Information:

Well ID MCM-11
Well diameter 2 in
Well Total Depth 24.00 ft
Screen Length 10 ft
Depth to Water 5.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.1971222 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 19.8 in
Total Volume Pumped 10.4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	16:30:16	2163.90	23.45	5.09	116.82	4.08	7.40	0.10	131.15
Last 5	16:34:16	2403.88	23.42	5.09	112.61	4.01	7.40	0.09	131.10
Last 5	16:38:16	2643.86	23.41	5.09	114.35	3.21	7.40	0.09	132.16
Last 5	16:42:16	2883.85	23.34	5.09	112.54	3.08	7.41	0.10	133.15
Last 5	16:46:15	3123.83	23.42	5.09	114.00	2.84	7.40	0.09	133.66
Variance 0			-0.01	-0.00	1.74			-0.00	1.06
Variance 1			-0.07	0.00	-1.81			0.01	1.00
Variance 2			0.08	-0.00	1.46			-0.01	0.50

Notes

Pre-purged 7 liters.

Grab Samples

MCM-11
Metals
MCM-11
TDS
MCM-11
Inorganics

MCM-11
Radium



Product Name: Low-Flow System

Date: 2020-03-27 16:14:15

Project Information:

Operator Name William Laaker
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 33.00 ft

Pump placement from TOC 24.00 ft

Well Information:

Well ID MCM-12
Well diameter 2 in
Well Total Depth 29.00 ft
Screen Length 10 ft
Depth to Water 9.70 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.632293 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 28.56 in
Total Volume Pumped 13.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	15:55:03	2640.28	22.87	6.33	2880.77	6.02	12.07	0.02	84.10
Last 5	15:59:03	2880.28	22.90	6.33	2889.21	5.48	12.08	0.02	84.07
Last 5	16:03:03	3120.28	22.91	6.33	2885.76	4.93	12.08	0.02	84.11
Last 5	16:07:03	3360.28	23.00	6.33	2881.22	4.81	12.08	0.02	84.19
Last 5	16:11:03	3600.28	22.96	6.33	2890.81	4.66	12.08	0.02	84.07
Variance 0			0.02	-0.00	-3.45			0.00	0.05
Variance 1			0.09	-0.00	-4.55			-0.00	0.08
Variance 2			-0.04	0.00	9.59			0.00	-0.12

Notes

Prepurged 1 L
Well performed adequately

Grab Samples

MCM-12
Metals
MCM-12
TDS

MCM-12
Inorganics
MCM-12
Radium



Product Name: Low-Flow System

Date: 2020-03-27 14:09:56

Project Information:

Operator Name William Laaker
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 32.11 ft

Pump placement from TOC 23.11 ft

Well Information:

Well ID MCM-14
Well diameter 2 in
Well Total Depth 28.11 ft
Screen Length 10 ft
Depth to Water 9.63 ft

Pumping Information:

Final Pumping Rate 160 mL/min
Total System Volume 0.6283206 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3.36 in
Total Volume Pumped 3.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	13:50:44	240.25	23.86	6.57	21823.80	1.30	9.71	0.36	-4.10
Last 5	13:54:44	480.25	23.76	6.58	21868.53	2.99	9.76	0.27	-1.52
Last 5	13:58:44	720.25	23.54	6.58	21858.96	0.94	9.82	0.22	3.88
Last 5	14:02:44	960.25	23.45	6.59	21893.74	0.93	9.86	0.20	8.58
Last 5	14:06:45	1201.25	23.58	6.59	21875.09	0.68	9.91	0.16	12.52
Variance 0			-0.22	0.01	-9.57			-0.04	5.40
Variance 1			-0.08	0.00	34.78			-0.02	4.71
Variance 2			0.13	0.00	-18.65			-0.03	3.93

Notes

Prepurged 0.5 L
Well performed well

Grab Samples

MCM-14
Metals
MCM-14
TDS

MCM-14
Inorganics
MCM-14
Radium



Product Name: Low-Flow System

Date: 2020-03-27 12:07:51

Project Information:

Operator Name William Laaker
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type QED Dedicated
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30.60 ft

Pump placement from TOC 21.60 ft

Well Information:

Well ID MCM-15
Well diameter 2 in
Well Total Depth 26.60 ft
Screen Length 10 ft
Depth to Water 9.53 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6215807 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 36.3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	11:46:30	9121.86	23.02	5.29	111.63	4.95	9.55	0.09	56.56
Last 5	11:50:30	9361.86	23.04	5.29	111.20	5.02	9.54	0.09	56.99
Last 5	11:54:30	9601.86	23.06	5.29	109.91	4.93	9.54	0.09	56.98
Last 5	11:58:30	9841.86	23.00	5.29	111.58	4.84	9.53	0.09	56.99
Last 5	12:02:30	10081.86	23.14	5.30	112.17	4.58	9.52	0.09	56.71
Variance 0			0.01	0.00	-1.29			-0.00	-0.01
Variance 1			-0.05	-0.00	1.67			0.00	0.01
Variance 2			0.14	0.01	0.59			-0.00	-0.28

Notes

Prepurged 1 L

Pump Rate dropped to 150 mL/min at 1440 and raised to 230 mL/min at time 2640 to try and stabilize turbidity. Well took almost 3 hours to stabilize turbidity.

Grab Samples

MCM-15

Metals

MCM-15

TDS

MCM-15

Inorganics

MCM-15

Radium

Product Name: Low-Flow System

Date: 2020-03-27 15:28:01

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646770
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 32 ft

Pump placement from TOC 23.39 ft

Well Information:

Well ID MCM-16
Well diameter 2 in
Well Total Depth 28.39 ft
Screen Length 10 ft
Depth to Water 9.32 ft

Pumping Information:

Final Pumping Rate 155 mL/min
Total System Volume 0.6278296 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.48 in
Total Volume Pumped 3.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	15:09:09	240.01	22.25	5.17	172.22	1.58	9.36	0.11	32.32
Last 5	15:13:09	479.99	22.25	5.16	172.45	2.34	9.36	0.12	32.19
Last 5	15:17:09	719.98	22.23	5.14	172.15	2.28	9.36	0.13	31.81
Last 5	15:21:09	959.96	22.24	5.13	171.55	2.11	9.36	0.13	31.32
Last 5	15:25:09	1199.95	22.21	5.12	172.10	2.02	9.36	0.14	31.65
Variance 0			-0.02	-0.02	-0.31			0.01	-0.38
Variance 1			0.01	-0.00	-0.60			0.01	-0.49
Variance 2			-0.03	-0.02	0.55			0.01	0.34

Notes

Rust colored organics being purged. Prepurged 11.5L
Well performed well once purged

Grab Samples

MCM-16
Metals
MCM-16
TDS

MCM-16
Inorganics
MCM-16
Radium



Product Name: Low-Flow System

Date: 2020-03-27 13:38:06

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646770
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED Dedicated Pump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 22.44 ft

Well Information:

Well ID MCM-17
Well diameter 2 in
Well Total Depth 27.44 ft
Screen Length 10 ft
Depth to Water 10.10 ft

Pumping Information:

Final Pumping Rate 140 mL/min
Total System Volume 0.6189027 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 43 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	13:09:10	12959.24	22.97	6.93	15646.69	9.34	9.50	-0.01	-235.19
Last 5	13:13:10	13199.23	23.00	6.93	15676.99	8.97	9.50	-0.01	-236.06
Last 5	13:17:10	13439.21	23.04	6.93	15684.34	8.97	9.53	-0.01	-236.71
Last 5	13:21:10	13679.20	22.97	6.93	15699.72	8.94	9.53	-0.01	-236.65
Last 5	13:25:10	13919.18	22.79	6.93	15654.25	8.66	9.55	-0.01	-236.03
Variance 0			0.03	-0.00	7.35			-0.00	-0.65
Variance 1			-0.06	0.00	15.38			-0.00	0.06
Variance 2			-0.18	0.00	-45.46			0.00	0.61

Notes

Prepurged 2L

Well is tidally influenced. Dropped rate at 0954 to 100ml/min to try and stabilize turbidity. Did not work. Tried increasing to 200ml/ min at 1017. Well stable at 0945, with exception of turbidity. Waited 3 hours, turbidity was below 10 but above 5 Ntu. Called Brad F. to confirm ok to sample. Granted permission

Grab Samples

MCM-17

Metals

MCM-17

TDS

MCM-17

Inorganics

MCM-17

Radium

Product Name: Low-Flow System

Date: 2020-03-27 14:28:59

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 28 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.11 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.28 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	14:10:04	240.01	22.18	4.33	4554.69	2.11	6.30	0.07	165.40
Last 5	14:14:04	479.99	21.79	4.33	4589.45	2.84	6.30	0.06	165.45
Last 5	14:18:04	719.98	21.57	4.33	4560.85	1.60	6.30	0.05	165.42
Last 5	14:22:04	959.97	21.51	4.34	4530.04	0.35	6.30	0.05	165.08
Last 5	14:26:04	1199.95	21.20	4.34	4541.89	0.63	6.30	0.05	164.99
Variance 0			-0.22	0.00	-28.61			-0.01	-0.03
Variance 1			-0.06	0.01	-30.80			-0.00	-0.34
Variance 2			-0.31	0.00	11.85			-0.00	-0.09

Notes

Pre-purged 3 liters.

Grab Samples

MCM-18
Metals
MCM-18
TDS
MCM-18
Inorganics

MCM-18
Radium



Product Name: Low-Flow System

Date: 2020-03-27 10:20:49

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 29 ft

Pump placement from TOC 23.32 ft

Well Information:

Well ID MCM-19
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 6.63 ft

Pumping Information:

Final Pumping Rate 210 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.03 in
Total Volume Pumped 4.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	10:02:48	240.03	20.84	5.09	18184.48	1.52	6.82	0.16	156.27
Last 5	10:06:48	479.99	20.66	5.11	18219.84	0.88	6.80	0.14	153.11
Last 5	10:10:48	719.98	20.84	5.13	18172.04	1.03	6.78	0.11	150.92
Last 5	10:14:48	959.97	20.82	5.14	18104.43	1.06	6.75	0.10	149.35
Last 5	10:18:48	1199.95	20.81	5.14	18072.16	0.91	6.72	0.09	148.05
Variance 0			0.18	0.01	-47.80			-0.02	-2.19
Variance 1			-0.02	0.01	-67.62			-0.02	-1.57
Variance 2			-0.01	0.01	-32.27			-0.01	-1.30

Notes

Pre-purged 2 liters

Grab Samples

MCM-19
Metals
MCM-19
TDS
MCM-19
Inorganics

MCM-19
Radium



Product Name: Low-Flow System

Date: 2020-03-27 11:40:46

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute
Project Name March 2020 CCR Sampling
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 642531
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Peristaltic
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23 ft

Pump placement from TOC 18.05 ft

Well Information:

Well ID MCM-20
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 7.08 ft

Pumping Information:

Final Pumping Rate 240 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 5.52 in
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 1000
Last 5	11:22:02	240.03	21.19	3.82	17806.16	0.69	7.56	0.07	186.98
Last 5	11:26:02	479.99	21.15	3.81	17836.17	0.72	7.56	0.07	187.70
Last 5	11:30:02	719.98	21.19	3.81	17837.28	0.90	7.55	0.07	188.19
Last 5	11:34:02	959.96	21.19	3.81	17778.91	0.67	7.54	0.06	188.56
Last 5	11:38:02	1199.95	21.15	3.81	17806.69	0.88	7.54	0.06	188.82
Variance 0			0.05	-0.00	1.12			-0.00	0.49
Variance 1			-0.00	0.00	-58.37			-0.01	0.37
Variance 2			-0.04	-0.00	27.78			-0.00	0.26

Notes

Pre-purged 4 liters.

Grab Samples

MCM-20
Metals
MCM-20
TDS
MCM-20
Inorganics

MCM-20
Radium
DUP-1
Metals
DUP-1
TDS
DUP-1
Inorganics
DUP-1
Radium

APPENDIX B

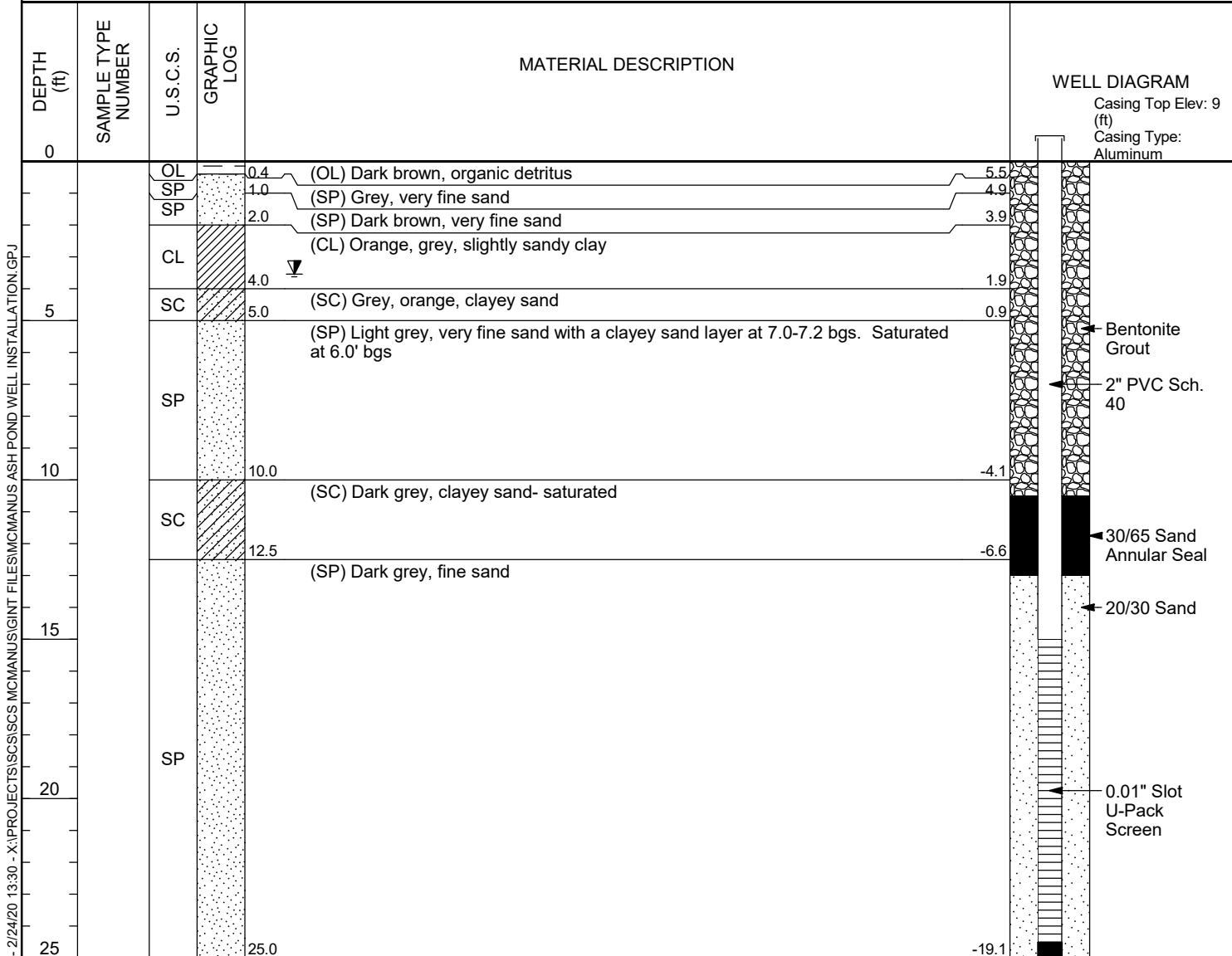
Boring Logs, Well Construction Forms, Development Logs, and Gamma Logs/ Shelby Tube Results



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WELL NUMBER MCM-18

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 10/30/19 **COMPLETED** 10/30/19 **GROUND ELEVATION** 5.9 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger (HSA) **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 3.54 ft / Elev 2.36 ft immediately before developing



Bottom of borehole at 25.0 feet.

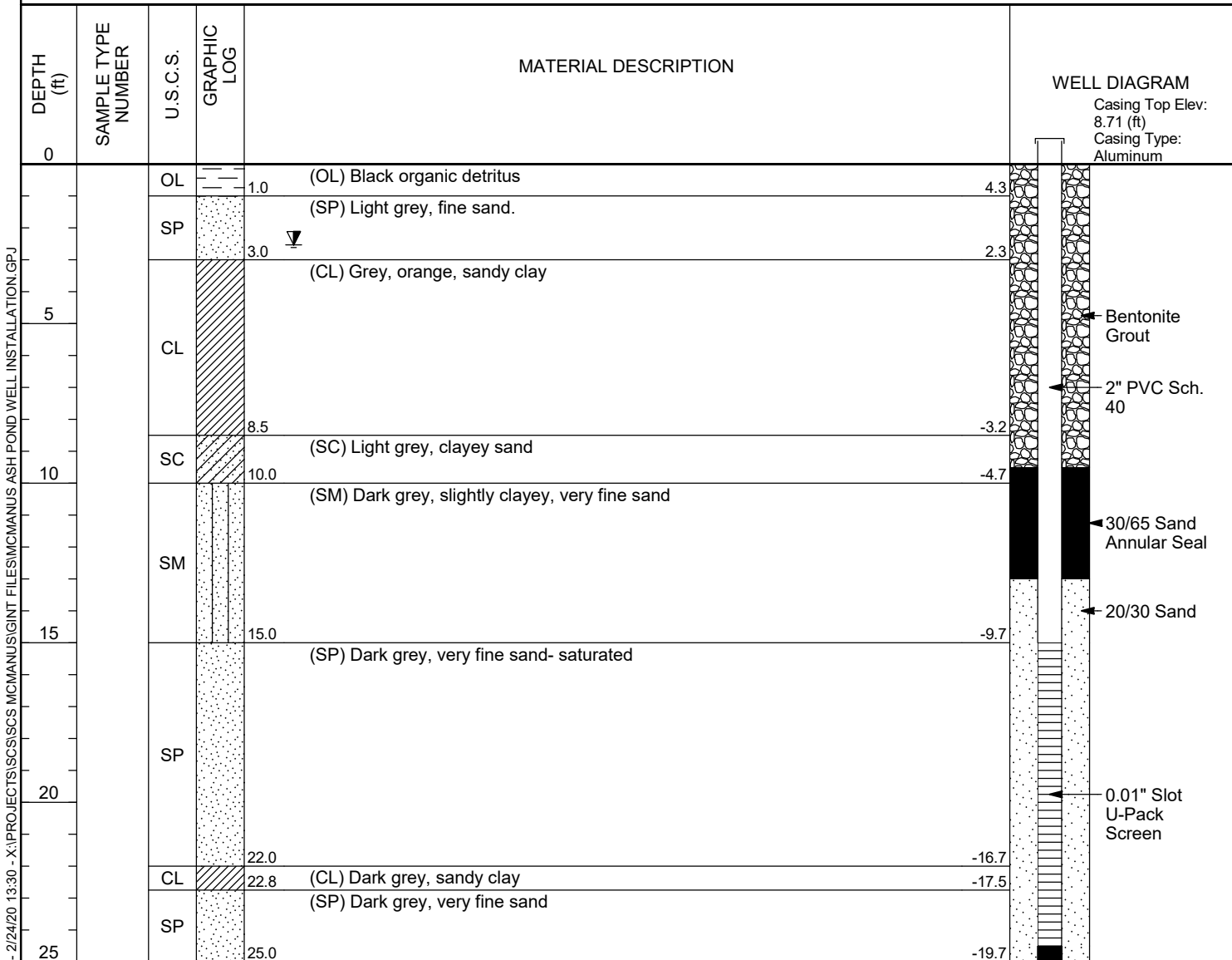
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WELL NUMBER MCM-19

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 10/30/19 **COMPLETED** 10/30/19 **GROUND ELEVATION** 5.3 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger (HSA) **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 2.53 ft / Elev 2.77 ft immediately before developing



Bottom of borehole at 25.0 feet.

GENERAL.BH / TP / WELL - GINT STD US LAB.GDT - 2/24/20 13:30 - X:\PROJECTS\SCS\MCMANUS\GINT FILES\MCMANUS ASH POND WELL INSTALLATION.GPJ

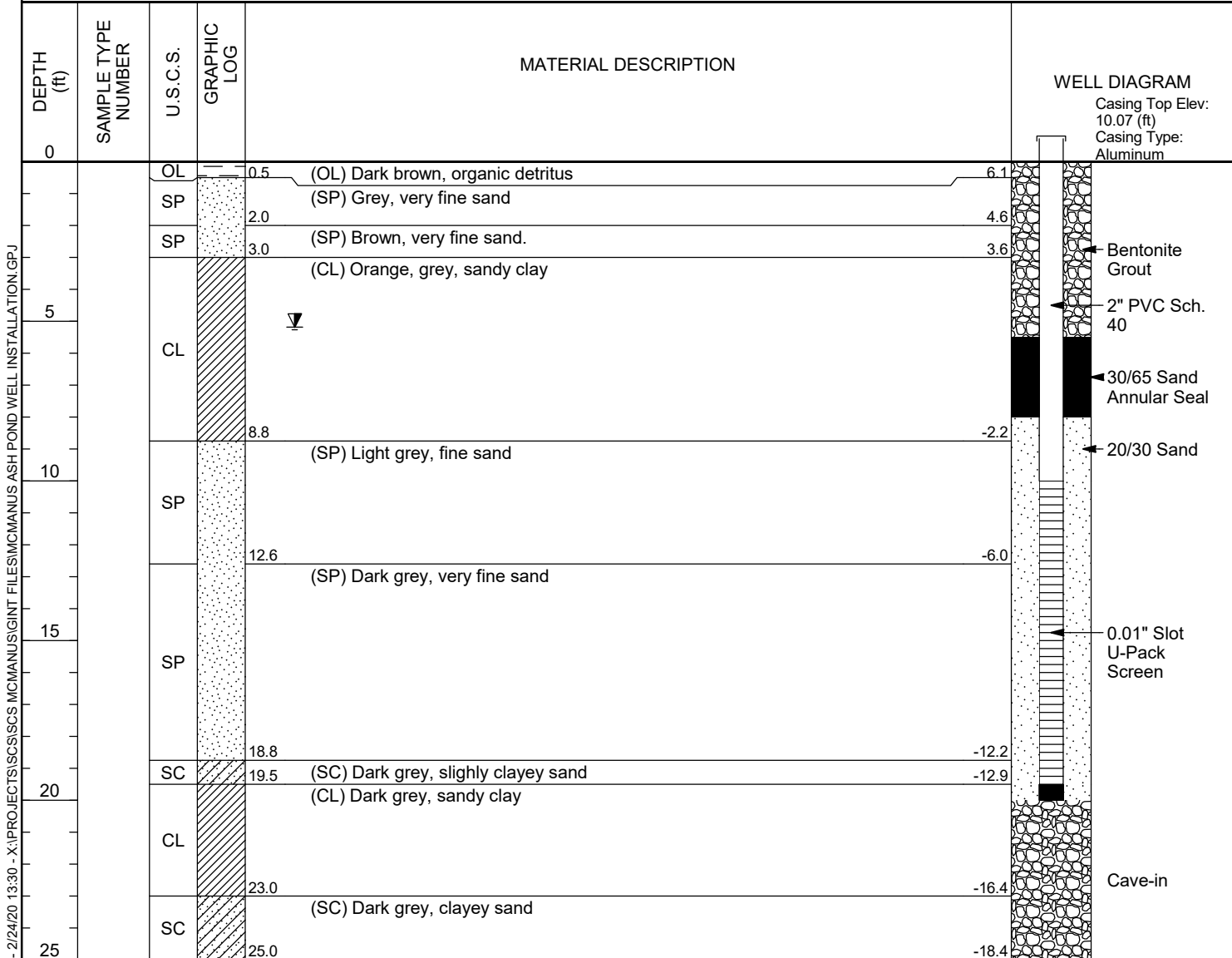


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WELL NUMBER MCM-20

PAGE 1 OF 1

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 10/30/19 **COMPLETED** 10/30/19 **GROUND ELEVATION** 6.6 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger (HSA) **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 5.18 ft / Elev 1.42 ft immediately before developing



Bottom of borehole at 25.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 2/24/20 13:30 - X:\PROJECTS\SCS\SCS MCMANUS\GINT FILES\MCMANUS ASH POND WELL INSTALLATION.GPJ

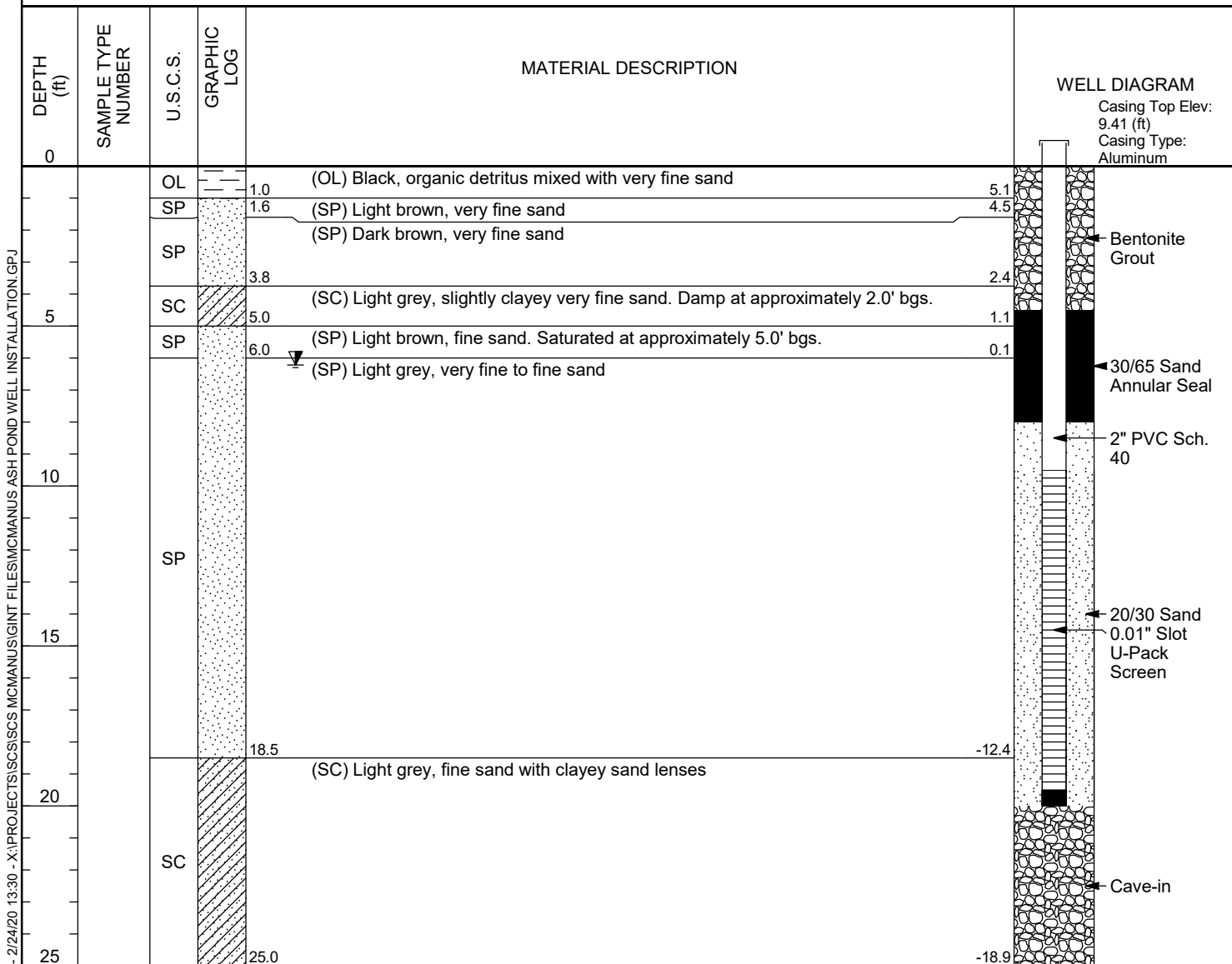


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WELL NUMBER PZ-09

PAGE 1 OF 1

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 10/31/19 **COMPLETED** 10/31/19 **GROUND ELEVATION** 6.1 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger (HSA) **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 6.22 ft / Elev -0.12 ft immediately before developing



Bottom of borehole at 25.0 feet.

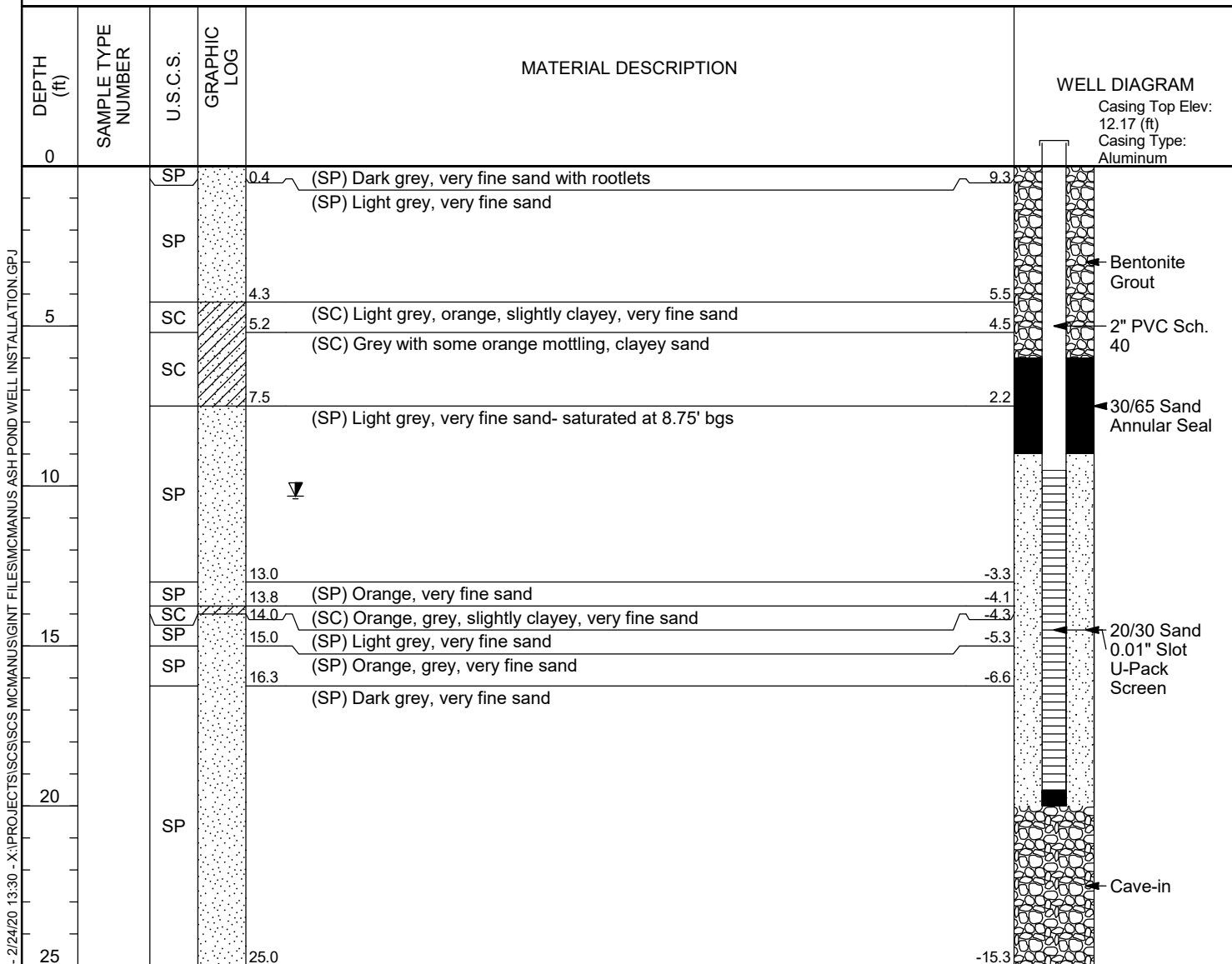
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WELL NUMBER PZ-10

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 11/1/19 **COMPLETED** 11/1/19 **GROUND ELEVATION** 9.7 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Hollow Stem Auger (HSA) **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 10.32 ft / Elev -0.62 ft immediately before developing



Bottom of borehole at 25.0 feet.

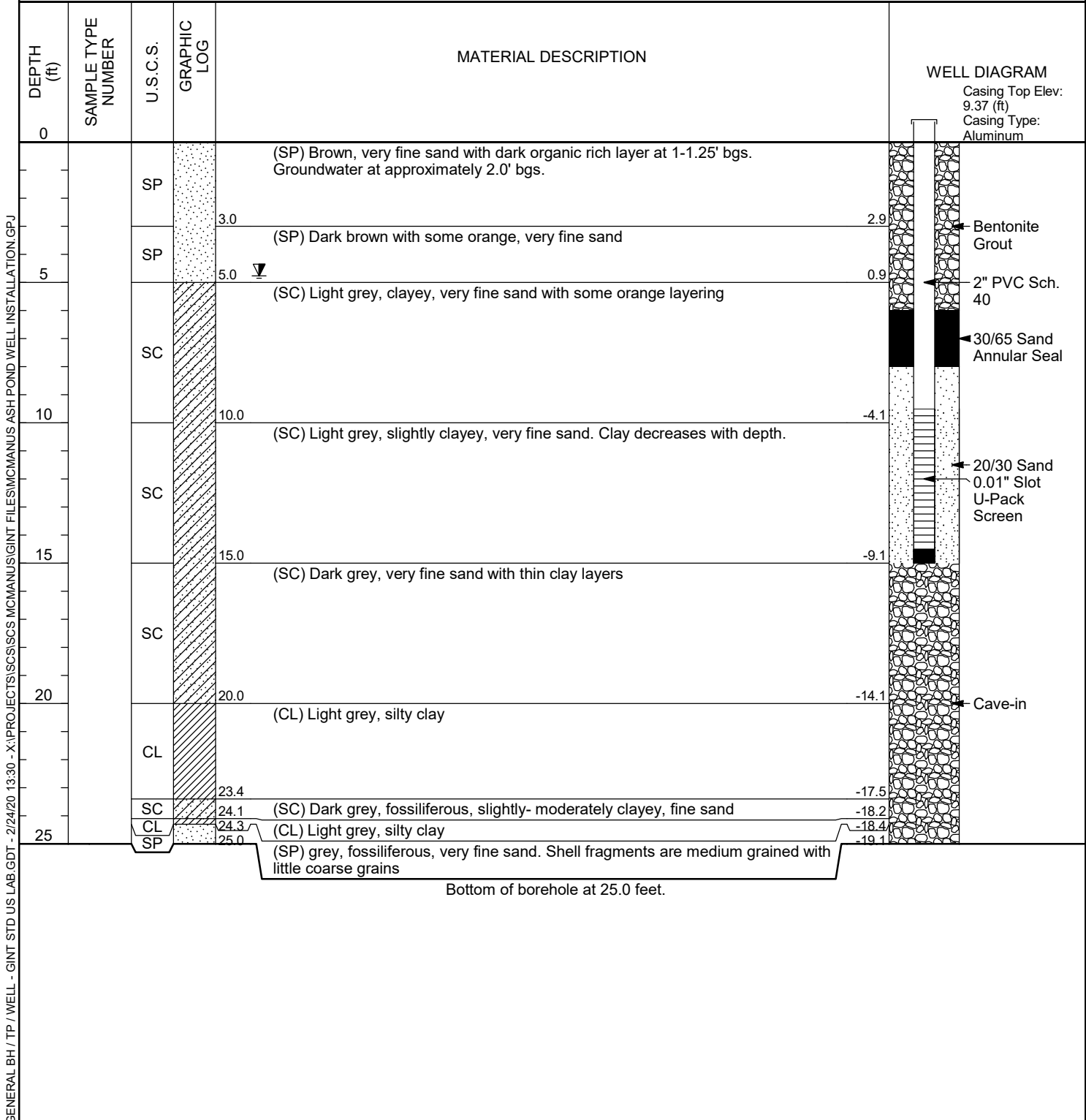
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WELL NUMBER PZ-11

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 11/22/19 **COMPLETED** 11/22/19 **GROUND ELEVATION** 5.9 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Sonic **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 4.77 ft / Elev 1.13 ft immediately before developing



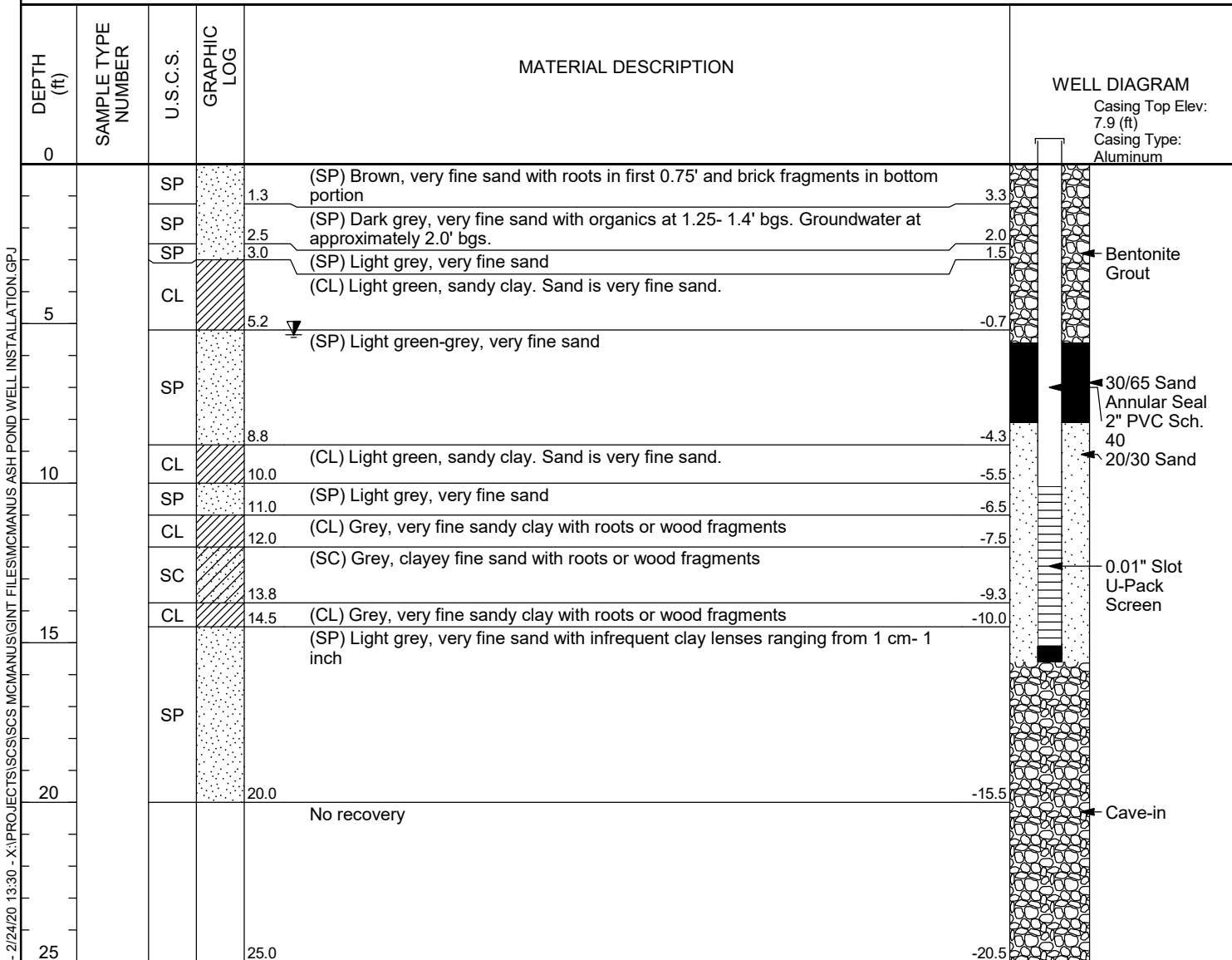
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WELL NUMBER PZ-12

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, GA
DATE STARTED 11/22/19 **COMPLETED** 11/22/19 **GROUND ELEVATION** 4.5 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P. **GROUND WATER LEVELS:**
DRILLING METHOD Sonic **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth **AT END OF DRILLING** ---
NOTES ▼ AFTER DRILLING 5.35 ft / Elev -0.85 ft immediately before developing



Bottom of borehole at 25.0 feet.

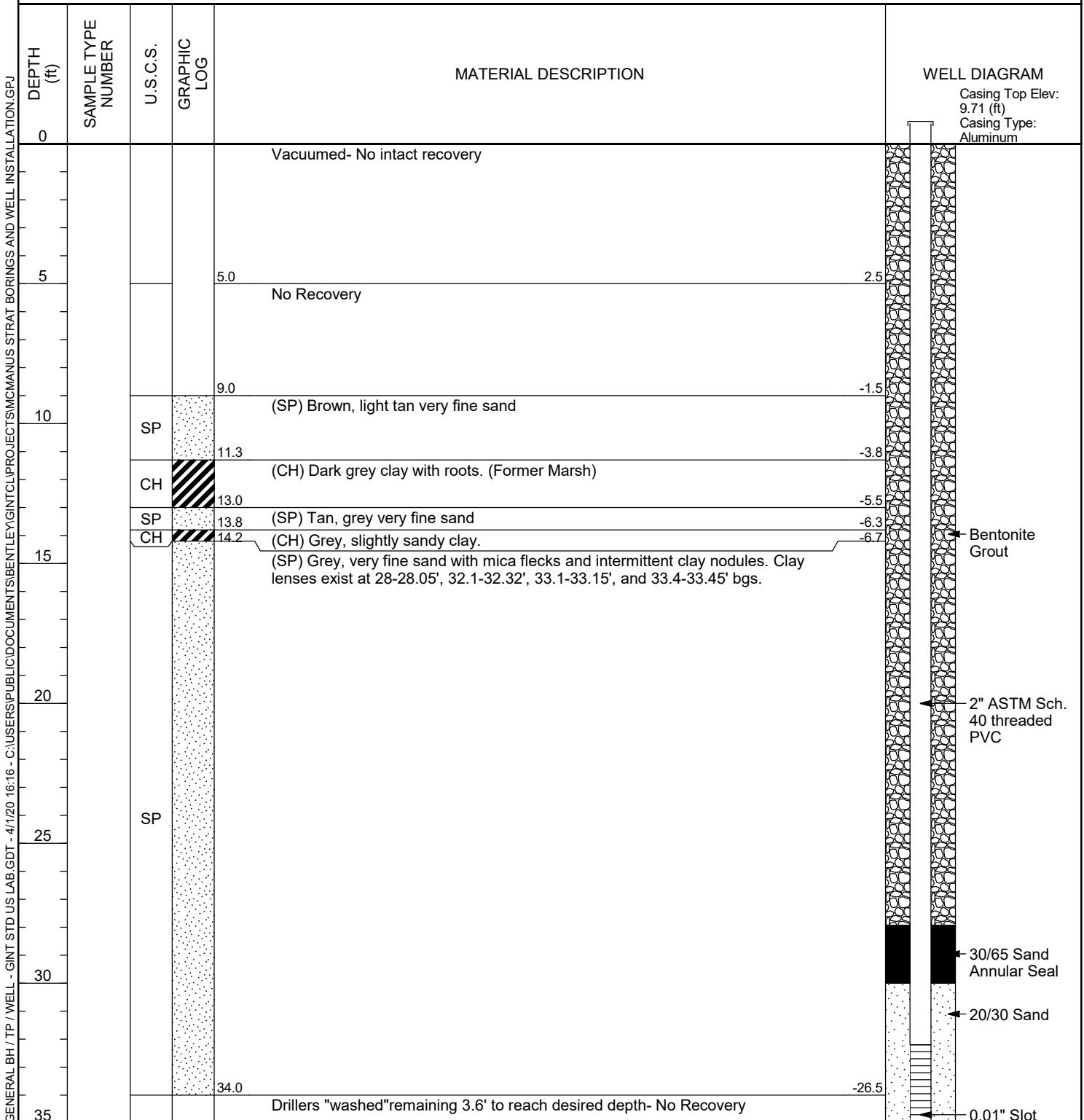
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WELL NUMBER DPZ-1

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga
DATE STARTED 3/10/20 **COMPLETED** 3/10/20 **GROUND ELEVATION** 7.5 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Sonic Rig **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin **AT END OF DRILLING** ---
NOTES ▽ AFTER DRILLING --- Gw Elev. 1.51 ft before development




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WELL NUMBER DPZ-1

CLIENT Southern Company Services PROJECT NAME Plant McManus
 PROJECT NUMBER N/A PROJECT LOCATION Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35				Drillers "washed" remaining 3.6' to reach desired depth- No Recovery (<i>continued</i>)	 U-Pack Screen
			37.6	Bottom of borehole at 37.6 feet.	-30.1

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 4/1/20 16:16 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\MCMANUS STRAT BORINGS AND WELL INSTALLATION.GPJ



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WELL NUMBER DPZ-2

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

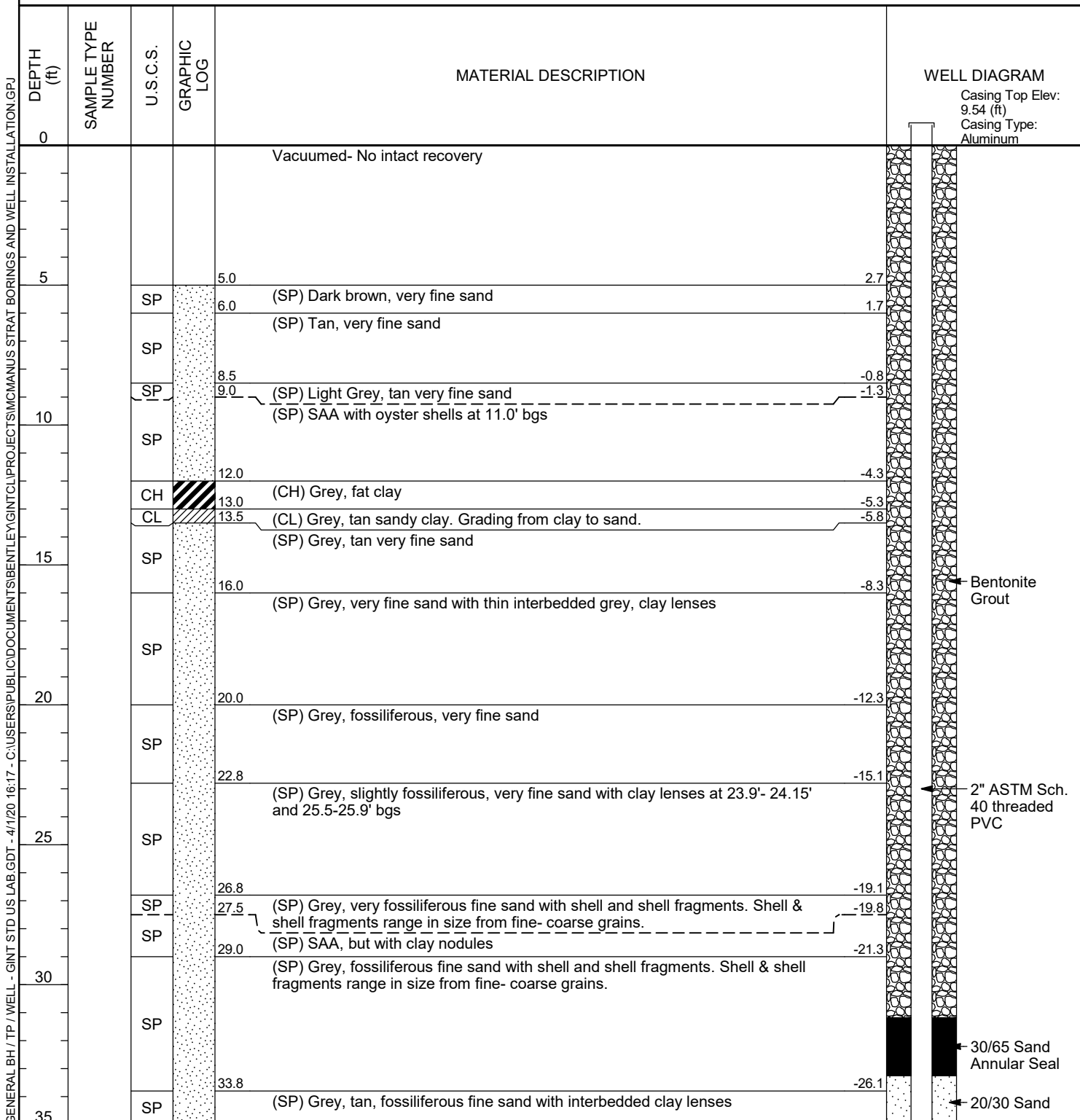
DATE STARTED 3/10/20 **COMPLETED** 3/10/20 **GROUND ELEVATION** 7.7 ft NAVD 88 **HOLE SIZE** 7 inches

DRILLING CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Sonic Rig **AT TIME OF DRILLING** ---

LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin **AT END OF DRILLING** ---

NOTES ▽ AFTER DRILLING --- Gw Elev. is 2.0 ft before development



(Continued Next Page)



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WELL NUMBER DPZ-2

CLIENT Southern Company Services PROJECT NAME Plant McManus
 PROJECT NUMBER N/A PROJECT LOCATION Brunswick, Ga

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 4/1/20 16:17 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCL\PROJECTS\MCMANUS STRAT BORINGS AND WELL INSTALLATION.GPJ

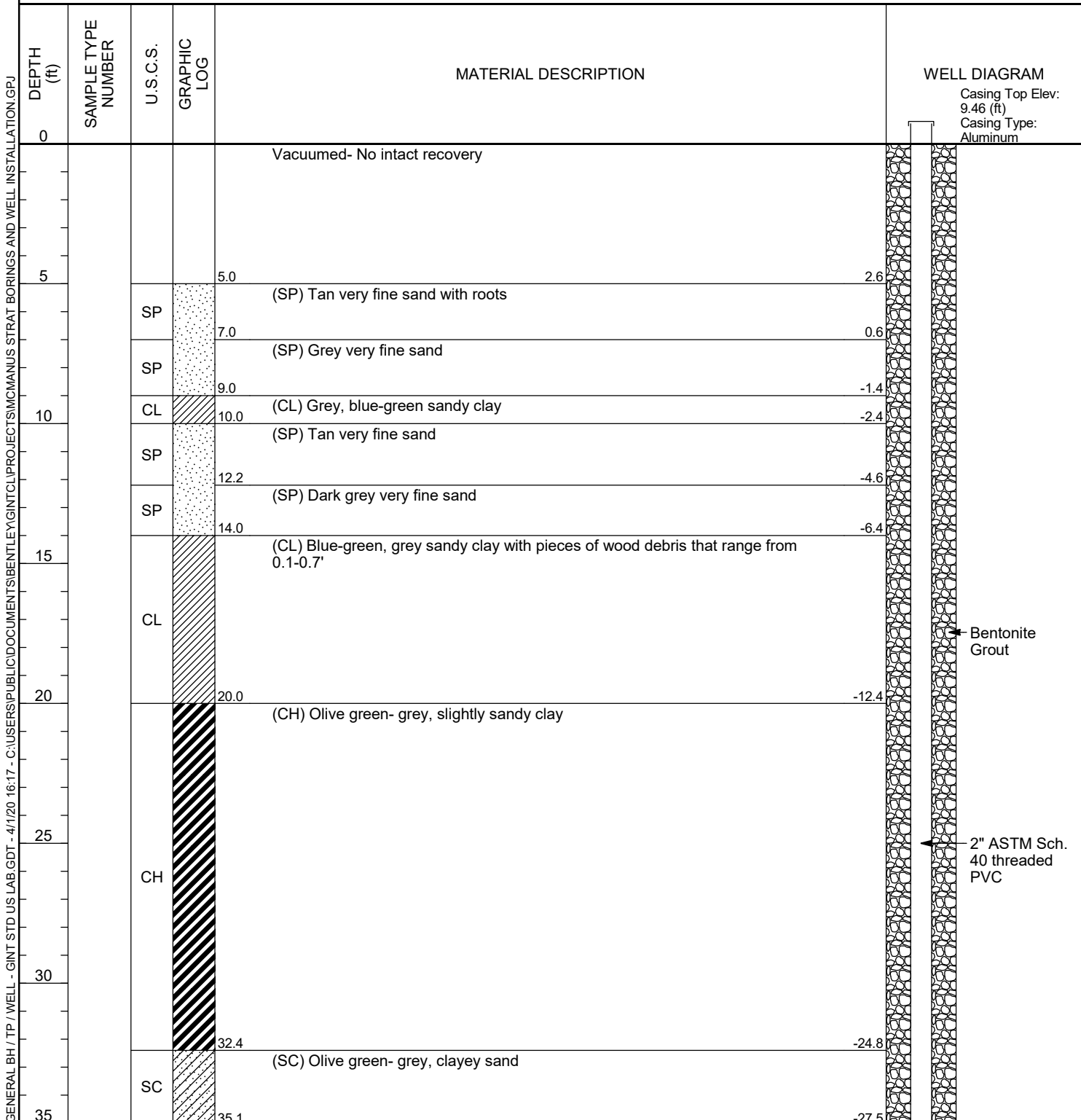
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35					
		SP		(SP) Grey, tan, fossiliferous fine sand with interbedded clay lenses <i>(continued)</i>	<p>0.01" Slot U-Pack Screen</p>
		SP		(SP) Tan, grey, moderately fossiliferous, fine sand	
40				Drillers "washed " remaining 1.82' bgs to reach desired depth- No Recovery	
				Bottom of borehole at 40.8 feet.	



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WELL NUMBER DPZ-3

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga
DATE STARTED 3/11/20 **COMPLETED** 3/11/20 **GROUND ELEVATION** 7.6 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Sonic Rig **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin **AT END OF DRILLING** ---
NOTES ▽ AFTER DRILLING --- Gw Elev. is 1.22 ft before development



(Continued Next Page)



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 Telephone: 678-398-9942
 Fax: 888-881-8219

WELL NUMBER DPZ-3

CLIENT Southern Company Services PROJECT NAME Plant McManus
 PROJECT NUMBER N/A PROJECT LOCATION Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35					
		CL		(CL) Olive green- grey, sandy clay	<p>30/65 Sand Annular Seal</p> <p>20/30 Sand</p> <p>0.01" Slot U-Pack Screen</p>
		SC		(SC) Olive green- grey, clayey sand	
40		SP		(SP) Grey very fine sand	
		SP		(SP) Tan, fossiliferous, fine sand with shell fragments and whole shells	
		SP		(SP) Black fine sand	
		SP		(SP) Black fine sand	

Bottom of borehole at 44.0 feet.

GENERAL.BH / TP / WELL - GINT STD US LAB.GDT - 4/1/20 16:17 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CL\PROJECTS\MCMANUS STRAT BORINGS AND WELL INSTALLATION.GPJ



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 Telephone: 678-398-9942
 Fax: 888-881-8219

WELL NUMBER DPZ-4

CLIENT Southern Company Services
PROJECT NUMBER N/A
DATE STARTED 3/12/20 **COMPLETED** 3/12/20
DRILLING CONTRACTOR Cascade Drilling
DRILLING METHOD Sonic Rig
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
NOTES _____

PROJECT NAME Plant McManus
PROJECT LOCATION Brunswick, Ga
GROUND ELEVATION 8.7 ft NAVD 88 **HOLE SIZE** 7 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING --- Gw Elev. is 2.45 ft before development

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 4/1/20 16:18 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\MCMANUS STRAT BORINGS AND WELL INSTALLATION.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Vacuumed- No intact recovery	<p>Casing Top Elev: 11.45 (ft) Casing Type: Aluminum 2" ASTM Sch. 40 threaded PVC Bentonite Grout</p>
5.0				(SP) Light tan very fine sand	
6.5	SP			(SP) Dark brown very fine sand with black organics	
7.0	SP			(SP) Brown very fine sand	
11.5				(CL) Grey sandy clay	
12.7				(SP) Grey very fine sand with mica flakes. Wood debris exists at 15.5'-15.7' bgs and is spread intermittently from 15.7'-18' bgs.	
22.6				(SP) Grey, fossiliferous, fine sand with shells and shell fragments than range from fine grain- fine gravel in size	
26.0				(SP) Grey very fine sand with mica flakes, interbedded with clay lenses. Clay lenses range from 0.025' -0.5'.	
31.8				(SP) Light grey very fine sand with mica flakes	
35					



Resolute Environmental
 1003 Weatherstone Parkway, Suite 320
 Woodstock, GA 30189
 Telephone: 678-398-9942
 Fax: 888-881-8219

WELL NUMBER DPZ-4

CLIENT Southern Company Services PROJECT NAME Plant McManus
 PROJECT NUMBER N/A PROJECT LOCATION Brunswick, Ga

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DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35					
		SP		35.9 (SP) Light grey very fine sand with mica flakes <i>(continued)</i>	-27.2
		SP		(SP) Grey, fossiliferous, fine-medium sand with shells and shell fragments that range from fine- medium grained with trace coarse grained shells	
40				39.0 (SP) Light brown, grey, fossiliferous very fine sand with shells and shell fragments ranging from medium grained to fine gravel	-30.3
45		SP			
				48.0	-39.3

Bottom of borehole at 48.0 feet.

← 30/65 Sand Annular Seal
 ← 20/30 Sand
 ← 0.01" Slot U-Pack Screen



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 Woodstock, GA 30189
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 Fax: 888-881-8219

WELL NUMBER DPZ-5

CLIENT Southern Company Services **PROJECT NAME** Plant McManus
PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga
DATE STARTED 3/11/20 **COMPLETED** 3/11/20 **GROUND ELEVATION** 8.2 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Sonic Rig **AT TIME OF DRILLING** ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin **AT END OF DRILLING** ---
NOTES ▽ AFTER DRILLING --- Gw Elev. is 1.82 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Vacuumed- No intact recovery	Casing Top Elev: 11 (ft) Casing Type: Aluminum
5.0	SP		(SP) Tan, brown very fine sand	3.2	
7.3	SP		(SP) Grey very fine sand with mica flecks	0.9	
9.8	SC		(SC) Grey clayey sand	-1.6	
10.7	CL		(CL) Grey, fossiliferous, sandy clay. Shells are fine grained- fine gravel in size.	-2.5	
11.2	SP		(SP) Grey very fine sand with interbedded clay lenses at 12.2-12.7' bgs	-3.0	
13.8	CL		(CL) Grey sandy clay with fossiliferous zone at 14.25-14.3' bgs. Shells are fine gravel in size.	-5.6	
14.9	SP		(SP) Light grey very fine sand with mica flecks	-6.7	2" ASTM Sch. 40 threaded PVC Bentonite Grout
30.5	SP		(SP) Grey very fine sand interbedded with grey clay	-22.3	
32.5	SP		(SP) Dark grey fine sand with clay lenses at 33.1-33.3' & 34.5-34.85' bgs	-24.3	

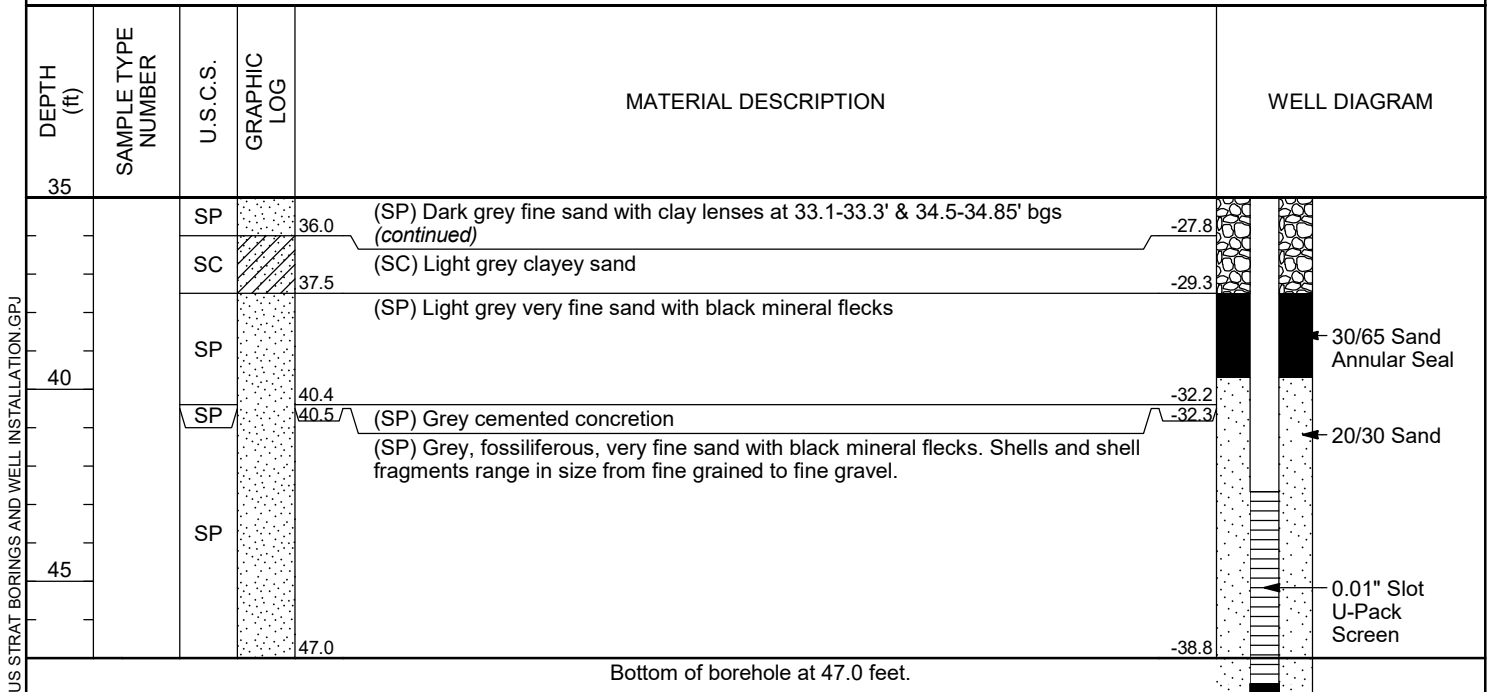
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 Woodstock, GA 30189
 Telephone: 678-398-9942
 Fax: 888-881-8219

WELL NUMBER DPZ-5

CLIENT Southern Company Services PROJECT NAME Plant McManus
 PROJECT NUMBER N/A PROJECT LOCATION Brunswick, Ga



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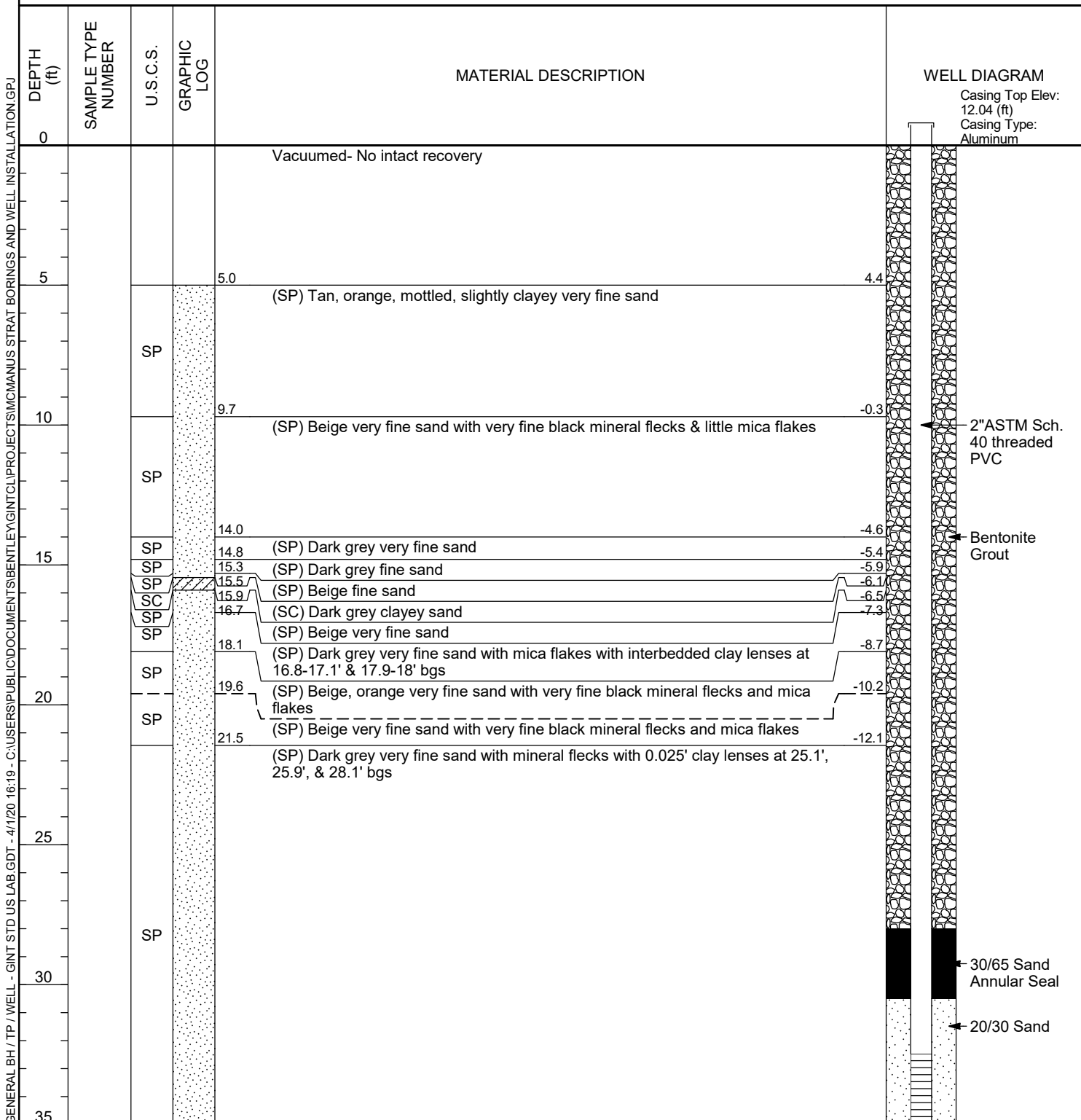


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 Fax: 888-881-8219

WELL NUMBER DPZ-6

CLIENT Southern Company Services
PROJECT NUMBER N/A
DATE STARTED 3/12/20 **COMPLETED** 3/12/20
DRILLING CONTRACTOR Cascade Drilling
DRILLING METHOD Sonic Rig
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
NOTES _____

PROJECT NAME Plant McManus
PROJECT LOCATION Brunswick, Ga
GROUND ELEVATION 9.4 ft NAVD 88 **HOLE SIZE** 7 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING --- Gw Elev. is 2.91 ft before development





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WELL NUMBER DPZ-6

CLIENT Southern Company Services PROJECT NAME Plant McManus
 PROJECT NUMBER N/A PROJECT LOCATION Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35		SP		(SP) Dark grey very fine sand with mineral flecks with 0.025' clay lenses at 25.1', 25.9', & 28.1' bgs (<i>continued</i>)	

Bottom of borehole at 38.0 feet.

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Product Name: Low-Flow System

Date: 2019-11-06 14:48:23

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Well Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type 12v Typhoon Pump
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 35 ft

Pump placement from TOC 22.86 ft

Well Information:

Well ID MCM-18WD
Well diameter 2 in
Well Total Depth 27.86 ft
Screen Length 10 ft
Depth to Water 6.64 ft

Pumping Information:

Final Pumping Rate 6000 mL/min
Total System Volume 0.8501527 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 72.36 in
Total Volume Pumped 168 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	14:28:59	720.55	21.45	4.52	5888.03	1.44	12.67	0.01	144.51
Last 5	14:32:59	960.55	21.45	4.55	5612.35	1.45	12.67	0.01	142.50
Last 5	14:36:59	1200.55	21.44	4.57	5312.84	1.29	12.67	0.01	140.62
Last 5	14:41:05	1446.55	21.44	4.60	5202.04	1.16	12.67	0.01	138.84
Last 5	14:45:05	1686.55	21.43	4.62	5080.54	1.21	12.67	0.01	137.09
Variance 0			-0.00	0.02	-299.51			-0.00	-1.88
Variance 1			-0.00	0.02	-110.80			-0.00	-1.78
Variance 2			-0.01	0.02	-121.50			0.00	-1.74

Notes

Pre-purged 54 gallons.

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-05 15:55:41

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Well Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type 12v Typhoon Pump
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 35 ft

Pump placement from TOC 23.32 ft

Well Information:

Well ID MCM-19WD
Well diameter 2 in
Well Total Depth 28.32 ft
Screen Length 10 ft
Depth to Water 5.94 ft

Pumping Information:

Final Pumping Rate 10000 mL/min
Total System Volume 0.8501527 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 81 in
Total Volume Pumped 200 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	15:36:06	240.09	21.46	5.04	10223.36	2.06	12.65	0.01	135.69
Last 5	15:40:06	480.02	21.45	5.06	9949.46	2.29	12.65	0.01	134.47
Last 5	15:44:06	720.13	21.45	5.07	9641.70	2.24	12.66	0.01	133.76
Last 5	15:48:06	960.13	21.44	5.09	9458.64	2.31	12.67	0.01	132.67
Last 5	15:52:12	1206.13	21.44	5.10	9270.61	2.64	12.69	0.01	131.41
Variance 0			-0.01	0.01	-307.76			-0.00	-0.71
Variance 1			-0.00	0.01	-183.06			-0.00	-1.09
Variance 2			-0.00	0.01	-188.03			-0.00	-1.26

Notes

Well Development. Pre-purged 190 gallons.

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-06 11:47:29

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Well Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type 12v Typhoon Pump
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 30 ft

Pump placement from TOC 23.00 ft

Well Information:

Well ID MCM-20WD
Well diameter 2 in
Well Total Depth 23.05 ft
Screen Length 10 ft
Depth to Water 8.65 ft

Pumping Information:

Final Pumping Rate 6000 mL/min
Total System Volume 0.7415594 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 156.12 in
Total Volume Pumped 120 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	11:28:15	240.17	23.52	3.89	22712.22	9.87	21.66	3.88	164.73
Last 5	11:32:15	480.02	23.45	3.89	22666.07	3.85	21.66	4.48	165.62
Last 5	11:36:15	720.02	23.41	3.89	22815.16	3.21	21.66	3.68	166.64
Last 5	11:40:17	962.02	23.50	3.89	22895.10	2.99	21.66	3.60	167.46
Last 5	11:44:17	1202.02	23.43	3.89	22916.69	3.32	21.66	3.77	168.25
Variance 0			-0.04	-0.00	149.09			-0.80	1.02
Variance 1			0.09	0.00	79.94			-0.08	0.81
Variance 2			-0.07	-0.00	21.58			0.17	0.79

Notes

Pre-purged 56 gallons. Water level during trolling was below top of pump.

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-07 17:11:03

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Well Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type 12v Typhoon Pump
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 30 ft

Pump placement from TOC 23.05 ft

Well Information:

Well ID PZ-9 WD
Well diameter 2 in
Well Total Depth 24.05 ft
Screen Length 10 ft
Depth to Water 6.22 ft

Pumping Information:

Final Pumping Rate 4000 mL/min
Total System Volume 0.7415594 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 201.96 in
Total Volume Pumped 40 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	16:53:59	240.08	22.81	5.29	3270.25	6.84	21.57	4.74	109.88
Last 5	16:57:59	480.02	22.87	5.30	3276.59	4.46	23.05	4.16	106.11
Last 5	17:01:59	720.02	22.81	5.31	3269.48	5.11	23.05	4.11	103.00
Last 5	17:05:59	960.02	22.92	5.31	3286.13	4.96	23.05	4.70	100.98
Last 5	17:09:59	1200.02	22.79	5.32	3270.75	4.12	23.05	4.23	99.37
Variance 0			-0.06	0.01	-7.11			-0.05	-3.11
Variance 1			0.11	0.00	16.65			0.59	-2.02
Variance 2			-0.12	0.01	-15.38			-0.47	-1.61

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-06 16:39:22

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute Env
Project Name Well Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 647057
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type 12v Typhoon Pump
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 30 ft

Pump placement from TOC 21.63 ft

Well Information:

Well ID PZ-10W
Well diameter 2 in
Well Total Depth 22.91 ft
Screen Length 10 ft
Depth to Water 10.32 ft

Pumping Information:

Final Pumping Rate 5000 mL/min
Total System Volume 0.7415594 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 108.84 in
Total Volume Pumped 100 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 1000%
Last 5	16:22:28	240.02	22.24	5.03	652.74	7.50	19.16	0.45	117.31
Last 5	16:26:28	480.02	22.22	5.02	642.37	5.99	19.30	0.45	117.31
Last 5	16:30:28	720.02	22.21	5.01	646.08	3.74	19.38	0.44	117.18
Last 5	16:34:28	960.02	22.21	5.00	642.49	2.43	19.40	0.43	117.25
Last 5	16:38:28	1200.00	22.21	5.00	651.42	1.54	19.39	0.43	117.48
Variance 0			-0.01	-0.01	3.71			-0.02	-0.13
Variance 1			-0.00	-0.00	-3.59			-0.01	0.07
Variance 2			-0.00	-0.00	8.93			0.00	0.23

Notes

Pre-purged 45 gallons.

Grab Samples

Product Name: Low-Flow System

Date: 2020-01-08 17:27:26

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646773
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 22 ft

Pump placement from TOC 18.5 ft

Well Information:

Well ID PZ-11
Well diameter 2 in
Well Total Depth 19.08 ft
Screen Length 10 ft
Depth to Water 4.77 ft

Pumping Information:

Final Pumping Rate 400 mL/min
Total System Volume 0.2100905 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 23.16 in
Total Volume Pumped 200 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Last 5	17:09:40	719.98	19.15	5.44	718.06	12.80	6.70	0.39	61.56
Last 5	17:13:40	959.96	19.15	5.44	716.08	11.70	6.70	0.37	58.85
Last 5	17:17:45	1204.95	19.16	5.44	703.63	8.29	6.70	0.34	55.97
Last 5	17:21:45	1444.94	19.19	5.44	699.91	7.18	6.70	0.33	54.39
Last 5	17:25:45	1684.92	19.15	5.44	693.27	--	--	0.33	52.79
Variance 0			0.01	0.00	-12.46			-0.03	-2.89
Variance 1			0.03	-0.00	-3.72			-0.02	-1.58
Variance 2			-0.04	-0.00	-6.63			-0.00	-1.60

Notes

Well development. Purged 50 gallons total from well.

Grab Samples

Product Name: Low-Flow System

Date: 2020-01-09 17:15:59

Project Information:

Operator Name Trent Godwin
Company Name Resolute
Project Name Background
Site Name McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646773
Turbidity Make/Model LaMotte 20-20

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.188 in
Tubing Length 23 ft

Pump placement from TOC 18 ft

Well Information:

Well ID PZ-12
Well diameter 2 in
Well Total Depth 18.70 ft
Screen Length 10 ft
Depth to Water 5.35 ft

Pumping Information:

Final Pumping Rate 10000 mL/min
Total System Volume 0.2155491 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 108.84 in
Total Volume Pumped 320 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 100%
Last 5	16:58:19	240.00	22.72	6.70	40675.43	0.56	14.38	0.08	-321.86
Last 5	17:02:19	479.99	22.72	6.69	40820.86	0.71	14.40	0.08	-325.53
Last 5	17:06:19	719.98	22.72	6.69	40998.50	0.49	14.40	0.08	-328.46
Last 5	17:10:19	959.97	22.72	6.68	41080.55	0.64	14.42	0.08	-330.51
Last 5	17:14:27	1207.95	22.72	6.68	41223.91	0.53	14.42	0.08	-332.47
Variance 0			0.00	-0.01	177.64			-0.00	-2.93
Variance 1			0.00	-0.00	82.05			-0.00	-2.05
Variance 2			0.00	-0.00	143.36			-0.00	-1.96

Notes

Well development

Grab Samples

Product Name: Low-Flow System

Date: 2020-03-18 10:43:02

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Deep Piezometer Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Proactive Cyclone
Tubing Type LDPE
Tubing Diameter 0.34 in
Tubing Length 44.26 ft

Pump placement from TOC 35.26 ft

Well Information:

Well ID DPZ-1
Well diameter 2 in
Well Total Depth 40.78 ft
Screen Length 5 ft
Depth to Water 8.2 ft

Pumping Information:

Final Pumping Rate 4500 mL/min
Total System Volume 0.9252043 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 34.2 in
Total Volume Pumped 80.9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	10:28:10	359.99	22.87	8.12	2803.15	4.57	11.05	0.03	-33.32
Last 5	10:31:10	539.98	22.78	8.10	2840.12	3.62	11.05	0.02	-33.28
Last 5	10:34:10	719.98	22.74	8.18	2823.63	4.85	11.05	0.04	-22.11
Last 5	10:37:10	899.97	22.74	8.18	2867.11	4.75	11.05	0.02	-28.67
Last 5	10:40:10	1079.95	22.73	8.19	2899.00	4.71	11.05	0.02	-27.31
Variance 0			-0.04	0.08	-16.50			0.02	11.17
Variance 1			-0.00	-0.00	43.48			-0.02	-6.56
Variance 2			-0.00	0.01	31.89			-0.00	1.36

Notes

Predeveloped well, purged 31.5 gallons

Grab Samples

Product Name: Low-Flow System

Date: 2020-03-18 17:34:27

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Deep Piezometer Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Proactive Cyclone
Tubing Type LDPE
Tubing Diameter 0.38 in
Tubing Length 46 ft

Pump placement from TOC 48.45 ft

Well Information:

Well ID DPZ-2
Well diameter 2 in
Well Total Depth 43.46 ft
Screen Length 5 ft
Depth to Water 7.54 ft

Pumping Information:

Final Pumping Rate 10000 mL/min
Total System Volume 1.160877 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 87.4 in
Total Volume Pumped 150 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	17:19:08	180.01	23.99	7.11	18397.95	2.40	14.99	0.02	57.31
Last 5	17:22:08	360.00	22.64	7.14	19203.06	1.89	14.92	0.02	40.71
Last 5	17:25:08	539.98	22.55	7.16	19140.69	2.12	14.90	0.01	36.16
Last 5	17:28:08	719.97	22.52	7.14	19266.04	2.17	14.85	0.01	34.80
Last 5	17:31:08	899.96	22.51	7.13	19322.94	1.70	14.82	0.01	32.79
Variance 0			-0.08	0.02	-62.38			-0.00	-4.55
Variance 1			-0.04	-0.02	125.35			-0.00	-1.35
Variance 2			-0.01	-0.02	56.89			-0.00	-2.02

Notes

Predeveloped well, purged 36 gallons
Well appears to be tidally influenced

Grab Samples

Product Name: Low-Flow System

Date: 2020-03-18 14:51:18

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Deep Piezometer Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Proactive Cyclone
Tubing Type LDPE
Tubing Diameter .38 in
Tubing Length 49 ft

Pump placement from TOC 42.57 ft

Well Information:

Well ID DPZ-3
Well diameter 2 in
Well Total Depth 47.57 ft
Screen Length 5 ft
Depth to Water 8.24 ft

Pumping Information:

Final Pumping Rate 6000 mL/min
Total System Volume 1.227782 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 286.7 in
Total Volume Pumped 117.7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	14:34:01	539.98	22.27	7.66	1401.97	0.85	32.56	0.01	32.76
Last 5	14:37:01	719.98	22.24	7.66	1406.46	1.80	32.43	0.01	33.72
Last 5	14:40:01	899.97	22.24	7.66	1407.57	2.39	32.35	0.01	35.01
Last 5	14:43:01	1079.95	22.22	7.66	1407.76	2.25	32.25	0.00	36.28
Last 5	14:46:01	1259.94	22.21	7.65	1407.87	2.37	32.13	0.00	37.10
Variance 0			-0.00	-0.00	1.11			-0.00	1.29
Variance 1			-0.02	-0.00	0.19			-0.00	1.27
Variance 2			-0.01	-0.00	0.10			-0.00	0.82

Notes

Predeveloped well, purged 40.5 gallons
Pump battery started to die. Pump rate dropped from 6L/min to 5.25L/min at 1435. Well also possibly tidally influenced.

Grab Samples

Product Name: Low-Flow System

Date: 2020-03-16 18:05:50

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Deep Piezometer Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Proactive Cyclone
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 54 ft

Pump placement from TOC 46.23 ft

Well Information:

Well ID DPZ-4
Well diameter 2 in
Well Total Depth 51.23 ft
Screen Length 5 ft
Depth to Water 9 ft

Pumping Information:

Final Pumping Rate 8000 mL/min
Total System Volume 0.3760248 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 49.8 in
Total Volume Pumped 119.9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	17:49:44	180.03	21.18	6.87	26672.42	1.80	13.04	0.03	63.24
Last 5	17:52:44	360.00	21.16	6.94	26761.85	1.55	13.06	0.02	64.01
Last 5	17:55:44	539.99	21.14	6.95	26852.88	0.91	13.13	0.01	64.99
Last 5	17:58:44	719.98	21.13	6.96	26899.52	0.53	13.16	0.01	65.74
Last 5	18:01:44	899.97	21.15	6.97	26991.35	0.62	13.15	0.01	66.35
Variance 0			-0.02	0.02	91.03			-0.01	0.98
Variance 1			-0.01	0.01	46.64			-0.00	0.75
Variance 2			0.03	0.01	91.83			-0.00	0.61

Notes

Prepurged 56 gallons

Grab Samples

Product Name: Low-Flow System

Date: 2020-03-17 12:15:13

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Deep Piezometer Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Proactive Cyclone
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 55 ft

Pump placement from TOC 46.19 ft

Well Information:

Well ID DPZ-5
Well diameter 2 in
Well Total Depth 52.19 ft
Screen Length 5 ft
Depth to Water 9.18 ft

Pumping Information:

Final Pumping Rate 5000 mL/min
Total System Volume 0.3804882 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 64.2 in
Total Volume Pumped 104.9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	12:00:24	539.99	22.44	7.41	398.53	4.02	14.53	0.01	5.75
Last 5	12:03:24	719.98	22.44	7.45	398.84	4.17	14.53	0.01	7.06
Last 5	12:06:24	899.96	22.44	7.48	398.44	3.81	14.53	0.01	8.27
Last 5	12:09:24	1079.95	22.46	7.50	398.61	3.37	14.53	0.01	9.09
Last 5	12:12:24	1259.94	22.46	7.51	398.32	2.72	14.53	0.01	9.18
Variance 0			0.00	0.03	-0.40			-0.00	1.21
Variance 1			0.02	0.02	0.17			-0.00	0.82
Variance 2			0.00	0.01	-0.29			-0.00	0.08

Notes

Predeveloped Well, purged 37 gallons

Grab Samples

Product Name: Low-Flow System

Date: 2020-03-17 15:51:13

Project Information:

Operator Name Veronica Fay
Company Name Resolute
Project Name Deep Piezometer Development
Site Name Plant McManus
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714
Turbidity Make/Model LaMotte we2020

Pump Information:

Pump Model/Type Proactive Cyclone
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 42 ft

Pump placement from TOC 34.66 ft

Well Information:

Well ID DPZ-6
Well diameter 2 in
Well Total Depth 40.50 ft
Screen Length 5 ft
Depth to Water 9.13 ft

Pumping Information:

Final Pumping Rate 9000 mL/min
Total System Volume 0.3224638 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 43.44 in
Total Volume Pumped 269.9 L

Low-Flow Sampling Stabilization Summary

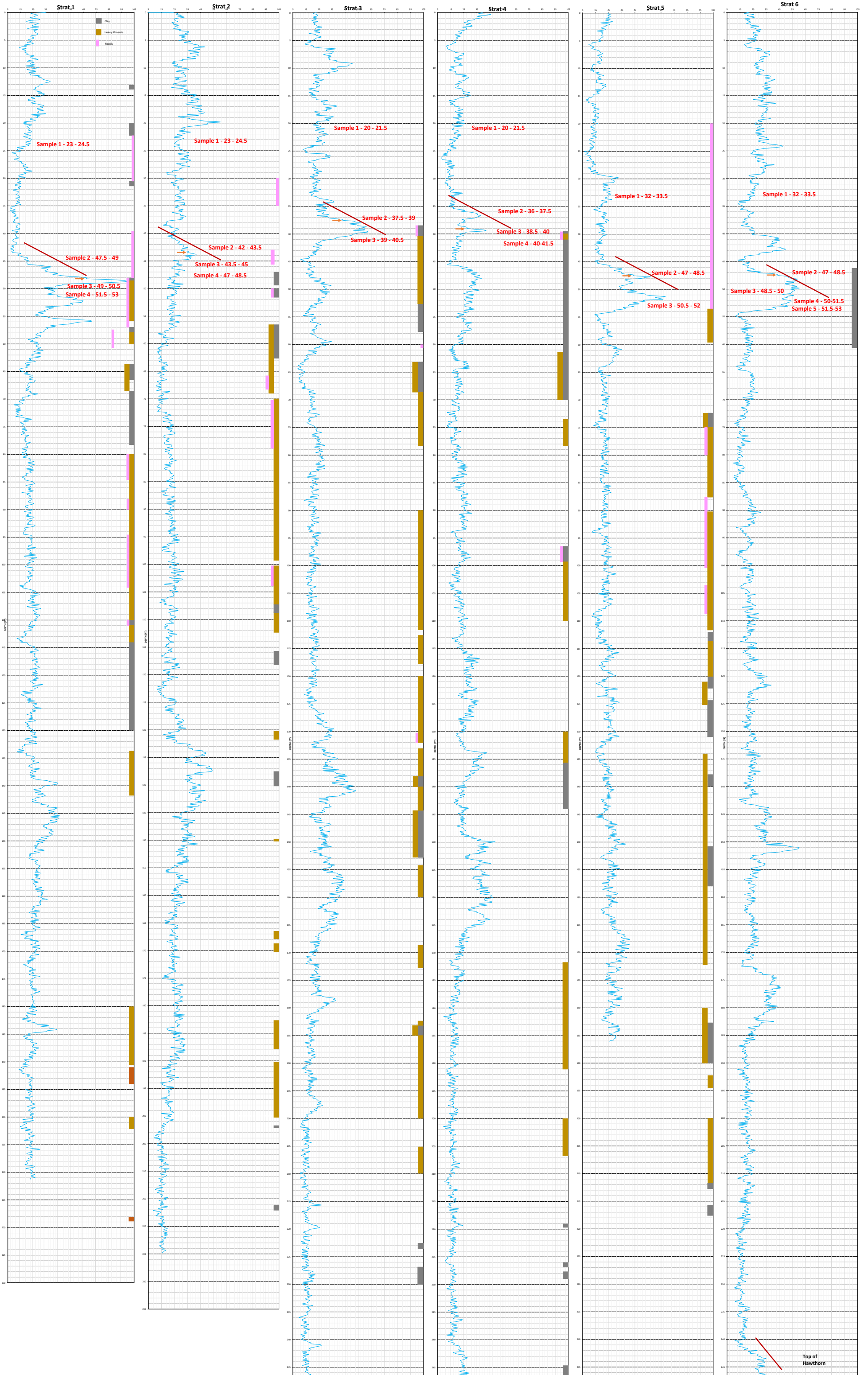
	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	15:36:09	1079.96	22.04	6.07	342.05	8.27	12.75	0.00	35.14
Last 5	15:39:09	1259.94	22.06	6.05	337.45	7.44	12.75	0.00	36.09
Last 5	15:42:09	1439.93	22.02	6.03	334.35	6.94	12.75	0.00	36.30
Last 5	15:45:09	1619.92	22.02	6.01	331.18	6.83	12.75	-0.00	37.06
Last 5	15:48:09	1799.91	22.02	5.99	326.64	6.67	12.75	0.00	37.39
Variance 0			-0.04	-0.02	-3.11			-0.00	0.21
Variance 1			-0.00	-0.02	-3.17			-0.00	0.75
Variance 2			-0.00	-0.02	-4.54			0.00	0.34

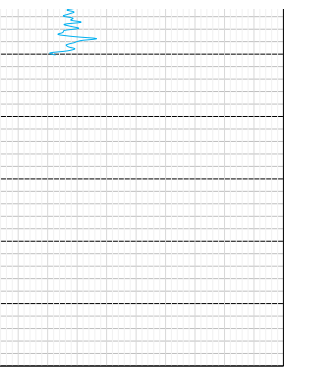
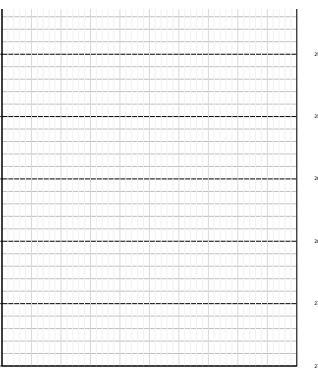
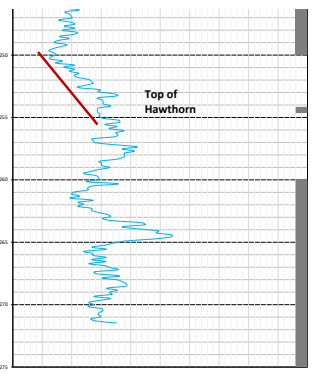
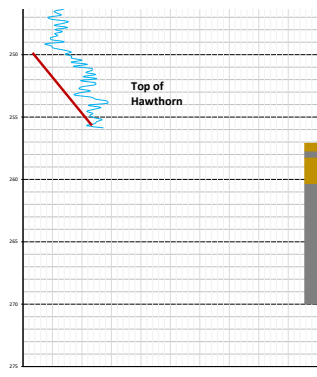
Notes

Predeveloped well, purged 43.5 gallons

Grab Samples

Shelby Tube Samples with Relation to Gamma Logs





Vertical Hydraulic Conductivity Based on ASTM D 5084-10
 Georgia Power Plant McManus
 Brunswick, Georgia

Upper Satilla Formation K Values			
Boring ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Measured K (cm/s)
Strat 1	23	25	1.72E-06
Strat 2	23	25	2.45E-05
Strat 3	20	22	1.06E-03
Strat 4	20	22	1.88E-04
Strat 5	32	34	1.27E-03
Strat 6	31.5	33.5	6.19E-06

Lower Satilla (Cypresshead/Ebenezer) Formation K Values			
Boring ID	Top Depth	Bottom Depth	Measured K
Strat 1	47	49	7.14E-05
Strat 1	49	51	1.65E-04
Strat 1	51.5	53.5	1.58E-05
Strat 2	43.5	45.5	1.81E-05
Strat 2	47	49	2.02E-06
Strat 3	37.5	39.5	1.08E-07
Strat 3	39.5	41.5	4.91E-05
Strat 4	36	38	3.07E-05
Strat 4	38	40	8.09E-06
Strat 4	40	42	4.70E-05
Strat 5	47	49	5.25E-05
Strat 5	50.5	51.5	2.57E-05
Strat 6	48.5	50	2.04E-07
Strat 6	50	51.5	1.24E-06
Strat 6	51.5	53	1.35E-07

Range of Upper Satilla Vertical K Values (cm/s): 1.72E-06 to 1.27E-03

Range of Lower Satilla Vertical K Values (cm/s): 1.08E-07 to 1.65E-04

Average Upper Satilla Vertical K (cm/s): 4.25E-04

Average Lower Satilla Vertical K (cm/s): 3.25E-05

Notes:

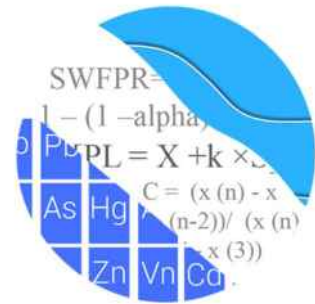
ft bgs - feet below ground surface

cm/s - centimeters per second

APPENDIX C

Statistical Analyses

GROUNDWATER STATS CONSULTING



April 3, 2020

Resolute Environmental & Water Resources Consulting
Attn: Mr. Stephen Wilson
1003 Weatherstone Parkway, Ste. 320
Woodstock, GA 30188

Dear Mr. Wilson,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis of the October/November 2019 Detection Monitoring Event for Georgia Power Company's Plant McManus Ash Pond. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015), the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10, and follows the USEPA Unified Guidance (2009).

The groundwater monitoring well network consists of the following:

- **Upgradient Wells:** MCM-01, MCM-02, MCM-11, MCM-15, MCM-16, MCM-18, MCM-19, and MCM-20, and;
- **Downgradient Wells:** MCM-04, MCM-05, MCM-06, MCM-07, MCM-12, MCM-14, MCM-17

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Dr. Jim Loftis, Civil & Environmental Engineering professor emeritus at Colorado State University and Senior Advisor to Groundwater Stats Consulting.

The statistical analysis provided in this report was performed according to the background screening conducted by MacStat Consulting in April 2019. Interwell prediction limits, combined with a 1-of-2 resample plan, for Appendix III parameters were recommended as the primary statistical method in Detection Monitoring. The following parameters were evaluated: boron, calcium, chloride, fluoride, pH, sulfate and total dissolved solids (TDS).

Data from each well are plotted on time series plots for the constituents of interest to monitor concentration levels over time. Additionally, box and whisker plots are provided for visual comparison across all wells, of upgradient to downgradient water quality, and other spatial patterns across the site.

When concentrations exist higher in downgradient wells relative to observations reported upgradient of the facility, as seen in the majority of the Appendix III parameters, this may be reflective of natural variation or a result of practices at the facility. A separate study and hydrogeological investigation would be required to fully understand the geochemical conditions and expected groundwater quality for the region. That study and assessment is beyond the scope of services provided by Groundwater Stats Consulting.

For regulatory comparison of current observations against statistical limits, the annual site-wide false positive rate is based on the USEPA Unified Guidance (2009) recommendation of 10% (5% for each semi-annual sample event). The screening evaluation performed by MacStat Consulting demonstrated that interwell limits combined with a 1-of-2 resample plan provided sufficient power to detect a change at any of the downgradient wells, which complies with the USEPA Unified Guidance recommendation. The EPA suggests that the selected statistical method should provide at least 55% power at 3 standard deviations or at least 80% power at 4 standard deviations.

Summary of Statistical Methods:

Interwell prediction limits, combined with a 1-of-2 resample plan for the above constituents are used to statistically evaluate the October/November 2019 samples.

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.

- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Interwell prediction limits are updated with new upgradient well data during each statistical analysis after careful screening for new outliers. When extreme values are noted in upgradient wells, they are flagged as outliers in the database and deselected prior to construction of statistical limits. This step results in conservative limits from a regulatory perspective. No outliers were flagged for this analysis. Periodically, all upgradient well data will be evaluated for long-term trends. Earlier measurements may be deselected in cases where they no longer represent present-day water quality.

Prediction Limits

Interwell prediction limits, constructed from all available pooled upgradient well data were used to evaluate the most recent compliance sample from each downgradient well reported during the October/November 2019 sample event.

In the event of an initial exceedance of prediction limits by compliance well data, the 1-of-2 verification resample plan allows for collection of an additional sample to determine whether the initial exceedance is confirmed. When the resample confirms the initial exceedance, a statistically significant increase (SSI) is identified and further research would be required to identify the cause of the exceedance (i.e. natural variation, an off-site source, practices at the site). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, requires no further action.

When the October/November 2019 samples were compared to their respective interwell prediction limits, several statistically significant increases over background were noted. A summary table of these prediction limits and results of comparisons follow this letter.

The Sen's Slope/Mann Kendall trend test was used to determine whether there is a statistically significant trend over the entire period of record for the exceedances noted above. Upgradient wells are included in the trend testing to determine whether similar patterns exist upgradient of the facility. Statistically significant increasing trends were

noted as follows: calcium in downgradient wells MCM-06, MCM-07, and MCM-14; chloride in upgradient well MCM-15, and downgradient wells MCM-06, MCM-07, and MCM-14; sulfate in downgradient well MCM-07; and TDS in downgradient wells MCM-06, MCM-07 and MCM-14.

Statistically significant decreasing trends were noted as follows: boron in upgradient wells MCM-02 and MCM-16; and pH in upgradient well MCM-11, and downgradient wells MCM-05, MCM-06, MCM-12 and MCM-14. A summary table of trend test results for the exceedances follows this letter.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Plant McManus Ash Pond. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,



Andrew T. Collins
Groundwater Analyst



Kristina L. Rayner
Groundwater Statistician

Interwell Prediction Limits Summary Table - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:18 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg	N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-17	1.3	n/a	11/21/2019	1.5	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-06	169	n/a	10/17/2019	309	Yes	75	n/a	n/a	1.333	n/a	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-07	169	n/a	11/20/2019	308	Yes	75	n/a	n/a	1.333	n/a	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-14	169	n/a	11/21/2019	305	Yes	75	n/a	n/a	1.333	n/a	n/a	0.0003425	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-06	8130	n/a	10/17/2019	9930	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-07	8130	n/a	11/20/2019	9810	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-14	8130	n/a	11/21/2019	8330	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2
pH (S.U.)	MCM-05	5.724	3.652	11/20/2019	6.58	Yes	78	3398	1448	0	None	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-06	5.724	3.652	10/17/2019	6.86	Yes	78	3398	1448	0	None	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-07	5.724	3.652	11/20/2019	6.27	Yes	78	3398	1448	0	None	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-12	5.724	3.652	10/15/2019	6.19	Yes	78	3398	1448	0	None	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-14	5.724	3.652	11/21/2019	6.67	Yes	78	3398	1448	0	None	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-17	5.724	3.652	11/21/2019	6.44	Yes	78	3398	1448	0	None	None	0.0005373	Param Inter 1 of 2
Sulfate (mg/L)	MCM-07	1140	n/a	11/20/2019	1550	Yes	73	n/a	n/a	0	n/a	n/a	0.0003601	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-06	13500	n/a	10/17/2019	16100	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-07	13500	n/a	11/20/2019	16700	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-14	13500	n/a	11/21/2019	15800	Yes	74	n/a	n/a	0	n/a	n/a	0.0003513	NP Inter (normality) 1 of 2

Interwell Prediction Limits Summary Table - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:18 PM

Constituent	Well	Upper Lim.	Lower Lim	Date	Observ.	Sig.	Bg	N Bg	Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-04	1.3	n/a	10/15/2019	0.068	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-05	1.3	n/a	11/20/2019	0.53	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-06	1.3	n/a	10/17/2019	1.3	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-07	1.3	n/a	11/20/2019	1.3	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-12	1.3	n/a	10/15/2019	1.1	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-14	1.3	n/a	11/21/2019	1	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-17	1.3	n/a	11/21/2019	1.5	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-04	169	n/a	10/15/2019	15.5	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-05	169	n/a	11/20/2019	55.8	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-06	169	n/a	10/17/2019	309	Yes	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-07	169	n/a	11/20/2019	308	Yes	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-12	169	n/a	10/15/2019	7.9	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-14	169	n/a	11/21/2019	305	Yes	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-17	169	n/a	11/21/2019	125	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-04	8130	n/a	10/15/2019	46	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-05	8130	n/a	11/20/2019	1480	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-06	8130	n/a	10/17/2019	9930	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-07	8130	n/a	11/20/2019	9810	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-12	8130	n/a	10/15/2019	744	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-14	8130	n/a	11/21/2019	8330	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-17	8130	n/a	11/21/2019	3890	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-04	1.5	n/a	10/15/2019	0.095	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-05	1.5	n/a	11/20/2019	0.34	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-06	1.5	n/a	10/17/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-07	1.5	n/a	11/20/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-12	1.5	n/a	10/15/2019	1	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-14	1.5	n/a	11/21/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-17	1.5	n/a	11/21/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
pH (S.U.)	MCM-04	5.724	3.652	11/20/2019	5.03	No	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
pH (S.U.)	MCM-05	5.724	3.652	11/20/2019	6.58	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
pH (S.U.)	MCM-06	5.724	3.652	10/17/2019	6.86	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
pH (S.U.)	MCM-07	5.724	3.652	11/20/2019	6.27	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
pH (S.U.)	MCM-12	5.724	3.652	10/15/2019	6.19	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
pH (S.U.)	MCM-14	5.724	3.652	11/21/2019	6.67	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
pH (S.U.)	MCM-17	5.724	3.652	11/21/2019	6.44	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2	
Sulfate (mg/L)	MCM-04	1140	n/a	10/15/2019	105	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-05	1140	n/a	11/20/2019	132	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-06	1140	n/a	10/17/2019	507	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-07	1140	n/a	11/20/2019	1550	Yes	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-12	1140	n/a	10/15/2019	0.54	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-14	1140	n/a	11/21/2019	1070	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-17	1140	n/a	11/21/2019	428	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-04	13500	n/a	10/15/2019	237	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-05	13500	n/a	11/20/2019	2640	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-06	13500	n/a	10/17/2019	16100	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-07	13500	n/a	11/20/2019	16700	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-12	13500	n/a	10/15/2019	1730	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-14	13500	n/a	11/21/2019	15800	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-17	13500	n/a	11/21/2019	7720	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2

Trend Tests Summary Table - Prediction Limit Exceedances - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:25 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MCM-02 (bg)	-0.03842	-41	-30	Yes	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-16 (bg)	-0.0127	-35	-30	Yes	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-06	80.44	35	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.98	48	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	101.2	54	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	1892	42	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	2080	48	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-14	2938	49	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	4.804	33	30	Yes	10	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.1046	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1136	-36	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.1212	-41	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.0949	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1491	-50	-38	Yes	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-07	350	45	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4220	37	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3348	45	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	5116	53	34	Yes	11	0	n/a	n/a	0.01	NP

Trend Tests Summary Table - Prediction Limit Exceedances - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:25 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	MCM-01 (bg)	-0.003017	-8	-30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-02 (bg)	-0.03842	-41	-30	Yes	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-11 (bg)	-0.005899	-16	-30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-15 (bg)	0	0	30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-16 (bg)	-0.0127	-35	-30	Yes	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-17	-0.2084	-25	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-18 (bg)	-0.1661	-10	-21	No	8	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-19 (bg)	-0.1973	-4	-21	No	8	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-20 (bg)	-0.6764	-4	-21	No	8	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-01 (bg)	0.9733	19	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-02 (bg)	-0.2607	-15	-30	No	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-06	80.44	35	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.98	48	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-11 (bg)	-7.391	-29	-30	No	10	10	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	101.2	54	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-15 (bg)	3.487	30	30	No	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-16 (bg)	-0.02433	-3	-30	No	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-18 (bg)	-25.97	-18	-21	No	8	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-19 (bg)	-26.74	-3	-21	No	8	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-20 (bg)	-75.46	-10	-21	No	8	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-01 (bg)	3.053	17	30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-02 (bg)	-4.636	-29	-30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	1892	42	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	2080	48	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-11 (bg)	-34.37	-25	-30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-14	2938	49	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	4.804	33	30	Yes	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-16 (bg)	-2.246	-15	-30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-18 (bg)	-2754	-16	-21	No	8	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-19 (bg)	-3323	-10	-21	No	8	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-20 (bg)	-9045	-20	-21	No	8	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-01 (bg)	0.07982	26	38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-02 (bg)	0.01857	11	38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.1046	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1136	-36	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-07	-0.1122	-36	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.1212	-41	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.0949	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1491	-50	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-15 (bg)	-0.04083	-1	-34	No	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-16 (bg)	-0.04914	-13	-34	No	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-17	-0.1687	-37	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-18 (bg)	0.1564	7	18	No	7	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-19 (bg)	-0.4761	-8	-18	No	7	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-20 (bg)	-0.2844	-13	-18	No	7	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-01 (bg)	-0.3824	-1	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-02 (bg)	-6.539	-29	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-04	16.17	9	30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-07	350	45	34	Yes	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-11 (bg)	-7.527	-25	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-15 (bg)	4.803	30	30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-16 (bg)	4.8	25	30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-18 (bg)	-365	-6	-18	No	7	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-19 (bg)	-305.1	-10	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-20 (bg)	-377	-2	-21	No	8	0	n/a	n/a	0.01	NP

Trend Tests Summary Table - Prediction Limit Exceedances - All Results Page 2

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:25 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Total Dissolved Solids [TDS] (mg/L)	MCM-01 (bg)	-6.479	-3	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-02 (bg)	-6.606	-5	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4220	37	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3348	45	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-11 (bg)	-71.1	-27	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	5116	53	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-15 (bg)	38.32	27	30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-16 (bg)	-1.327	-5	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-18 (bg)	-3621	-20	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-19 (bg)	289.7	1	21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-20 (bg)	-4831	-19	-21	No	8	0	n/a	n/a	0.01	NP

Prediction Limits

Interwell Prediction Limits Summary Table - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:18 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-17	1.3	n/a	11/21/2019	1.5	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-06	169	n/a	10/17/2019	309	Yes	75	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-07	169	n/a	11/20/2019	308	Yes	75	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-14	169	n/a	11/21/2019	305	Yes	75	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-06	8130	n/a	10/17/2019	9930	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-07	8130	n/a	11/20/2019	9810	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-14	8130	n/a	11/21/2019	8330	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
pH (S.U.)	MCM-05	5.724	3.652	11/20/2019	6.58	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-06	5.724	3.652	10/17/2019	6.86	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-07	5.724	3.652	11/20/2019	6.27	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-12	5.724	3.652	10/15/2019	6.19	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-14	5.724	3.652	11/21/2019	6.67	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-17	5.724	3.652	11/21/2019	6.44	Yes	78	3398	1448	0	None	0.0005373	Param Inter 1 of 2
Sulfate (mg/L)	MCM-07	1140	n/a	11/20/2019	1550	Yes	73	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-06	13500	n/a	10/17/2019	16100	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-07	13500	n/a	11/20/2019	16700	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-14	13500	n/a	11/21/2019	15800	Yes	74	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2

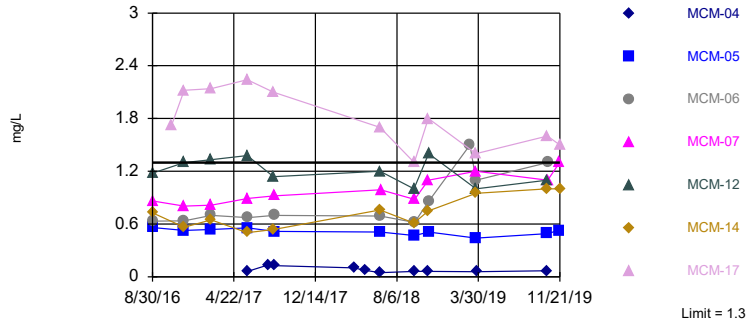
Interwell Prediction Limits Summary Table - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:18 PM

Constituent	Well	Upper Lim.	Lower Lim	Date	Observ.	Sig.	Bg	N Bg	Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-04	1.3	n/a	10/15/2019	0.068	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-05	1.3	n/a	11/20/2019	0.53	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-06	1.3	n/a	10/17/2019	1.3	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-07	1.3	n/a	11/20/2019	1.3	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-12	1.3	n/a	10/15/2019	1.1	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-14	1.3	n/a	11/21/2019	1	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Boron (mg/L)	MCM-17	1.3	n/a	11/21/2019	1.5	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-04	169	n/a	10/15/2019	15.5	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-05	169	n/a	11/20/2019	55.8	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-06	169	n/a	10/17/2019	309	Yes	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-07	169	n/a	11/20/2019	308	Yes	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-12	169	n/a	10/15/2019	7.9	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-14	169	n/a	11/21/2019	305	Yes	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Calcium (mg/L)	MCM-17	169	n/a	11/21/2019	125	No	75	n/a	n/a	n/a	1.333	n/a	0.0003425	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-04	8130	n/a	10/15/2019	46	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-05	8130	n/a	11/20/2019	1480	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-06	8130	n/a	10/17/2019	9930	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-07	8130	n/a	11/20/2019	9810	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-12	8130	n/a	10/15/2019	744	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-14	8130	n/a	11/21/2019	8330	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Chloride (mg/L)	MCM-17	8130	n/a	11/21/2019	3890	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-04	1.5	n/a	10/15/2019	0.095	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-05	1.5	n/a	11/20/2019	0.34	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-06	1.5	n/a	10/17/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-07	1.5	n/a	11/20/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-12	1.5	n/a	10/15/2019	1	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-14	1.5	n/a	11/21/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
Fluoride (mg/L)	MCM-17	1.5	n/a	11/21/2019	0.3ND	No	79	n/a	n/a	n/a	31.65	n/a	0.0003072	NP Inter (normality) 1 of 2
pH (S.U.)	MCM-04	5.724	3.652	11/20/2019	5.03	No	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-05	5.724	3.652	11/20/2019	6.58	Yes	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-06	5.724	3.652	10/17/2019	6.86	Yes	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-07	5.724	3.652	11/20/2019	6.27	Yes	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-12	5.724	3.652	10/15/2019	6.19	Yes	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-14	5.724	3.652	11/21/2019	6.67	Yes	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
pH (S.U.)	MCM-17	5.724	3.652	11/21/2019	6.44	Yes	78	3398	1448	1448	0	None	0.0005373	Param Inter 1 of 2
Sulfate (mg/L)	MCM-04	1140	n/a	10/15/2019	105	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-05	1140	n/a	11/20/2019	132	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-06	1140	n/a	10/17/2019	507	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-07	1140	n/a	11/20/2019	1550	Yes	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-12	1140	n/a	10/15/2019	0.54	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-14	1140	n/a	11/21/2019	1070	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Sulfate (mg/L)	MCM-17	1140	n/a	11/21/2019	428	No	73	n/a	n/a	n/a	0	n/a	0.0003601	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-04	13500	n/a	10/15/2019	237	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-05	13500	n/a	11/20/2019	2640	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-06	13500	n/a	10/17/2019	16100	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-07	13500	n/a	11/20/2019	16700	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-12	13500	n/a	10/15/2019	1730	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-14	13500	n/a	11/21/2019	15800	Yes	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MCM-17	13500	n/a	11/21/2019	7720	No	74	n/a	n/a	n/a	0	n/a	0.0003513	NP Inter (normality) 1 of 2

Exceeds Limit: MCM-17

Prediction Limit
Interwell Non-parametric

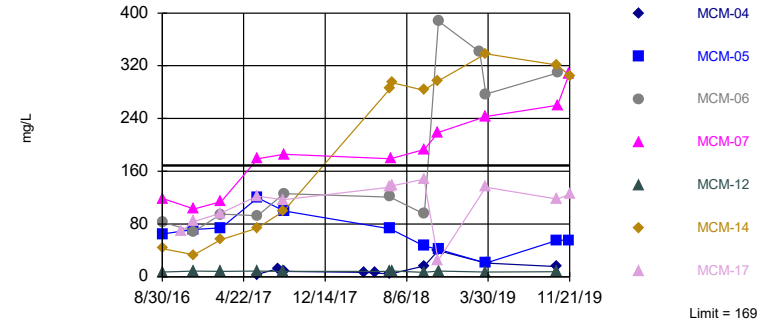


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 74 background values. Annual per-constituent alpha = 0.004907. Individual comparison alpha = 0.0003513 (1 of 2). Comparing 7 points to limit.

Constituent: Boron Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limit: MCM-06, MCM-07, MCM-14

Prediction Limit
Interwell Non-parametric

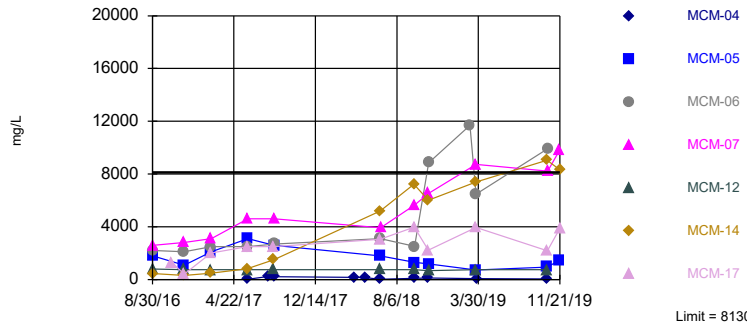


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 75 background values. 1.333% NDs. Annual per-constituent alpha = 0.004784. Individual comparison alpha = 0.0003425 (1 of 2). Comparing 7 points to limit.

Constituent: Calcium Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limit: MCM-06, MCM-07, MCM-14

Prediction Limit
Interwell Non-parametric

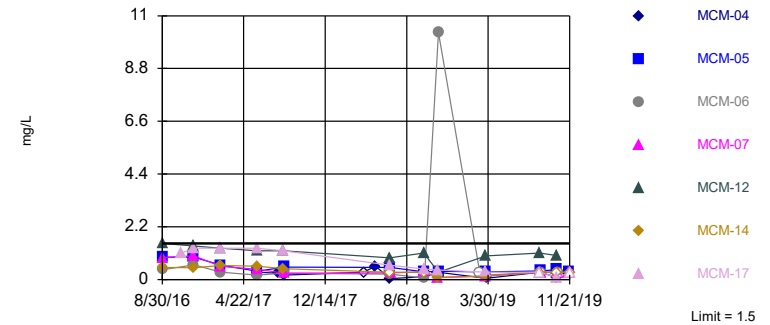


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 74 background values. Annual per-constituent alpha = 0.004907. Individual comparison alpha = 0.0003513 (1 of 2). Comparing 7 points to limit.

Constituent: Chloride Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Within Limit

Prediction Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 79 background values. 31.65% NDs. Annual per-constituent alpha = 0.004292. Individual comparison alpha = 0.0003072 (1 of 2). Comparing 7 points to limit.

Constituent: Fluoride Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	0.161					
6/1/2017		0.0608				
6/2/2017			0.0495			
8/2/2017	0.158	0.137	0.0333 (J)			
8/15/2017						
8/16/2017	0.148					
8/17/2017		0.128	0.0593			
4/4/2018		0.1	0.065			
4/5/2018	0.13					
5/8/2018		0.074	0.062			
5/9/2018	0.12					
6/19/2018	0.13		0.064			
6/20/2018		0.045				
6/21/2018						
9/25/2018						
9/26/2018	0.1		0.06			
9/27/2018		0.06				
11/6/2018		0.06				
11/7/2018	0.1		0.062 (J)			
3/6/2019						
3/24/2019						
3/25/2019	0.091	0.058	0.057			
10/15/2019		0.068	0.046			
10/16/2019	0.085					
10/17/2019						
11/7/2019				0.84	1.1	0.27
11/18/2019						0.29 (J)
11/19/2019				0.83	1.3	
11/20/2019						
11/21/2019						
12/4/2019				0.68	0.81	
12/5/2019						0.23
12/17/2019				0.57		
12/18/2019					0.77	0.23
1/8/2020				0.73	0.9	
1/9/2020						0.2
1/21/2020				0.75	0.94	0.24 (J)
2/4/2020				0.79 (J)	0.96 (J)	0.24 (J)
2/13/2020				0.74	0.88	0.22

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-18 (bg)	MCM-20 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	5.9					
6/1/2017		3.65				
6/2/2017			2.77			
8/2/2017	4.69	12.4	1.27			
8/15/2017						
8/16/2017	5.25					
8/17/2017		8.17	5.53			
4/4/2018		6.8	6.5			
4/5/2018	5					
5/8/2018		5.7	6.7			
5/9/2018	4.7					
6/19/2018	4.8		7.4			
6/20/2018		4.3				
6/21/2018						
6/28/2018						
9/25/2018						
9/26/2018	4.6		8.5 (J)			
9/27/2018		16.4 (J)				
11/6/2018		39.5				
11/7/2018	4.6		9.8			
3/6/2019						
3/24/2019						
3/25/2019	4.7	20.8 (J)	7.8			
10/15/2019		15.5	6.7			
10/16/2019	4.9					
10/17/2019						
11/7/2019				158	46.2	163
11/18/2019					41.8	
11/19/2019				152		169
11/20/2019						
11/21/2019						
12/4/2019				142		140
12/5/2019					40.5	
12/17/2019				136		
12/18/2019					42	145
1/8/2020				147		157
1/9/2020					37.1	
1/21/2020				167	40.1	152
2/4/2020				142	36.2	139
2/13/2020				148	38.9	146

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	39					
6/1/2017		22				
6/2/2017			11			
8/2/2017	42	230	3.2			
8/15/2017						
8/16/2017	41					
8/17/2017		210	12			
4/4/2018		156	13.4			
4/5/2018	40.2					
5/8/2018		140	13.2			
5/9/2018	40.6					
6/19/2018	37.7		13.7			
6/20/2018		27.5				
6/21/2018						
9/25/2018						
9/26/2018	33.4		18.5			
9/27/2018		101				
11/6/2018		107				
11/7/2018	30.7		20.2			
3/6/2019						
3/24/2019						
3/25/2019	33.5	78.5	19.7			
10/15/2019		46	17.1			
10/16/2019	33.1					
10/17/2019						
11/7/2019				6170	7880	2360
11/18/2019						6970
11/19/2019				5650	8130	
11/20/2019						
11/21/2019						
12/4/2019				6100	7410	
12/5/2019						2130
12/17/2019				5660		
12/18/2019					7170	2090
1/8/2020				5070	6480	
1/9/2020						1750
1/21/2020				5010	6000	1630
2/4/2020				5030	5700	1760
2/13/2020				6140	7060	1850

Prediction Limit

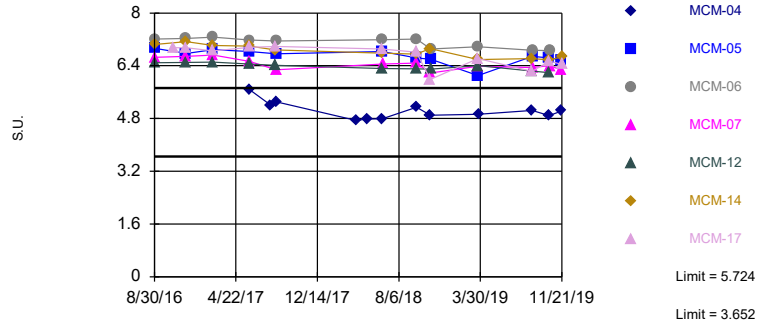
Constituent: Fluoride (mg/L) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-11 (bg)	MCM-04	MCM-15 (bg)	MCM-20 (bg)	MCM-18 (bg)	MCM-19 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	0.85					
6/1/2017		<0.3				
6/2/2017			<0.3			
8/2/2017	0.69	0.27 (J)	0.05 (J)			
8/15/2017	0.29 (J)					
8/16/2017						
8/17/2017		0.18 (J)	<0.3			
4/4/2018	0.32	<0.3	<0.3			
4/5/2018						
5/8/2018	0.63	0.56	<0.3			
5/9/2018						
6/19/2018	0.17 (J)		0.057 (J)			
6/20/2018		0.033 (J)				
6/21/2018						
9/25/2018	0.15 (J)					
9/26/2018			0.029			
9/27/2018		0.12 (J)				
11/6/2018	<0.3	<0.3				
11/7/2018			<0.3			
3/6/2019						
3/24/2019						
3/25/2019	0.12 (J)	0.055 (J)	0.036 (J)			
8/26/2019						
8/27/2019		<0.3	<0.3			
8/28/2019	0.068 (J)					
10/15/2019		0.095 (J)	0.14 (J)			
10/16/2019	0.1 (J)					
10/17/2019						
11/7/2019				1.4	0.49	<0.3
11/18/2019					0.52	
11/19/2019				1.2		0.033 (J)
11/20/2019						
11/21/2019						
12/4/2019				1.4		0.22 (J)
12/5/2019					0.5	
12/17/2019						<0.3
12/18/2019				1.5	0.33	
1/8/2020				<0.3		<0.3
1/9/2020					0.12 (J)	
1/21/2020				0.53	0.13 (J)	0.11 (J)
2/4/2020				<0.3	0.18 (J)	<0.3
2/13/2020				<0.3	0.077 (J)	<0.3

Exceeds Limits: MCM-05, MCM-06, MCM-07, MCM-12, MCM-14, MCM-17

Prediction Limit
Interwell Parametric



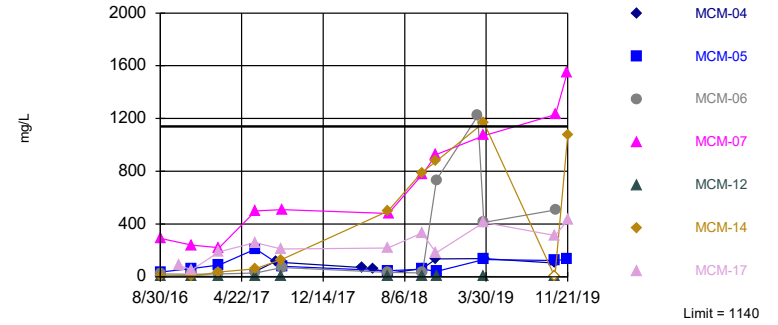
Background Data Summary (based on x^5 transformation): Mean=3398, Std. Dev.=1448, n=78. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9629, critical = 0.957. Kappa = 1.898 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0005373. Comparing 7 points to limit.

Constituent: pH Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Hollow symbols indicate censored values.

Exceeds Limit: MCM-07

Prediction Limit
Interwell Non-parametric

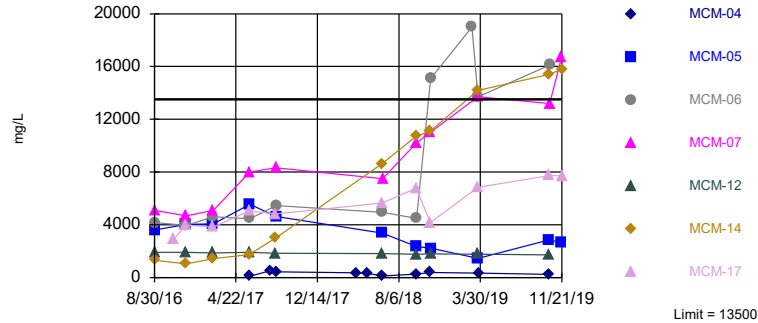


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 73 background values. Annual per-constituent alpha = 0.00503. Individual comparison alpha = 0.0003601 (1 of 2). Comparing 7 points to limit.

Constituent: Sulfate Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limit: MCM-06, MCM-07, MCM-14

Prediction Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 74 background values. Annual per-constituent alpha = 0.004907. Individual comparison alpha = 0.0003513 (1 of 2). Comparing 7 points to limit.

Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:17 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Prediction Limit

Constituent: pH (S.U.) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	5.06					
6/1/2017		5.68				
6/2/2017			5.31			
8/2/2017	5	5.2	5.05			
8/15/2017						
8/16/2017	4.98					
8/17/2017		5.31	5.52			
4/4/2018		4.74	5.45			
4/5/2018	5.02					
5/8/2018		4.78	5.54			
5/9/2018	4.96					
6/19/2018	5.02		5.6			
6/20/2018		4.79				
6/21/2018						
9/25/2018						
9/26/2018	5.06		5.17			
9/27/2018		5.14				
11/6/2018		4.9				
11/7/2018	5.03		5.47			
3/24/2019			5.4			
3/25/2019	5.08	4.93				
8/26/2019						
8/27/2019		5.05	5.35			
8/28/2019	4.99					
10/15/2019		4.89	5.32			
10/16/2019	4.98					
10/17/2019						
11/7/2019				5.21	3.79	4.25
11/18/2019						4.12
11/19/2019	5.11			5.15	3.78	
11/20/2019		5.03				
11/21/2019						
12/4/2019				5.28 (D)	3.87 (D)	
12/5/2019						4.17 (D)
1/8/2020				5.04	3.77	
1/9/2020						4.19
1/21/2020				5.1	3.73	4.28
2/4/2020				5.15	3.72	4.26
2/13/2020				5.07	3.75	4.2

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	46					
6/1/2017		42				
6/2/2017			13			
8/2/2017	43	120	14			
8/15/2017						
8/16/2017	41					
8/17/2017		110	14			
4/4/2018		70.6	13.4			
4/5/2018	33.4					
5/8/2018		61.4	14.8			
5/9/2018	36					
6/19/2018	35.5		15.5			
6/20/2018		25.3				
6/21/2018						
9/25/2018						
9/26/2018	39.6		23			
9/27/2018		63.4				
11/6/2018		136				
11/7/2018	35.8		22.2			
3/6/2019						
3/24/2019						
3/25/2019	34.2	137	22.4			
10/15/2019		105	17.9			
10/16/2019	24.4					
10/17/2019						
11/7/2019				832	1010	379
11/18/2019						737
11/19/2019				795	1140	
11/20/2019						
11/21/2019						
12/4/2019				810	1020	
12/5/2019						351
12/17/2019				535		
12/18/2019					8.1	
1/8/2020				603	747	
1/9/2020						254
1/21/2020				611	798	254
2/4/2020				599	1120	432
2/13/2020				761	833	300

Prediction Limit

Constituent: Total Dissolved Solids [TDS] (mg/L) Analysis Run 4/3/2020 12:18 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	123					
6/1/2017		97				
6/2/2017			69			
8/2/2017	136	538	35			
8/15/2017						
8/16/2017	124					
8/17/2017		445	51			
4/4/2018		365	90			
4/5/2018	128					
5/8/2018		304	89			
5/9/2018	127					
6/19/2018	143		110			
6/20/2018		114				
6/21/2018						
9/25/2018						
9/26/2018	132		124			
9/27/2018		255				
11/6/2018		388				
11/7/2018	134		125			
3/6/2019						
3/24/2019						
3/25/2019	111	327	98			
10/15/2019		237	107			
10/16/2019	96					
10/17/2019						
11/7/2019				10900	13500	4140
11/18/2019						4030
11/19/2019				10000	13300	
11/20/2019						
11/21/2019						
12/4/2019				11000	13200	
12/5/2019						3840
12/17/2019				9860		
12/18/2019					12500	3880
1/8/2020				9760	12300	
1/9/2020						3520
1/21/2020				10100	12000	3280
2/4/2020				10600	12300	3220
2/13/2020				10900	12400	3580

Trend Tests

Trend Tests Summary Table - Prediction Limit Exceedances - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:25 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MCM-02 (bg)	-0.03842	-41	-30	Yes	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-16 (bg)	-0.0127	-35	-30	Yes	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-06	80.44	35	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.98	48	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	101.2	54	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	1892	42	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	2080	48	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-14	2938	49	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	4.804	33	30	Yes	10	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.1046	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1136	-36	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.1212	-41	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.0949	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1491	-50	-38	Yes	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-07	350	45	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4220	37	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3348	45	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	5116	53	34	Yes	11	0	n/a	n/a	0.01	NP

Trend Tests Summary Table - Prediction Limit Exceedances - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:25 PM

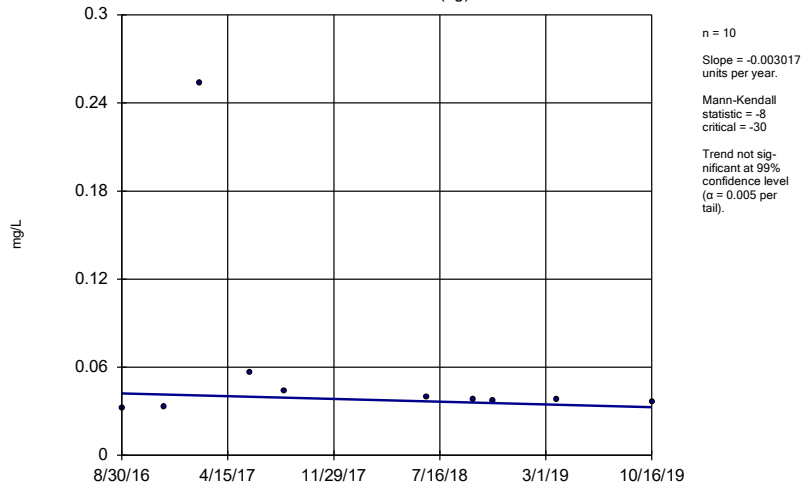
Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	MCM-01 (bg)	-0.003017	-8	-30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-02 (bg)	-0.03842	-41	-30	Yes	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-11 (bg)	-0.005899	-16	-30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-15 (bg)	0	0	30	No	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-16 (bg)	-0.0127	-35	-30	Yes	10	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-17	-0.2084	-25	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-18 (bg)	-0.1661	-10	-21	No	8	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-19 (bg)	-0.1973	-4	-21	No	8	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-20 (bg)	-0.6764	-4	-21	No	8	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-01 (bg)	0.9733	19	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-02 (bg)	-0.2607	-15	-30	No	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-06	80.44	35	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.98	48	34	Yes	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-11 (bg)	-7.391	-29	-30	No	10	10	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	101.2	54	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-15 (bg)	3.487	30	30	No	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-16 (bg)	-0.02433	-3	-30	No	10	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-18 (bg)	-25.97	-18	-21	No	8	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-19 (bg)	-26.74	-3	-21	No	8	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-20 (bg)	-75.46	-10	-21	No	8	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-01 (bg)	3.053	17	30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-02 (bg)	-4.636	-29	-30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	1892	42	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	2080	48	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-11 (bg)	-34.37	-25	-30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-14	2938	49	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	4.804	33	30	Yes	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-16 (bg)	-2.246	-15	-30	No	10	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-18 (bg)	-2754	-16	-21	No	8	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-19 (bg)	-3323	-10	-21	No	8	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-20 (bg)	-9045	-20	-21	No	8	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-01 (bg)	0.07982	26	38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-02 (bg)	0.01857	11	38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.1046	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1136	-36	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-07	-0.1122	-36	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.1212	-41	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.0949	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1491	-50	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-15 (bg)	-0.04083	-1	-34	No	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-16 (bg)	-0.04914	-13	-34	No	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-17	-0.1687	-37	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-18 (bg)	0.1564	7	18	No	7	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-19 (bg)	-0.4761	-8	-18	No	7	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-20 (bg)	-0.2844	-13	-18	No	7	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-01 (bg)	-0.3824	-1	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-02 (bg)	-6.539	-29	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-04	16.17	9	30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-07	350	45	34	Yes	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-11 (bg)	-7.527	-25	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-15 (bg)	4.803	30	30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-16 (bg)	4.8	25	30	No	10	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-18 (bg)	-365	-6	-18	No	7	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-19 (bg)	-305.1	-10	-21	No	8	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	MCM-20 (bg)	-377	-2	-21	No	8	0	n/a	n/a	0.01	NP

Trend Tests Summary Table - Prediction Limit Exceedances - All Results Page 2

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 4/3/2020, 12:25 PM

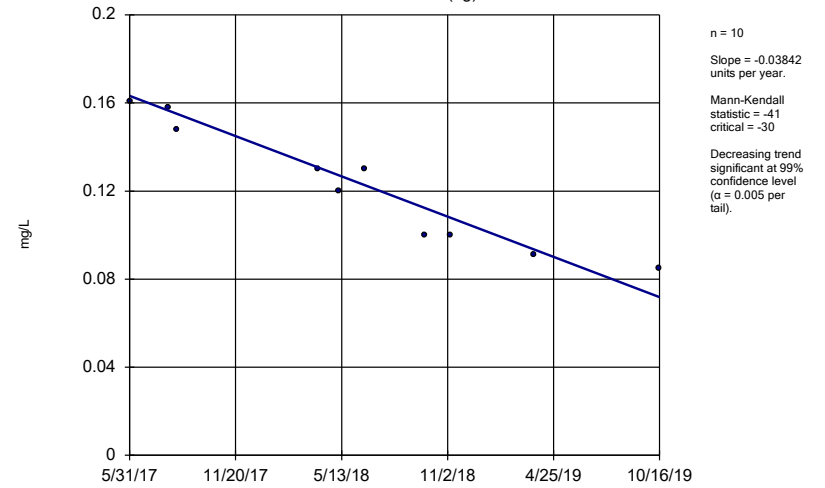
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Total Dissolved Solids [TDS] (mg/L)	MCM-01 (bg)	-6.479	-3	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-02 (bg)	-6.606	-5	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4220	37	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3348	45	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-11 (bg)	-71.1	-27	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	5116	53	34	Yes	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-15 (bg)	38.32	27	30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-16 (bg)	-1.327	-5	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-18 (bg)	-3621	-20	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-19 (bg)	289.7	1	21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-20 (bg)	-4831	-19	-21	No	8	0	n/a	n/a	0.01	NP

Sen's Slope Estimator
MCM-01 (bg)



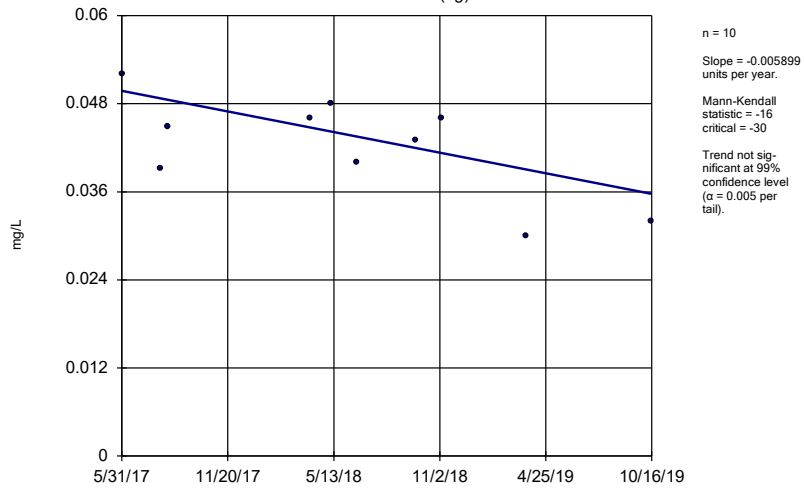
Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-02 (bg)



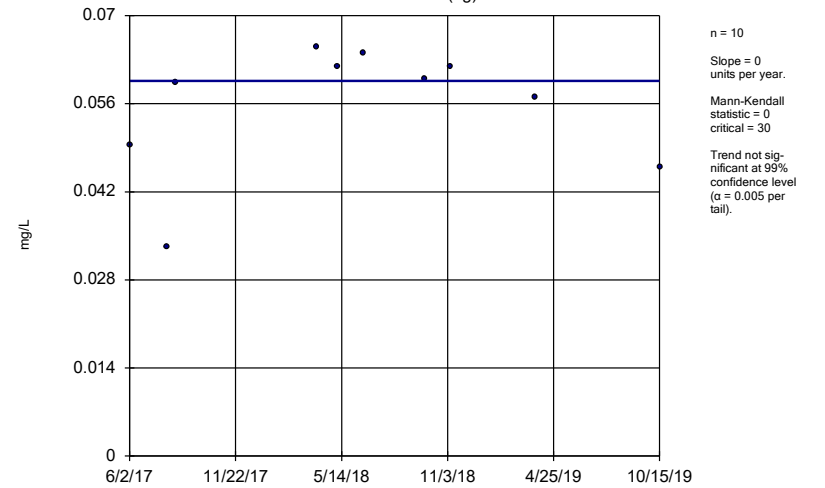
Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-11 (bg)



Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

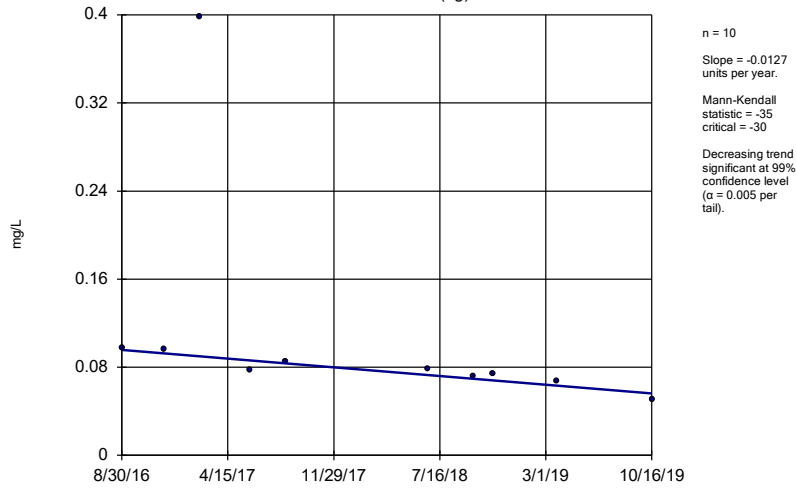
Sen's Slope Estimator
MCM-15 (bg)



Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

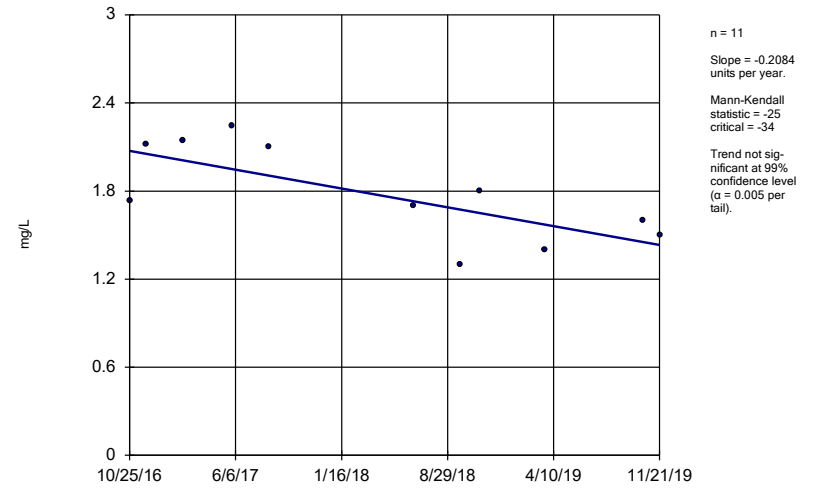
MCM-16 (bg)



Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

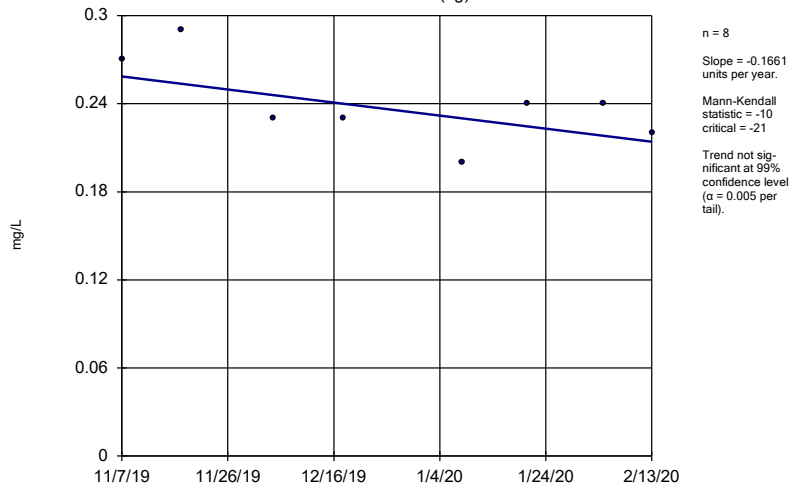
MCM-17



Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

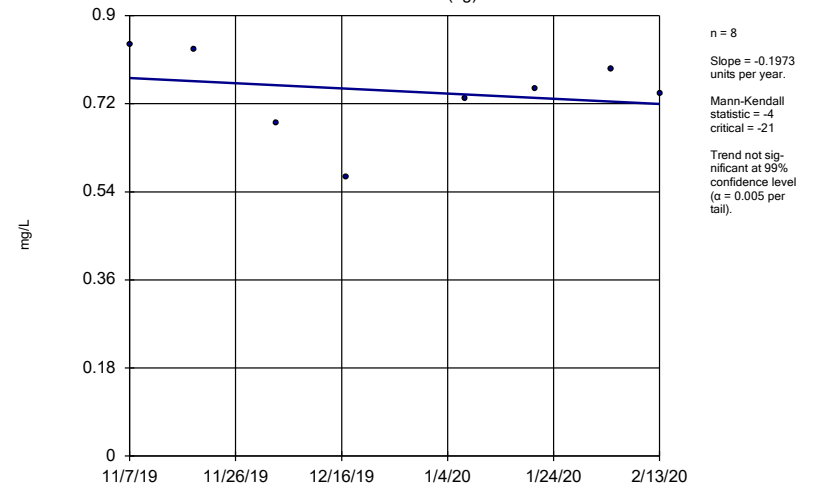
MCM-18 (bg)



Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

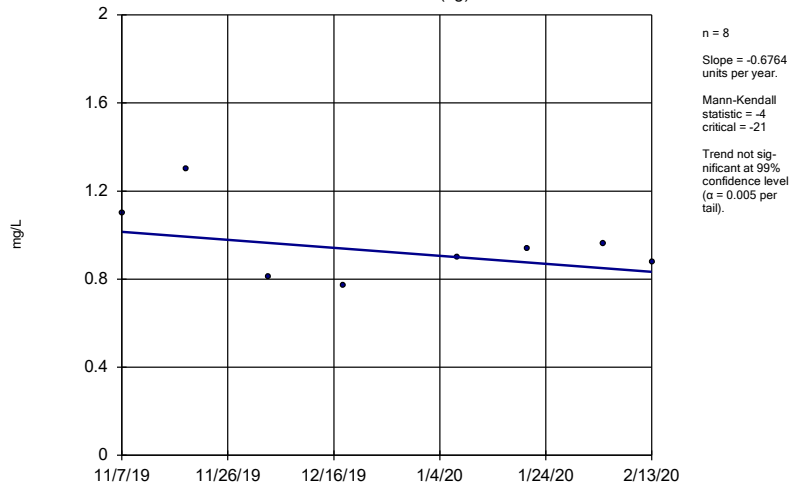
Sen's Slope Estimator

MCM-19 (bg)



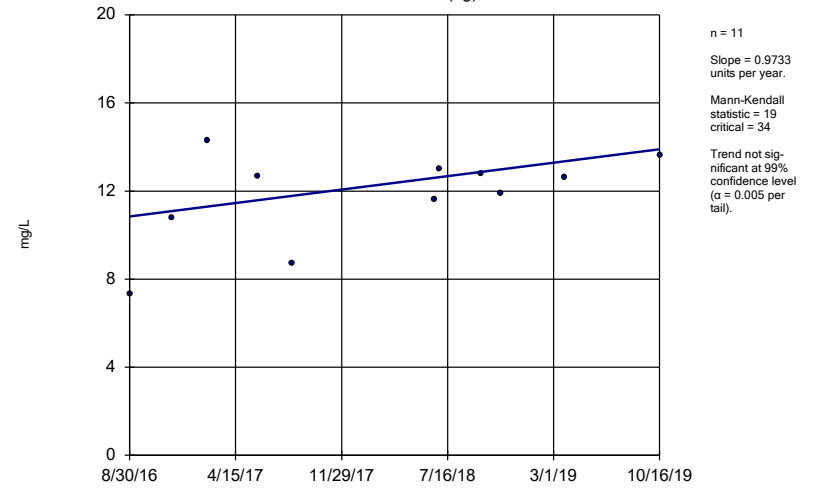
Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-20 (bg)



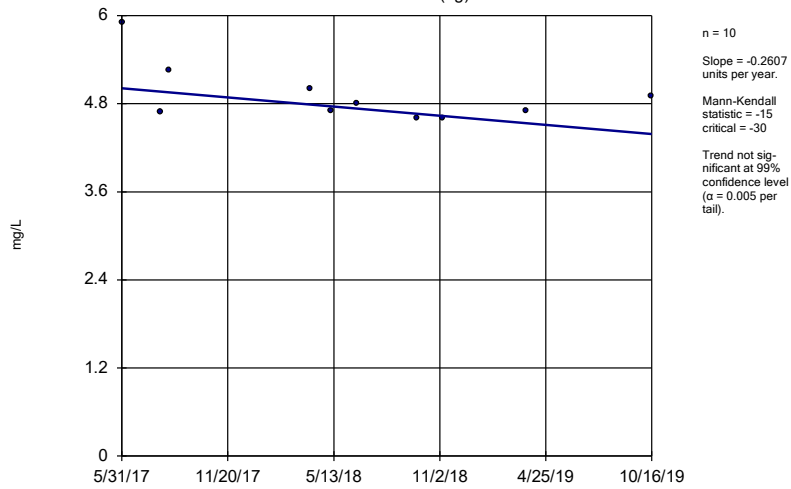
Constituent: Boron Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-01 (bg)



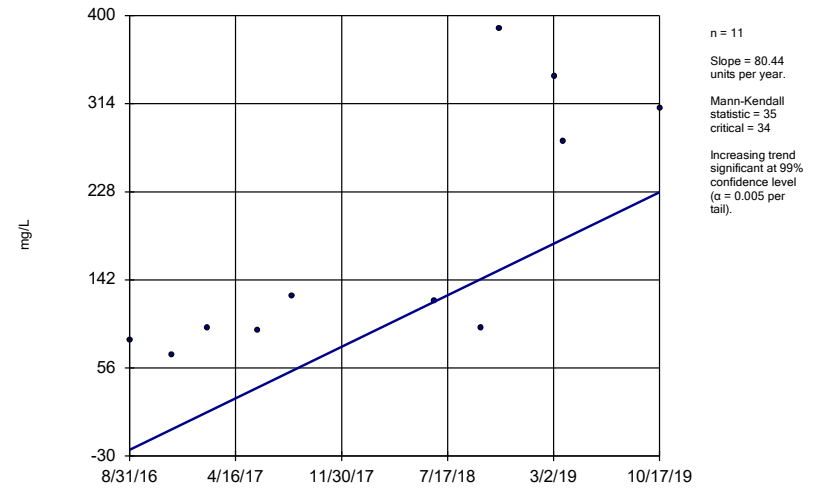
Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-02 (bg)



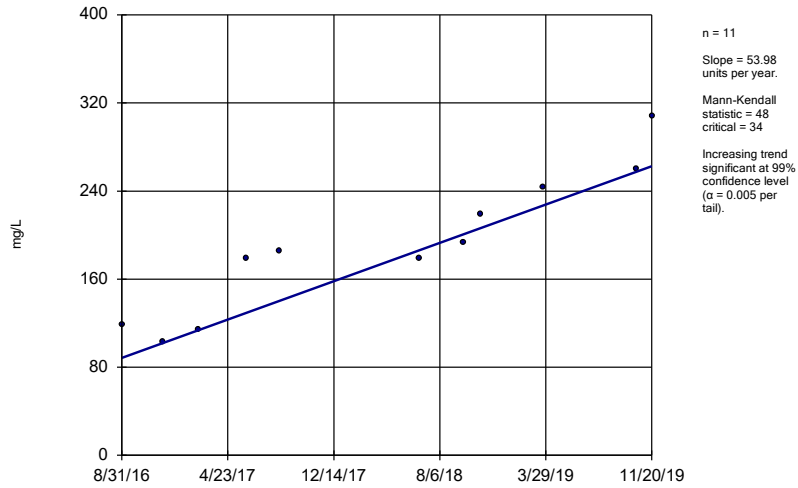
Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-06



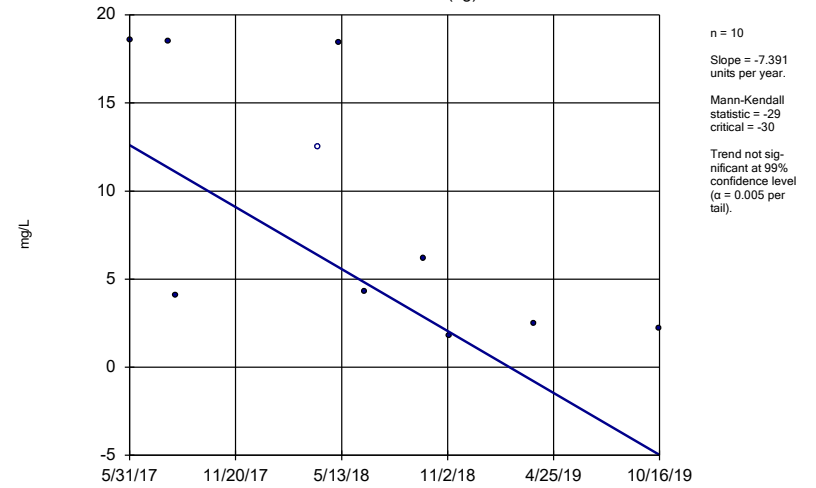
Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-07



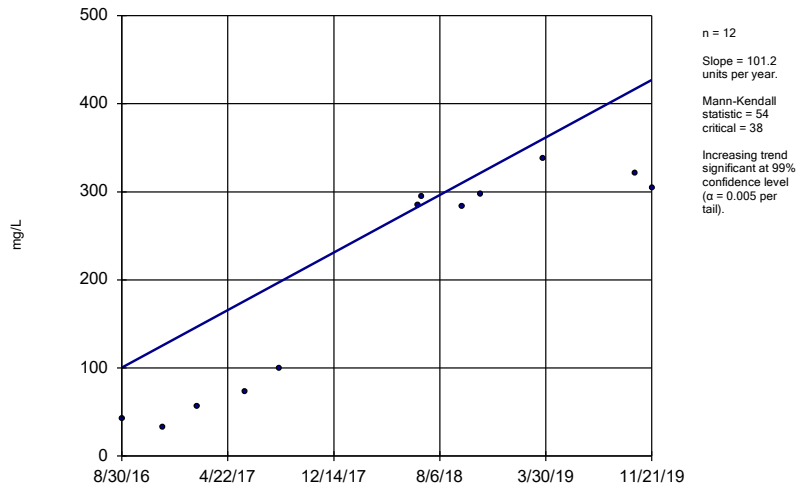
Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-11 (bg)



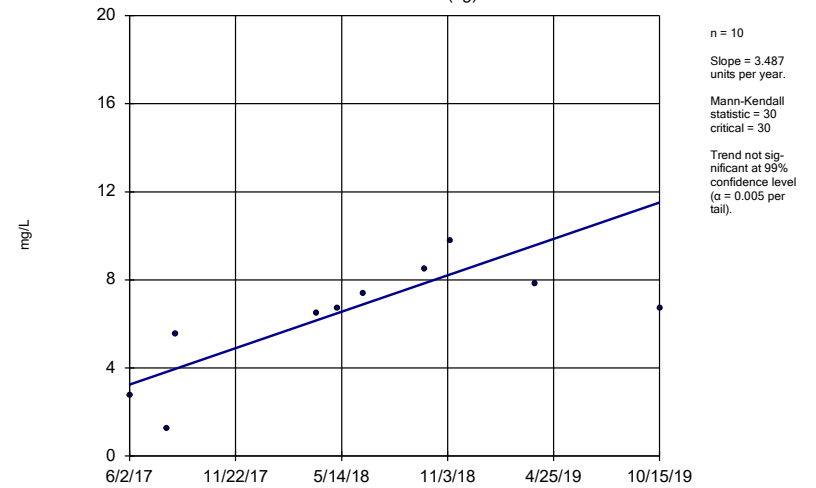
Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-14



Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

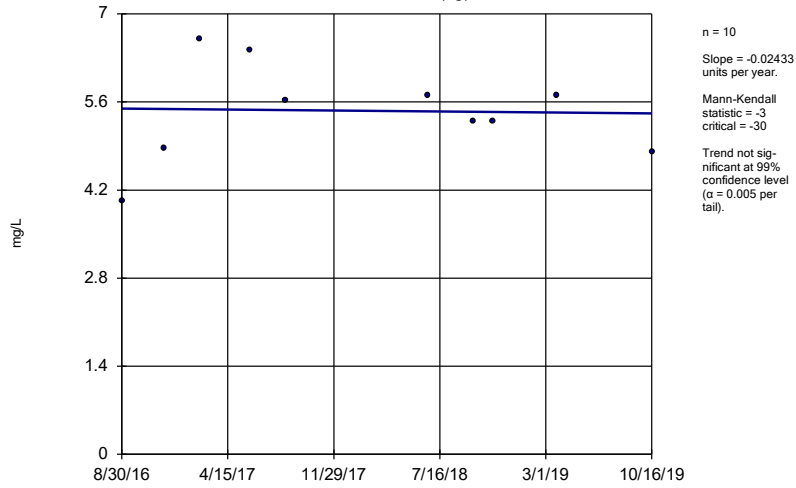
Sen's Slope Estimator
MCM-15 (bg)



Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

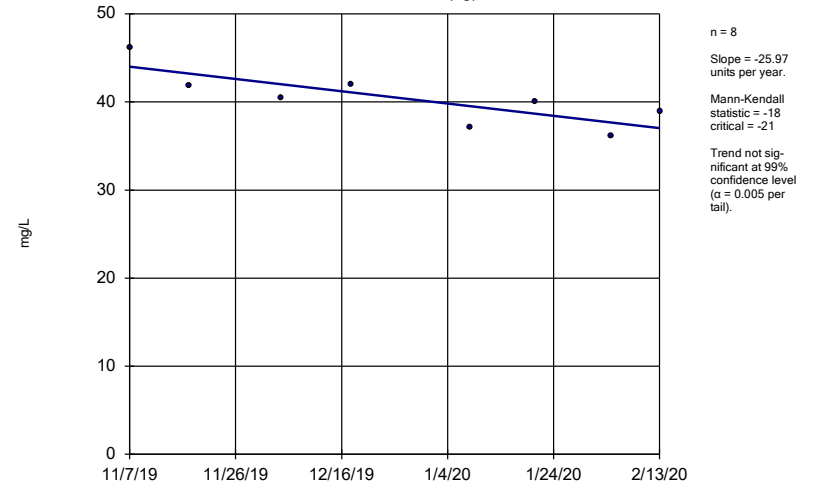
MCM-16 (bg)



Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

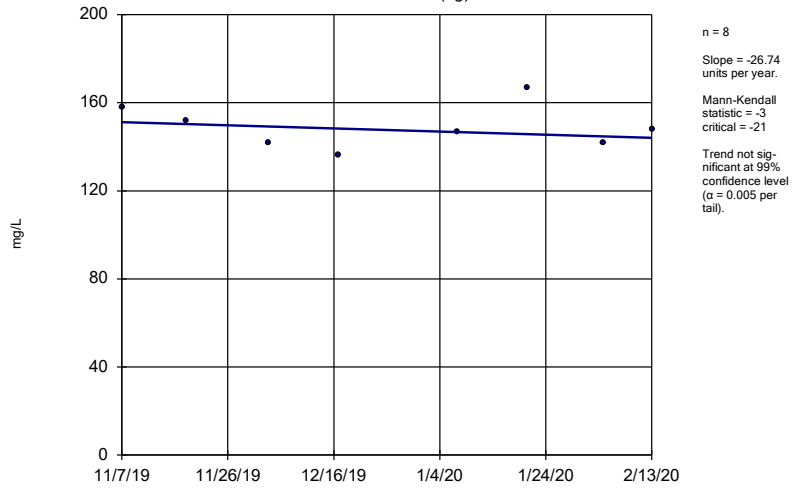
MCM-18 (bg)



Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

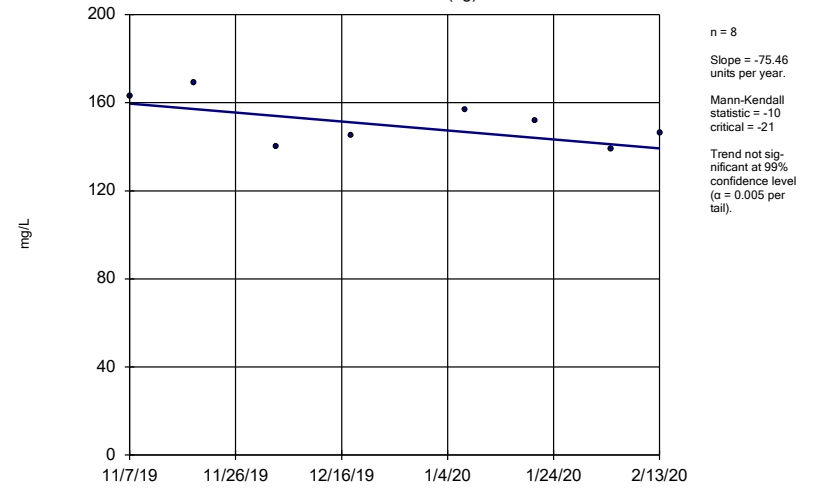
MCM-19 (bg)



Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

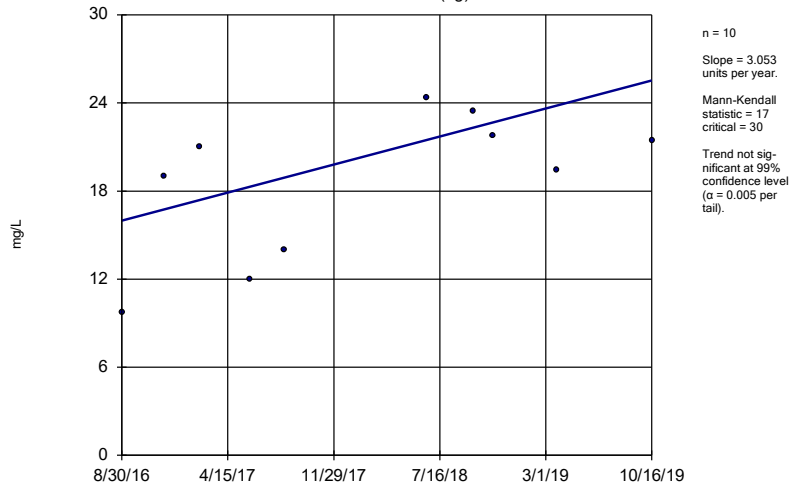
Sen's Slope Estimator

MCM-20 (bg)



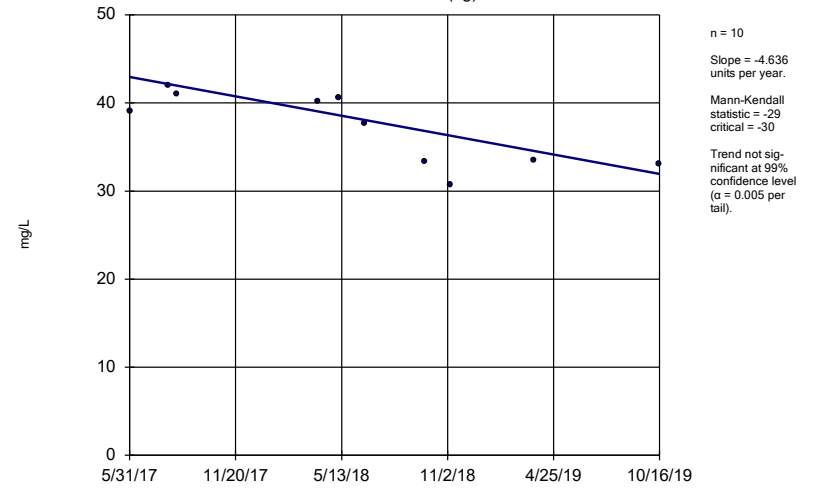
Constituent: Calcium Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-01 (bg)



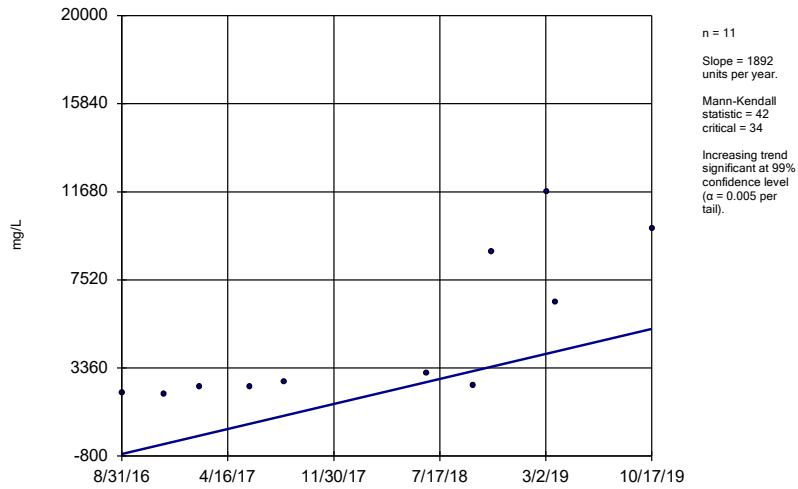
Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-02 (bg)



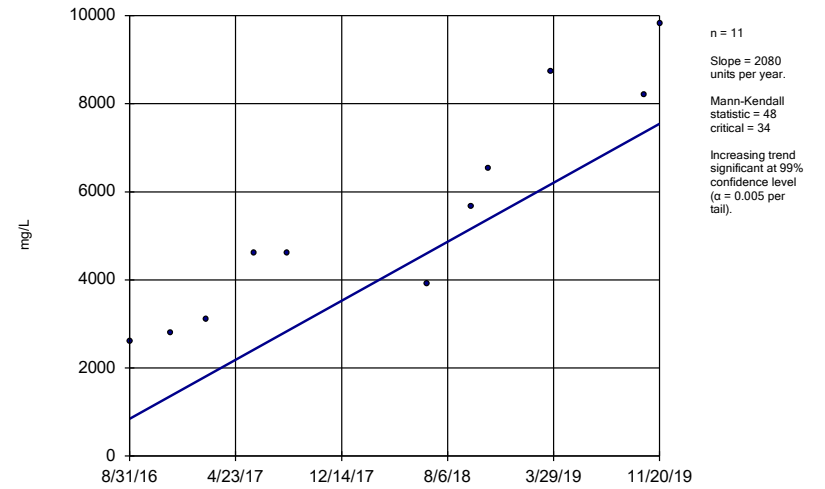
Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-06



Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

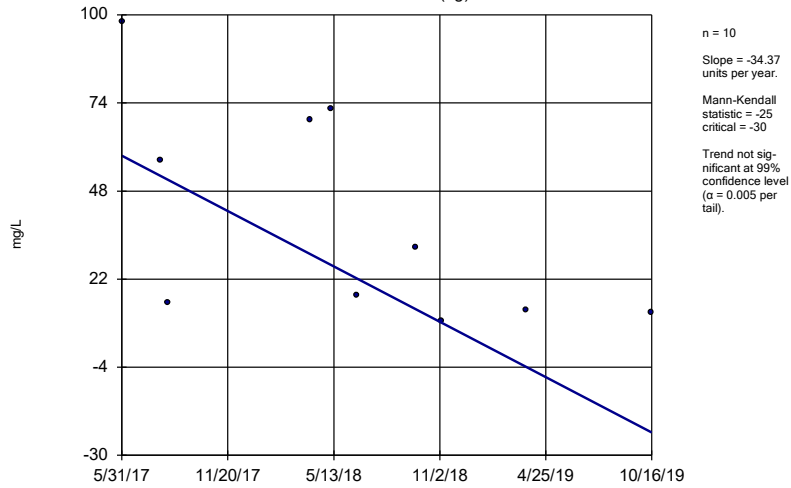
Sen's Slope Estimator
MCM-07



Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

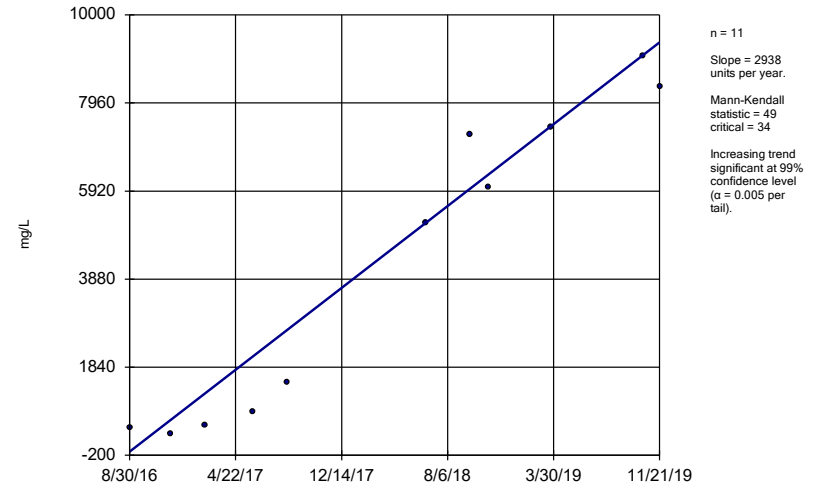
MCM-11 (bg)



Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

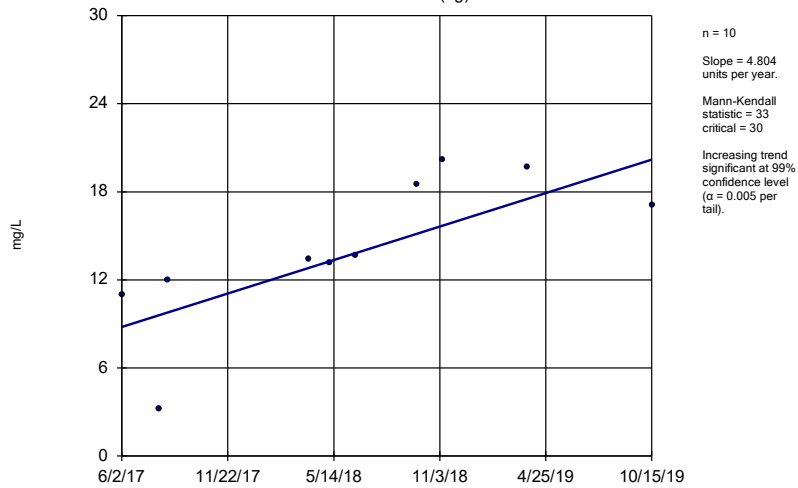
MCM-14



Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

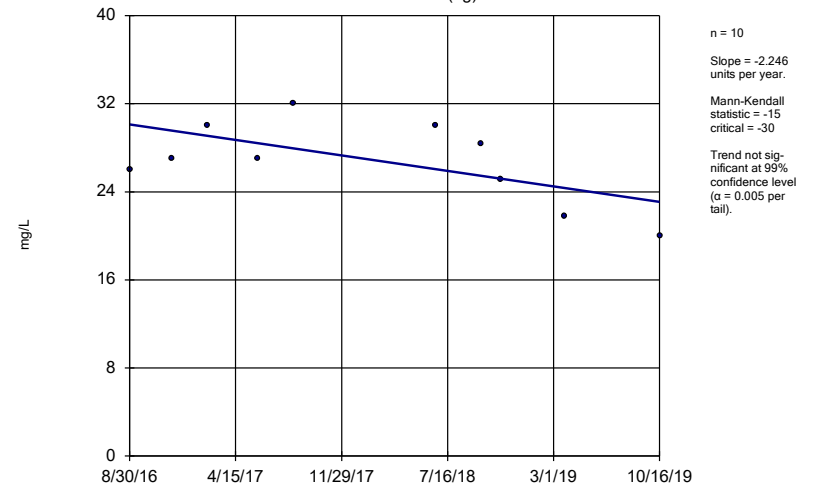
MCM-15 (bg)



Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

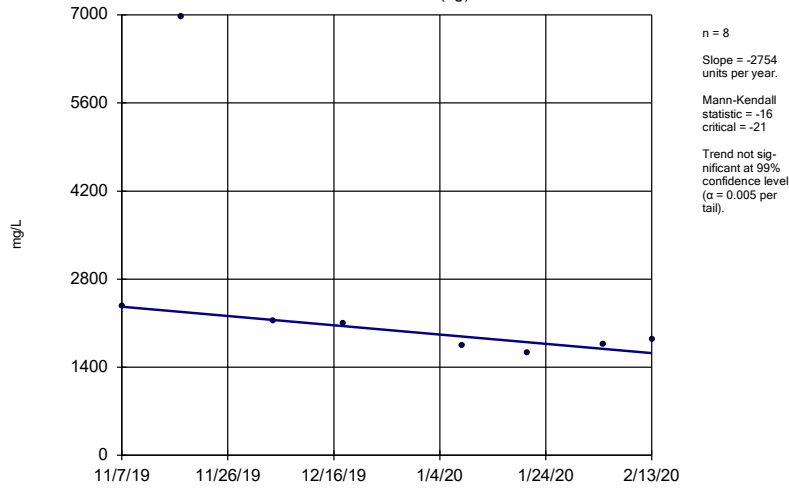
Sen's Slope Estimator

MCM-16 (bg)



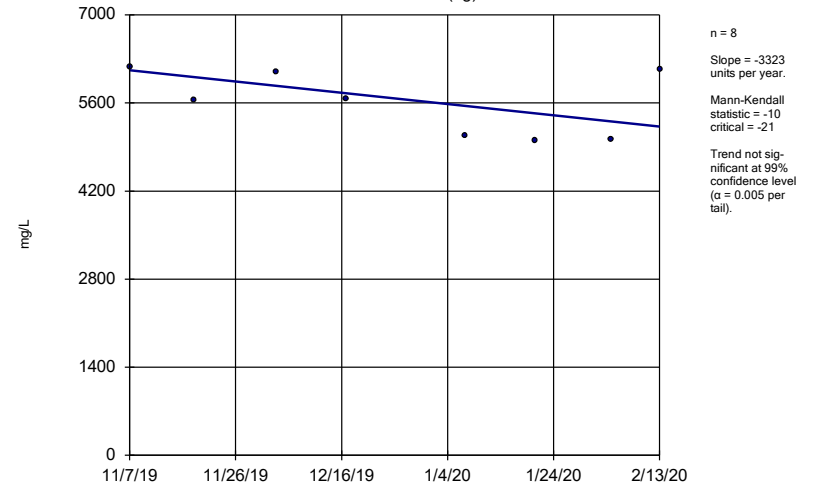
Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-18 (bg)



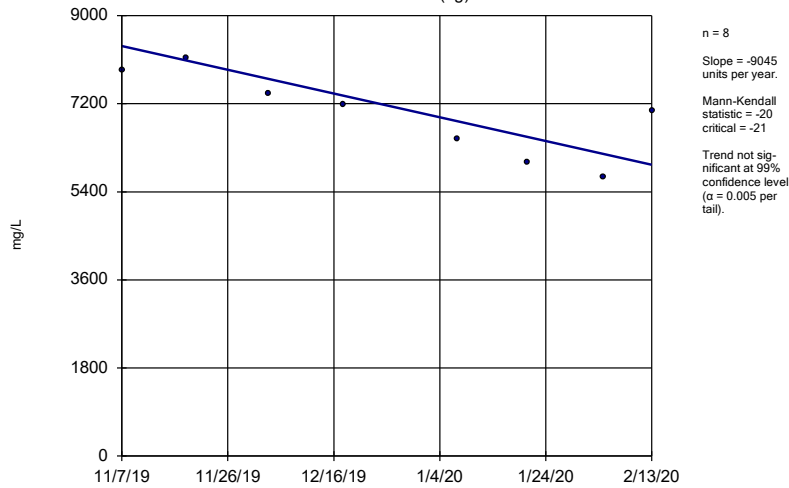
Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-19 (bg)



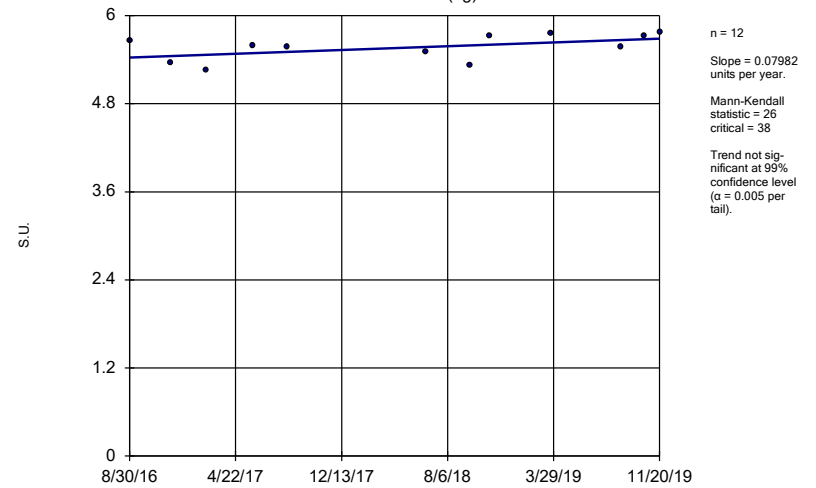
Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-20 (bg)



Constituent: Chloride Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

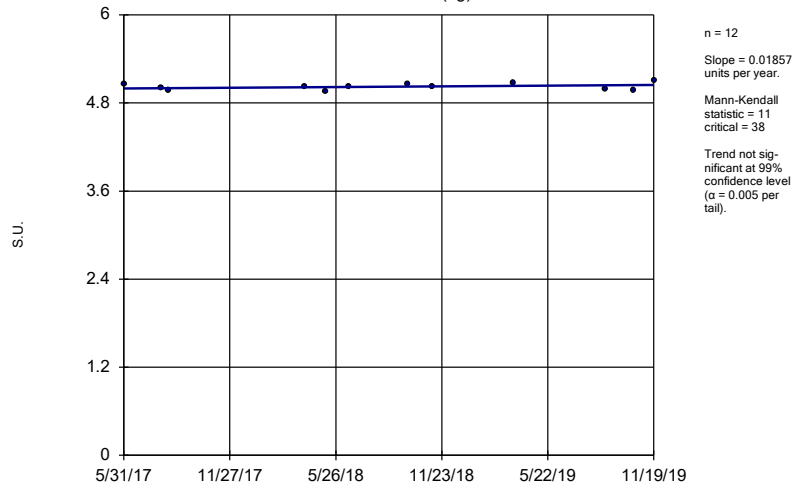
Sen's Slope Estimator
MCM-01 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

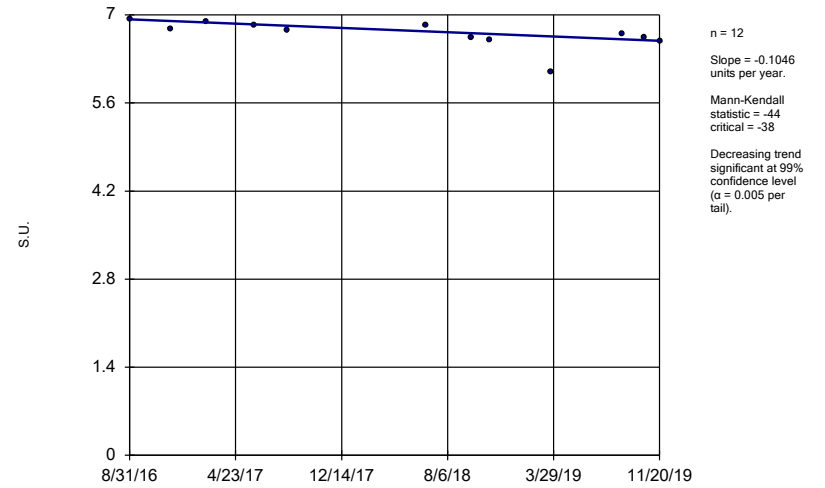
MCM-02 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

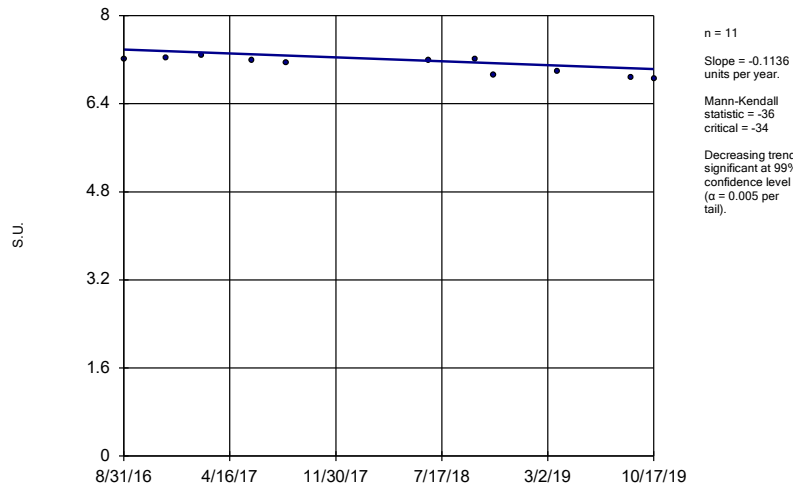
MCM-05



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

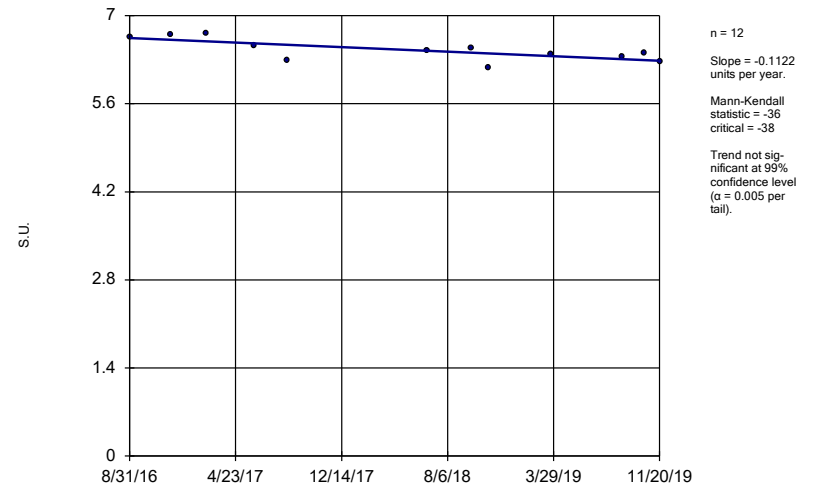
MCM-06



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

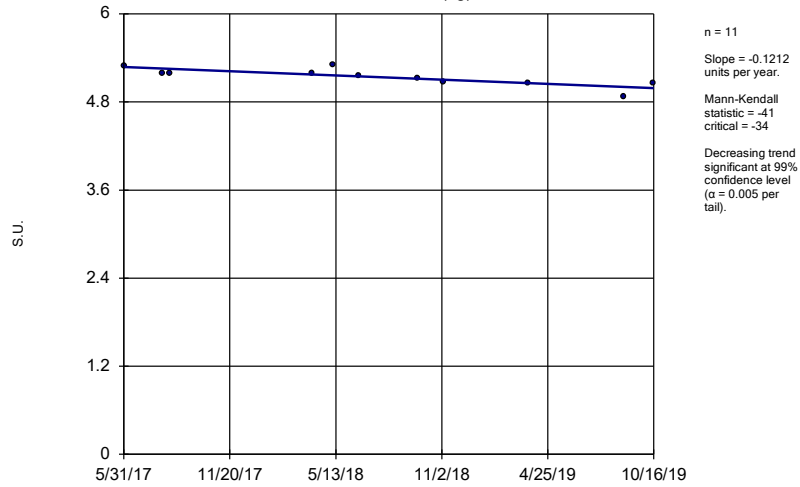
MCM-07



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

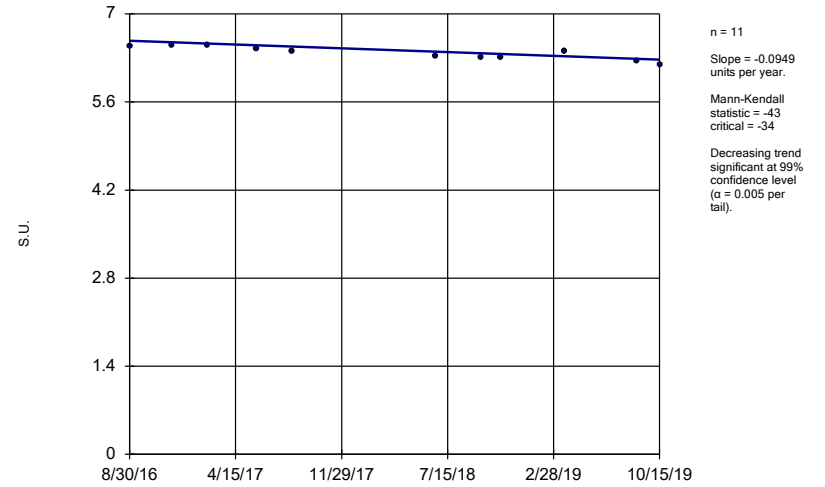
MCM-11 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

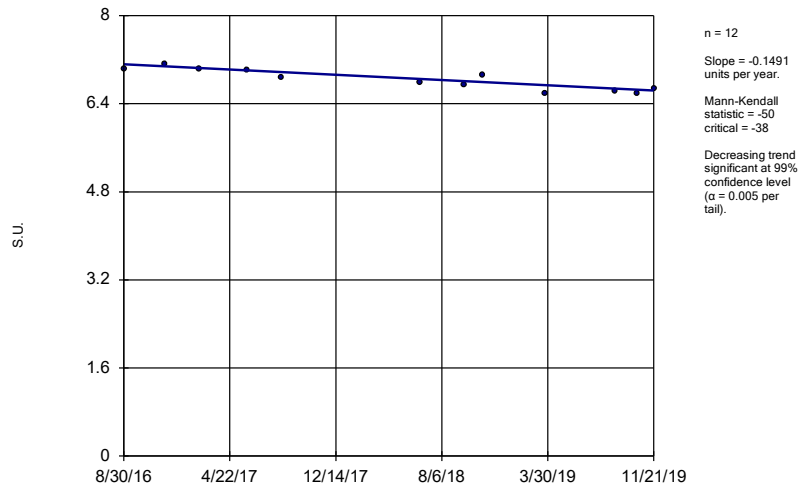
MCM-12



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

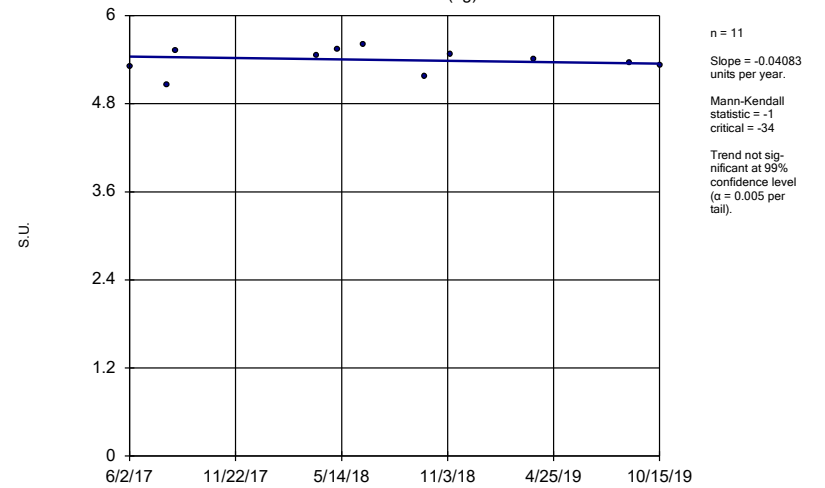
MCM-14



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

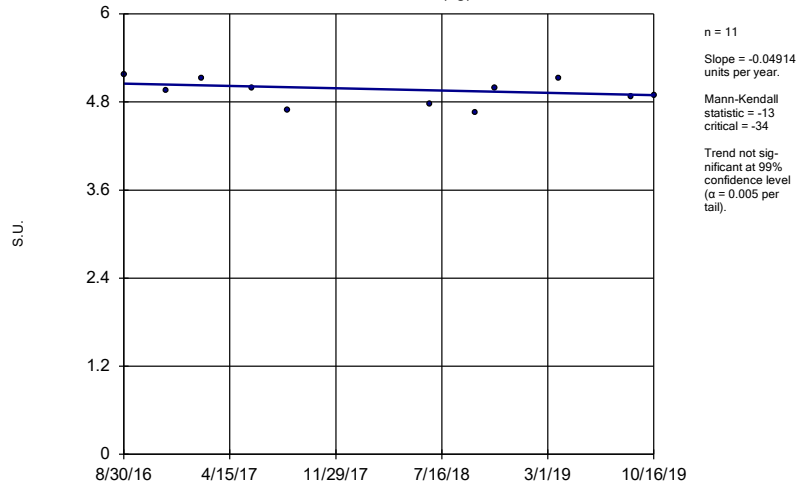
MCM-15 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

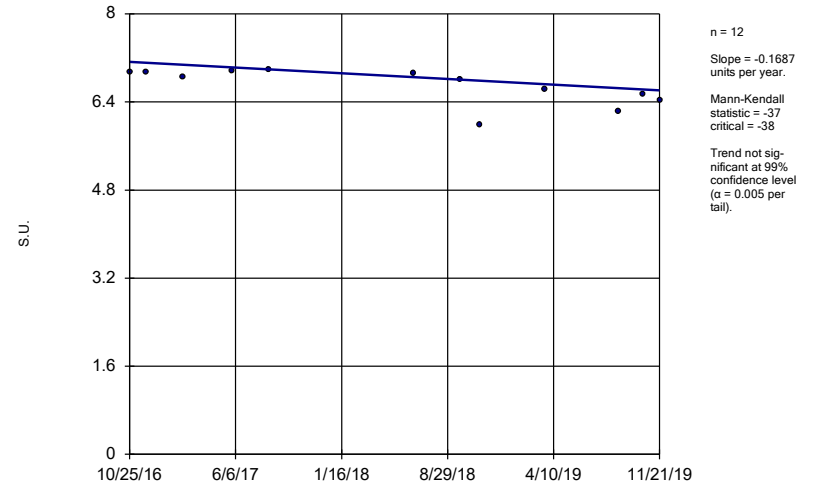
MCM-16 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

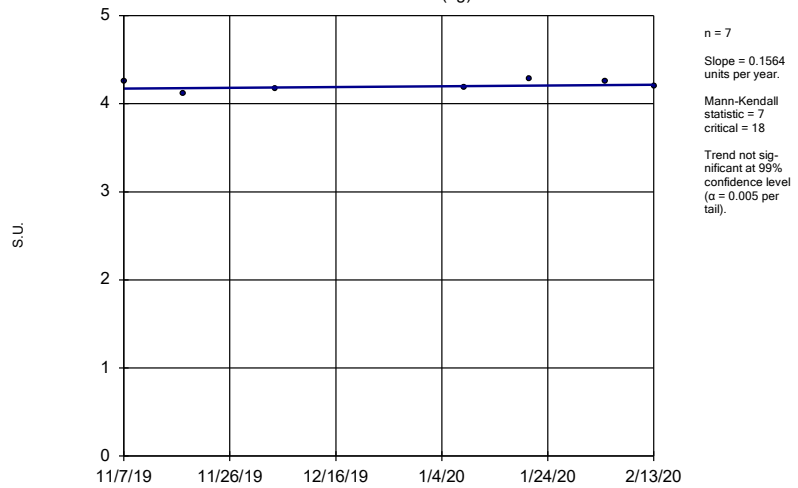
MCM-17



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

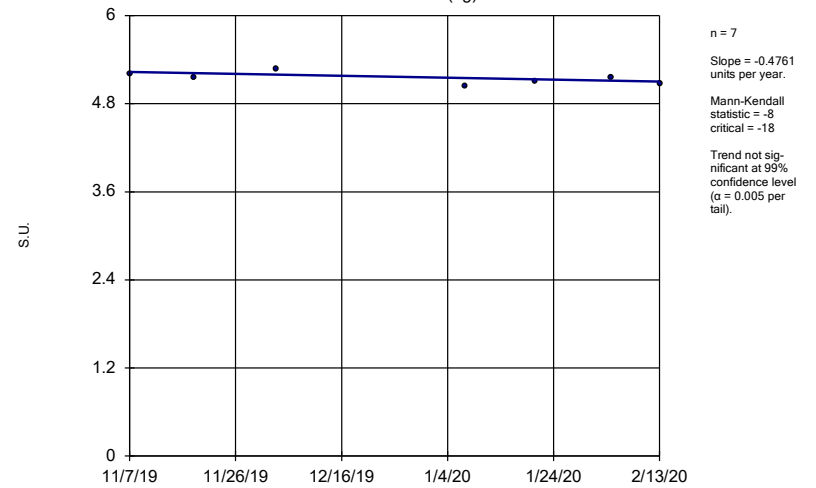
MCM-18 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

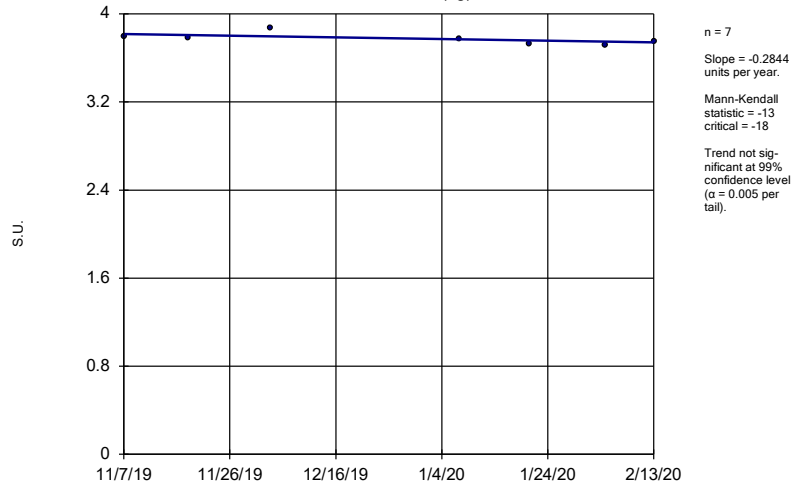
MCM-19 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

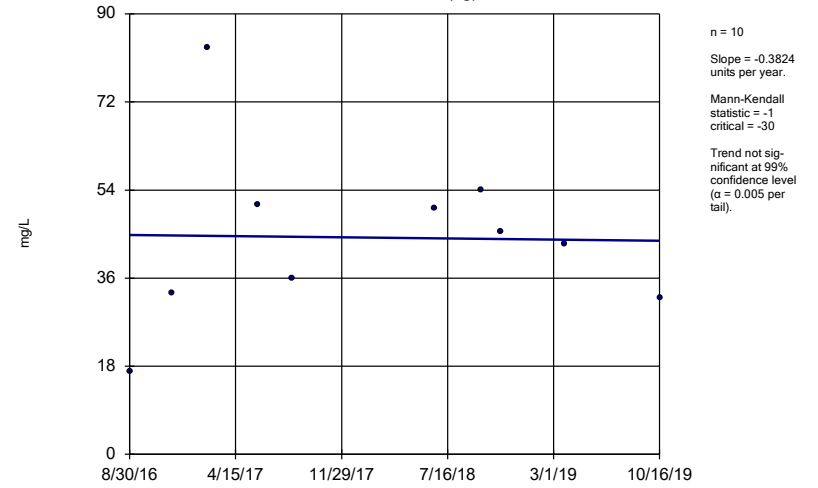
MCM-20 (bg)



Constituent: pH Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

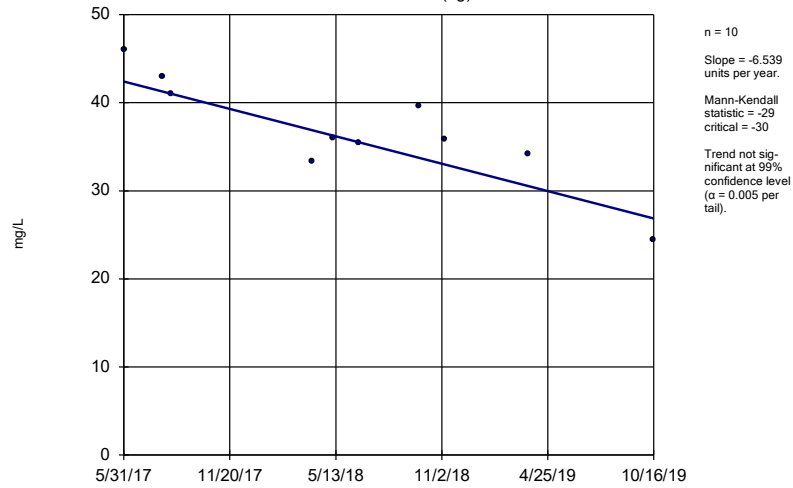
MCM-01 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

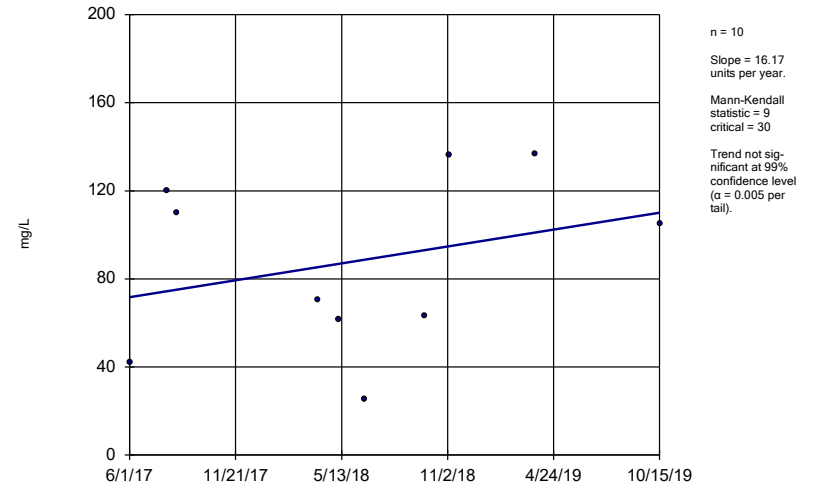
MCM-02 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

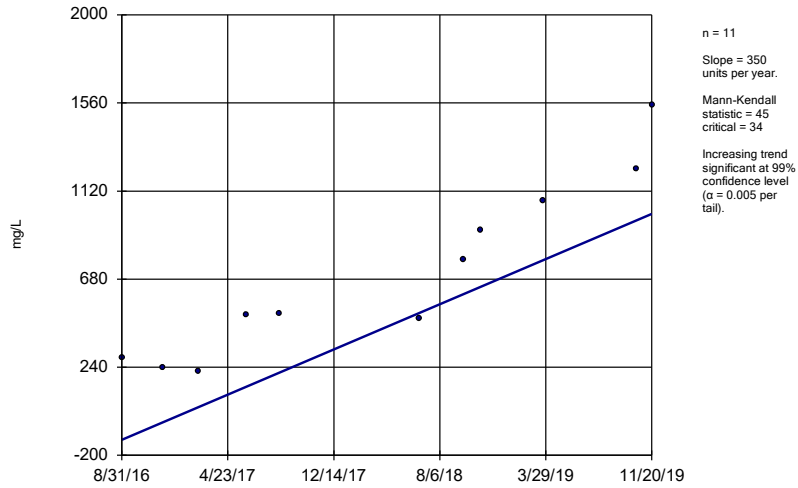
Sen's Slope Estimator

MCM-04



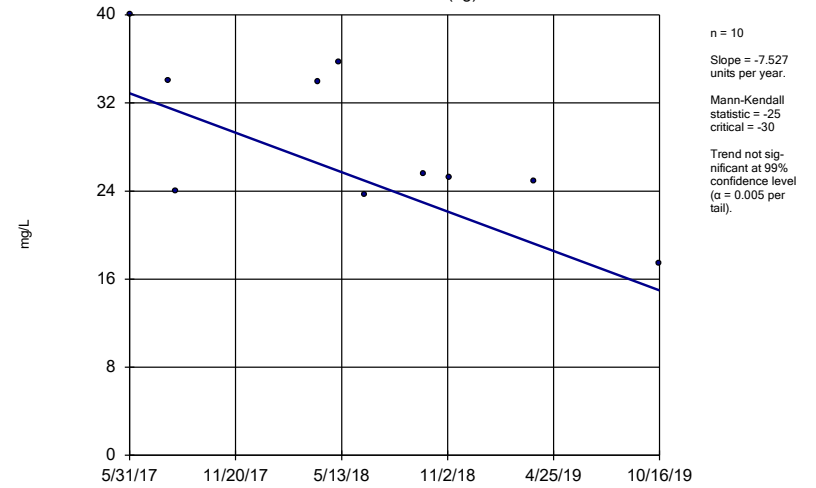
Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-07



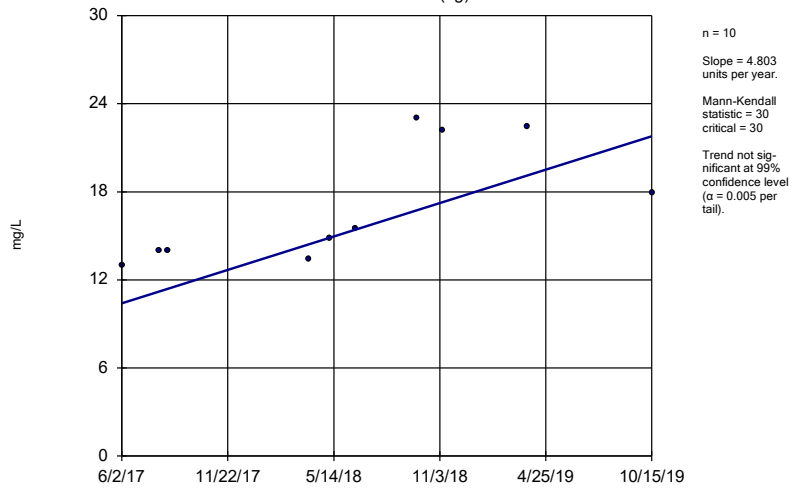
Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-11 (bg)



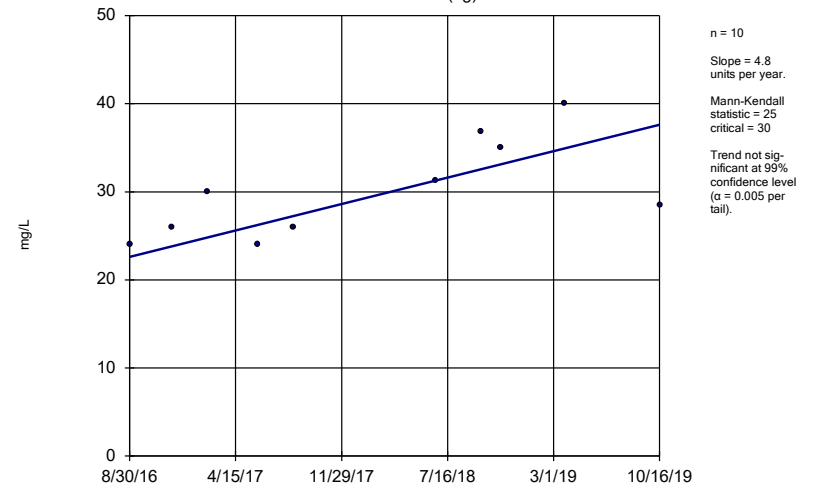
Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-15 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

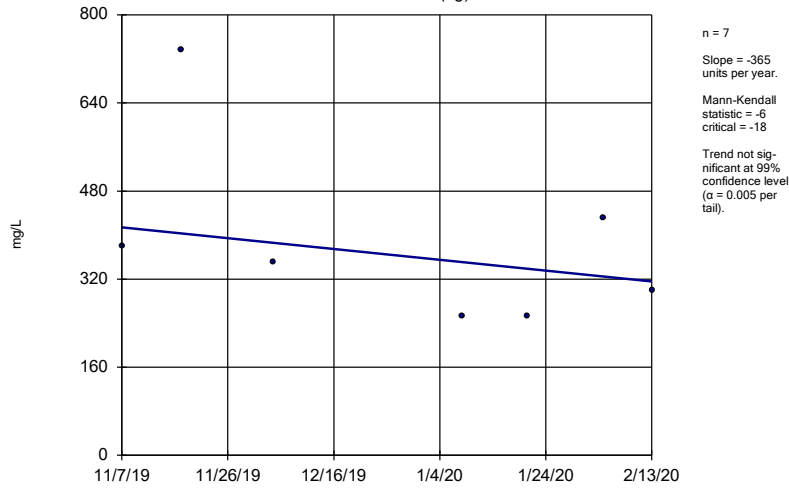
Sen's Slope Estimator
MCM-16 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

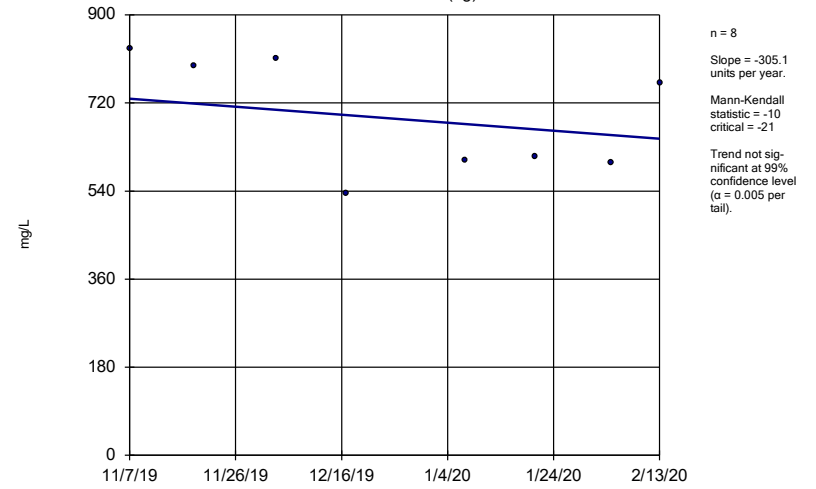
MCM-18 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

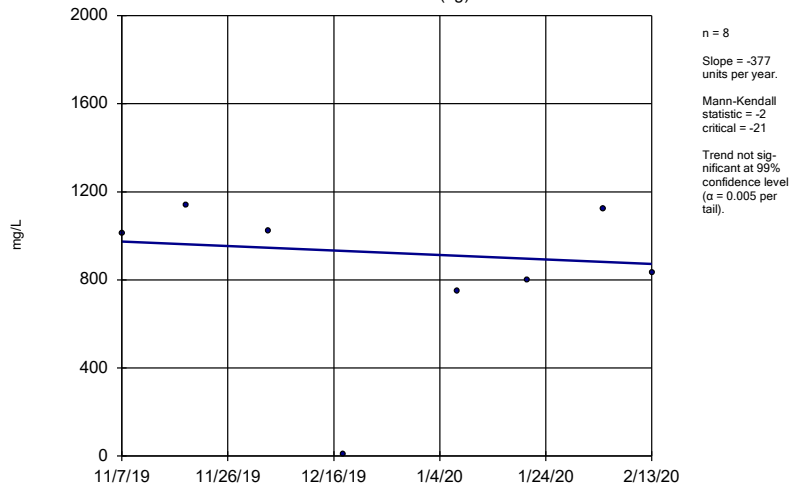
MCM-19 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

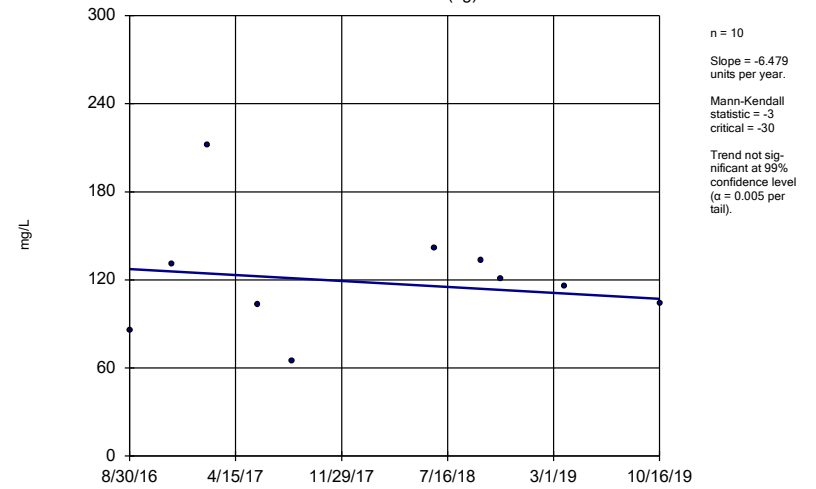
MCM-20 (bg)



Constituent: Sulfate Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

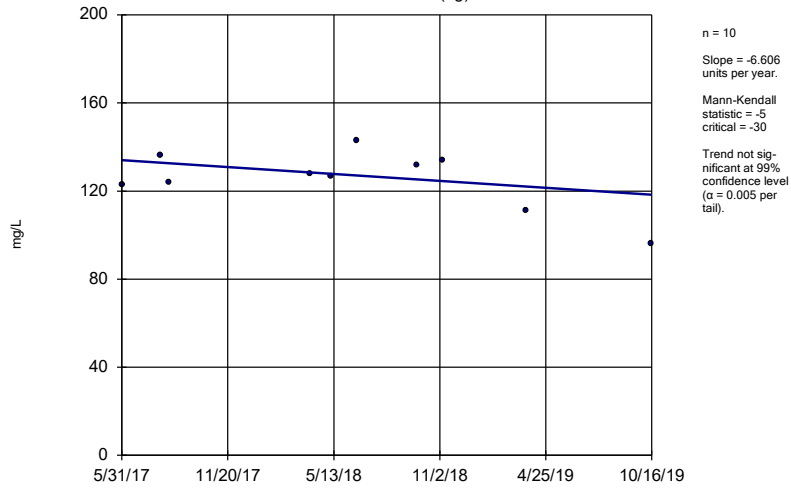
MCM-01 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

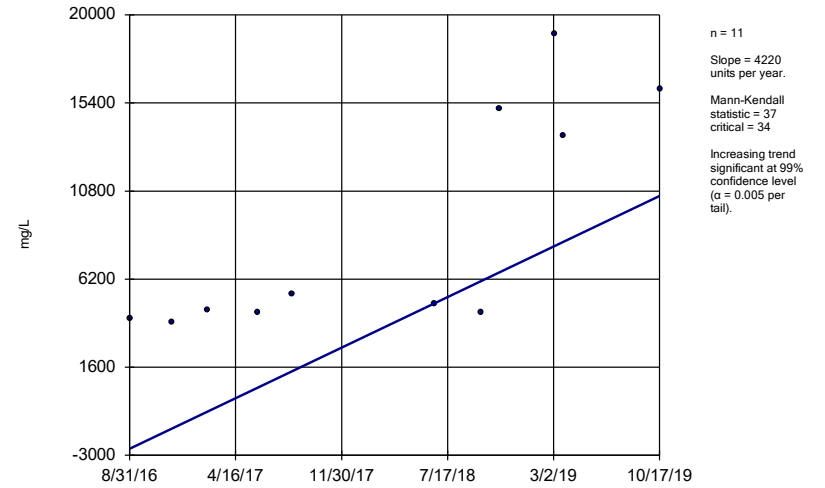
MCM-02 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

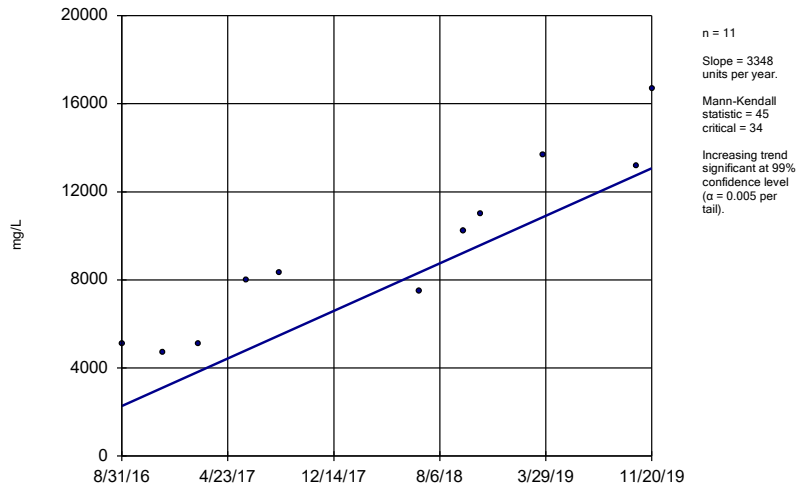
MCM-06



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

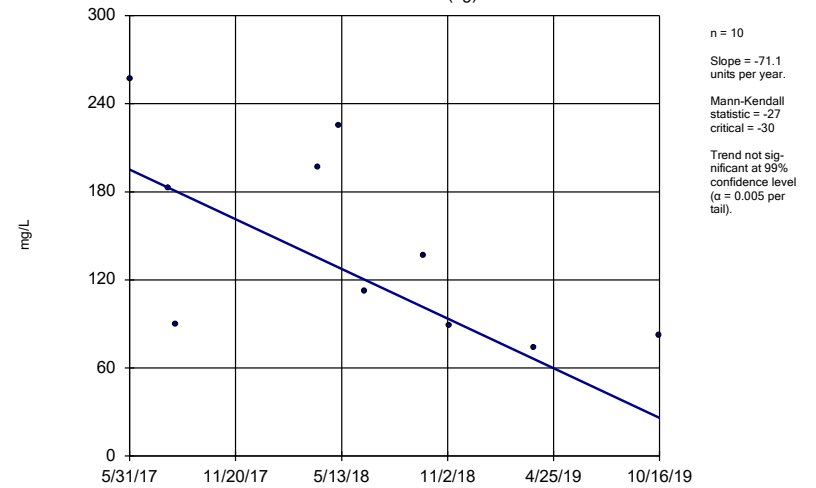
MCM-07



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

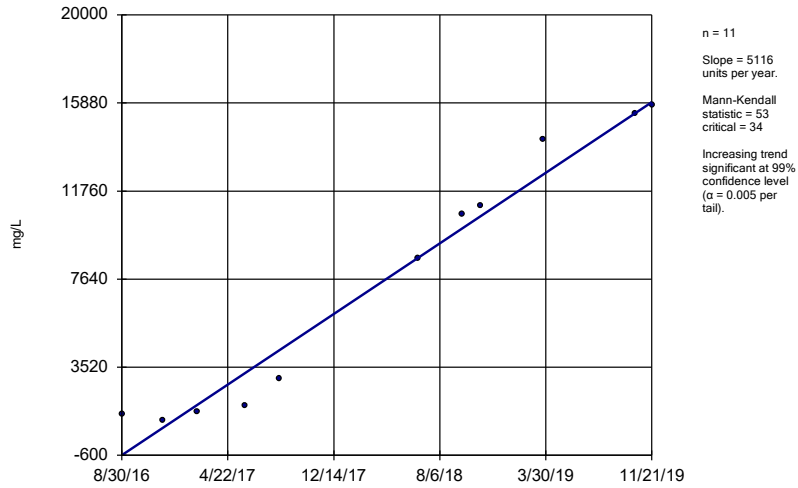
Sen's Slope Estimator

MCM-11 (bg)



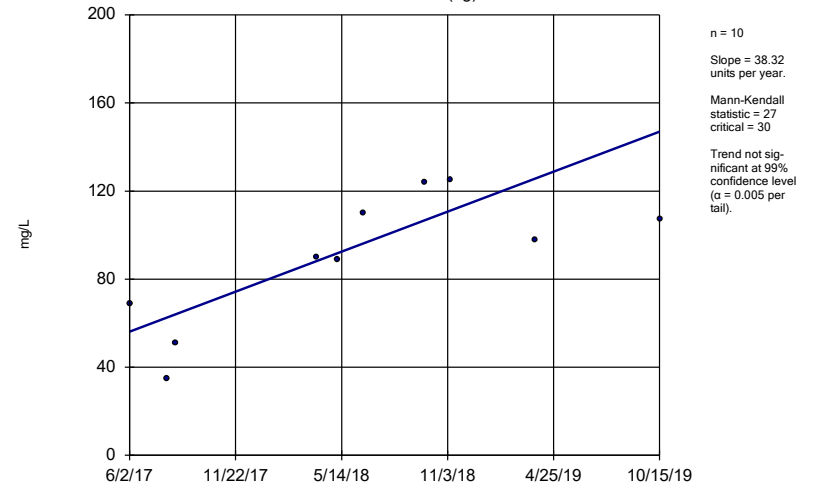
Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-14



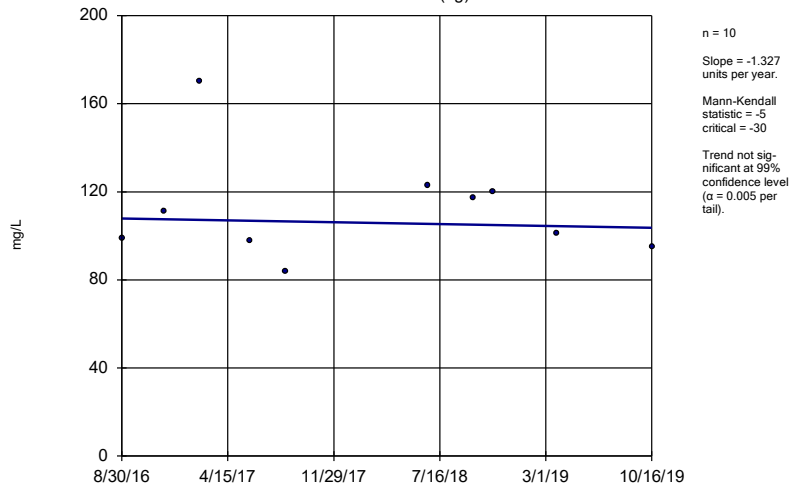
Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-15 (bg)



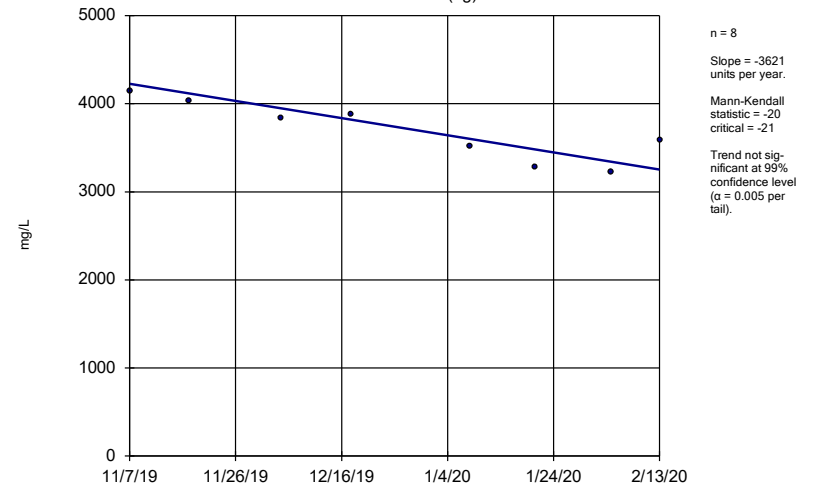
Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-16 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:24 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

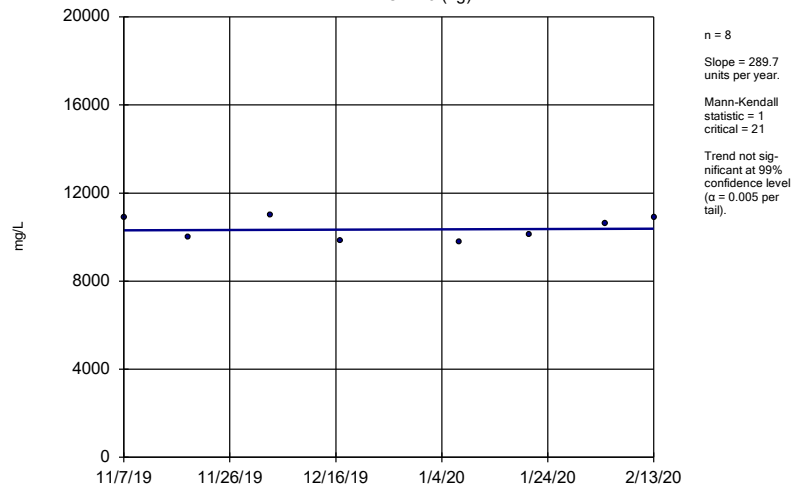
Sen's Slope Estimator
MCM-18 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:25 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

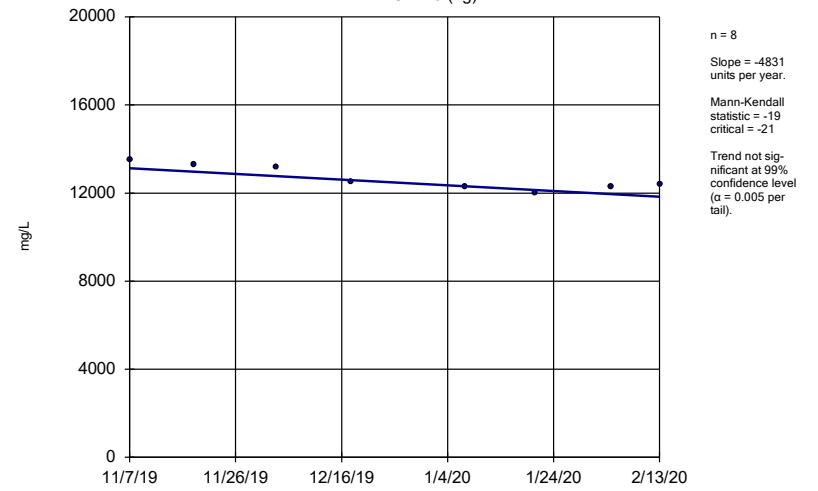
MCM-19 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:25 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

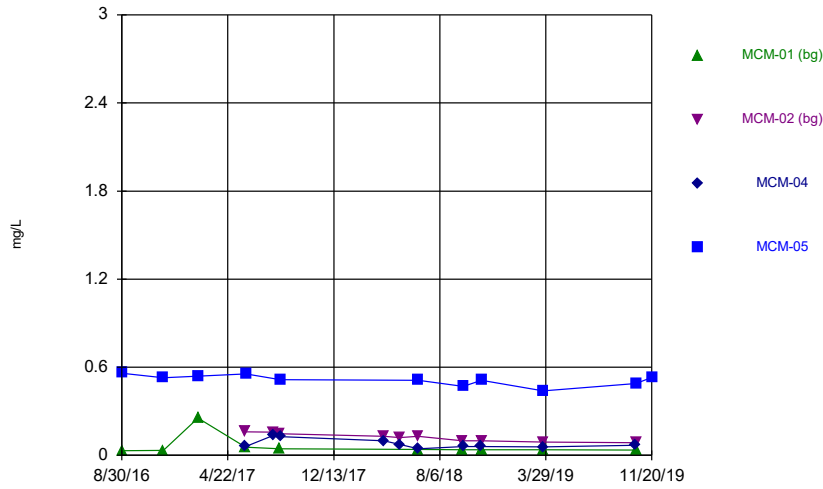
MCM-20 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 12:25 PM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

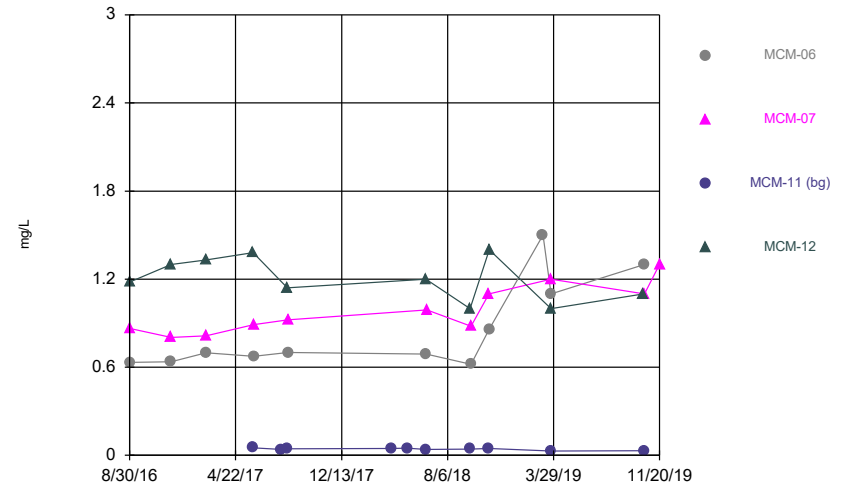
Time Series

Time Series



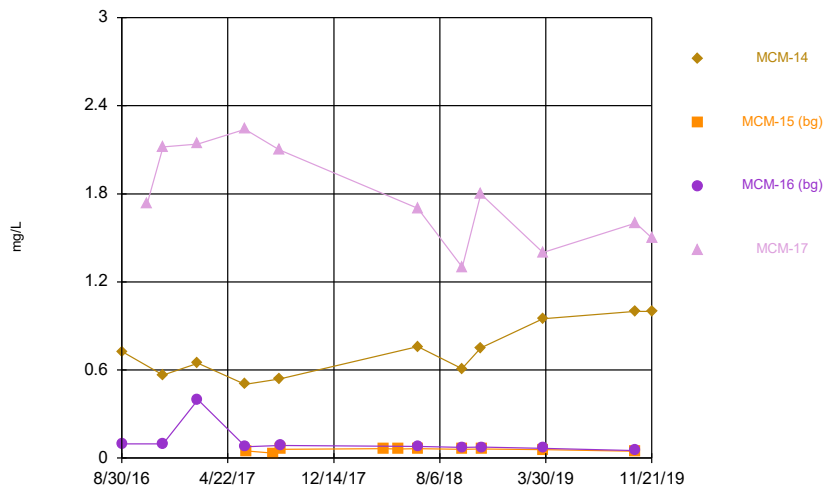
Constituent: Boron Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



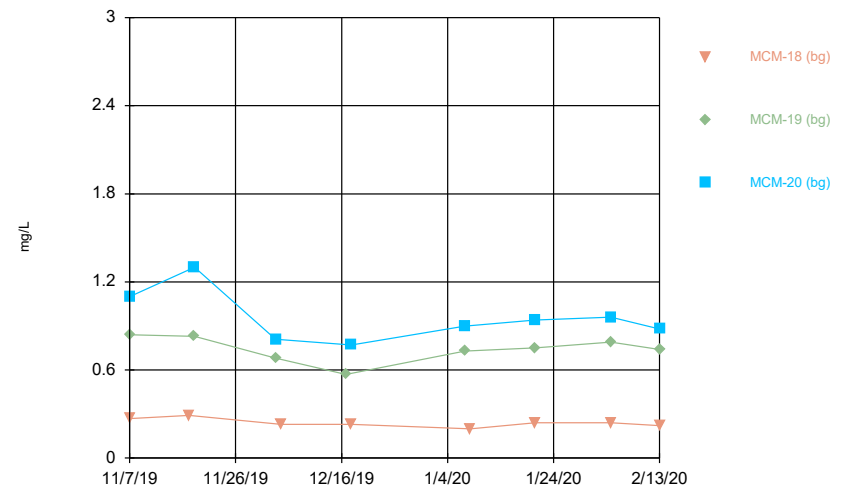
Constituent: Boron Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Boron Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Boron Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: Boron (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	0.0325 (J)			
8/31/2016				0.56
11/30/2016	0.0334 (J)			0.529
2/15/2017	0.254			
2/16/2017				0.539
5/31/2017		0.161		
6/1/2017	0.0564		0.0608	
6/2/2017				0.555
8/2/2017		0.158	0.137	
8/16/2017	0.0435	0.148		
8/17/2017			0.128	0.516
4/4/2018			0.1	
4/5/2018		0.13		
5/8/2018			0.074	
5/9/2018		0.12		
6/19/2018	0.04 (J)	0.13		
6/20/2018			0.045	0.51
9/26/2018	0.038 (J)	0.1		
9/27/2018			0.06	0.47
11/6/2018			0.06	
11/7/2018	0.037 (J)	0.1		0.51
3/24/2019				0.44
3/25/2019	0.038 (J)	0.091	0.058	
10/15/2019			0.068	
10/16/2019	0.036 (J)	0.085		0.49
11/20/2019				0.53

Time Series

Constituent: Boron (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				1.18
8/31/2016	0.632	0.863		
11/30/2016	0.637	0.804		1.3
2/15/2017				1.33
2/16/2017	0.698	0.815		
5/31/2017			0.0521	1.38
6/2/2017	0.674	0.891		
8/2/2017			0.0392 (J)	
8/15/2017			0.0448	1.14
8/17/2017	0.7	0.922		
4/4/2018			0.046	
5/8/2018			0.048	
6/19/2018			0.04	1.2
6/20/2018	0.69			
6/21/2018		0.99		
9/25/2018			0.043	1
9/27/2018	0.62	0.88		
11/6/2018		1.1	0.046	
11/7/2018	0.86			1.4
3/6/2019	1.5			
3/24/2019	1.1	1.2		1
3/25/2019			0.03 (J)	
10/15/2019				1.1
10/16/2019			0.032 (J)	
10/17/2019	1.3	1.1		
11/20/2019		1.3		

Time Series

Constituent: Boron (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	0.726		0.0972 (J)	
10/25/2016				1.73
11/30/2016	0.565		0.0964	2.12
2/15/2017	0.647		0.398	2.14
5/31/2017	0.503			2.24
6/1/2017			0.0776	
6/2/2017		0.0495		
8/2/2017		0.0333 (J)		
8/15/2017				2.1
8/16/2017	0.539			
8/17/2017		0.0593	0.0853	
4/4/2018		0.065		
5/8/2018		0.062		
6/19/2018	0.76	0.064		1.7
6/20/2018			0.079	
9/25/2018	0.61			
9/26/2018		0.06	0.072	1.3
11/6/2018	0.75			1.8
11/7/2018		0.062 (J)	0.074	
3/24/2019	0.95			1.4
3/25/2019		0.057	0.067	
10/15/2019	1	0.046		
10/16/2019			0.051	1.6
11/21/2019	1			1.5

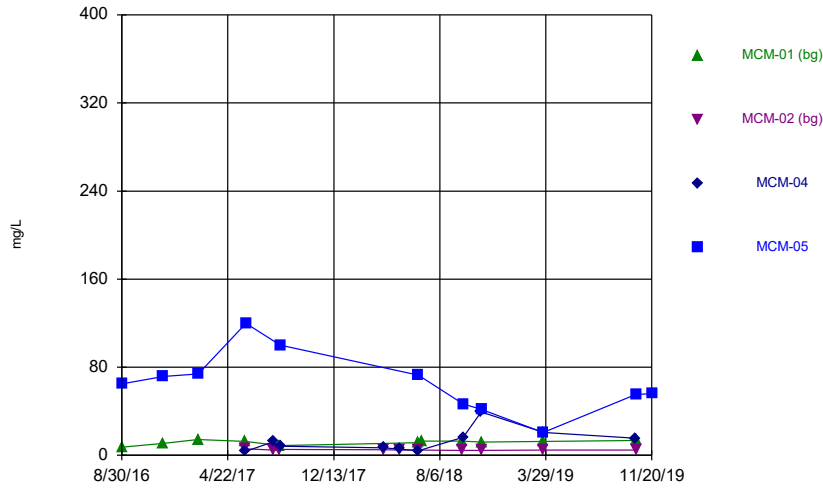
Time Series

Constituent: Boron (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

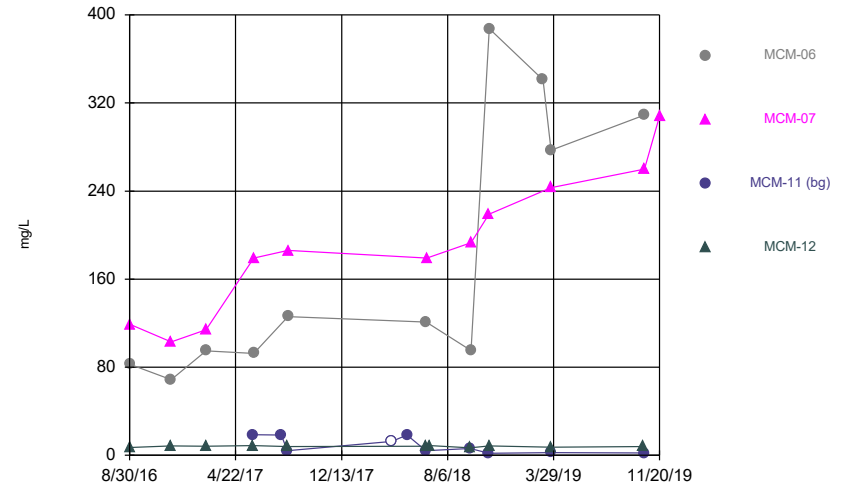
	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	0.27	0.84	1.1
11/18/2019	0.29 (J)		
11/19/2019		0.83	1.3
12/4/2019		0.68	0.81
12/5/2019	0.23		
12/17/2019		0.57	
12/18/2019	0.23		0.77
1/8/2020		0.73	0.9
1/9/2020	0.2		
1/21/2020	0.24 (J)	0.75	0.94
2/4/2020	0.24 (J)	0.79 (J)	0.96 (J)
2/13/2020	0.22	0.74	0.88

Time Series



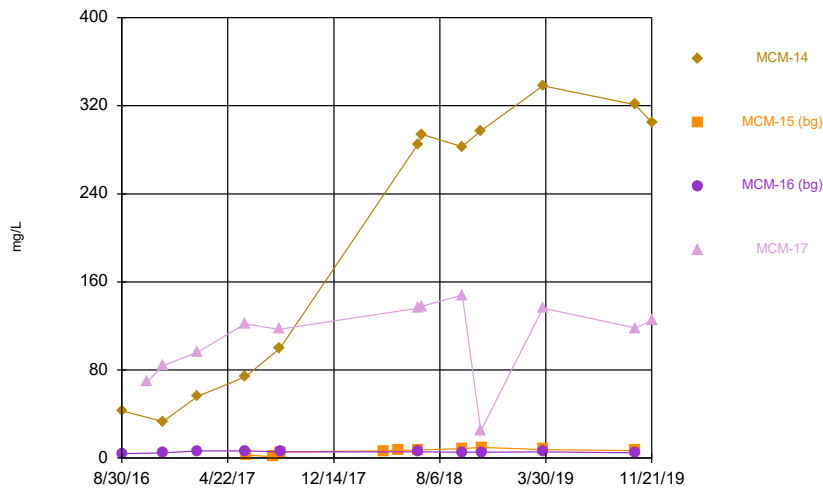
Constituent: Calcium Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



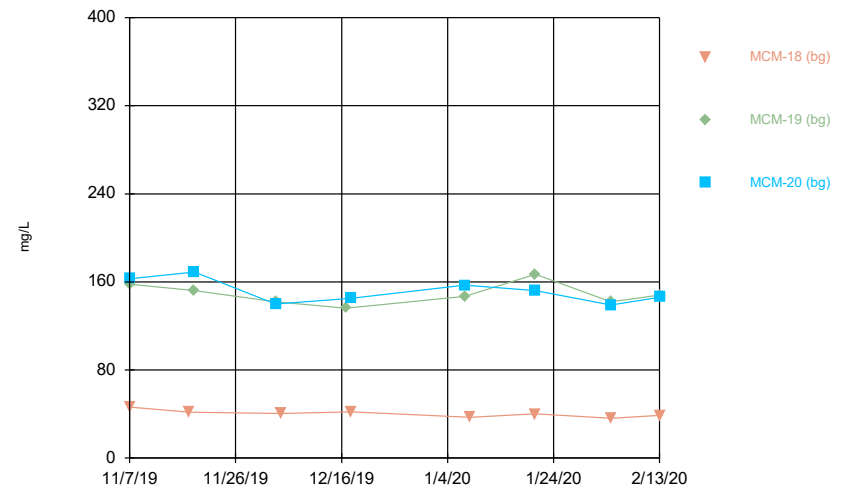
Constituent: Calcium Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Calcium Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Calcium Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: Calcium (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	7.3			
8/31/2016				65
11/30/2016	10.8			71.7
2/15/2017	14.3			
2/16/2017				74
5/31/2017		5.9		
6/1/2017	12.7 (J)		3.65	
6/2/2017				120
8/2/2017		4.69	12.4	
8/16/2017	8.7	5.25		
8/17/2017			8.17	100
4/4/2018			6.8	
4/5/2018		5		
5/8/2018			5.7	
5/9/2018		4.7		
6/19/2018	11.6 (J)	4.8		
6/20/2018			4.3	72.8
6/28/2018	13			
9/26/2018	12.8 (J)	4.6		
9/27/2018			16.4 (J)	46.6
11/6/2018			39.5	
11/7/2018	11.9	4.6		41.8
3/24/2019				20.9 (J)
3/25/2019	12.6 (J)	4.7	20.8 (J)	
10/15/2019			15.5	
10/16/2019	13.6	4.9		55.2
11/20/2019				55.8

Time Series

Constituent: Calcium (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				7.05
8/31/2016	82.8	119		
11/30/2016	68.7	103		8.69
2/15/2017				8.34
2/16/2017	94.8	114		
5/31/2017			18.6	8.85
6/2/2017	92.5	179		
8/2/2017			18.5	
8/15/2017			4.09	8.05
8/17/2017	126	186		
4/4/2018			<25	
5/8/2018			18.4 (J)	
6/19/2018			4.3	8.3
6/20/2018	121			
6/21/2018		179		
6/28/2018				8.9
9/25/2018			6.2 (D)	6.8
9/27/2018	95.1	193		
11/6/2018		219	1.8	
11/7/2018	387.5 (D)			8.5
3/6/2019	341			
3/24/2019	277	243		7.4
3/25/2019			2.5 (D)	
10/15/2019				7.9
10/16/2019			2.2	
10/17/2019	309	260		
11/20/2019		308		

Time Series

Constituent: Calcium (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	42.8		4.02	
10/25/2016				69.4
11/30/2016	33.2		4.87	83.9
2/15/2017	56.1		6.61	96.3
5/31/2017	73.6			122
6/1/2017			6.42	
6/2/2017		2.77		
8/2/2017		1.27		
8/15/2017				117
8/16/2017	99.6			
8/17/2017		5.53	5.62	
4/4/2018		6.5		
5/8/2018		6.7		
6/19/2018	285	7.4		136
6/20/2018			5.7	
6/28/2018	294			138
9/25/2018	283			
9/26/2018		8.5 (J)	5.3	148
11/6/2018	297			24.7
11/7/2018		9.8	5.3	
3/24/2019	338			136
3/25/2019		7.8	5.7	
10/15/2019	321	6.7		
10/16/2019			4.8	118
11/21/2019	305			125

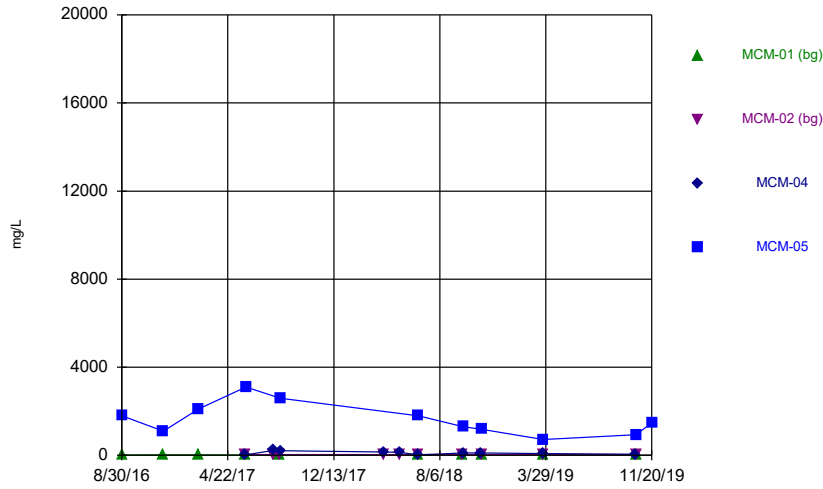
Time Series

Constituent: Calcium (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

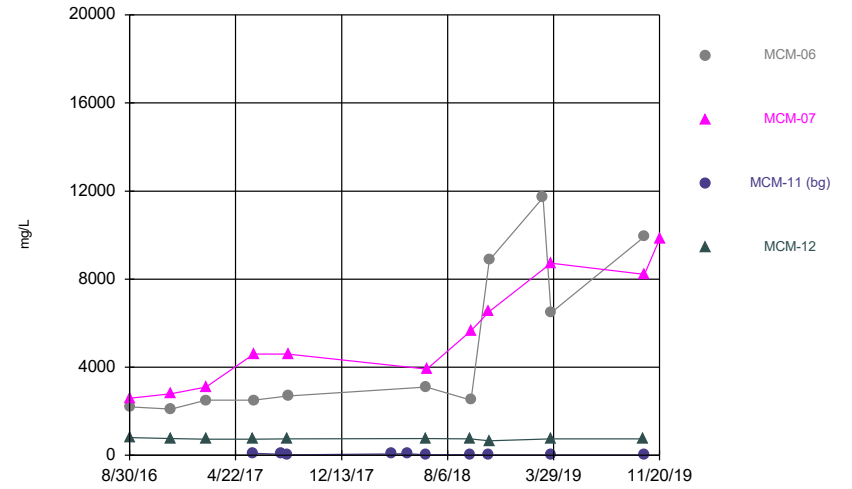
	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	46.2	158	163
11/18/2019	41.8		
11/19/2019		152	169
12/4/2019		142	140
12/5/2019	40.5		
12/17/2019		136	
12/18/2019	42		145
1/8/2020		147	157
1/9/2020	37.1		
1/21/2020	40.1	167	152
2/4/2020	36.2	142	139
2/13/2020	38.9	148	146

Time Series



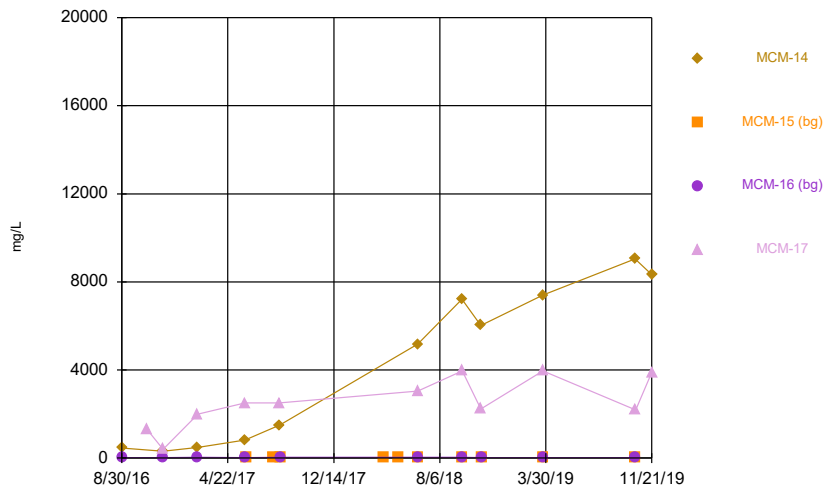
Constituent: Chloride Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



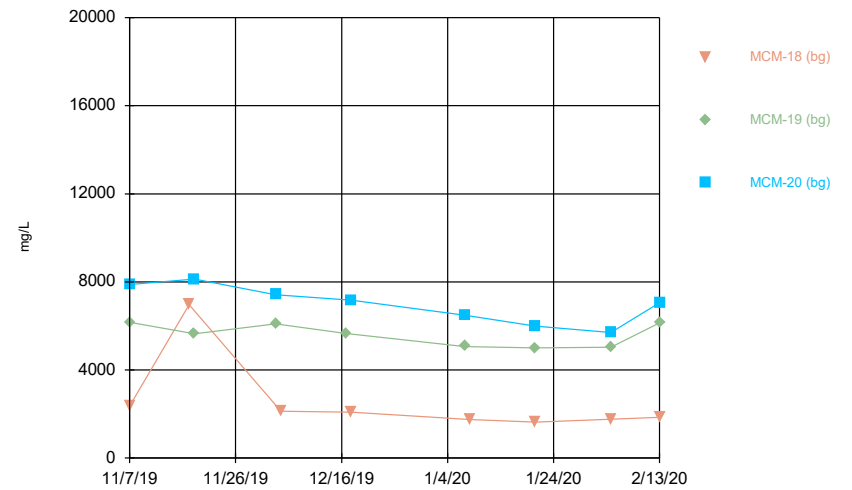
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 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Chloride Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Chloride Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: Chloride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	9.7			
8/31/2016				1800
11/30/2016	19			1100
2/15/2017	21			
2/16/2017				2100
5/31/2017		39		
6/1/2017	12		22	
6/2/2017				3100
8/2/2017		42	230	
8/16/2017	14	41		
8/17/2017			210	2600
4/4/2018			156	
4/5/2018		40.2		
5/8/2018			140	
5/9/2018		40.6		
6/19/2018	24.4	37.7		
6/20/2018			27.5	1800
9/26/2018	23.4	33.4		
9/27/2018			101	1300
11/6/2018			107	
11/7/2018	21.8	30.7		1180
3/24/2019				717
3/25/2019	19.4	33.5	78.5	
10/15/2019			46	
10/16/2019	21.4	33.1		941 (D)
11/20/2019				1480

Time Series

Constituent: Chloride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				800
8/31/2016	2200	2600		
11/30/2016	2100	2800		760
2/15/2017				740
2/16/2017	2500	3100		
5/31/2017			98	740
6/2/2017	2500	4600		
8/2/2017			57	
8/15/2017			15	750
8/17/2017	2700	4600		
4/4/2018			69	
5/8/2018			72.3	
6/19/2018			17.3	760
6/20/2018	3100			
6/21/2018		3920		
9/25/2018			31.3	752 (D)
9/27/2018	2510 (D)	5660 (D)		
11/6/2018		6520	9.8	
11/7/2018	8860			665
3/6/2019	11700			
3/24/2019	6470	8720		744
3/25/2019			12.9	
10/15/2019				744
10/16/2019			12.2	
10/17/2019	9930	8210		
11/20/2019		9810		

Time Series

Constituent: Chloride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	450		26	
10/25/2016				1300
11/30/2016	310		27	400
2/15/2017	490		30	2000
5/31/2017	820			2500
6/1/2017			27	
6/2/2017		11		
8/2/2017		3.2		
8/15/2017				2500
8/16/2017	1500			
8/17/2017		12	32	
4/4/2018		13.4		
5/8/2018		13.2		
6/19/2018	5180	13.7		3050
6/20/2018			30	
9/25/2018	7220			
9/26/2018		18.5	28.4	3965 (D)
11/6/2018	6020			2230
11/7/2018		20.2	25.1	
3/24/2019	7400			3960
3/25/2019		19.7	21.8	
10/15/2019	9050	17.1		
10/16/2019			20	2181.5 (D)
11/21/2019	8330			3890

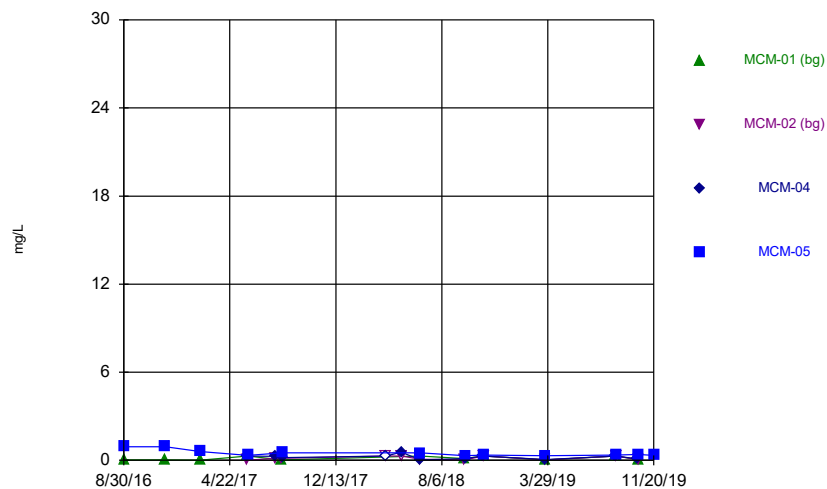
Time Series

Constituent: Chloride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

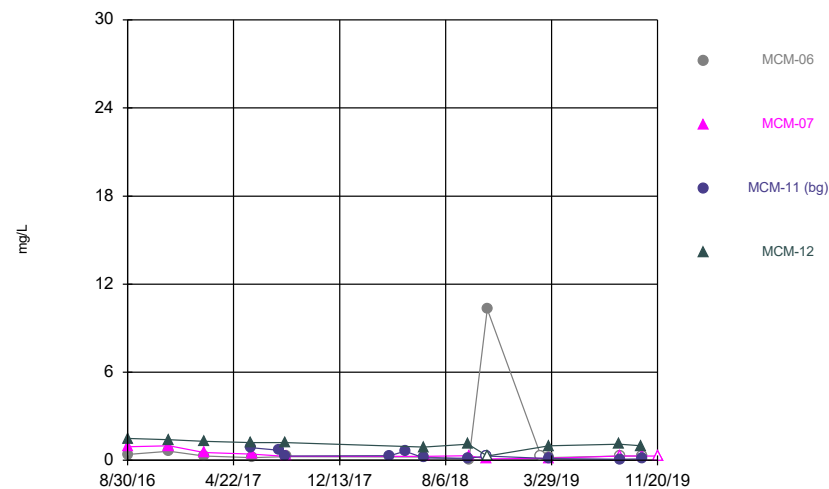
	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	2360	6170	7880
11/18/2019	6970		
11/19/2019		5650	8130
12/4/2019		6100	7410
12/5/2019	2130		
12/17/2019		5660	
12/18/2019	2090		7170
1/8/2020		5070	6480
1/9/2020	1750		
1/21/2020	1630	5010	6000
2/4/2020	1760	5030	5700
2/13/2020	1850	6140	7060

Time Series



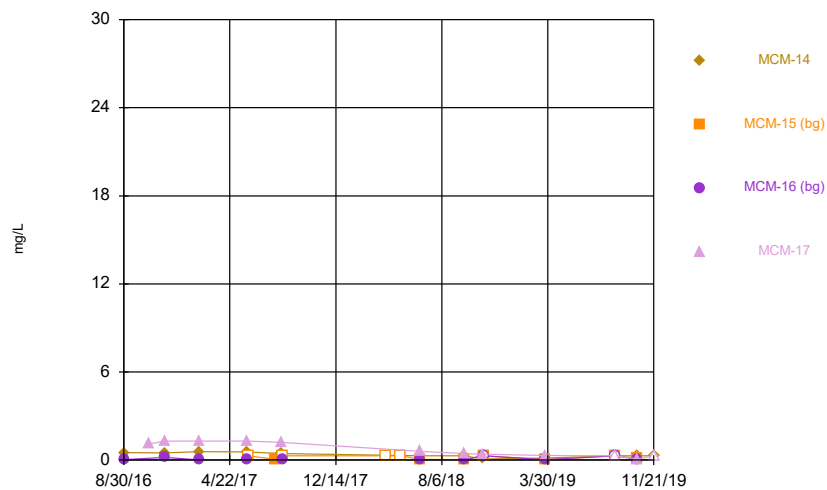
Constituent: Fluoride Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



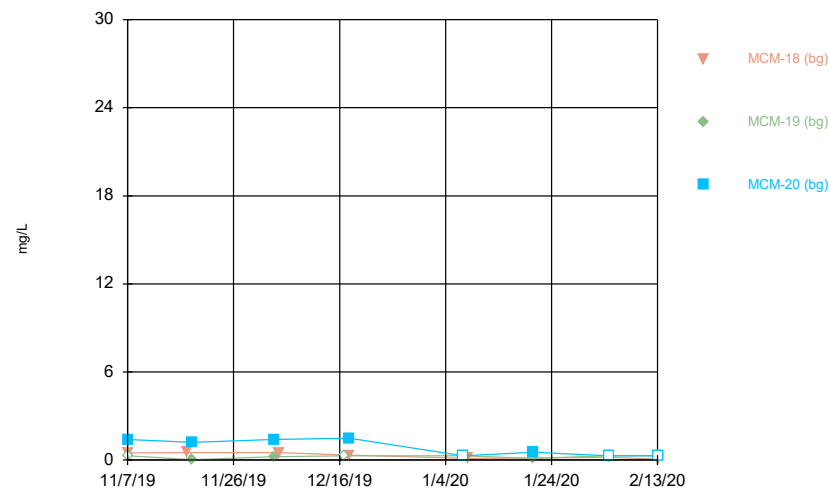
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Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Fluoride Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Fluoride Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: Fluoride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	0.03 (J)			
8/31/2016				0.93
11/30/2016	0.04 (J)			0.93
2/15/2017	0.007 (J)			
2/16/2017				0.6
5/31/2017		0.01 (J)		
6/1/2017	<0.3		<0.3	
6/2/2017				0.34
8/2/2017		0.14 (J)	0.27 (J)	
8/16/2017	0.03 (J)	0.13 (J)		
8/17/2017			0.18 (J)	0.52
4/4/2018			<0.3	
4/5/2018		<0.3		
5/8/2018			0.56	
5/9/2018		<0.3		
6/19/2018	<0.3	0.065 (J)		
6/20/2018			0.033 (J)	0.5
9/26/2018	0.12 (J)	0.029		
9/27/2018			0.12 (J)	0.32
11/6/2018			<0.3	
11/7/2018	<0.3	<0.3		0.35
3/24/2019				0.32
3/25/2019	0.038 (J)	0.039 (J)	0.055 (J)	
8/27/2019	<0.3		<0.3	
8/28/2019		<0.3		0.36
10/15/2019			0.095 (J)	
10/16/2019	0.046 (JD)	0.044 (JD)		0.41
11/20/2019				0.34

Time Series

Constituent: Fluoride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				1.5
8/31/2016	0.41	0.92		
11/30/2016	0.61	0.99		1.4
2/15/2017				1.3
2/16/2017	0.3 (J)	0.54		
5/31/2017			0.85	1.2
6/2/2017	0.19 (J)	0.42		
8/2/2017			0.69	
8/15/2017			0.29 (J)	1.2
8/17/2017	0.26 (J)	0.27 (J)		
4/4/2018			0.32	
5/8/2018			0.63	
6/19/2018			0.17 (J)	0.91
6/20/2018	0.22 (J)			
6/21/2018		0.28 (J)		
9/25/2018			0.15 (J)	1.1
9/27/2018	0.068 (J)	0.32 (D)		
11/6/2018		0.086 (J)	<0.3	
11/7/2018	10.3			<0.3
3/6/2019	<0.3			
3/24/2019	0.19 (J)	0.14 (J)		0.99
3/25/2019			0.12 (J)	
8/27/2019				1.1
8/28/2019	<0.3	<0.3	0.068 (J)	
10/15/2019				1
10/16/2019			0.1 (J)	
10/17/2019	<0.3	<0.3		
11/20/2019		<0.3		

Time Series

Constituent: Fluoride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	0.5		0.04 (J)	
10/25/2016				1.1
11/30/2016	0.49		0.18 (J)	1.3
2/15/2017	0.58		0.02 (J)	1.3
5/31/2017	0.56			1.3
6/1/2017			0.005 (J)	
6/2/2017		<0.3		
8/2/2017		0.05 (J)		
8/15/2017				1.2
8/16/2017	0.45			
8/17/2017		<0.3	0.04 (J)	
4/4/2018		<0.3		
5/8/2018		<0.3		
6/19/2018	<0.3	0.057 (J)		0.6
6/20/2018			0.038 (J)	
9/25/2018	<0.3			
9/26/2018		0.029	0.029	0.44 (D)
11/6/2018	0.084 (J)			0.4
11/7/2018		<0.3	<0.3	
3/24/2019	0.14 (J)			0.31
3/25/2019		0.036 (J)	0.041 (J)	
8/26/2019	<0.3			
8/27/2019		<0.3	<0.3	<0.3
10/15/2019	<0.3	0.14 (J)		
10/16/2019			0.044 (J)	0.083 (J)
11/21/2019	<0.3			<0.3

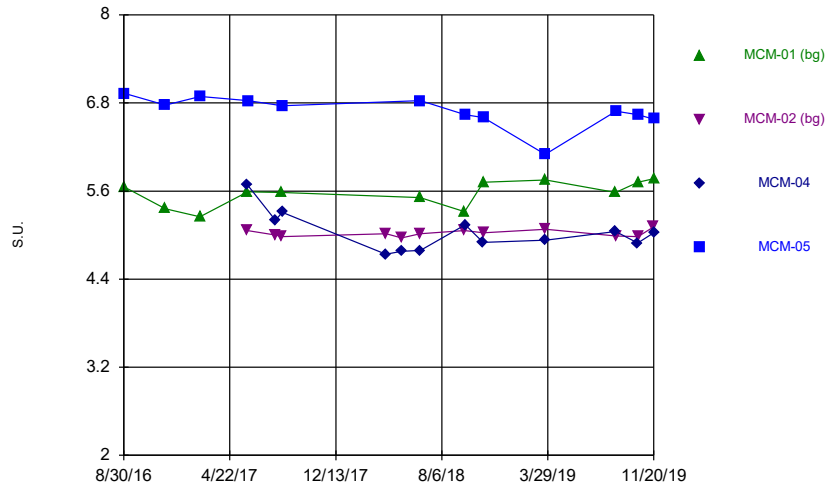
Time Series

Constituent: Fluoride (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

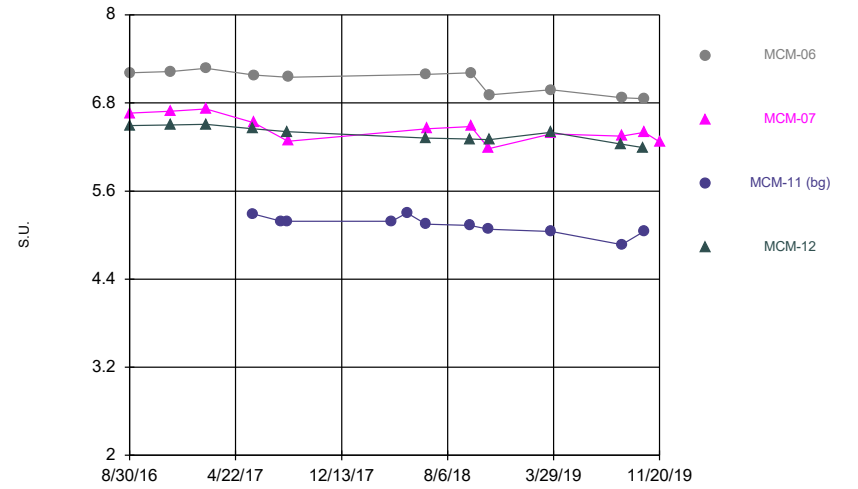
	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	0.49	<0.3	1.4
11/18/2019	0.52		
11/19/2019		0.033 (J)	1.2
12/4/2019		0.22 (J)	1.4
12/5/2019	0.5		
12/17/2019		<0.3	
12/18/2019	0.33		1.5
1/8/2020		<0.3	<0.3
1/9/2020	0.12 (J)		
1/21/2020	0.13 (J)	0.11 (J)	0.53
2/4/2020	0.18 (J)	<0.3	<0.3
2/13/2020	0.077 (J)	<0.3	<0.3

Time Series



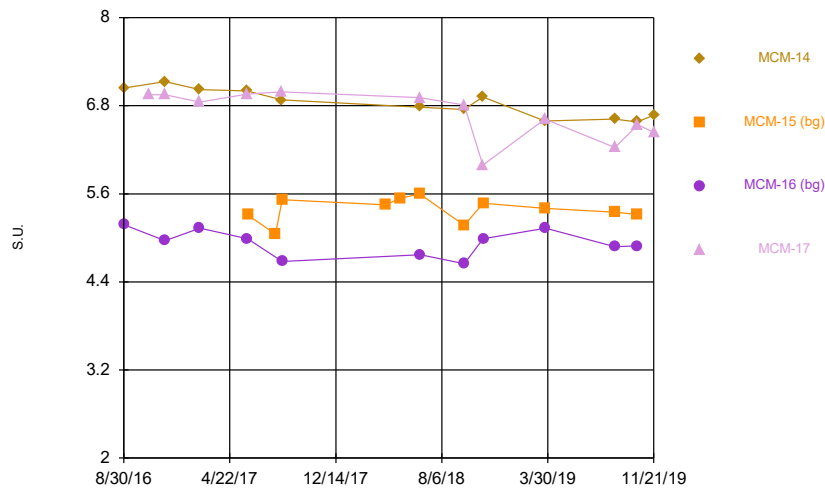
Constituent: pH Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



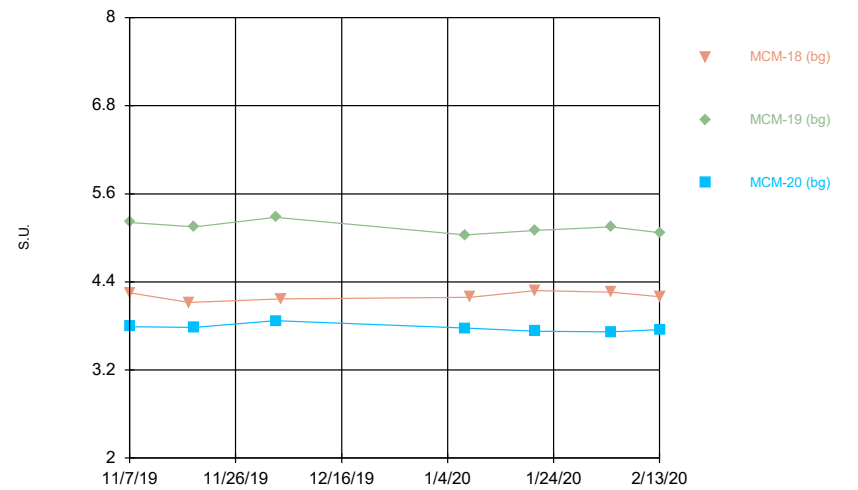
Constituent: pH Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: pH Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: pH Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: pH (S.U.) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	5.66			
8/31/2016				6.93
11/30/2016	5.36			6.77
2/15/2017	5.25			
2/16/2017				6.89
5/31/2017		5.06		
6/1/2017	5.59		5.68	
6/2/2017				6.83
8/2/2017		5	5.2	
8/16/2017	5.58	4.98		
8/17/2017			5.31	6.76
4/4/2018			4.74	
4/5/2018		5.02		
5/8/2018			4.78	
5/9/2018		4.96		
6/19/2018	5.51	5.02		
6/20/2018			4.79	6.83
9/26/2018	5.32	5.06		
9/27/2018			5.14	6.64
11/6/2018			4.9	
11/7/2018	5.72	5.03		6.6
3/24/2019				6.1
3/25/2019	5.75	5.08	4.93	
8/27/2019	5.58		5.05	
8/28/2019		4.99		6.69
10/15/2019			4.89	
10/16/2019	5.72	4.98		6.64
11/19/2019		5.11		
11/20/2019	5.77		5.03	6.58

Time Series

Constituent: pH (S.U.) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				6.49
8/31/2016	7.21	6.66		
11/30/2016	7.23	6.69		6.5
2/15/2017				6.51
2/16/2017	7.27	6.72		
5/31/2017			5.29	6.45
6/2/2017	7.18	6.53		
8/2/2017			5.19	
8/15/2017			5.19	6.41
8/17/2017	7.15	6.28		
4/4/2018			5.19	
5/8/2018			5.3	
6/19/2018			5.15	6.32
6/20/2018	7.19			
6/21/2018		6.45		
9/25/2018			5.13	6.31
9/27/2018	7.21	6.48		
11/6/2018		6.18	5.08	
11/7/2018	6.91			6.3
3/24/2019	6.98	6.38		6.4
3/25/2019			5.05	
8/27/2019				6.24
8/28/2019	6.87	6.35	4.87	
10/15/2019				6.19
10/16/2019			5.05	
10/17/2019	6.86	6.4		
11/20/2019		6.27		

Time Series

Constituent: pH (S.U.) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	7.04		5.18	
10/25/2016				6.95
11/30/2016	7.13		4.96	6.95
2/15/2017	7.02		5.13	6.85
5/31/2017	7			6.96
6/1/2017			4.99	
6/2/2017		5.31		
8/2/2017		5.05		
8/15/2017				6.99
8/16/2017	6.88			
8/17/2017		5.52	4.68	
4/4/2018		5.45		
5/8/2018		5.54		
6/19/2018	6.78	5.6		6.91
6/20/2018			4.77	
9/25/2018	6.75			
9/26/2018		5.17	4.65	6.81
11/6/2018	6.92			5.99
11/7/2018		5.47	4.99	
3/24/2019	6.59	5.4		6.62
3/25/2019			5.13	
8/26/2019	6.62			
8/27/2019		5.35	4.88	6.23
10/15/2019	6.58	5.32		
10/16/2019			4.89	6.54
11/21/2019	6.67			6.44

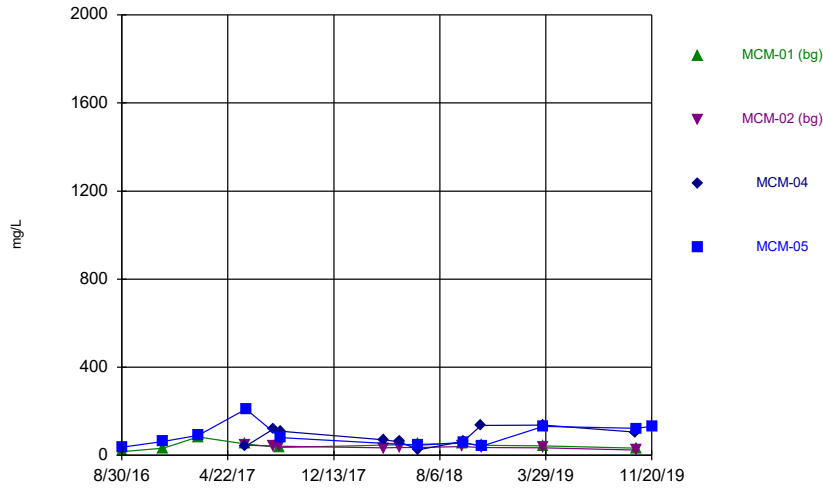
Time Series

Constituent: pH (S.U.) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

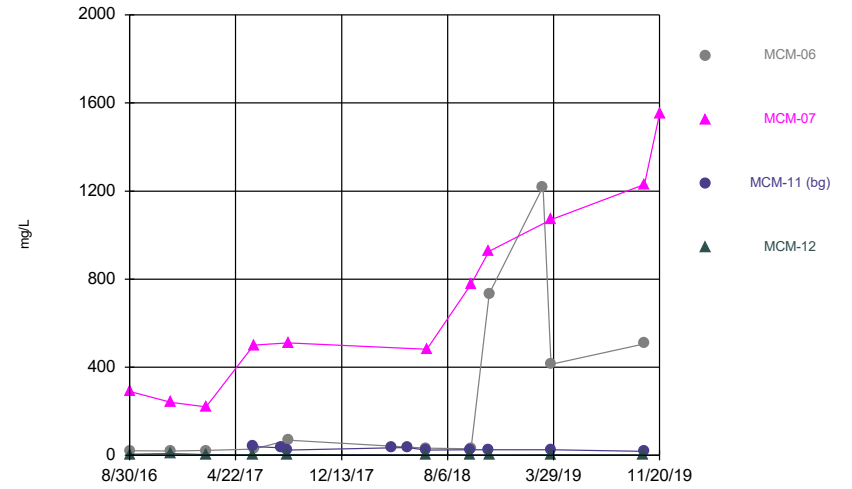
	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	4.25	5.21	3.79
11/18/2019	4.12		
11/19/2019		5.15	3.78
12/4/2019		5.28 (D)	3.87 (D)
12/5/2019	4.17 (D)		
1/8/2020		5.04	3.77
1/9/2020	4.19		
1/21/2020	4.28	5.1	3.73
2/4/2020	4.26	5.15	3.72
2/13/2020	4.2	5.07	3.75

Time Series



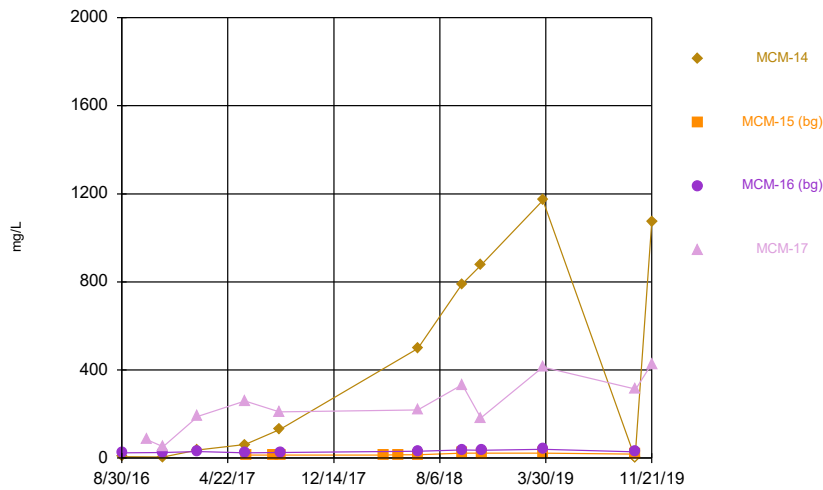
Constituent: Sulfate Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



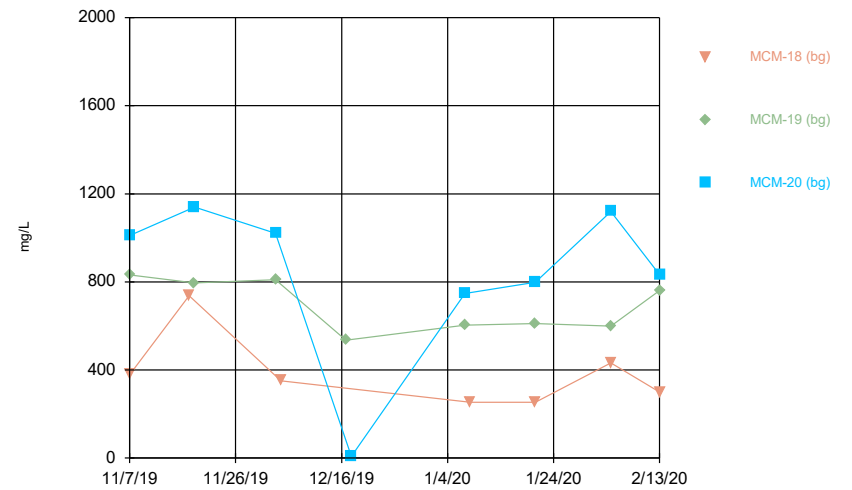
Constituent: Sulfate Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Sulfate Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Sulfate Analysis Run 4/3/2020 1:38 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: Sulfate (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	17			
8/31/2016				37
11/30/2016	33			63
2/15/2017	83			
2/16/2017				90
5/31/2017		46		
6/1/2017	51		42	
6/2/2017				210
8/2/2017		43	120	
8/16/2017	36	41		
8/17/2017			110	80
4/4/2018			70.6	
4/5/2018		33.4		
5/8/2018			61.4	
5/9/2018		36		
6/19/2018	50.3	35.5		
6/20/2018			25.3	46 (J)
9/26/2018	54.1	39.6		
9/27/2018			63.4	58.5 (J)
11/6/2018			136	
11/7/2018	45.6	35.8		41.3 (J)
3/24/2019				131
3/25/2019	43	34.2	137	
10/15/2019			105	
10/16/2019	31.9	24.4		122.5 (D)
11/20/2019				132

Time Series

Constituent: Sulfate (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				4.3
8/31/2016	21	290		
11/30/2016	19	240		7.6
2/15/2017				3
2/16/2017	22	220		
5/31/2017			40	2.5
6/2/2017	28	500		
8/2/2017			34	
8/15/2017			24	3.2
8/17/2017	69	510		
4/4/2018			33.9	
5/8/2018			35.7	
6/19/2018			23.7	1.6
6/20/2018	33			
6/21/2018		481		
9/25/2018			25.6	1
9/27/2018	29.4 (D)	777 (D)		
11/6/2018		926	25.2	
11/7/2018	734			0.41 (J)
3/6/2019	1220 (J)			
3/24/2019	413	1070		1.5
3/25/2019			24.9	
10/15/2019				0.54 (J)
10/16/2019			17.4	
10/17/2019	507	1230		
11/20/2019		1550		

Time Series

Constituent: Sulfate (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	6.4		24	
10/25/2016				84
11/30/2016	4.5		26	52
2/15/2017	37		30	190
5/31/2017	61			260
6/1/2017			24	
6/2/2017		13		
8/2/2017		14		
8/15/2017				210
8/16/2017	130			
8/17/2017		14	26	
4/4/2018		13.4		
5/8/2018		14.8		
6/19/2018	498	15.5		218
6/20/2018			31.2	
9/25/2018	790			
9/26/2018		23	36.8	333 (D)
11/6/2018	875			182
11/7/2018		22.2	35	
3/24/2019	1170			413
3/25/2019		22.4	40.1	
10/15/2019	<1	17.9		
10/16/2019			28.5	312.5 (D)
11/21/2019	1070			428

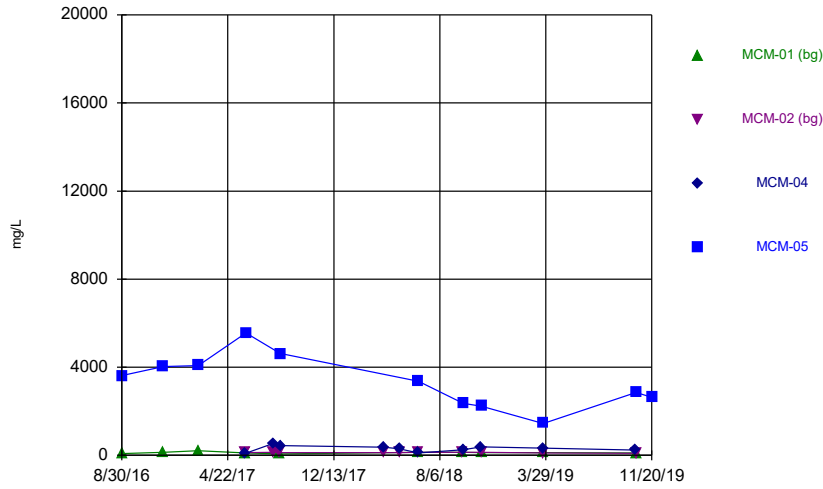
Time Series

Constituent: Sulfate (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

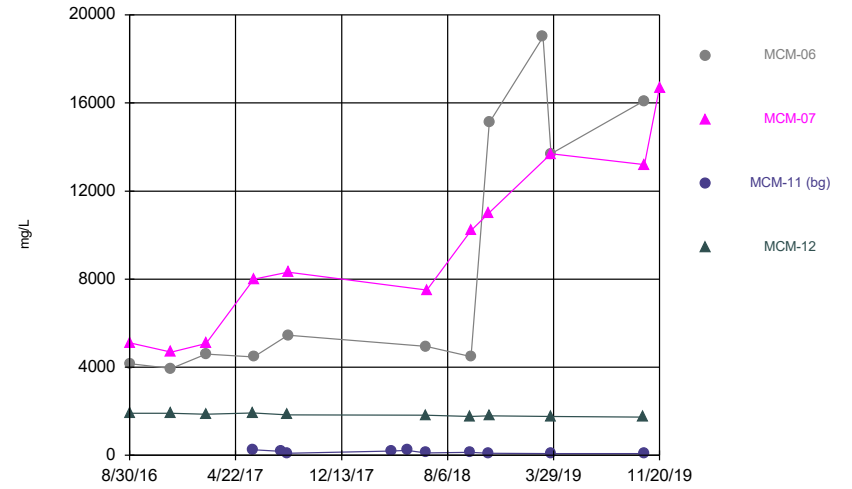
	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	379	832	1010
11/18/2019	737		
11/19/2019		795	1140
12/4/2019		810	1020
12/5/2019	351		
12/17/2019		535	
12/18/2019			8.1
1/8/2020		603	747
1/9/2020	254		
1/21/2020	254	611	798
2/4/2020	432	599	1120
2/13/2020	300	761	833

Time Series



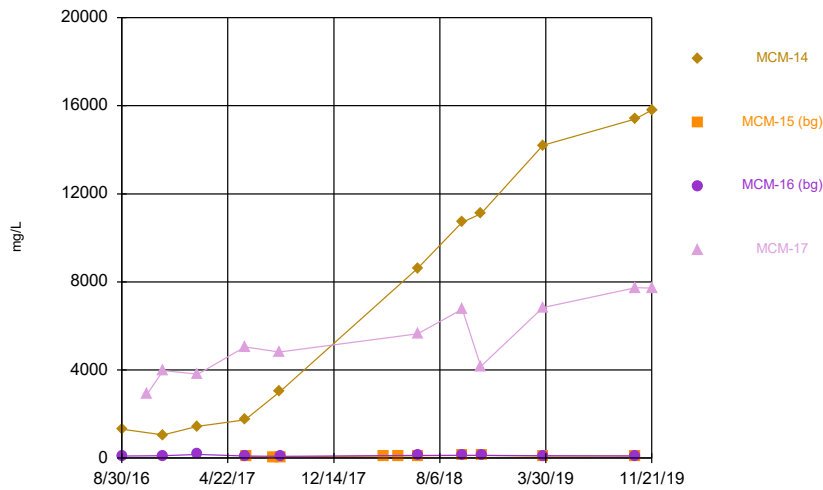
Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



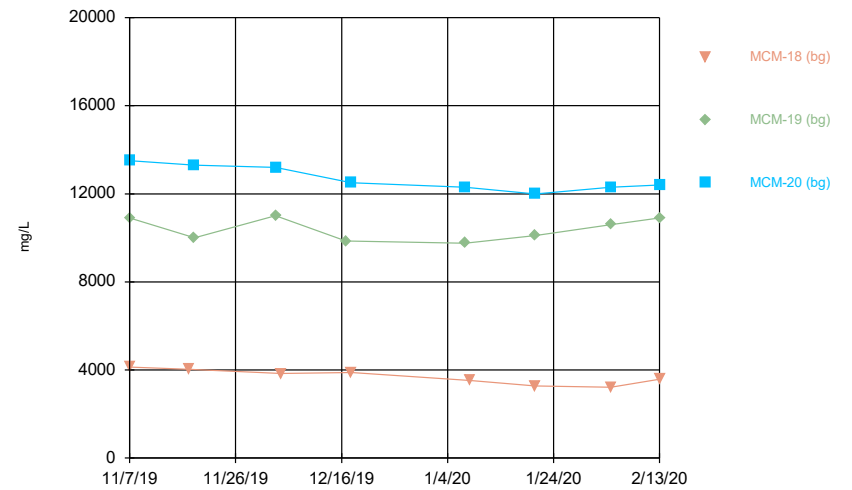
Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 1:38 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: T Total Dissolved Solids [TDS] (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05
8/30/2016	86			
8/31/2016				3620
11/30/2016	131			4030
2/15/2017	212			
2/16/2017				4080
5/31/2017		123		
6/1/2017	103		97	
6/2/2017				5560
8/2/2017		136	538	
8/16/2017	65	124		
8/17/2017			445	4620
4/4/2018			365	
4/5/2018		128		
5/8/2018			304	
5/9/2018		127		
6/19/2018	142	143		
6/20/2018			114	3370
9/26/2018	133	132		
9/27/2018			255	2360
11/6/2018			388	
11/7/2018	121	134		2230
3/24/2019				1450
3/25/2019	116	111	327	
10/15/2019			237	
10/16/2019	104	96		2860
11/20/2019				2640

Time Series

Constituent: T Total Dissolved Solids [TDS] (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016				1910
8/31/2016	4160	5100		
11/30/2016	3950	4680		1910
2/15/2017				1870
2/16/2017	4600	5080		
5/31/2017			257	1920
6/2/2017	4470	8000		
8/2/2017			183	
8/15/2017			90	1840
8/17/2017	5450	8320		
4/4/2018			197	
5/8/2018			225	
6/19/2018			112	1820
6/20/2018	4940			
6/21/2018		7500		
9/25/2018			137	1760
9/27/2018	4480	10200		
11/6/2018		11000	89	
11/7/2018	15100			1800
3/6/2019	19000			
3/24/2019	13700	13700		1770
3/25/2019			74	
10/15/2019				1730
10/16/2019			82	
10/17/2019	16100	13200		
11/20/2019		16700		

Time Series

Constituent: T Total Dissolved Solids [TDS] (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17
8/30/2016	1310		99	
10/25/2016				2900
11/30/2016	1050		111	3970
2/15/2017	1440		170	3820
5/31/2017	1740			5050
6/1/2017			98	
6/2/2017		69		
8/2/2017		35		
8/15/2017				4820
8/16/2017	3010			
8/17/2017		51	84	
4/4/2018		90		
5/8/2018		89		
6/19/2018	8630	110		5640
6/20/2018			123	
9/25/2018	10700			
9/26/2018		124	117	6770 (D)
11/6/2018	11100			4160
11/7/2018		125	120	
3/24/2019	14200			6840
3/25/2019		98	101	
10/15/2019	15400	107		
10/16/2019			95	7740
11/21/2019	15800			7720

Time Series

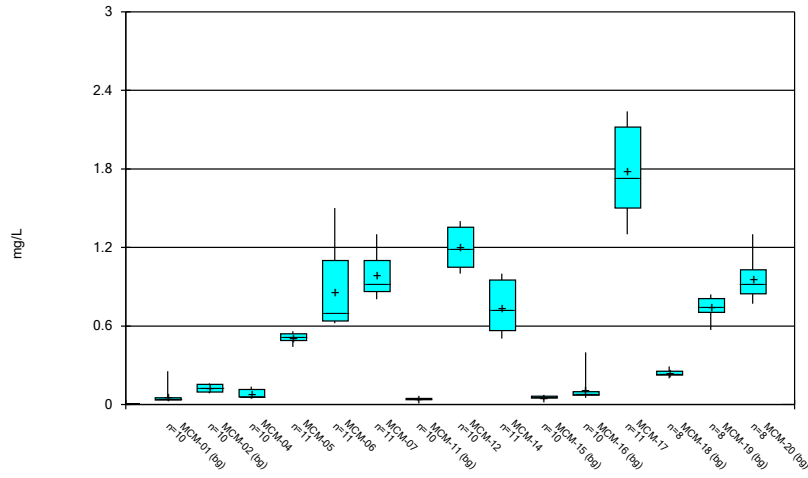
Constituent: Total Dissolved Solids [TDS] (mg/L) Analysis Run 4/3/2020 1:38 PM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
11/7/2019	4140	10900	13500
11/18/2019	4030		
11/19/2019		10000	13300
12/4/2019		11000	13200
12/5/2019	3840		
12/17/2019		9860	
12/18/2019	3880		12500
1/8/2020		9760	12300
1/9/2020	3520		
1/21/2020	3280	10100	12000
2/4/2020	3220	10600	12300
2/13/2020	3580	10900	12400

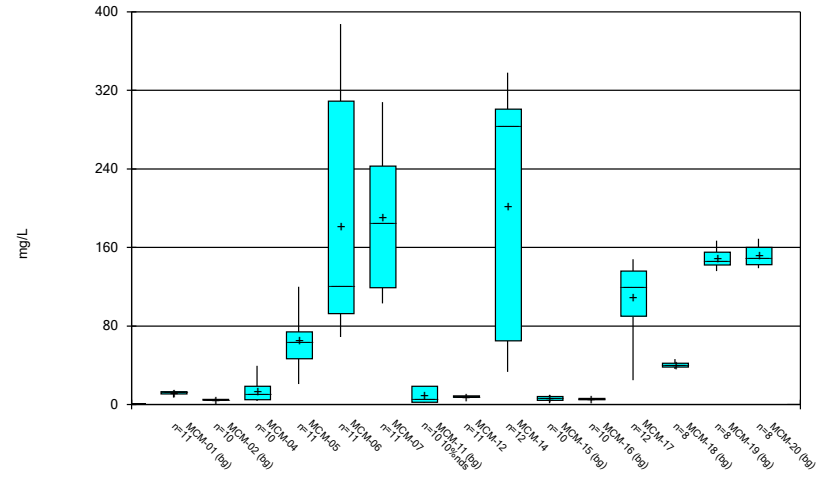
Box Plots

Box & Whiskers Plot



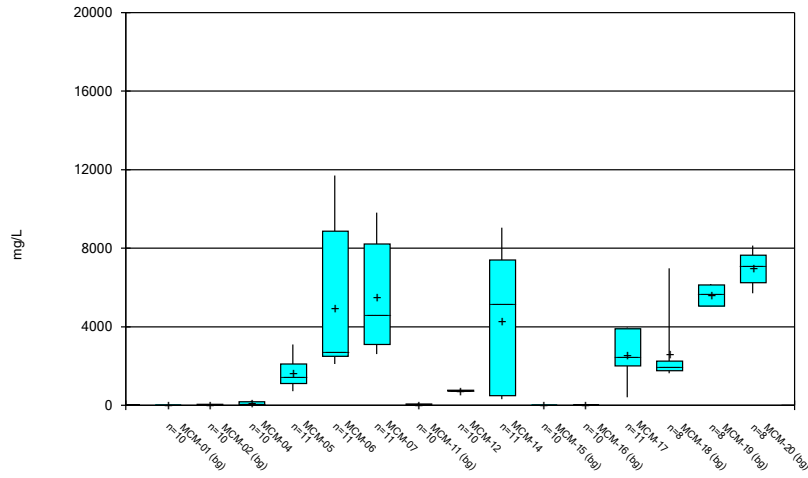
Constituent: Boron Analysis Run 4/3/2020 1:40 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



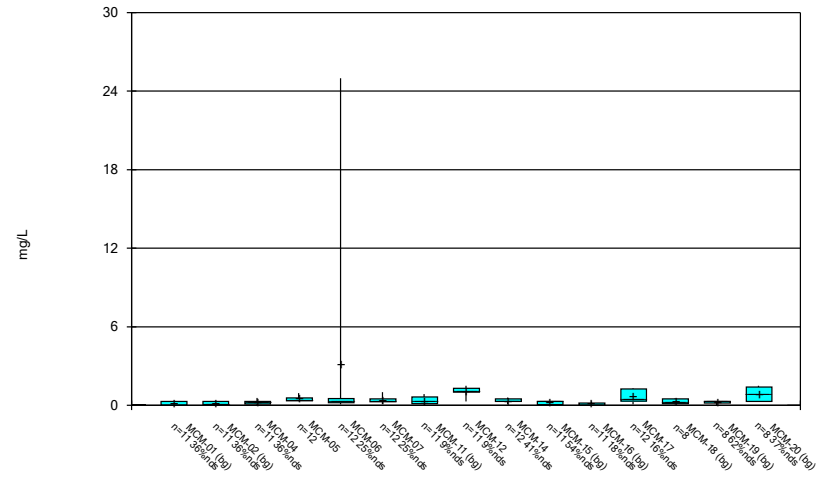
Constituent: Calcium Analysis Run 4/3/2020 1:40 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



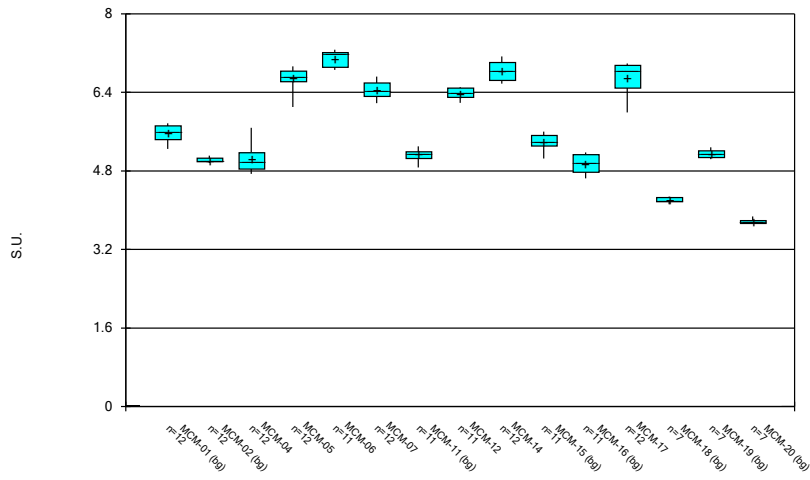
Constituent: Chloride Analysis Run 4/3/2020 1:40 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



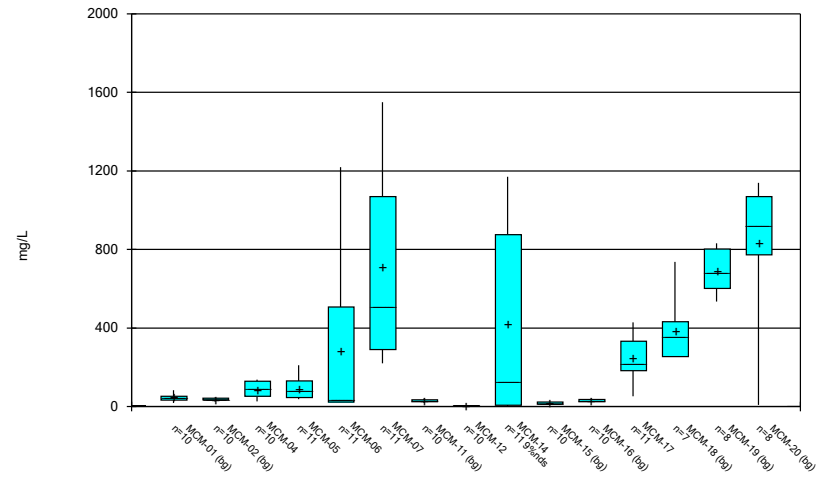
Constituent: Fluoride Analysis Run 4/3/2020 1:40 PM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



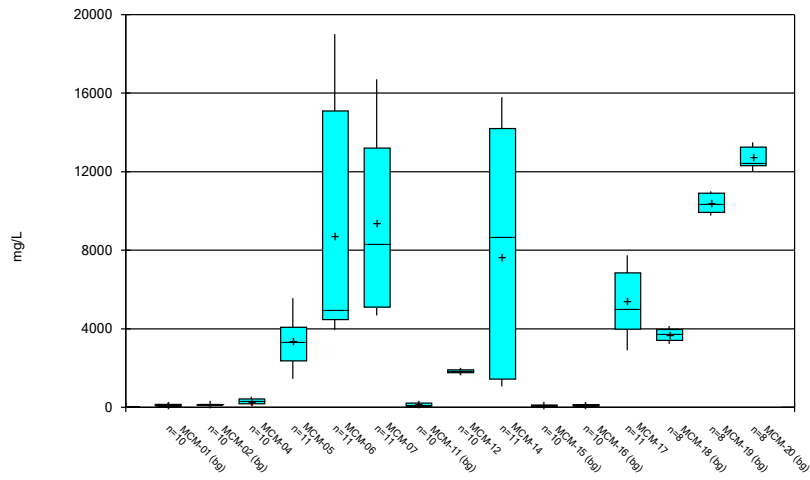
Constituent: pH Analysis Run 4/3/2020 1:40 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



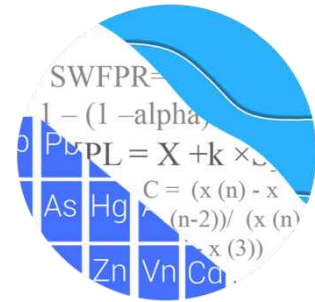
Constituent: Sulfate Analysis Run 4/3/2020 1:40 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 4/3/2020 1:40 PM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

GROUNDWATER STATS CONSULTING



July 27, 2020

Resolute Environmental & Water Resources Consulting
Attn: Mr. Stephen Wilson
1003 Weatherstone Parkway, Ste. 320
Woodstock, GA 30188

Re: Plant McManus Ash Pond
Statistical Analysis March 2020

Dear Mr. Wilson,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the March 2020 Semi-Annual Groundwater Monitoring and Corrective Action Statistical summary of the analysis of groundwater data for Georgia Power Company's Plant McManus Ash Pond. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015), the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10, and follows the USEPA Unified Guidance (2009).

The groundwater monitoring well network consists of the following:

- **Upgradient Wells:** MCM-01, MCM-02, MCM-11, MCM-15, MCM-16, MCM-18, MCM-19, MCM-20
- **Downgradient Wells:** MCM-04, MCM-05, MCM-06, MCM-07, MCM-12, MCM-14, MCM-17

Note that upgradient wells MCM-18, MCM-19, and MCM-20 were installed late in 2019. A minimum of 8 samples have been collected at each well and data from these wells are included in this analysis. For some constituents in these upgradient wells such as arsenic, lead, and lithium, the concentrations are higher in comparison to other upgradient wells. Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis

was reviewed Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

The statistical analysis provided in this report was performed according to the background screening conducted by MacStat Consulting in April 2019. Interwell prediction limits, combined with a 1-of-2 resample plan, for Appendix III parameters were recommended as the primary statistical method.

The CCR program consists of the following constituents:

- **Appendix III** (Detection Monitoring) - boron, calcium, chloride, fluoride, pH, sulfate, and TDS
- **Appendix IV** (Assessment Monitoring) – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Note that when there are no detections present in downgradient wells for a given constituent, statistical analyses are not required. This was the case for several of the Appendix IV parameters. A summary of well/constituent pairs with 100% nondetects follows this letter.

Time series plots for Appendix III and IV parameters at all wells are provided for the purpose of screening data at these wells (Figure A). Additionally, a separate section of box plots is included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graphs. A summary of flagged outliers follows this report (Figure C).

No values were previously flagged as outliers during the April 2019 screening; however, the following non-detect values are flagged due to elevated reporting limits: 0.025 mg/L for lead in upgradient well MCM-19; and 0.1 mg/L, 0.15 mg/L and 0.3 mg/L for lithium in upgradient well MCM-18. Additionally, a high value for combined radium 226 + 228 in upgradient well MCM-20 was flagged as an outlier. These steps result in construction of background limits that are conservative from a regulatory perspective.

A substitution of the most recent reporting limit is used for nondetect data. Reporting limits often decrease over time due to improved laboratory practices. However, in some

cases the most recent reporting limit increased compared to historical data and, therefore, the lower historical reporting limit was substituted for nondetects to maintain more conservative limits. Due to varying detection limits, the following reporting limits were used for these constituents across all wells:

- Antimony: 0.003 mg/L
- Arsenic: 0.005 mg/L
- Cobalt: 0.005 mg/L
- Lithium: 0.03 mg/L
- Molybdenum: 0.01 mg/L
- Selenium: 0.01 mg/L
- Thallium: 0.001 mg/L

When concentrations exist higher in downgradient wells relative to observations reported upgradient of the facility, as seen in the majority of the Appendix III parameters, this may be reflective of natural variation or a result of practices at the facility. A separate study and hydrogeological investigation would be required to fully understand the geochemical conditions and expected groundwater quality for the region. That study and assessment is beyond the scope of services provided by Groundwater Stats Consulting.

In earlier analyses, data at all wells were evaluated for the following: 1) outliers; 2) trends; 3) most appropriate statistical method for Appendix III parameters based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. Power curves were provided with the previous screening to demonstrate that the selected statistical methods for Appendix III parameters comply with the USEPA Unified Guidance. The EPA suggests the selected statistical method should provide at least 55% power at 3 standard deviations or at least 80% power at 4 standard deviations.

Summary of Statistical Methods – Appendix III Parameters:

Based on the earlier evaluation described above, the following method was selected:

- Interwell prediction limits, combined with a 1-of-2 resample plan for boron, calcium, chloride, fluoride, pH, sulfate, and TDS

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. While the false positive rate associated with the parametric limits is based on an annual 10% (5% per semi-annual

event) as recommended by the EPA Unified Guidance (2009), the false positive rate associated with the nonparametric limits is dependent upon the available background sample size, number of future comparisons, and verification resample plan. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits is necessary to accommodate these types of changes. In the interwell case, prediction limits are updated with upgradient well data during each event after careful screening for any new outliers. In some cases, the earlier portion of data are deselected prior to construction of limits to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Statistical Analysis of Appendix III Parameters – March 2020

Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed using all historical upgradient well data through March 2020 (Figure D). Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent. The most recent sample from each downgradient well is compared to the background limit to determine whether there are statistically significant increases (SSIs).

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance

is confirmed. When a resample confirms the initial exceedance, a statistically significant increase is identified and further research would be required to identify the cause of the exceedance (i.e. impact from the site, natural variation, or an off-site source). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, no exceedance is noted and no further action is necessary. If no resample is collected, the original result is considered a confirmed exceedance. Several prediction limit exceedances were noted for the Appendix III parameters. A summary table of the interwell prediction limits follows this letter.

When prediction limit exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable (Figure E). Upgradient wells are included in the trend analyses for all parameters found to exceed their prediction limit in downgradient wells to identify whether similar patterns exist upgradient of the site which is an indication of natural variability in groundwater unrelated to practices at the site. Statistically significant increasing trends were noted in for calcium in downgradient wells MCM-06, MCM-07, and MCM-14; chloride in upgradient well MCM-15 and downgradient wells MCM-06 and MCM-07; and TDS downgradient wells MCM-06, MCM-07, and MCM-14. Statistically significant decreasing trends were noted for calcium in upgradient well MCM-18; chloride in upgradient well MCM-02; pH in upgradient well MCM-11, and downgradient wells MCM-05, MCM-06, MCM-12, and MCM-14; and TDS in upgradient well MCM-18. A summary of the trend test results follows this letter.

Statistical Analysis of Appendix IV Parameters – March 2020

Interwell tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data for Appendix IV constituents (Figure F). Parametric tolerance limits are used when data follow a normal or transformed-normal distribution such as for barium and radium. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia EPD Rule 391-3-4-.10(6)(a).

As described in 40 CFR §257.95(h) (1-3), the GWPS is:

- The maximum contaminant level (MCL) established under §141.62 and §141.66 of this title

- Where an MCL has not been established for a constituent, CCR-rule specified level have been specified for cobalt (0.006 mg/L), lead (0.015 mg/L), lithium (0.040 mg/L), and molybdenum (0.100 mg/L)
- The respective background level for a constituent when the background level is higher than the MCL or Federal CCR Rule identified GWPS

On July 30, 2018, USEPA revised the Federal CCR rule updating GWPS for cobalt, lead, lithium, and molybdenum as described above in 40 CFR §257.95(h)(2). Georgia EPD has not incorporated the updated GWPS into the current Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); therefore, for sites regulated under Georgia EPD Rules, the GWPS is:

- The MCL or
- The background concentration when an MCL is not established or when the background concentration is higher than the MCL.

Following the above Georgia EPD Rule requirements, GWPS were established for statistical comparison of Appendix IV constituents for the March 2020 sample event for the federal and state rules (Figures G and H, respectively). To complete the statistical comparison to GWPS, confidence intervals were constructed for each of the Appendix IV constituents in accordance with the federal and state requirements in each downgradient well (Figures I and J, respectively). The Sanitas software was used to calculate the tolerance limits and the confidence intervals. Those confidence intervals were compared to the GWPS established using the CCR Rules for the federal requirements and the Georgia EPD Rules 391-3-4-.10(6)(a) for the State requirements. Although the background limits for combined radium 226 + 228 is considerably higher than the MCL, concentrations, including those in upgradient well MCM-20. Additionally, TDS appears to be highly variable across the site and especially so upgradient of the site. These concentrations are assumed to represent natural groundwater quality since the reported measurements are in upgradient wells; however, this determination is beyond the scope of this analysis.

Only when the entire confidence interval is above a GWPS is the downgradient well/constituent pair considered to exceed its respective standard. If there is an exceedance of the GWPS, a statistically significant level (SSL) exceedance is identified. For both federal and state confidence intervals, exceedances were noted for arsenic and lithium in well MCM-06. Summaries of the confidence intervals follow this letter.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Plant McManus Ash Pond. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,



Andrew T. Collins
Groundwater Analyst



Kristina L. Rayner
Groundwater Statistician

100% Nondetect Well-Constituent Pairs

Date: 5/13/2020 1:45 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

Antimony (mg/L)

MCM-04, MCM-05, MCM-07, MCM-11, MCM-12, MCM-18, MCM-20

Beryllium (mg/L)

MCM-06

Cadmium (mg/L)

MCM-04, MCM-05, MCM-06, MCM-07, MCM-12, MCM-14, MCM-18, MCM-19

Cobalt (mg/L)

MCM-05, MCM-18, MCM-19

Lead (mg/L)

MCM-04, MCM-11, MCM-18

Mercury (mg/L)

MCM-06, MCM-12, MCM-18, MCM-19, MCM-20

Molybdenum (mg/L)

MCM-04, MCM-07, MCM-11, MCM-12, MCM-14, MCM-18, MCM-19, MCM-20

Selenium (mg/L)

MCM-11

Thallium (mg/L)

MCM-04, MCM-05, MCM-07, MCM-11, MCM-12, MCM-14, MCM-18, MCM-19, MCM-20

Outlier Summary

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 2:52 PM

	MCM-20 Combined Radium 226 + 228 (pCi/L)	MCM-19 Lead (mg/L)	MCM-18 Lithium (mg/L)
11/18/2019		<0.1 (o)	
1/21/2020		<0.15 (o)	
2/4/2020		<0.3 (o)	
2/13/2020	76.3 (o)	<0.025 (o)	

Appendix III Interwell Prediction Limits Summary Table - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 11:55 AM

Constituent	Well	Upper Lim.	Lower Lim	Date	Observ.	Sig.	Bq	NBq	Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-12	1.3	n/a	3/27/2020	1.5	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-17	1.3	n/a	3/27/2020	1.8	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Calcium (mg/L)	MCM-06	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-07	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-14	169	n/a	3/27/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-17	169	n/a	3/27/2020	222	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Chloride (mg/L)	MCM-06	8130	n/a	3/28/2020	9190	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-07	8130	n/a	3/28/2020	9070	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
pH (S.U.)	MCM-05	5.77	3.72	3/28/2020	6.6	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-06	5.77	3.72	3/28/2020	6.8	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-07	5.77	3.72	3/28/2020	6.35	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-12	5.77	3.72	3/27/2020	6.33	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-14	5.77	3.72	3/27/2020	6.59	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-17	5.77	3.72	3/27/2020	6.93	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-06	14600	n/a	3/28/2020	18800	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-07	14600	n/a	3/28/2020	18300	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-14	14600	n/a	3/27/2020	16400	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)

Appendix III Interwell Prediction Limits Summary Table - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 11:55 AM

Constituent	Well	Upper Lim.	Lower Lim	Date	Obsv.	Sig.	Bq	N Bq	Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-04	1.3	n/a	3/28/2020	0.067	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-05	1.3	n/a	3/28/2020	0.28	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-06	1.3	n/a	3/28/2020	0.95	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-07	1.3	n/a	3/28/2020	0.79	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-12	1.3	n/a	3/27/2020	1.5	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-14	1.3	n/a	3/27/2020	1.3	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-17	1.3	n/a	3/27/2020	1.8	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Calcium (mg/L)	MCM-04	169	n/a	3/28/2020	15.5	No	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-05	169	n/a	3/28/2020	25.8	No	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-06	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-07	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-12	169	n/a	3/27/2020	8.3	No	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-14	169	n/a	3/27/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-17	169	n/a	3/27/2020	222	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Chloride (mg/L)	MCM-04	8130	n/a	3/28/2020	71.4	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-05	8130	n/a	3/28/2020	693	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-06	8130	n/a	3/28/2020	9190	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-07	8130	n/a	3/28/2020	9070	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-12	8130	n/a	3/27/2020	675	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-14	8130	n/a	3/27/2020	7680	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-17	8130	n/a	3/27/2020	4770	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Fluoride (mg/L)	MCM-04	1.5	n/a	3/28/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-05	1.5	n/a	3/28/2020	0.34	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-06	1.5	n/a	3/28/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-07	1.5	n/a	3/28/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-12	1.5	n/a	3/27/2020	1.1	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-14	1.5	n/a	3/27/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-17	1.5	n/a	3/27/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
pH (S.U.)	MCM-04	5.77	3.72	3/28/2020	5.27	No	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-05	5.77	3.72	3/28/2020	6.6	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-06	5.77	3.72	3/28/2020	6.8	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-07	5.77	3.72	3/28/2020	6.35	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-12	5.77	3.72	3/27/2020	6.33	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-14	5.77	3.72	3/27/2020	6.59	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-17	5.77	3.72	3/27/2020	6.93	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
Sulfate (mg/L)	MCM-04	1140	n/a	3/28/2020	86.6	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-05	1140	n/a	3/28/2020	63.8	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-06	1140	n/a	3/28/2020	701	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-07	1140	n/a	3/28/2020	1090	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-12	1140	n/a	3/27/2020	0.5ND	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-14	1140	n/a	3/27/2020	899	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-17	1140	n/a	3/27/2020	504	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-04	14600	n/a	3/28/2020	284	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-05	14600	n/a	3/28/2020	1470	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-06	14600	n/a	3/28/2020	18800	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-07	14600	n/a	3/28/2020	18300	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-12	14600	n/a	3/27/2020	1970	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-14	14600	n/a	3/27/2020	16400	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-17	14600	n/a	3/27/2020	10200	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)

Appendix III Trend Tests - Prediction Limit Exceedances - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 12:00 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Calcium (mg/L)	MCM-06	70.43	40	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.12	57	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	90.35	56	43	Yes	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-18 (bg)	-31.34	-26	-25	Yes	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-02 (bg)	-3.69	-37	-34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	2141	49	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	1921	57	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	2.863	35	34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.09253	-51	-43	Yes	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1303	-47	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.08836	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.08685	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1429	-59	-43	Yes	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4325	46	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3625	56	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	4975	64	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-18 (bg)	-3110	-28	-25	Yes	9	0	n/a	n/a	0.01	NP

Appendix III Trend Tests - Prediction Limit Exceedances - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 12:00 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	MCM-01 (bg)	0	0	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-02 (bg)	-0.03308	-31	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-11 (bg)	-0.004011	-6	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-12	0	0	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-15 (bg)	0.005553	10	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-16 (bg)	-0.01176	-31	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-17	-0.1481	-23	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-18 (bg)	-0.07085	-8	-25	No	9	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-19 (bg)	0.3095	4	25	No	9	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-20 (bg)	-0.1716	-3	-25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-01 (bg)	0.552	12	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-02 (bg)	-0.1308	-12	-34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-06	70.43	40	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.12	57	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-11 (bg)	-6.518	-33	-34	No	11	9.091	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	90.35	56	43	Yes	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-15 (bg)	2.147	26	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-16 (bg)	-0.02433	-3	-34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-17	25.9	37	43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-18 (bg)	-31.34	-26	-25	Yes	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-19 (bg)	-57.31	-11	-25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-20 (bg)	-98.02	-18	-25	No	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-01 (bg)	3.053	23	34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-02 (bg)	-3.69	-37	-34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	2141	49	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	1921	57	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-11 (bg)	-26.83	-29	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	2.863	35	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-16 (bg)	-1.918	-21	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-18 (bg)	-2432	-24	-25	No	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-19 (bg)	-326.2	-2	-25	No	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-20 (bg)	-6337	-20	-25	No	9	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-01 (bg)	0.0568	20	43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-02 (bg)	0.02709	23	43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.09253	-51	-43	Yes	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1303	-47	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-07	-0.1015	-41	-43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.08836	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.08685	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1429	-59	-43	Yes	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-15 (bg)	-0.06156	-8	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-16 (bg)	-0.01813	-8	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-17	-0.1398	-33	-43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-18 (bg)	0.3337	14	21	No	8	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-19 (bg)	-0.2679	-9	-21	No	8	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-20 (bg)	-0.1705	-8	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-01 (bg)	-5.12	-5	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-02 (bg)	-4.55	-11	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4325	46	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3625	56	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-11 (bg)	-55.53	-33	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	4975	64	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-15 (bg)	25.05	32	34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-16 (bg)	-1.278	-5	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-18 (bg)	-3110	-28	-25	Yes	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-19 (bg)	3332	9	25	No	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-20 (bg)	-3938	-11	-25	No	9	0	n/a	n/a	0.01	NP

Tolerance Limit Summary Table

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/14/2020, 11:06 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	n/a	83	n/a	n/a	93.98	n/a	n/a	0.01416	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.031	n/a	n/a	n/a	n/a	86	n/a	n/a	12.79	n/a	n/a	0.01214	NP Inter(normality)
Barium (mg/L)	n/a	0.22	n/a	n/a	n/a	n/a	83	n/a	n/a	0	n/a	n/a	0.01416	NP Inter(normality)
Beryllium (mg/L)	n/a	0.021	n/a	n/a	n/a	n/a	82	n/a	n/a	18.29	n/a	n/a	0.01491	NP Inter(normality)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	n/a	77	n/a	n/a	92.21	n/a	n/a	0.01926	NP Inter(NDs)
Chromium (mg/L)	n/a	0.011	n/a	n/a	n/a	n/a	83	n/a	n/a	46.99	n/a	n/a	0.01416	NP Inter(normality)
Cobalt (mg/L)	n/a	0.036	n/a	n/a	n/a	n/a	82	n/a	n/a	73.17	n/a	n/a	0.01491	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	55.8	n/a	n/a	n/a	n/a	81	n/a	n/a	0	n/a	n/a	0.01569	NP Inter(normality)
Fluoride (mg/L)	n/a	1.5	n/a	n/a	n/a	n/a	87	n/a	n/a	35.63	n/a	n/a	0.01153	NP Inter(normality)
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	n/a	82	n/a	n/a	76.83	n/a	n/a	0.01491	NP Inter(NDs)
Lithium (mg/L)	n/a	0.03	n/a	n/a	n/a	n/a	79	n/a	n/a	50.63	n/a	n/a	0.01738	NP Inter(NDs)
Mercury (mg/L)	n/a	0.0007	n/a	n/a	n/a	n/a	77	n/a	n/a	93.51	n/a	n/a	0.01926	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	n/a	82	n/a	n/a	93.9	n/a	n/a	0.01491	NP Inter(NDs)
Selenium (mg/L)	n/a	0.15	n/a	n/a	n/a	n/a	83	n/a	n/a	57.83	n/a	n/a	0.01416	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	n/a	82	n/a	n/a	91.46	n/a	n/a	0.01491	NP Inter(NDs)

MCMANUS ASH POND GWPS - FEDERAL				
Constituent Name	MCL	CCR-Rule Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.003	0.006
Arsenic, Total (mg/L)	0.01		0.031	0.031
Barium, Total (mg/L)	2		0.22	2
Beryllium, Total (mg/L)	0.004		0.021	0.021
Cadmium, Total (mg/L)	0.005		0.0025	0.005
Chromium, Total (mg/L)	0.1		0.011	0.1
Cobalt, Total (mg/L)		0.006	0.036	0.036
Combined Radium, Total (pCi/L)	5		55.8	55.8
Fluoride, Total (mg/L)	4		1.5	4
Lead, Total (mg/L)		0.015	0.005	0.015
Lithium, Total (mg/L)		0.04	0.03	0.04
Mercury, Total (mg/L)	0.002		0.0007	0.002
Molybdenum, Total (mg/L)		0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.15	0.15
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indicates Background Limit is higher than MCL or CCR-Rule Specified Level*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

**GWPS = Groundwater Protection Standard*

MCMANUS ASH POND GWPS - STATE				
Constituent Name	MCL	CCR-Rule Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.003	0.006
Arsenic, Total (mg/L)	0.01		0.031	0.031
Barium, Total (mg/L)	2		0.22	2
Beryllium, Total (mg/L)	0.004		0.021	0.021
Cadmium, Total (mg/L)	0.005		0.0025	0.005
Chromium, Total (mg/L)	0.1		0.011	0.1
Cobalt, Total (mg/L)		0.006	0.036	0.036
Combined Radium, Total (pCi/L)	5		55.8	55.8
Fluoride, Total (mg/L)	4		1.5	4
Lead, Total (mg/L)		0.015	0.005	0.005
Lithium, Total (mg/L)		0.04	0.03	0.03
Mercury, Total (mg/L)	0.002		0.0007	0.002
Molybdenum, Total (mg/L)		0.1	0.01	0.01
Selenium, Total (mg/L)	0.05		0.15	0.15
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indicates Background Limit is higher than MCL or CCR-Rule Specified Level*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

**GWPS = Groundwater Protection Standard*

Federal Confidence Intervals - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:40 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig. N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes 15	0.3415	0.1416	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.04	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.

Federal Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:40 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	MCM-06	0.003	0.00098	0.006	No	12	0.002648	0.0007987	75	None	No	0.01	NP (NDs)
Antimony (mg/L)	MCM-14	0.003	0.003	0.006	No	11	0.002764	0.0007839	90.91	None	No	0.006	NP (NDs)
Antimony (mg/L)	MCM-17	0.003	0.003	0.006	No	11	0.002798	0.0006694	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MCM-04	0.009998	0.003052	0.031	No	12	0.006525	0.004426	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-05	0.0336	0.0018	0.031	No	13	0.01208	0.01395	15.38	None	No	0.01	NP (normality)
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes	15	0.3415	0.1416	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-07	0.02318	0.01058	0.031	No	14	0.01688	0.008893	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-12	0.002332	0.0005617	0.031	No	11	0.002055	0.001452	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-14	0.003866	0.0009459	0.031	No	11	0.002827	0.001948	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-17	0.003726	0.001681	0.031	No	12	0.002825	0.001588	25	Kaplan-Meier	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-04	0.1202	0.02581	2	No	11	0.07845	0.08441	0	None	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-05	0.02461	0.007951	2	No	11	0.01628	0.009997	0	None	No	0.01	Param.
Barium (mg/L)	MCM-06	0.16	0.0508	2	No	12	0.09321	0.04984	0	None	No	0.01	NP (normality)
Barium (mg/L)	MCM-07	0.35	0.0865	2	No	11	0.1556	0.1101	0	None	No	0.006	NP (normality)
Barium (mg/L)	MCM-12	0.1327	0.114	2	No	11	0.1234	0.01122	0	None	No	0.01	Param.
Barium (mg/L)	MCM-14	0.1126	0.03563	2	No	11	0.0741	0.04617	0	None	No	0.01	Param.
Barium (mg/L)	MCM-17	0.1168	0.04538	2	No	11	0.08108	0.04284	0	None	No	0.01	Param.
Beryllium (mg/L)	MCM-04	0.003	0.0002	0.021	No	11	0.0008009	0.0011	18.18	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-05	0.003	0.003	0.021	No	11	0.002732	0.0008883	90.91	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-07	0.003	0.000078	0.021	No	11	0.002207	0.001359	72.73	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-12	0.0009	0.0004	0.021	No	11	0.0007891	0.0007543	9.091	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-14	0.003	0.000097	0.021	No	11	0.001686	0.00151	54.55	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-17	0.003	0.00018	0.021	No	11	0.0007491	0.001115	18.18	None	No	0.006	NP (normality)
Cadmium (mg/L)	MCM-17	0.0025	0.0025	0.005	No	10	0.002259	0.0007612	90	None	No	0.011	NP (NDs)
Chromium (mg/L)	MCM-04	0.01	0.0012	0.1	No	11	0.005273	0.004533	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-05	0.01	0.00057	0.1	No	11	0.00504	0.004756	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-06	0.01	0.00085	0.1	No	12	0.006262	0.004623	58.33	None	No	0.01	NP (NDs)
Chromium (mg/L)	MCM-07	0.01	0.002	0.1	No	11	0.004382	0.003616	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-12	0.01	0.0047	0.1	No	11	0.006673	0.002256	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-14	0.01	0.00076	0.1	No	11	0.004661	0.004265	36.36	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-17	0.01349	0.007828	0.1	No	11	0.01114	0.003164	18.18	Kaplan-Meier	No	0.01	Param.
Cobalt (mg/L)	MCM-04	0.0085	0.0048	0.036	No	12	0.005767	0.001648	58.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-06	0.005	0.0009	0.036	No	12	0.004267	0.001717	83.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-07	0.005	0.005	0.036	No	11	0.004645	0.001176	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-12	0.005	0.0005	0.036	No	11	0.002979	0.002322	54.55	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-14	0.005	0.005	0.036	No	11	0.0046	0.001327	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-17	0.005	0.00052	0.036	No	11	0.003784	0.002084	72.73	None	No	0.006	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	MCM-04	7.035	3.081	55.8	No	11	5.058	2.372	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-05	2.237	1.333	55.8	No	11	1.785	0.5423	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-06	6.992	2.001	55.8	No	11	4.614	3.318	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-07	8.767	4.768	55.8	No	12	6.768	2.548	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-12	3.285	2.014	55.8	No	11	2.649	0.7627	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-14	7.325	2.078	55.8	No	12	4.702	3.343	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-17	6.006	2.094	55.8	No	12	4.238	2.899	0	None	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-04	0.2062	0.05552	4	No	12	0.1511	0.1422	41.67	Kaplan-Meier	ln(x)	0.01	Param.
Fluoride (mg/L)	MCM-05	0.6	0.32	4	No	13	0.4815	0.2175	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-06	0.61	0.1	4	No	13	0.996	2.8	30.77	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-07	0.4966	0.1423	4	No	13	0.3358	0.3094	30.77	Kaplan-Meier	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-12	1.311	0.9049	4	No	12	1.075	0.3517	8.333	None	x^2	0.01	Param.
Fluoride (mg/L)	MCM-14	0.56	0.084	4	No	13	0.2618	0.2117	46.15	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-17	1.3	0.1	4	No	13	0.641	0.5184	23.08	None	No	0.01	NP (normality)
Lead (mg/L)	MCM-05	0.005	0.005	0.015	No	11	0.004564	0.001447	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-06	0.005	0.00012	0.015	No	12	0.004593	0.001409	91.67	None	No	0.01	NP (NDs)
Lead (mg/L)	MCM-07	0.005	0.0001	0.015	No	11	0.003671	0.002277	72.73	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-12	0.005	0.00009	0.015	No	11	0.003224	0.002464	63.64	None	No	0.006	NP (NDs)

Federal Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:40 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Lead (mg/L)	MCM-14	0.005	0.005	0.015	No 11	0.004553	0.001483	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-17	0.005	0.0002	0.015	No 11	0.003268	0.002403	63.64	None	No	0.006	NP (NDs)
Lithium (mg/L)	MCM-04	0.015	0.0013	0.04	No 11	0.006709	0.006608	36.36	None	No	0.006	NP (normality)
Lithium (mg/L)	MCM-05	0.03404	0.02071	0.04	No 11	0.02737	0.007996	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.04	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-07	0.06293	0.01697	0.04	No 12	0.0457	0.04121	0	None	In(x)	0.01	Param.
Lithium (mg/L)	MCM-12	0.01297	0.01077	0.04	No 11	0.01187	0.001318	9.091	None	No	0.01	Param.
Lithium (mg/L)	MCM-14	0.05155	0.02622	0.04	No 12	0.0344	0.02008	8.333	None	x^3	0.01	Param.
Lithium (mg/L)	MCM-17	0.02452	0.01248	0.04	No 11	0.0185	0.00722	0	None	No	0.01	Param.
Mercury (mg/L)	MCM-04	0.0005	0.0005	0.002	No 10	0.000521	0.00006641	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-05	0.0005	0.0005	0.002	No 10	0.0004542	0.0001448	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-07	0.0005	0.0005	0.002	No 10	0.000517	0.00005376	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-14	0.0005	0.0005	0.002	No 10	0.000516	0.0000506	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-17	0.0005	0.0005	0.002	No 10	0.0004676	0.0001579	80	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	MCM-05	0.01	0.01	0.1	No 11	0.0092	0.002653	90.91	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MCM-06	0.01	0.0017	0.1	No 12	0.007358	0.003909	66.67	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	MCM-17	0.01	0.01	0.1	No 11	0.009264	0.002442	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-04	0.01	0.01	0.15	No 11	0.009318	0.002261	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-05	0.01	0.002	0.15	No 11	0.007845	0.003691	72.73	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-06	0.01	0.0015	0.15	No 12	0.00575	0.003705	33.33	None	No	0.01	NP (normality)
Selenium (mg/L)	MCM-07	0.01	0.0021	0.15	No 11	0.005618	0.00361	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-12	0.01	0.0017	0.15	No 11	0.004836	0.004105	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-14	0.01	0.0018	0.15	No 11	0.006027	0.003962	45.45	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-17	0.01	0.0018	0.15	No 11	0.006009	0.003843	36.36	None	No	0.006	NP (normality)
Thallium (mg/L)	MCM-06	0.001	0.000076	0.002	No 12	0.000923	0.0002667	91.67	None	No	0.01	NP (NDs)
Thallium (mg/L)	MCM-17	0.001	0.001	0.002	No 11	0.0009218	0.0002593	90.91	None	No	0.006	NP (NDs)

State Confidence Intervals - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:44 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig. N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes 15	0.3415	0.1416	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.03	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.

State Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:44 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	MCM-06	0.003	0.00098	0.006	No	12	0.002648	0.0007987	75	None	No	0.01	NP (NDs)
Antimony (mg/L)	MCM-14	0.003	0.003	0.006	No	11	0.002764	0.0007839	90.91	None	No	0.006	NP (NDs)
Antimony (mg/L)	MCM-17	0.003	0.003	0.006	No	11	0.002798	0.0006694	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MCM-04	0.009998	0.003052	0.031	No	12	0.006525	0.004426	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-05	0.0336	0.0018	0.031	No	13	0.01208	0.01395	15.38	None	No	0.01	NP (normality)
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes	15	0.3415	0.1416	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-07	0.02318	0.01058	0.031	No	14	0.01688	0.008893	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-12	0.002332	0.0005617	0.031	No	11	0.002055	0.001452	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-14	0.003866	0.0009459	0.031	No	11	0.002827	0.001948	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-17	0.003726	0.001681	0.031	No	12	0.002825	0.001588	25	Kaplan-Meier	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-04	0.1202	0.02581	2	No	11	0.07845	0.08441	0	None	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-05	0.02461	0.007951	2	No	11	0.01628	0.009997	0	None	No	0.01	Param.
Barium (mg/L)	MCM-06	0.16	0.0508	2	No	12	0.09321	0.04984	0	None	No	0.01	NP (normality)
Barium (mg/L)	MCM-07	0.35	0.0865	2	No	11	0.1556	0.1101	0	None	No	0.006	NP (normality)
Barium (mg/L)	MCM-12	0.1327	0.114	2	No	11	0.1234	0.01122	0	None	No	0.01	Param.
Barium (mg/L)	MCM-14	0.1126	0.03563	2	No	11	0.0741	0.04617	0	None	No	0.01	Param.
Barium (mg/L)	MCM-17	0.1168	0.04538	2	No	11	0.08108	0.04284	0	None	No	0.01	Param.
Beryllium (mg/L)	MCM-04	0.003	0.0002	0.021	No	11	0.0008009	0.0011	18.18	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-05	0.003	0.003	0.021	No	11	0.002732	0.0008883	90.91	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-07	0.003	0.000078	0.021	No	11	0.002207	0.001359	72.73	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-12	0.0009	0.0004	0.021	No	11	0.0007891	0.0007543	9.091	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-14	0.003	0.000097	0.021	No	11	0.001686	0.00151	54.55	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-17	0.003	0.00018	0.021	No	11	0.0007491	0.001115	18.18	None	No	0.006	NP (normality)
Cadmium (mg/L)	MCM-17	0.0025	0.0025	0.005	No	10	0.002259	0.0007612	90	None	No	0.011	NP (NDs)
Chromium (mg/L)	MCM-04	0.01	0.0012	0.1	No	11	0.005273	0.004533	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-05	0.01	0.00057	0.1	No	11	0.00504	0.004756	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-06	0.01	0.00085	0.1	No	12	0.006262	0.004623	58.33	None	No	0.01	NP (NDs)
Chromium (mg/L)	MCM-07	0.01	0.002	0.1	No	11	0.004382	0.003616	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-12	0.01	0.0047	0.1	No	11	0.006673	0.002256	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-14	0.01	0.00076	0.1	No	11	0.004661	0.004265	36.36	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-17	0.01349	0.007828	0.1	No	11	0.01114	0.003164	18.18	Kaplan-Meier	No	0.01	Param.
Cobalt (mg/L)	MCM-04	0.0085	0.0048	0.036	No	12	0.005767	0.001648	58.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-06	0.005	0.0009	0.036	No	12	0.004267	0.001717	83.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-07	0.005	0.005	0.036	No	11	0.004645	0.001176	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-12	0.005	0.0005	0.036	No	11	0.002979	0.002322	54.55	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-14	0.005	0.005	0.036	No	11	0.0046	0.001327	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-17	0.005	0.00052	0.036	No	11	0.003784	0.002084	72.73	None	No	0.006	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	MCM-04	7.035	3.081	55.8	No	11	5.058	2.372	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-05	2.237	1.333	55.8	No	11	1.785	0.5423	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-06	6.992	2.001	55.8	No	11	4.614	3.318	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-07	8.767	4.768	55.8	No	12	6.768	2.548	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-12	3.285	2.014	55.8	No	11	2.649	0.7627	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-14	7.325	2.078	55.8	No	12	4.702	3.343	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-17	6.006	2.094	55.8	No	12	4.238	2.899	0	None	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-04	0.2062	0.05552	4	No	12	0.1511	0.1422	41.67	Kaplan-Meier	ln(x)	0.01	Param.
Fluoride (mg/L)	MCM-05	0.6	0.32	4	No	13	0.4815	0.2175	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-06	0.61	0.1	4	No	13	0.996	2.8	30.77	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-07	0.4966	0.1423	4	No	13	0.3358	0.3094	30.77	Kaplan-Meier	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-12	1.311	0.9049	4	No	12	1.075	0.3517	8.333	None	x^2	0.01	Param.
Fluoride (mg/L)	MCM-14	0.56	0.084	4	No	13	0.2618	0.2117	46.15	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-17	1.3	0.1	4	No	13	0.641	0.5184	23.08	None	No	0.01	NP (normality)
Lead (mg/L)	MCM-05	0.005	0.005	0.005	No	11	0.004564	0.001447	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-06	0.005	0.00012	0.005	No	12	0.004593	0.001409	91.67	None	No	0.01	NP (NDs)
Lead (mg/L)	MCM-07	0.005	0.0001	0.005	No	11	0.003671	0.002277	72.73	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-12	0.005	0.00009	0.005	No	11	0.003224	0.002464	63.64	None	No	0.006	NP (NDs)

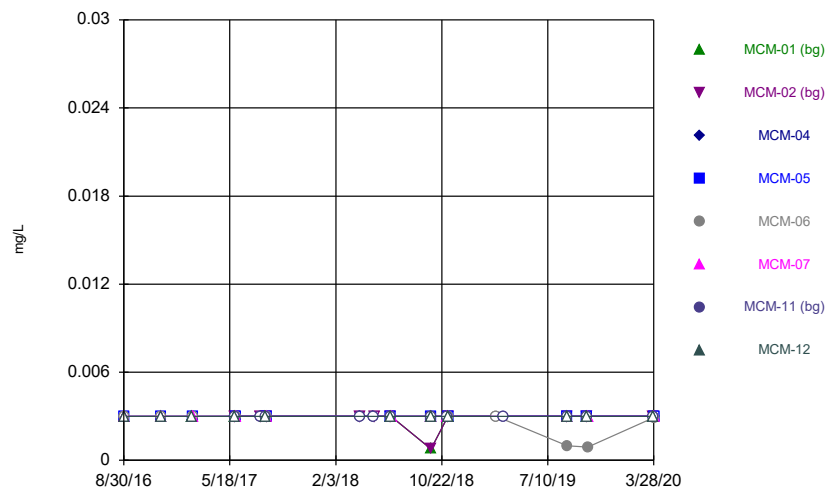
State Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:44 PM

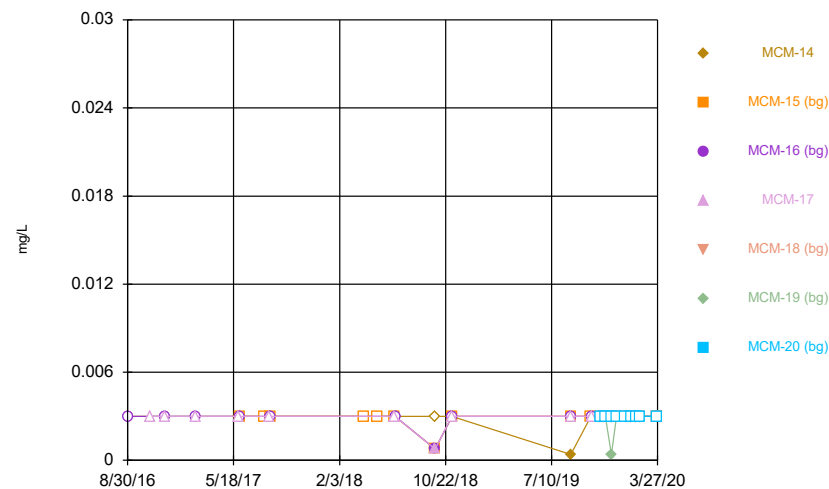
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Lead (mg/L)	MCM-14	0.005	0.005	0.005	No 11	0.004553	0.001483	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-17	0.005	0.0002	0.005	No 11	0.003268	0.002403	63.64	None	No	0.006	NP (NDs)
Lithium (mg/L)	MCM-04	0.015	0.0013	0.03	No 11	0.006709	0.006608	36.36	None	No	0.006	NP (normality)
Lithium (mg/L)	MCM-05	0.03404	0.02071	0.03	No 11	0.02737	0.007996	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.03	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-07	0.06293	0.01697	0.03	No 12	0.0457	0.04121	0	None	In(x)	0.01	Param.
Lithium (mg/L)	MCM-12	0.01297	0.01077	0.03	No 11	0.01187	0.001318	9.091	None	No	0.01	Param.
Lithium (mg/L)	MCM-14	0.05155	0.02622	0.03	No 12	0.0344	0.02008	8.333	None	x^3	0.01	Param.
Lithium (mg/L)	MCM-17	0.02452	0.01248	0.03	No 11	0.0185	0.00722	0	None	No	0.01	Param.
Mercury (mg/L)	MCM-04	0.0005	0.0005	0.002	No 10	0.000521	0.00006641	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-05	0.0005	0.0005	0.002	No 10	0.0004542	0.0001448	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-07	0.0005	0.0005	0.002	No 10	0.000517	0.00005376	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-14	0.0005	0.0005	0.002	No 10	0.000516	0.0000506	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-17	0.0005	0.0005	0.002	No 10	0.0004676	0.0001579	80	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	MCM-05	0.01	0.01	0.01	No 11	0.0092	0.002653	90.91	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MCM-06	0.01	0.0017	0.01	No 12	0.007358	0.003909	66.67	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	MCM-17	0.01	0.01	0.01	No 11	0.009264	0.002442	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-04	0.01	0.01	0.15	No 11	0.009318	0.002261	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-05	0.01	0.002	0.15	No 11	0.007845	0.003691	72.73	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-06	0.01	0.0015	0.15	No 12	0.00575	0.003705	33.33	None	No	0.01	NP (normality)
Selenium (mg/L)	MCM-07	0.01	0.0021	0.15	No 11	0.005618	0.00361	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-12	0.01	0.0017	0.15	No 11	0.004836	0.004105	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-14	0.01	0.0018	0.15	No 11	0.006027	0.003962	45.45	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-17	0.01	0.0018	0.15	No 11	0.006009	0.003843	36.36	None	No	0.006	NP (normality)
Thallium (mg/L)	MCM-06	0.001	0.000076	0.002	No 12	0.000923	0.0002667	91.67	None	No	0.01	NP (NDs)
Thallium (mg/L)	MCM-17	0.001	0.001	0.002	No 11	0.0009218	0.0002593	90.91	None	No	0.006	NP (NDs)

FIGURE A.

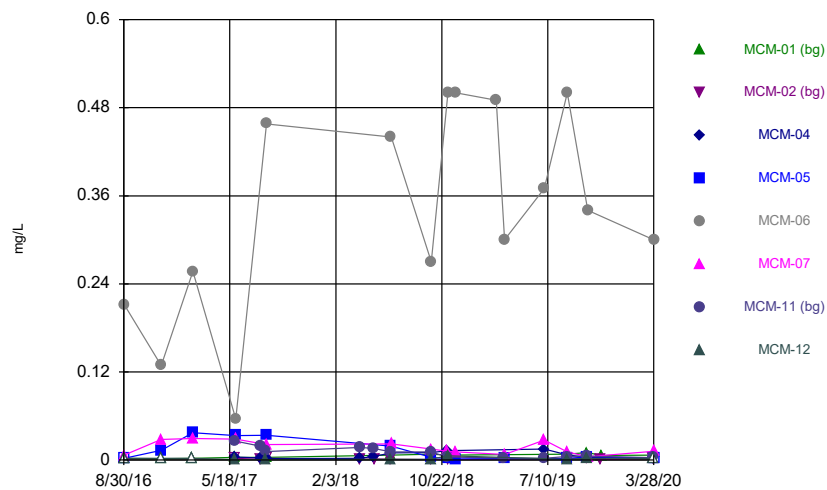
Time Series



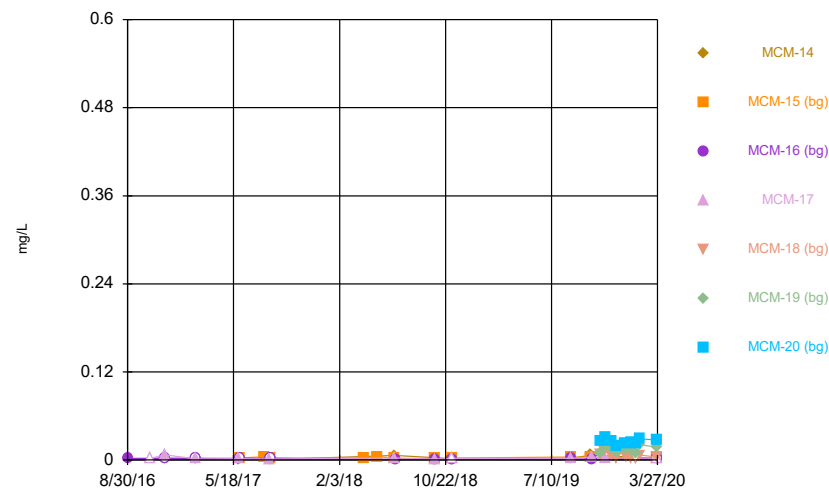
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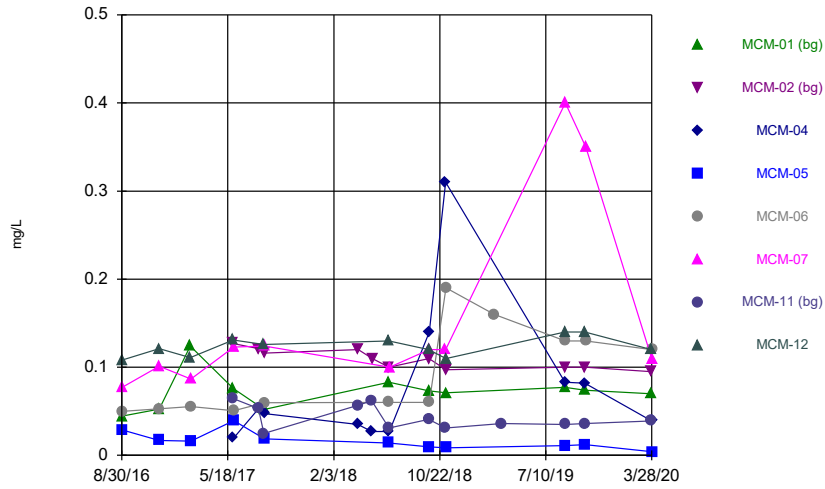
Time Series



Time Series

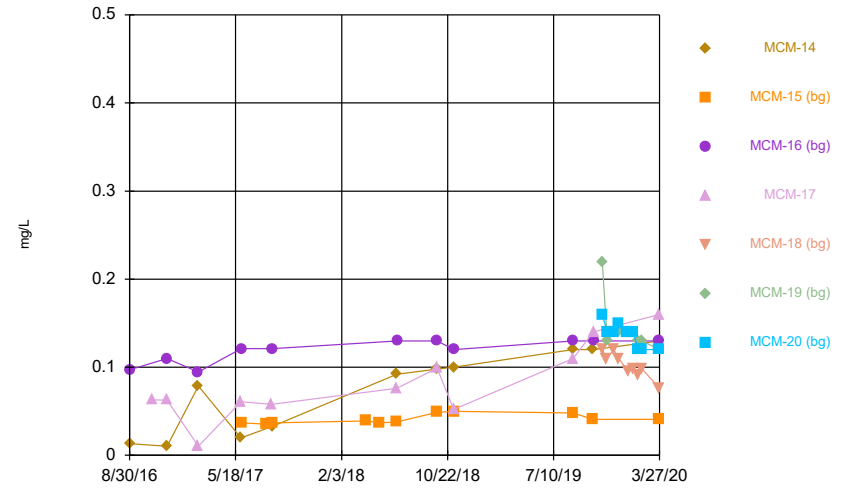


Time Series



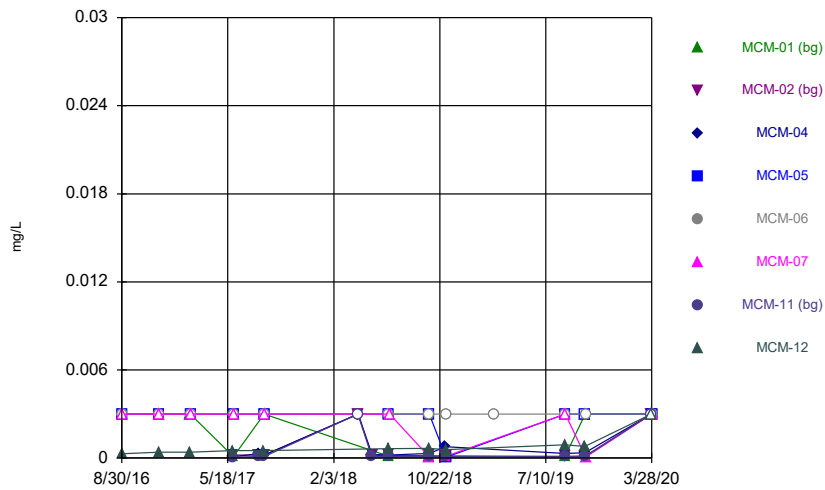
Constituent: Barium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



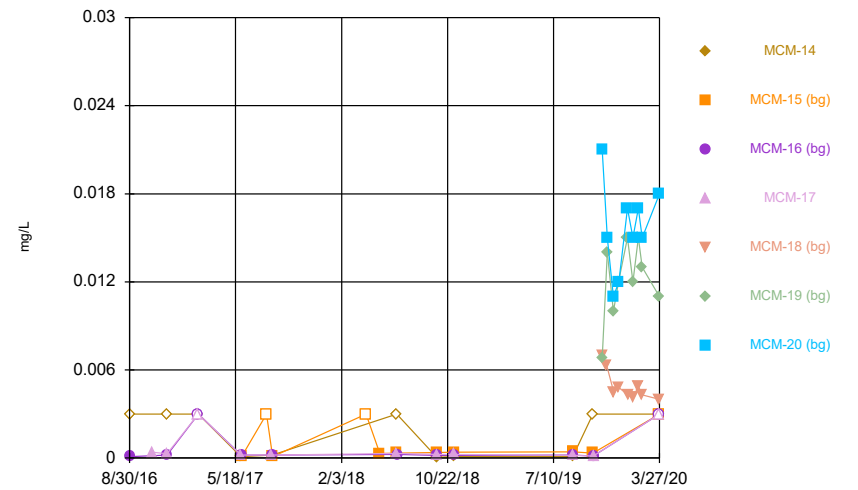
Constituent: Barium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



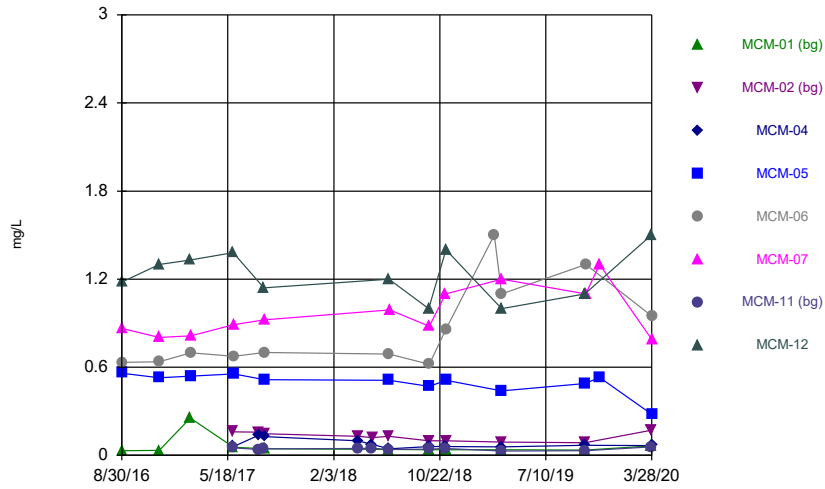
Constituent: Beryllium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



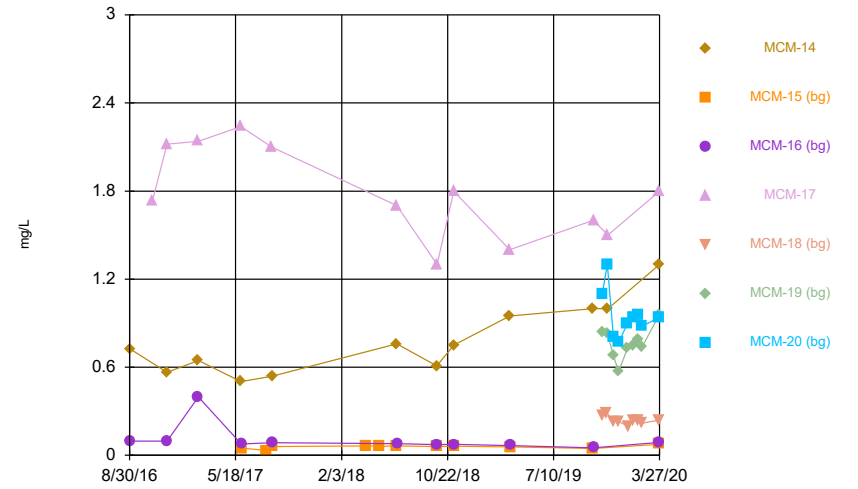
Constituent: Beryllium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



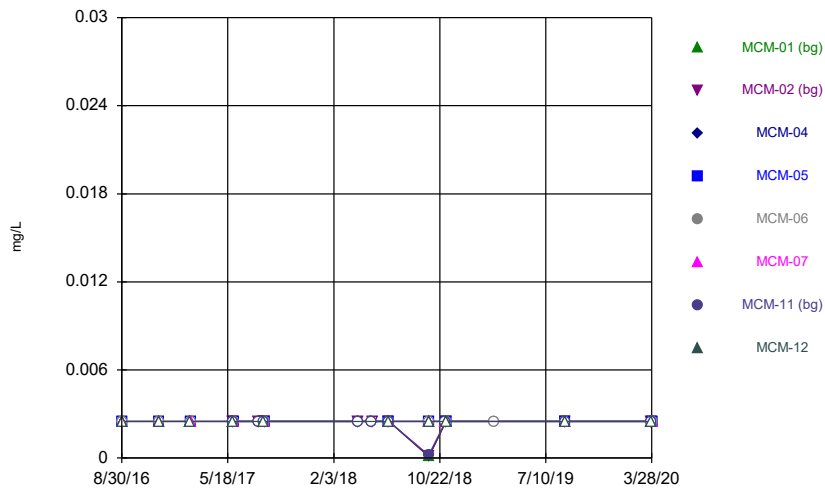
Constituent: Boron Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



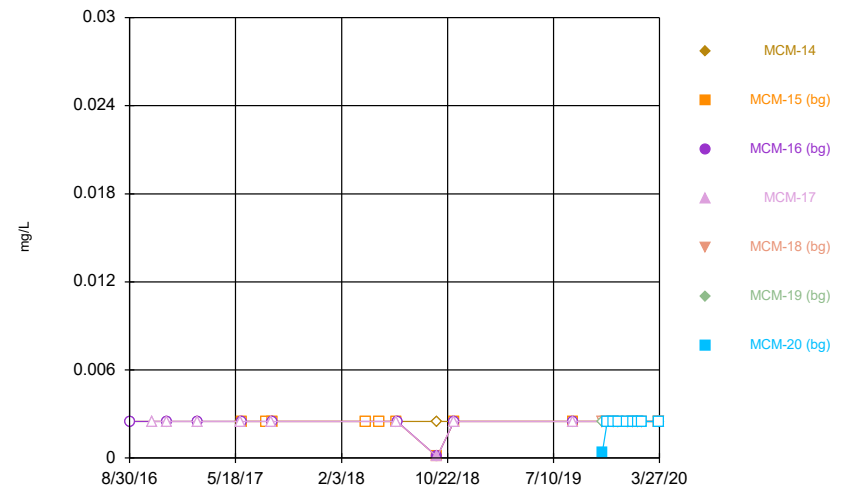
Constituent: Boron Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



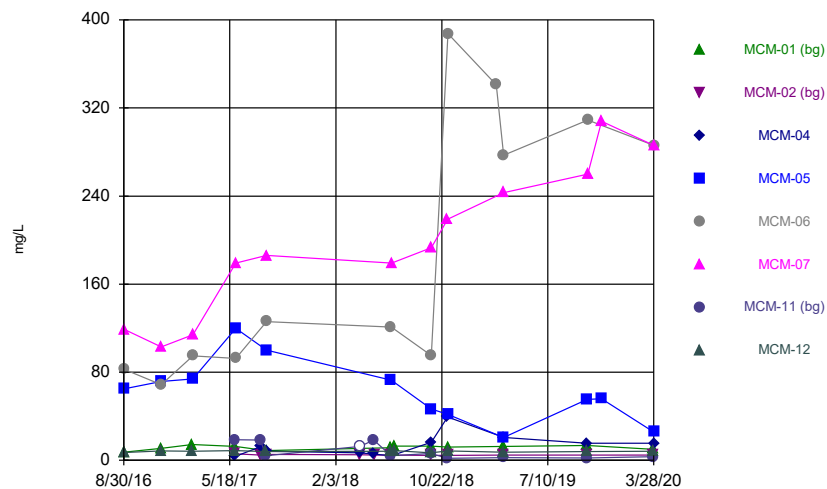
Constituent: Cadmium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



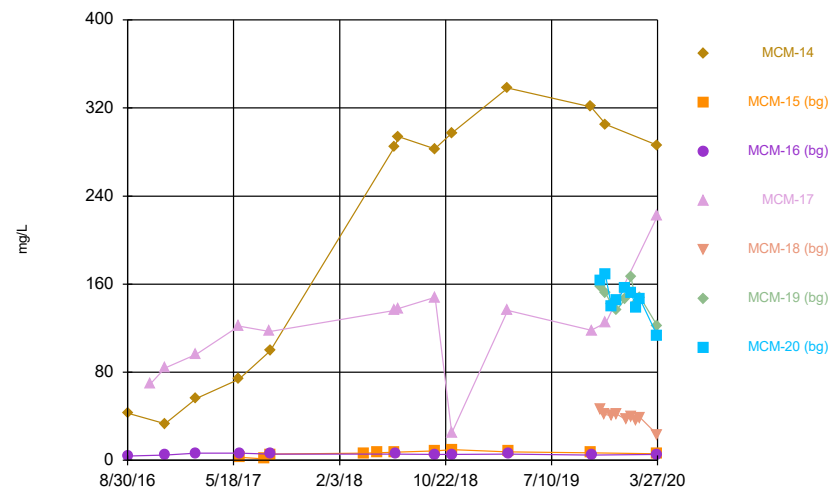
Constituent: Cadmium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



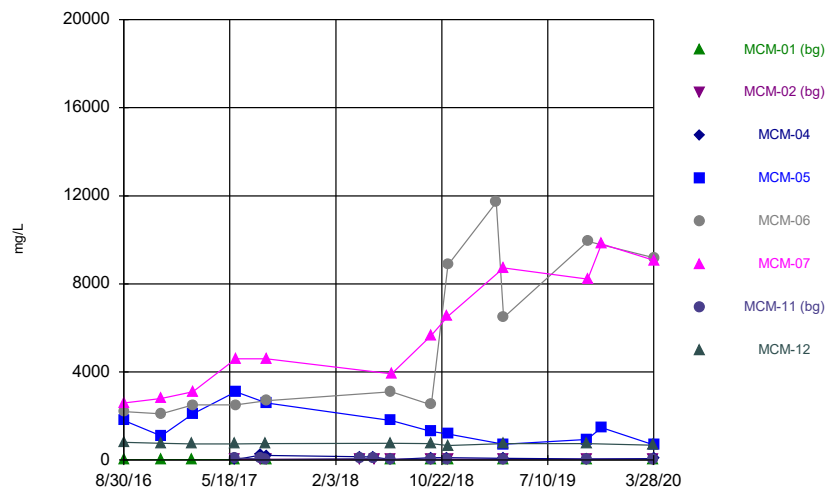
Constituent: Calcium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



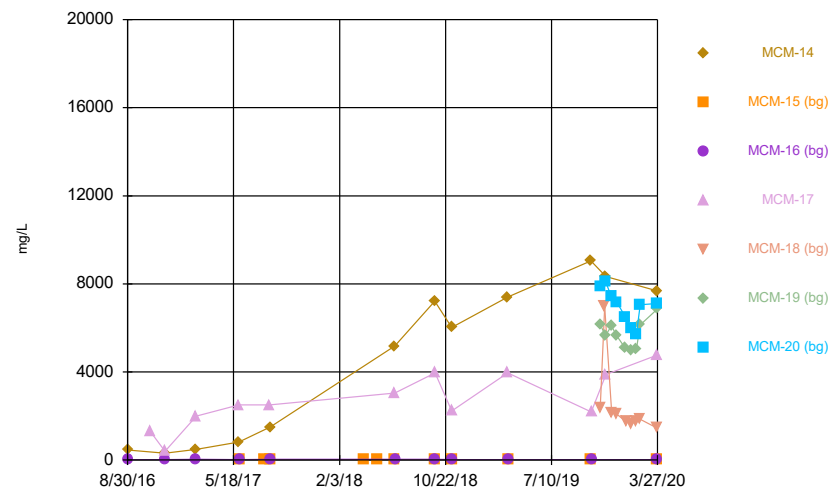
Constituent: Calcium Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



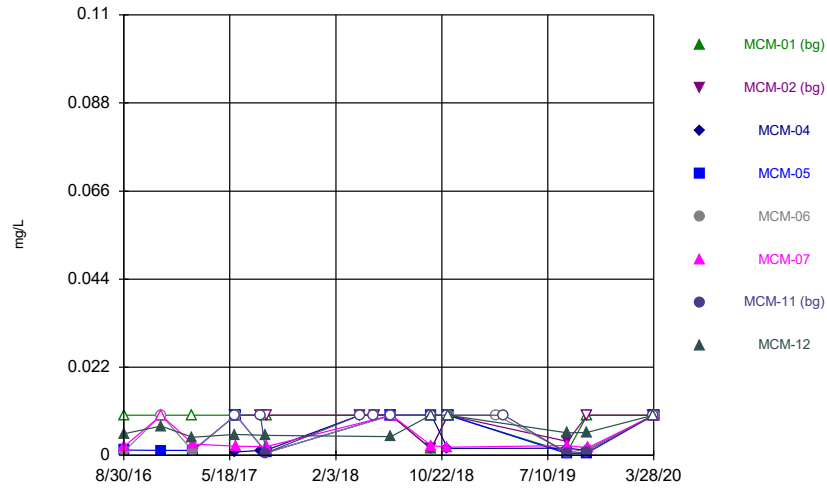
Constituent: Chloride Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



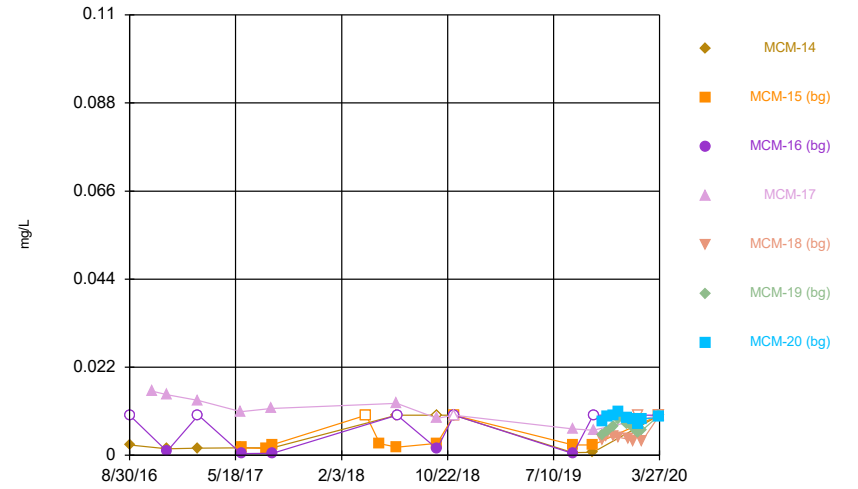
Constituent: Chloride Analysis Run 5/13/2020 2:53 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



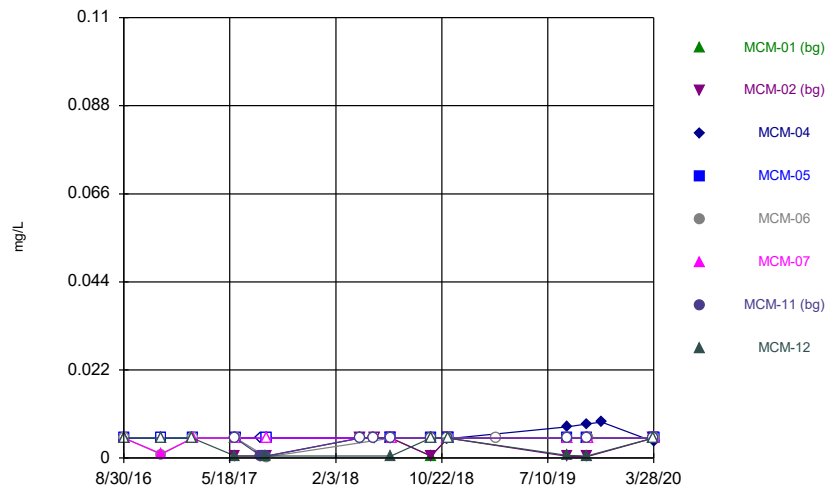
Constituent: Chromium Analysis Run 5/13/2020 2:53 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



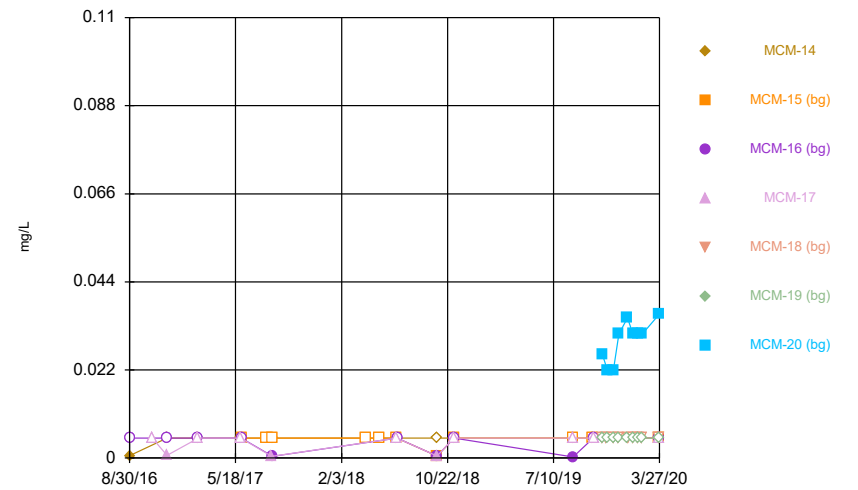
Constituent: Chromium Analysis Run 5/13/2020 2:53 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



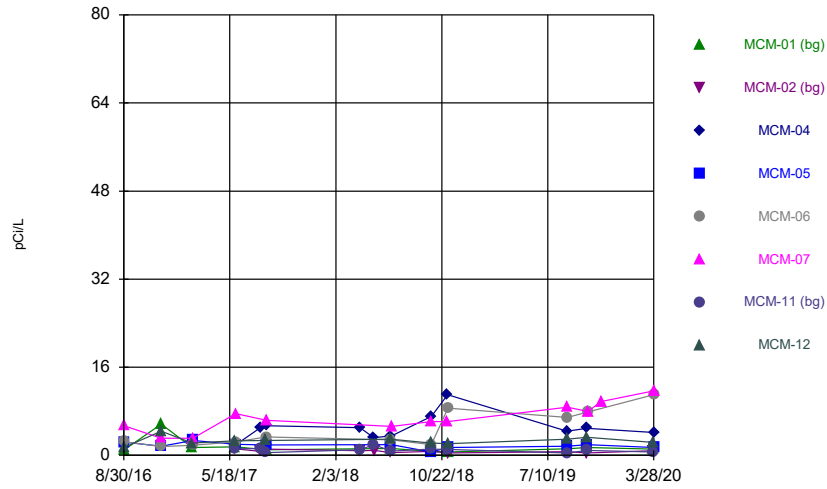
Constituent: Cobalt Analysis Run 5/13/2020 2:53 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

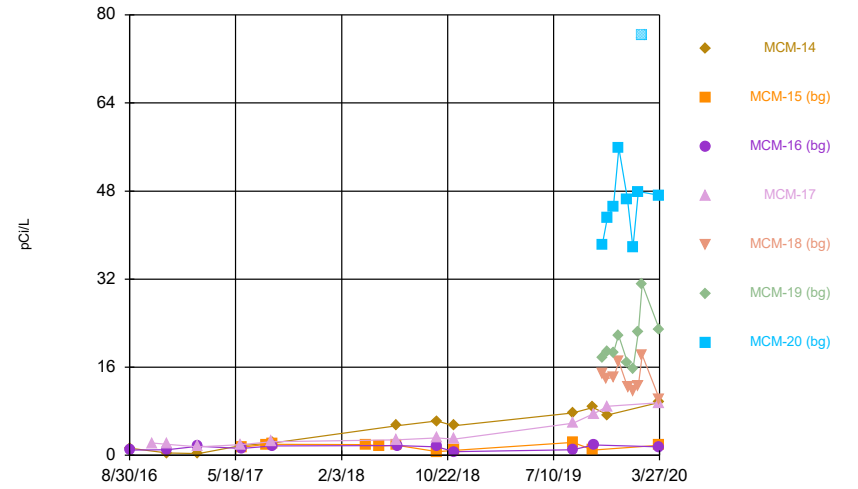


Constituent: Cobalt Analysis Run 5/13/2020 2:53 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

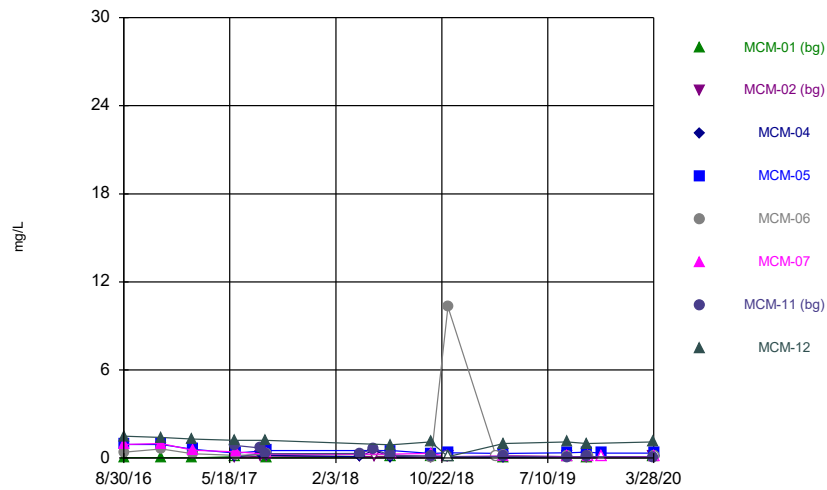
Time Series



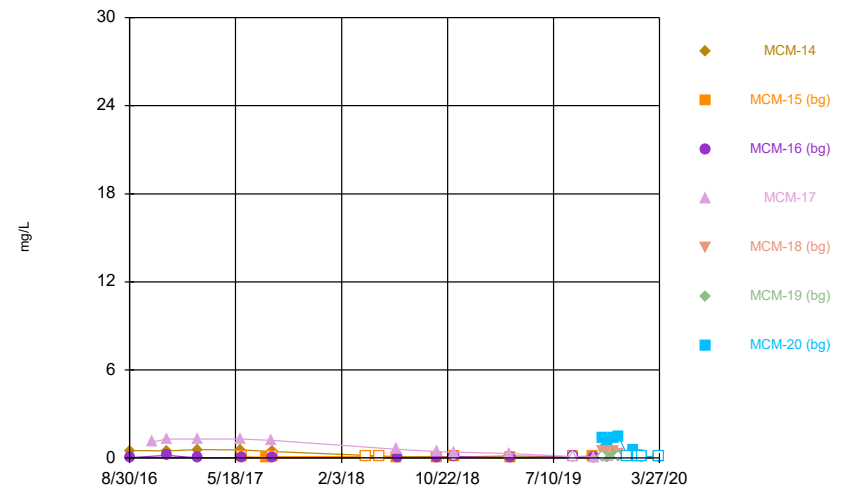
Time Series



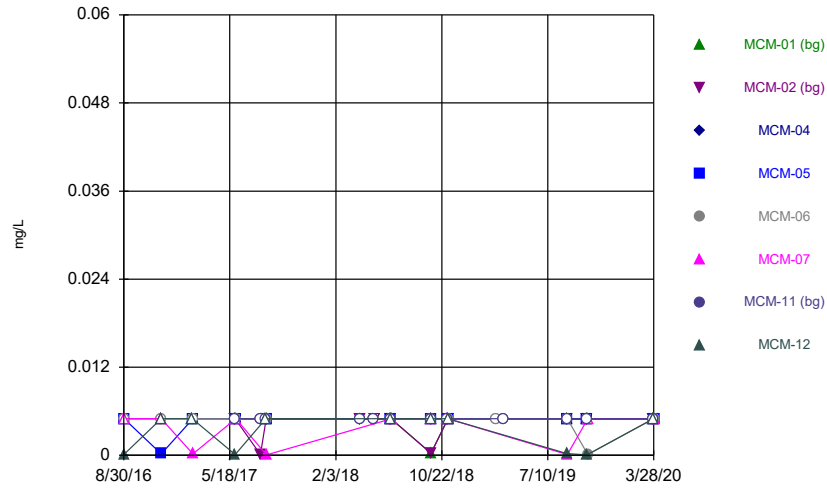
Time Series



Time Series

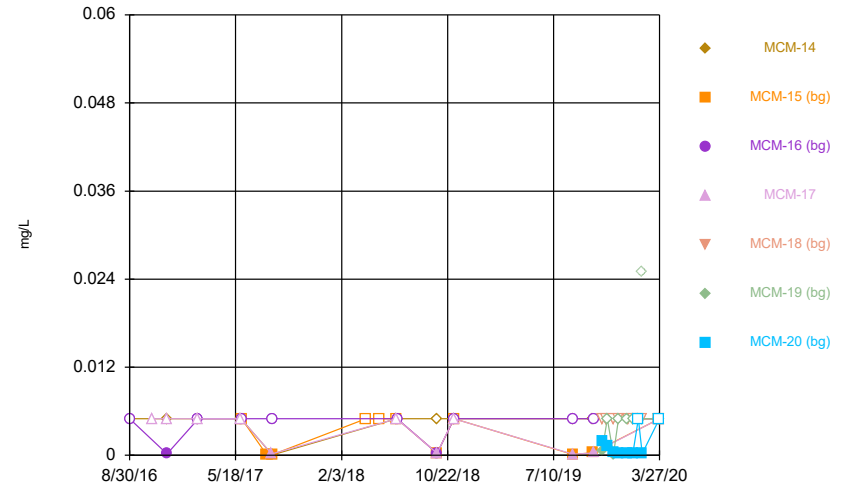


Time Series



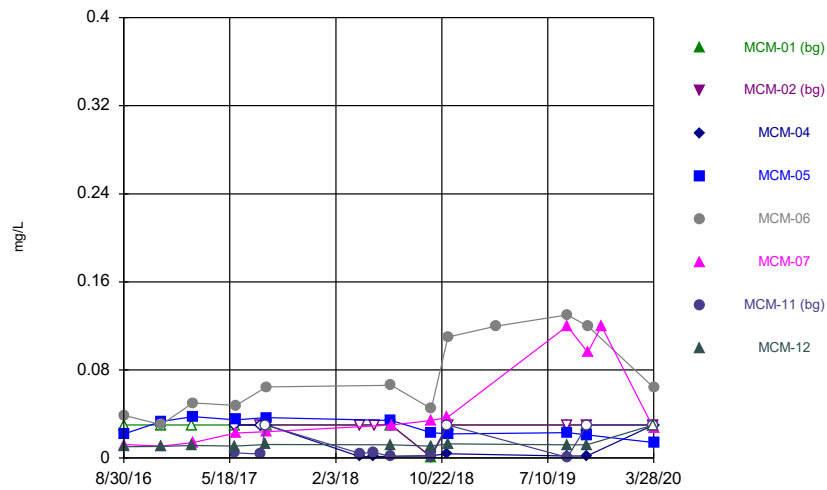
Constituent: Lead Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



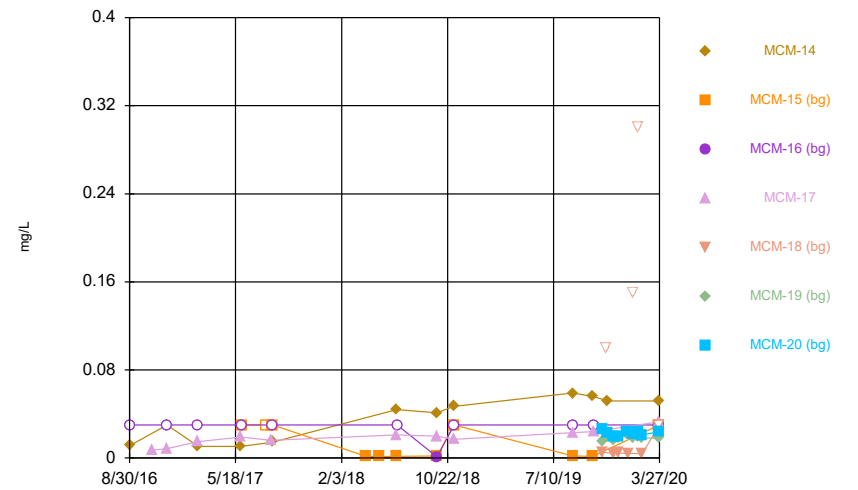
Constituent: Lead Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



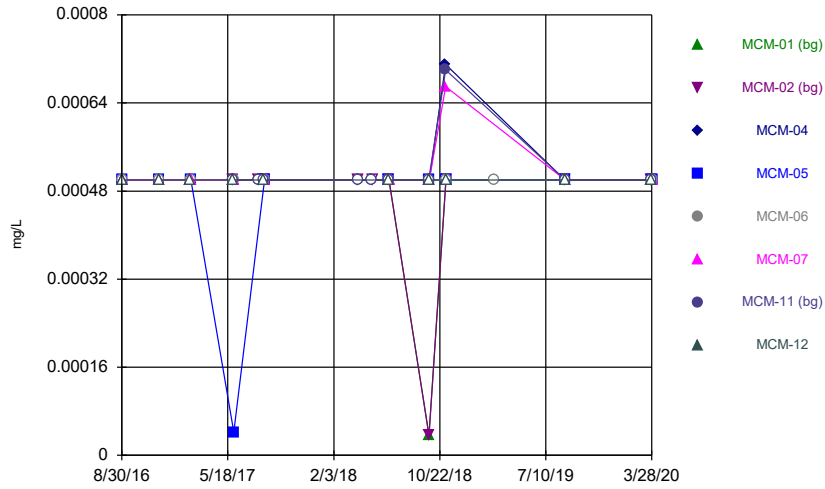
Constituent: Lithium Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



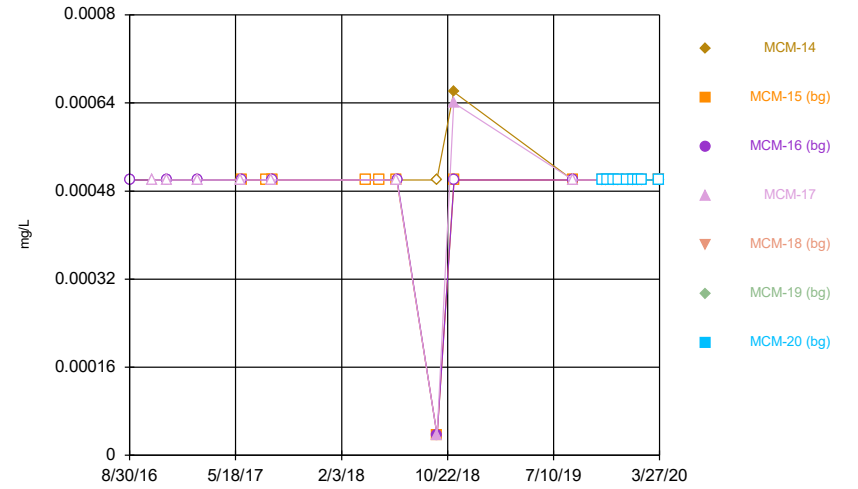
Constituent: Lithium Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



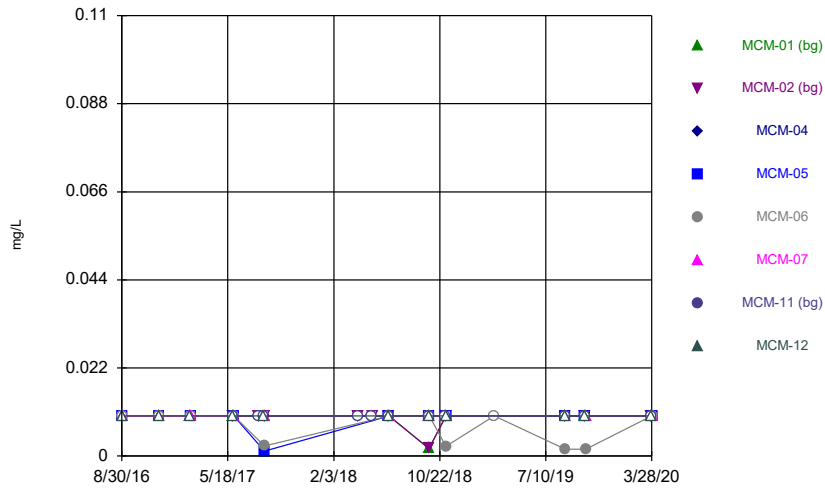
Constituent: Mercury Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



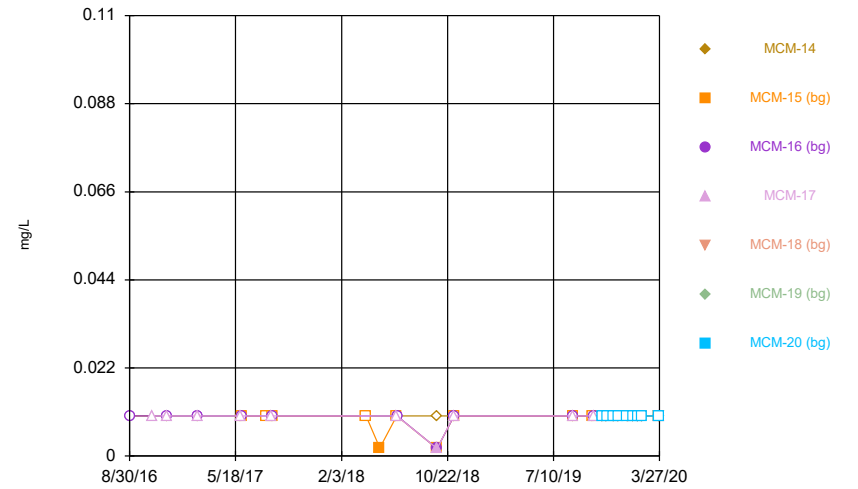
Constituent: Mercury Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



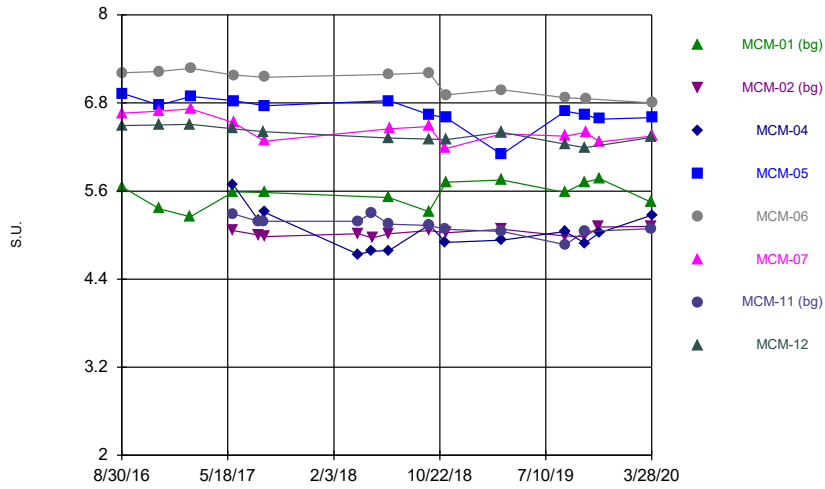
Constituent: Molybdenum Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



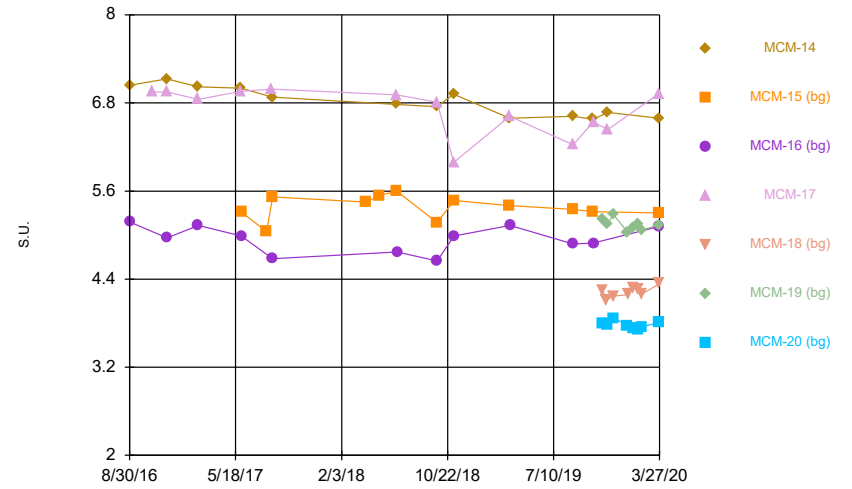
Constituent: Molybdenum Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



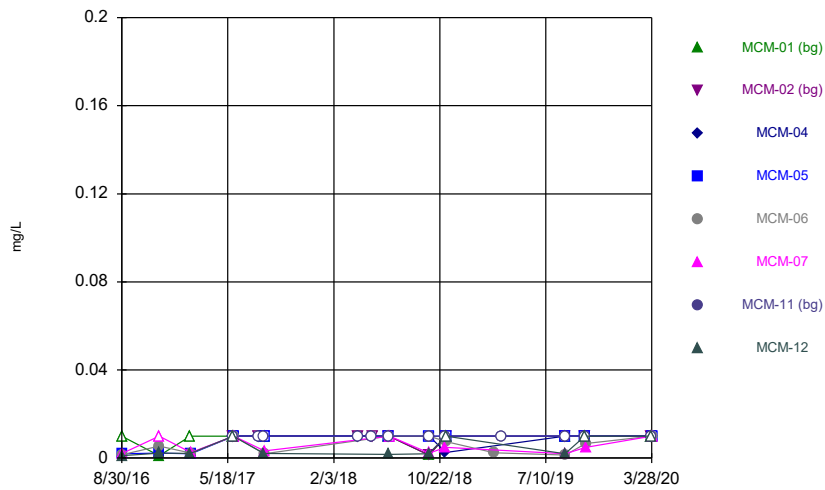
Constituent: pH Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



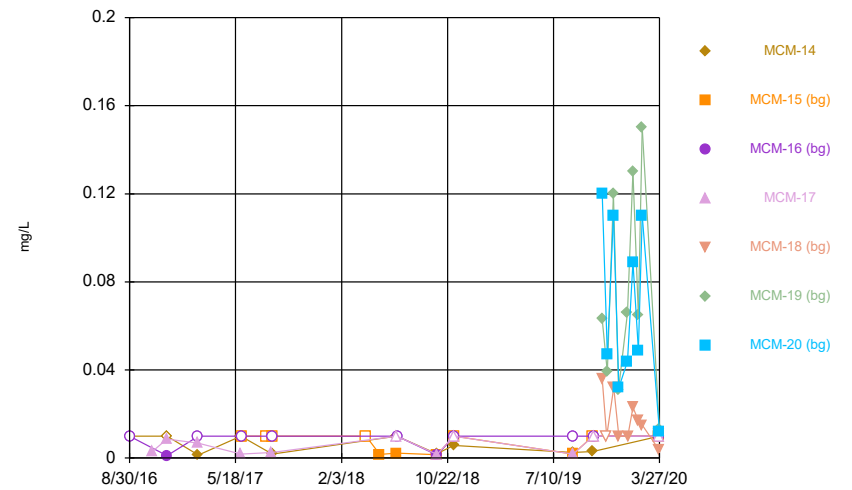
Constituent: pH Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



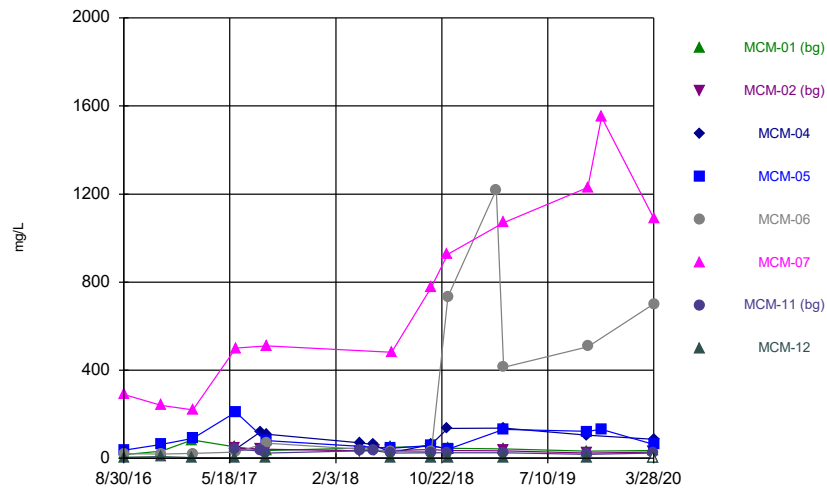
Constituent: Selenium Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



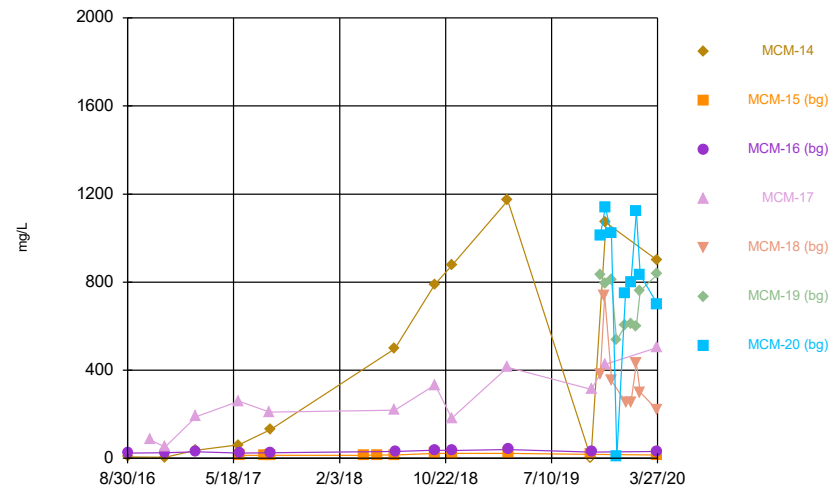
Constituent: Selenium Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



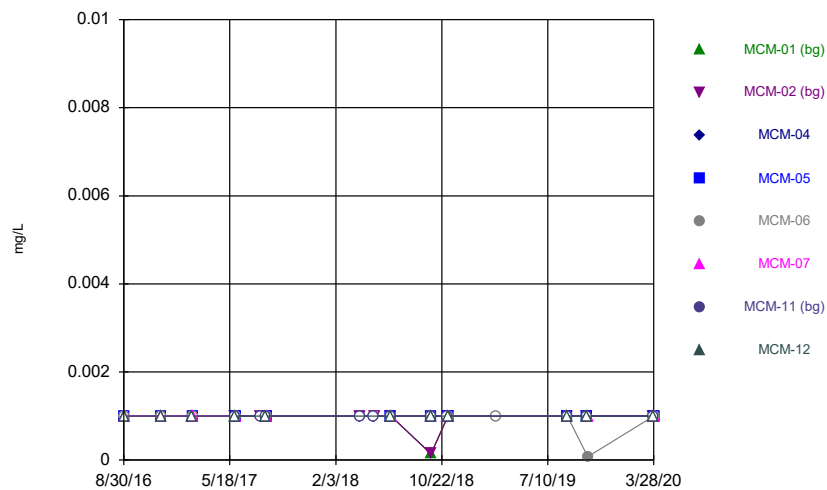
Constituent: Sulfate Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



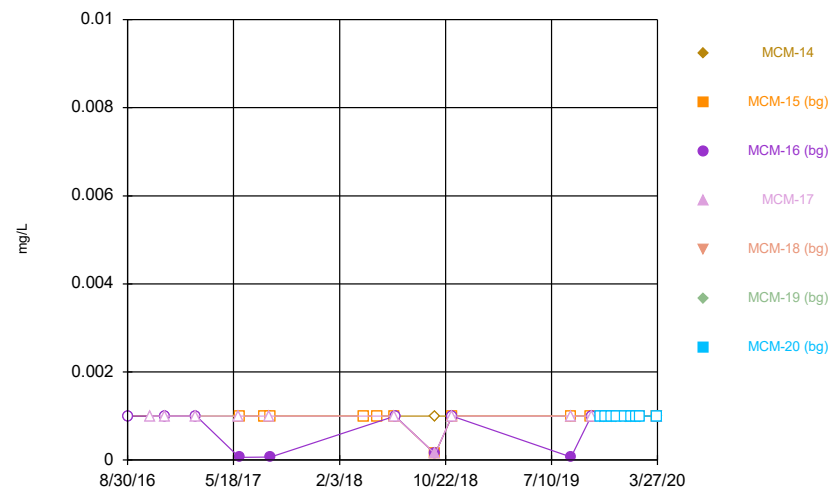
Constituent: Sulfate Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



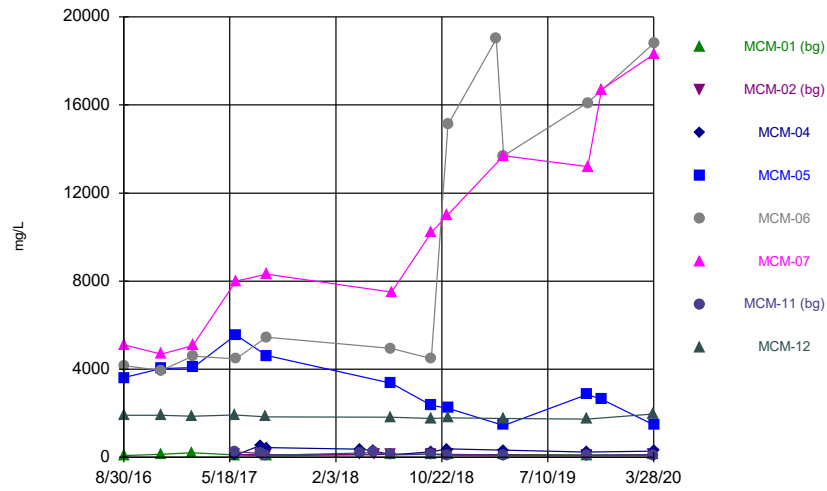
Constituent: Thallium Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



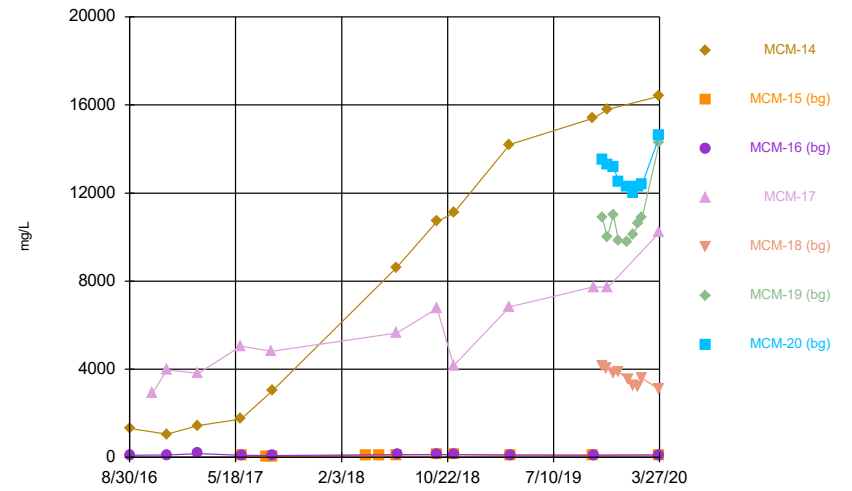
Constituent: Thallium Analysis Run 5/13/2020 2:54 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 2:54 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 2:54 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Time Series

Constituent: Antimony (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.003							<0.003
8/31/2016				<0.003	<0.003	<0.003		
11/30/2016	<0.003			<0.003	<0.003	<0.003		<0.003
2/15/2017	<0.003							<0.003
2/16/2017				<0.003	<0.003	<0.003		
5/31/2017		<0.003					<0.003	<0.003
6/1/2017	<0.003		<0.003					
6/2/2017				<0.003	<0.003	<0.003		
8/2/2017		<0.003	<0.003				<0.003	
8/15/2017							<0.003	<0.003
8/16/2017	<0.003	<0.003						
8/17/2017			<0.003	<0.003	<0.003	<0.003		
4/4/2018			<0.003				<0.003	
4/5/2018		<0.003						
5/8/2018			<0.003				<0.003	
5/9/2018		<0.003						
6/19/2018	<0.003	<0.003					<0.003	<0.003
6/20/2018			<0.003	<0.003	<0.003			
6/21/2018						<0.003		
9/25/2018							<0.003	<0.003
9/26/2018	0.00078	0.00078						
9/27/2018			<0.003	<0.003	<0.003	<0.003		
11/6/2018			<0.003			<0.003	<0.003	
11/7/2018	<0.003	<0.003		<0.003	<0.003			<0.003
3/6/2019					<0.003			
3/25/2019							<0.003	
8/27/2019	<0.003		<0.003					<0.003
8/28/2019		<0.003		<0.003	0.00098 (J)	<0.003	<0.003	
10/15/2019			<0.003					<0.003
10/16/2019	<0.003	<0.003		<0.003			<0.003	
10/17/2019					0.0009 (J)	<0.003		
3/26/2020	<0.003							
3/27/2020		<0.003					<0.003	<0.003
3/28/2020			<0.003	<0.003	0.0029 (J)	<0.003		

Time Series

Constituent: Arsenic (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.005							<0.005
8/31/2016				<0.005	0.212	0.0066		
11/30/2016	0.0018 (J)			0.0132	0.129	0.0281		<0.005
2/15/2017	0.0022 (J)							<0.005
2/16/2017				0.0372	0.257	0.0295		
5/31/2017		<0.005					0.0259	0.0007 (J)
6/1/2017	0.0036 (J)		0.004 (J)					
6/2/2017				0.0335	0.0559	0.0286		
8/2/2017		0.0011 (J)	0.0028 (J)				0.0188	
8/15/2017							0.0117	0.0006 (J)
8/16/2017	0.0038 (J)	<0.005						
8/17/2017			0.0021 (J)	0.0336	0.458	0.0211		
4/4/2018			0.0023 (J)				0.017	
4/5/2018		0.00098 (J)						
5/8/2018			0.0048 (J)				0.016	
5/9/2018		0.0014 (J)						
6/19/2018	0.0069	0.0011 (J)					0.011	0.001 (J)
6/20/2018			0.0099	0.019	0.44			
6/21/2018						0.022 (J)		
9/25/2018							0.011	0.0011 (J)
9/26/2018	0.0081	0.00057						
9/27/2018			0.01	0.0035 (J)	0.27	0.015		
11/6/2018			0.013			0.012	0.0043 (J)	
11/7/2018	0.0069	0.00059 (J)		0.002 (J)	0.5			0.0057
11/27/2018				0.0016 (J)	0.5	0.011		
3/6/2019					0.49			
3/25/2019							0.0029 (J)	
3/26/2019				0.0018 (J)	0.3	0.0078		
7/2/2019			0.015 (J)		0.37	0.027	0.0024 (J)	
8/27/2019	0.0079		0.0072					0.0011 (J)
8/28/2019		<0.005		0.0019 (J)	0.5	0.011	0.005 (J)	
10/15/2019			0.0038 (J)					0.0024 (J)
10/16/2019	0.01	0.003 (J)		0.0047 (J)			0.0054	
10/17/2019					0.34	0.0046 (J)		
11/19/2019		0.00057 (J)						
11/20/2019	0.0064							
3/26/2020	0.0069							
3/27/2020		<0.005					0.0034 (J)	<0.005
3/28/2020			0.0034 (J)	<0.005	0.3	0.012		

Time Series

Constituent: Arsenic (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	<0.005		0.0018 (J)				
10/25/2016				<0.005			
11/30/2016	<0.005		<0.005	0.0072			
2/15/2017	<0.005		<0.005	0.0017 (J)			
5/31/2017	0.0008 (J)			0.0018 (J)			
6/1/2017			<0.005				
6/2/2017		0.0026 (J)					
8/2/2017		0.0047 (J)					
8/15/2017				0.0015 (J)			
8/16/2017	0.0007 (J)						
8/17/2017		0.0028 (J)	<0.005				
4/4/2018		0.0029 (J)					
5/8/2018		0.0048 (J)					
6/19/2018	0.0062 (J)	0.0019 (J)		0.0029 (J)			
6/20/2018			0.00058 (J)				
9/25/2018	0.0031 (J)						
9/26/2018		0.0023 (J)	0.00057	0.0015 (J)			
11/6/2018	0.0014 (J)			<0.005			
11/7/2018		0.0028	0.00057				
8/26/2019	0.0022 (J)						
8/27/2019		0.0041 (J)	0.0019 (J)	0.0024 (J)			
10/15/2019	0.0067	0.0038 (J)					
10/16/2019			0.001 (J)	0.0043 (J)			
11/7/2019					0.0067	0.0094 (J)	0.026
11/18/2019					0.012 (J)		
11/19/2019						0.019 (J)	0.031 (J)
11/21/2019				0.0031 (J)			
12/4/2019						0.016	0.026
12/5/2019					0.0055		
12/17/2019						0.011 (J)	
12/18/2019					0.0031 (J)		0.019 (J)
1/8/2020						0.015 (J)	0.022 (J)
1/9/2020					0.0034 (J)		
1/21/2020					0.0031 (J)	0.015 (J)	0.024 (J)
2/4/2020					<0.005	0.0092 (J)	0.022 (J)
2/13/2020					0.0066	0.021 (J)	0.029
3/27/2020	<0.005	0.0018 (J)	<0.005	<0.005	0.0043 (J)	0.017	0.027

Time Series

Constituent: Barium (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	0.0443							0.108
8/31/2016				0.0289	0.0498	0.0771		
11/30/2016	0.0524			0.0168	0.0528	0.101		0.121
2/15/2017	0.124							0.111
2/16/2017				0.016	0.0555	0.0865		
5/31/2017		0.127					0.0646	0.131
6/1/2017	0.0757		0.0195					
6/2/2017				0.0393 (J)	0.0508	0.123		
8/2/2017		0.121	0.053				0.0533	
8/15/2017							0.0247	0.126
8/16/2017	0.0522	0.116						
8/17/2017			0.0475	0.0188	0.0596	0.124		
4/4/2018			0.035				0.057	
4/5/2018		0.12						
5/8/2018			0.027				0.062	
5/9/2018		0.11						
6/19/2018	0.083	0.1					0.031	0.13
6/20/2018			0.027	0.014	0.06			
6/21/2018						0.1		
9/25/2018							0.041	0.12
9/26/2018	0.073	0.11						
9/27/2018			0.14	0.0097 (J)	0.06	0.12		
11/6/2018			0.31			0.12	0.031	
11/7/2018	0.071	0.097		0.0085 (J)	0.19			0.11
3/6/2019					0.16			
3/25/2019							0.036	
8/27/2019	0.077		0.083					0.14
8/28/2019		0.1		0.011	0.13	0.4	0.035	
10/15/2019			0.082					0.14
10/16/2019	0.074	0.1		0.012			0.036	
10/17/2019					0.13	0.35		
3/26/2020	0.07							
3/27/2020		0.095					0.039	0.12
3/28/2020			0.039	0.0041 (J)	0.12	0.11		

Time Series

Constituent: Barium (mg/L) Analysis Run 5/13/2020 2:55 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	0.0131		0.0973				
10/25/2016				0.063			
11/30/2016	0.0105		0.11	0.0628			
2/15/2017	0.0786		0.0945	0.0102			
5/31/2017	0.0199			0.061			
6/1/2017			0.121				
6/2/2017		0.0368 (J)					
8/2/2017		0.0355					
8/15/2017				0.0579			
8/16/2017	0.033						
8/17/2017		0.037	0.121				
4/4/2018		0.039					
5/8/2018		0.037					
6/19/2018	0.092	0.038		0.076			
6/20/2018			0.13				
9/25/2018	0.098						
9/26/2018		0.049	0.13	0.099			
11/6/2018	0.1			0.052			
11/7/2018		0.05	0.12				
8/26/2019	0.12						
8/27/2019		0.048	0.13	0.11			
10/15/2019	0.12	0.041					
10/16/2019			0.13	0.14			
11/7/2019					0.12	0.22	0.16
11/18/2019					0.11		
11/19/2019						0.13	0.14
12/4/2019						0.14	0.14
12/5/2019					0.12		
12/17/2019						0.14	
12/18/2019					0.11		0.15
1/8/2020						0.14	0.14
1/9/2020					0.096		
1/21/2020					0.098	0.14	0.14
2/4/2020					0.091	0.13	0.12
2/13/2020					0.098	0.13	0.12
3/27/2020	0.13	0.041	0.13	0.16	0.076	0.12	0.12

Time Series

Constituent: Beryllium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.003							0.0003 (J)
8/31/2016				<0.003	<0.003	<0.003		
11/30/2016	<0.003			<0.003	<0.003	<0.003		0.0004 (J)
2/15/2017	<0.003							0.0004 (J)
2/16/2017				<0.003	<0.003	<0.003		
5/31/2017		0.0002 (J)					7E-05 (J)	0.0005 (J)
6/1/2017	9E-05 (J)		0.0001 (J)					
6/2/2017				<0.003	<0.003	<0.003		
8/2/2017		0.0002 (J)	0.0003 (J)				0.0001 (J)	
8/15/2017							9E-05 (J)	0.0005 (J)
8/16/2017	<0.003	0.0002 (J)						
8/17/2017			0.0002 (J)	<0.003	<0.003	<0.003		
4/4/2018			<0.003				<0.003	
4/5/2018		<0.003						
5/8/2018			0.00025 (J)				0.0001 (J)	
5/9/2018		0.00017 (J)						
6/19/2018	0.00011 (J)	0.00017 (J)					0.00011 (J)	0.00065 (J)
6/20/2018			0.00021 (J)	<0.003	<0.003			
6/21/2018						<0.003		
9/25/2018							0.0001 (J)	0.00066 (J)
9/26/2018	9.2E-05 (J)	0.00017 (J)						
9/27/2018			0.00031 (J)	<0.003	<0.003	7.4E-05 (J)		
11/6/2018			0.00077 (J)			0.00012 (J)	0.00012 (J)	
11/7/2018	0.0001 (J)	0.00015 (J)		5.4E-05 (J)	<0.003			0.00058 (J)
3/6/2019					<0.003			
8/27/2019	9E-05 (J)		0.00032 (J)					0.0009 (J)
8/28/2019		0.00011 (J)		<0.003	<0.003	<0.003	8.4E-05 (J)	
10/15/2019			0.00035 (J)					0.00079 (J)
10/16/2019	<0.003	0.00013 (J)		<0.003			9E-05 (J)	
10/17/2019					<0.003	7.8E-05 (J)		
3/26/2020	<0.003							
3/27/2020		<0.003					<0.003	<0.003
3/28/2020			<0.003	<0.003	<0.003	<0.003		

Time Series

Constituent: Beryllium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	<0.003		0.0001 (J)				
10/25/2016				0.0004 (J)			
11/30/2016	<0.003		0.0002 (J)	0.0003 (J)			
2/15/2017	<0.003		<0.003	<0.003			
5/31/2017	0.0001 (J)			0.0002 (J)			
6/1/2017			0.0002 (J)				
6/2/2017		0.0001 (J)					
8/2/2017		<0.003					
8/15/2017				0.0002 (J)			
8/16/2017	0.0002 (J)						
8/17/2017		0.0001 (J)	0.0002 (J)				
4/4/2018		<0.003					
5/8/2018		0.00031 (J)					
6/19/2018	<0.003	0.00034 (J)		0.00032 (J)			
6/20/2018			0.00024 (J)				
9/25/2018	5E-05 (J)						
9/26/2018		0.00039 (J)	0.00019 (J)	0.00024 (J)			
11/6/2018	9.7E-05 (J)			0.00026 (J)			
11/7/2018		0.00041 (J)	0.00019 (J)				
8/26/2019	0.0001 (J)						
8/27/2019		0.00042 (J)	0.00021 (J)	0.00018 (J)			
10/15/2019	<0.003	0.00034 (J)					
10/16/2019			0.00014 (J)	0.00014 (J)			
11/7/2019					0.007	0.0068 (J)	0.021
11/18/2019					0.0063 (J)		
11/19/2019						0.014 (J)	0.015 (J)
12/4/2019						0.01	0.011
12/5/2019					0.0045		
12/17/2019						0.012	
12/18/2019					0.0048		0.012
1/8/2020						0.015 (J)	0.017
1/9/2020					0.0043		
1/21/2020					0.0041 (J)	0.012 (J)	0.015
2/4/2020					0.0049 (J)	0.015 (J)	0.017 (J)
2/13/2020					0.0043	0.013 (J)	0.015 (J)
3/27/2020	<0.003	<0.003	<0.003	<0.003	0.004	0.011	0.018

Time Series

Constituent: Boron (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	0.0325 (J)							1.18
8/31/2016				0.56	0.632	0.863		
11/30/2016	0.0334 (J)			0.529	0.637	0.804		1.3
2/15/2017	0.254							1.33
2/16/2017				0.539	0.698	0.815		
5/31/2017		0.161					0.0521	1.38
6/1/2017	0.0564		0.0608					
6/2/2017				0.555	0.674	0.891		
8/2/2017		0.158	0.137				0.0392 (J)	
8/15/2017							0.0448	1.14
8/16/2017	0.0435	0.148						
8/17/2017			0.128	0.516	0.7	0.922		
4/4/2018			0.1				0.046	
4/5/2018		0.13						
5/8/2018			0.074				0.048	
5/9/2018		0.12						
6/19/2018	0.04 (J)	0.13					0.04	1.2
6/20/2018			0.045	0.51	0.69			
6/21/2018						0.99		
9/25/2018							0.043	1
9/26/2018	0.038 (J)	0.1						
9/27/2018			0.06	0.47	0.62	0.88		
11/6/2018			0.06			1.1	0.046	
11/7/2018	0.037 (J)	0.1		0.51	0.86			1.4
3/6/2019					1.5			
3/24/2019				0.44	1.1	1.2		1
3/25/2019	0.038 (J)	0.091	0.058				0.03 (J)	
10/15/2019			0.068					1.1
10/16/2019	0.036 (J)	0.085		0.49			0.032 (J)	
10/17/2019					1.3	1.1		
11/20/2019				0.53		1.3		
3/26/2020	0.064 (J)							
3/27/2020		0.17 (J)					0.058 (J)	1.5
3/28/2020			0.067 (J)	0.28 (J)	0.95	0.79		

Time Series

Constituent: Boron (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	0.726		0.0972 (J)				
10/25/2016				1.73			
11/30/2016	0.565		0.0964	2.12			
2/15/2017	0.647		0.398	2.14			
5/31/2017	0.503			2.24			
6/1/2017			0.0776				
6/2/2017		0.0495					
8/2/2017		0.0333 (J)					
8/15/2017				2.1			
8/16/2017	0.539						
8/17/2017		0.0593	0.0853				
4/4/2018		0.065					
5/8/2018		0.062					
6/19/2018	0.76	0.064		1.7			
6/20/2018			0.079				
9/25/2018	0.61						
9/26/2018		0.06	0.072	1.3			
11/6/2018	0.75			1.8			
11/7/2018		0.062 (J)	0.074				
3/24/2019	0.95			1.4			
3/25/2019		0.057	0.067				
10/15/2019	1	0.046					
10/16/2019			0.051	1.6			
11/7/2019					0.27	0.84	1.1
11/18/2019					0.29 (J)		
11/19/2019						0.83	1.3
11/21/2019	1			1.5			
12/4/2019						0.68	0.81
12/5/2019					0.23		
12/17/2019						0.57	
12/18/2019					0.23		0.77
1/8/2020						0.73	0.9
1/9/2020					0.2		
1/21/2020					0.24 (J)	0.75	0.94
2/4/2020					0.24 (J)	0.79 (J)	0.96 (J)
2/13/2020					0.22	0.74	0.88
3/27/2020	1.3	0.076 (J)	0.088 (J)	1.8	0.24 (J)	0.96	0.94

Time Series

Constituent: Cadmium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.0025							<0.0025
8/31/2016				<0.0025	<0.0025	<0.0025		
11/30/2016	<0.0025			<0.0025	<0.0025	<0.0025		<0.0025
2/15/2017	<0.0025							<0.0025
2/16/2017				<0.0025	<0.0025	<0.0025		
5/31/2017		<0.0025					<0.0025	<0.0025
6/1/2017	<0.0025		<0.0025					
6/2/2017				<0.0025	<0.0025	<0.0025		
8/2/2017		<0.0025	<0.0025				<0.0025	
8/15/2017							<0.0025	<0.0025
8/16/2017	<0.0025	<0.0025						
8/17/2017			<0.0025	<0.0025	<0.0025	<0.0025		
4/4/2018			<0.0025				<0.0025	
4/5/2018		<0.0025						
5/8/2018			<0.0025				<0.0025	
5/9/2018		<0.0025						
6/19/2018	<0.0025	<0.0025					<0.0025	<0.0025
6/20/2018			<0.0025	<0.0025	<0.0025			
6/21/2018						<0.0025		
9/25/2018							0.0002 (J)	<0.0025
9/26/2018	9.3E-05	9.3E-05						
9/27/2018			<0.0025	<0.0025	<0.0025	<0.0025		
11/6/2018			<0.0025			<0.0025	<0.0025	
11/7/2018	<0.0025	<0.0025		<0.0025	<0.0025			<0.0025
3/6/2019					<0.0025			
8/27/2019	<0.0025		<0.0025					<0.0025
8/28/2019		<0.0025		<0.0025	<0.0025	<0.0025	<0.0025	
3/26/2020	<0.0025							
3/27/2020		<0.0025					<0.0025	<0.0025
3/28/2020			<0.0025	<0.0025	<0.0025	<0.0025		

Time Series

Constituent: Calcium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	7.3							7.05
8/31/2016				65	82.8	119		
11/30/2016	10.8			71.7	68.7	103		8.69
2/15/2017	14.3							8.34
2/16/2017				74	94.8	114		
5/31/2017		5.9					18.6	8.85
6/1/2017	12.7 (J)		3.65					
6/2/2017				120	92.5	179		
8/2/2017		4.69	12.4				18.5	
8/15/2017							4.09	8.05
8/16/2017	8.7	5.25						
8/17/2017			8.17	100	126	186		
4/4/2018			6.8				<25	
4/5/2018		5						
5/8/2018			5.7				18.4 (J)	
5/9/2018		4.7						
6/19/2018	11.6 (J)	4.8					4.3	8.3
6/20/2018			4.3	72.8	121			
6/21/2018						179		
6/28/2018	13							8.9
9/25/2018							6.2 (D)	6.8
9/26/2018	12.8 (J)	4.6						
9/27/2018			16.4 (J)	46.6	95.1	193		
11/6/2018			39.5			219	1.8	
11/7/2018	11.9	4.6		41.8	387.5 (D)			8.5
3/6/2019					341			
3/24/2019				20.9 (J)	277	243		7.4
3/25/2019	12.6 (J)	4.7	20.8 (J)				2.5 (D)	
10/15/2019			15.5					7.9
10/16/2019	13.6	4.9		55.2			2.2	
10/17/2019					309	260		
11/20/2019				55.8		308		
3/26/2020	10.1							
3/27/2020		4.9					3.3	8.3
3/28/2020			15.5	25.8	286	286		

Time Series

Constituent: Calcium (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	42.8		4.02				
10/25/2016				69.4			
11/30/2016	33.2		4.87	83.9			
2/15/2017	56.1		6.61	96.3			
5/31/2017	73.6			122			
6/1/2017			6.42				
6/2/2017		2.77					
8/2/2017		1.27					
8/15/2017				117			
8/16/2017	99.6						
8/17/2017		5.53	5.62				
4/4/2018		6.5					
5/8/2018		6.7					
6/19/2018	285	7.4		136			
6/20/2018			5.7				
6/28/2018	294			138			
9/25/2018	283						
9/26/2018		8.5 (J)	5.3	148			
11/6/2018	297			24.7			
11/7/2018		9.8	5.3				
3/24/2019	338			136			
3/25/2019		7.8	5.7				
10/15/2019	321	6.7					
10/16/2019			4.8	118			
11/7/2019					46.2	158	163
11/18/2019					41.8		
11/19/2019						152	169
11/21/2019	305			125			
12/4/2019						142	140
12/5/2019					40.5		
12/17/2019						136	
12/18/2019					42		145
1/8/2020						147	157
1/9/2020					37.1		
1/21/2020					40.1	167	152
2/4/2020					36.2	142	139
2/13/2020					38.9	148	146
3/27/2020	286	5.9	5.4	222	23.2	122	113

Time Series

Constituent: Chloride (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	9.7							800
8/31/2016				1800	2200	2600		
11/30/2016	19			1100	2100	2800		760
2/15/2017	21							740
2/16/2017				2100	2500	3100		
5/31/2017		39					98	740
6/1/2017	12		22					
6/2/2017				3100	2500	4600		
8/2/2017		42	230				57	
8/15/2017							15	750
8/16/2017	14	41						
8/17/2017			210	2600	2700	4600		
4/4/2018			156				69	
4/5/2018		40.2						
5/8/2018			140				72.3	
5/9/2018		40.6						
6/19/2018	24.4	37.7					17.3	760
6/20/2018			27.5	1800	3100			
6/21/2018						3920		
9/25/2018							31.3	752 (D)
9/26/2018	23.4	33.4						
9/27/2018			101	1300	2510 (D)	5660 (D)		
11/6/2018			107			6520	9.8	
11/7/2018	21.8	30.7		1180	8860			665
3/6/2019					11700			
3/24/2019				717	6470	8720		744
3/25/2019	19.4	33.5	78.5				12.9	
10/15/2019			46					744
10/16/2019	21.4	33.1		941 (D)			12.2	
10/17/2019					9930	8210		
11/20/2019				1480		9810		
3/26/2020	23							
3/27/2020		32.9					14.5	675
3/28/2020			71.4	693	9190	9070		

Time Series

Constituent: Chloride (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	450		26				
10/25/2016				1300			
11/30/2016	310		27	400			
2/15/2017	490		30	2000			
5/31/2017	820			2500			
6/1/2017			27				
6/2/2017		11					
8/2/2017		3.2					
8/15/2017				2500			
8/16/2017	1500						
8/17/2017		12	32				
4/4/2018		13.4					
5/8/2018		13.2					
6/19/2018	5180	13.7		3050			
6/20/2018			30				
9/25/2018	7220						
9/26/2018		18.5	28.4	3965 (D)			
11/6/2018	6020			2230			
11/7/2018		20.2	25.1				
3/24/2019	7400			3960			
3/25/2019		19.7	21.8				
10/15/2019	9050	17.1					
10/16/2019			20	2181.5 (D)			
11/7/2019					2360	6170	7880
11/18/2019					6970		
11/19/2019						5650	8130
11/21/2019	8330			3890			
12/4/2019						6100	7410
12/5/2019					2130		
12/17/2019						5660	
12/18/2019					2090		7170
1/8/2020						5070	6480
1/9/2020					1750		
1/21/2020					1630	5010	6000
2/4/2020					1760	5030	5700
2/13/2020					1850	6140	7060
3/27/2020	7680	14.1	23.6	4770	1450	6870	7110

Time Series

Constituent: Chromium (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.01							0.0054 (J)
8/31/2016				0.0013 (J)	0.001 (J)	0.0022 (J)		
11/30/2016	<0.01			0.0012 (J)	<0.01	<0.01		0.0073 (J)
2/15/2017	<0.01							0.0045 (J)
2/16/2017				0.0012 (J)	0.0011 (J)	0.0028 (J)		
5/31/2017		<0.01					<0.01	0.0052 (J)
6/1/2017	<0.01		0.0008 (J)					
6/2/2017				<0.01	<0.01	0.0023 (J)		
8/2/2017		<0.01	0.0012 (J)				<0.01	
8/15/2017							0.0006 (J)	0.005 (J)
8/16/2017	<0.01	<0.01						
8/17/2017			0.0013 (J)	0.0007 (J)	0.0007 (J)	0.0022 (J)		
4/4/2018			<0.01				<0.01	
4/5/2018		<0.01						
5/8/2018			<0.01				<0.01	
5/9/2018		<0.01						
6/19/2018	<0.01	<0.01					<0.01	0.0047 (J)
6/20/2018			<0.01	<0.01	<0.01			
6/21/2018						<0.01		
9/25/2018							<0.01	<0.01
9/26/2018	0.0016	0.0016						
9/27/2018			<0.01	<0.01	<0.01	0.0024 (J)		
11/6/2018			0.0017 (J)			0.002 (J)	<0.01	
11/7/2018	<0.01	<0.01		<0.01	<0.01			<0.01
3/6/2019					<0.01			
3/25/2019							<0.01	
8/27/2019	0.00079 (J)		0.0018 (J)					0.0056 (J)
8/28/2019		0.0035 (J)		0.00047 (J)	0.00085 (J)	0.0024 (J)	0.00053 (J)	
10/15/2019			0.0012 (J)					0.0057 (J)
10/16/2019	<0.01	<0.01		0.00057 (J)			0.00072 (J)	
10/17/2019					0.0015 (J)	0.0019 (J)		
3/26/2020	<0.01							
3/27/2020		<0.01					<0.01	<0.01
3/28/2020			<0.01	<0.01	<0.01	<0.01		

Time Series

Constituent: Cobalt (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.005							<0.005
8/31/2016				<0.005	<0.005	<0.005		
11/30/2016	<0.005			<0.005	0.0009 (J)	0.0011 (J)		<0.005
2/15/2017	<0.005							<0.005
2/16/2017				<0.005	<0.005	<0.005		
5/31/2017		0.0005 (J)					<0.005	0.0005 (J)
6/1/2017	<0.005		<0.005					
6/2/2017				<0.005	<0.005	<0.005		
8/2/2017		0.0005 (J)	<0.005				0.0006 (J)	
8/15/2017							0.0004 (J)	0.0005 (J)
8/16/2017	<0.005	0.0005 (J)						
8/17/2017			<0.005	<0.005	0.0003 (J)	<0.005		
4/4/2018			<0.005				<0.005	
4/5/2018		<0.005						
5/8/2018			<0.005				<0.005	
5/9/2018		<0.005						
6/19/2018	<0.005	<0.005					<0.005	0.00053 (J)
6/20/2018			<0.005	<0.005	<0.005			
6/21/2018						<0.005		
9/25/2018							<0.005	<0.005
9/26/2018	0.00052	0.00052						
9/27/2018			<0.005	<0.005	<0.005	<0.005		
11/6/2018			0.0048 (J)			<0.005	<0.005	
11/7/2018	<0.005	<0.005		<0.005	<0.005			<0.005
3/6/2019					<0.005			
8/27/2019	<0.005		0.0078					0.0007 (J)
8/28/2019		0.00042 (J)		<0.005	<0.005	<0.005	<0.005	
10/15/2019			0.0085					0.00054 (J)
10/16/2019	<0.005	0.00037 (J)		<0.005			<0.005	
10/17/2019					<0.005	<0.005		
11/20/2019			0.009					
3/26/2020	<0.005							
3/27/2020		<0.005					<0.005	<0.005
3/28/2020			0.0041 (J)	<0.005	<0.005	<0.005		

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	0.929							1.4
8/31/2016				2.39 (D)	2.47 (D)	5.4 (D)		
11/30/2016	5.64			1.66	1.6	3.13		4.37
2/15/2017	1.41							2.21
2/16/2017				2.71	1.83	3.09		
5/31/2017		1.17 (U)					1.2	2.62
6/1/2017	1.51		1.9					
6/2/2017				1.99	2.45	7.56		
8/2/2017		0.704 (U)	5.01				1.26	
8/15/2017							0.511 (U)	2.69
8/16/2017	1.01 (U)	1.11 (U)						
8/17/2017			5.35	1.87	3.33	6.38		
4/4/2018			5.05				1.04	
4/5/2018		0.868 (U)						
5/8/2018			3.25				1.95	
5/9/2018		0.888						
6/19/2018	1.23	0.483 (U)					0.785 (U)	2.96
6/20/2018			3.53	1.95	2.84			
6/21/2018						5.24		
9/25/2018							1.15 (U)	2.23
9/26/2018	0.72 (U)	0.73 (U)						
9/27/2018			7.07	0.629 (U)	1.94	6.11		
11/6/2018			11			6.1	1.1	
11/7/2018	0.616 (U)	0.429 (U)		1.41 (U)	8.58			2.14
8/27/2019	1.2 (U)		4.4					2.91
8/28/2019		0.679 (U)		1.67	6.86	8.73	0.434 (U)	
10/15/2019			4.92					3.28
10/16/2019	1.4 (U)	0.422 (U)		1.92			0.923 (U)	
10/17/2019					7.85	7.97		
11/20/2019						9.8		
3/26/2020	1.15 (U)							
3/27/2020		0.838 (U)					0.609 (U)	2.33
3/28/2020			4.16	1.44 (U)	11 (U)	11.7		

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	1.31		0.977 (U)				
10/25/2016				2.22			
11/30/2016	0.438 (U)		0.994	2.01			
2/15/2017	0.3 (U)		1.65	1.56			
5/31/2017	1.77			1.92			
6/1/2017			1.22				
6/2/2017		1.47					
8/2/2017		1.99					
8/15/2017				2.47			
8/16/2017	2.26						
8/17/2017		2.03	1.71				
4/4/2018		1.96					
5/8/2018		1.69					
6/19/2018	5.39	1.83		2.82			
6/20/2018			1.78				
9/25/2018	6.22						
9/26/2018		0.637 (U)	1.56	3.15 (D)			
11/6/2018	5.38			2.95			
11/7/2018		0.894 (U)	0.651 (U)				
8/26/2019	7.68						
8/27/2019		2.33	1.03 (U)	5.82			
10/15/2019	8.7	0.979 (U)					
10/16/2019			1.86	7.5			
11/7/2019					14.8	17.7	38.2
11/18/2019					13.9		
11/19/2019						18.9	43.1
11/21/2019	7.34			8.89			
12/4/2019						18.6	45.1
12/5/2019					14.2		
12/17/2019						21.8	
12/18/2019					17		55.8
1/8/2020						16.9	46.5
1/9/2020					12.3		
1/21/2020					11.7	15.6	37.7
2/4/2020					12.7	22.38	47.9
2/13/2020					18.2	31.1	76.3 (o)
3/27/2020	9.63	1.84	1.51	9.54	10.2	22.8	47.2

Time Series

Constituent: Fluoride (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	0.03 (J)							1.5
8/31/2016				0.93	0.41	0.92		
11/30/2016	0.04 (J)			0.93	0.61	0.99		1.4
2/15/2017	0.007 (J)							1.3
2/16/2017				0.6	0.3 (J)	0.54		
5/31/2017		0.01 (J)					0.85	1.2
6/1/2017	<0.1		<0.1					
6/2/2017				0.34	0.19 (J)	0.42		
8/2/2017		0.14 (J)	0.27 (J)				0.69	
8/15/2017							0.29 (J)	1.2
8/16/2017	0.03 (J)	0.13 (J)						
8/17/2017			0.18 (J)	0.52	0.26 (J)	0.27 (J)		
4/4/2018			<0.1				0.32	
4/5/2018		<0.1						
5/8/2018			0.56				0.63	
5/9/2018		<0.1						
6/19/2018	<0.1	0.065 (J)					0.17 (J)	0.91
6/20/2018			0.033 (J)	0.5	0.22 (J)			
6/21/2018						0.28 (J)		
9/25/2018							0.15 (J)	1.1
9/26/2018	0.12 (J)	0.029						
9/27/2018			0.12 (J)	0.32	0.068 (J)	0.32 (D)		
11/6/2018			<0.1			0.086 (J)	<0.1	
11/7/2018	<0.1	<0.1		0.35	10.3			<0.1
3/6/2019					<0.1			
3/24/2019				0.32	0.19 (J)	0.14 (J)		0.99
3/25/2019	0.038 (J)	0.039 (J)	0.055 (J)				0.12 (J)	
8/27/2019	<0.1		<0.1					1.1
8/28/2019		<0.1		0.36	<0.1	<0.1	0.068 (J)	
10/15/2019			0.095 (J)					1
10/16/2019	0.046 (JD)	0.044 (JD)		0.41			0.1 (J)	
10/17/2019					<0.1	<0.1		
11/20/2019				0.34		<0.1		
3/26/2020	<0.1							
3/27/2020		<0.1					0.066 (J)	1.1
3/28/2020			<0.1	0.34	<0.1	<0.1		

Time Series

Constituent: Fluoride (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	0.5		0.04 (J)				
10/25/2016				1.1			
11/30/2016	0.49		0.18 (J)	1.3			
2/15/2017	0.58		0.02 (J)	1.3			
5/31/2017	0.56			1.3			
6/1/2017			0.005 (J)				
6/2/2017		<0.1					
8/2/2017		0.05 (J)					
8/15/2017				1.2			
8/16/2017	0.45						
8/17/2017		<0.1	0.04 (J)				
4/4/2018		<0.1					
5/8/2018		<0.1					
6/19/2018	<0.1	0.057 (J)		0.6			
6/20/2018			0.038 (J)				
9/25/2018	<0.1						
9/26/2018		0.029	0.029	0.44 (D)			
11/6/2018	0.084 (J)			0.4			
11/7/2018		<0.1	<0.1				
3/24/2019	0.14 (J)			0.31			
3/25/2019		0.036 (J)	0.041 (J)				
8/26/2019	<0.1						
8/27/2019		<0.1	<0.1	<0.1			
10/15/2019	<0.1	0.14 (J)					
10/16/2019			0.044 (J)	0.083 (J)			
11/7/2019					0.49	<0.1	1.4
11/18/2019					0.52		
11/19/2019						0.033 (J)	1.2
11/21/2019	<0.1			<0.1			
12/4/2019						0.22 (J)	1.4
12/5/2019					0.5		
12/17/2019						<0.1	
12/18/2019					0.33		1.5
1/8/2020						<0.1	<0.1
1/9/2020					0.12 (J)		
1/21/2020					0.13 (J)	0.11 (J)	0.53
2/4/2020					0.18 (J)	<0.1	<0.1
2/13/2020					0.077 (J)	<0.1	<0.1
3/27/2020	<0.1	<0.1	<0.1	<0.1	0.06 (J)	<0.1	<0.1

Time Series

Constituent: Lead (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.005							0.0001 (J)
8/31/2016				<0.005	<0.005	<0.005		
11/30/2016	<0.005			0.0002 (J)	<0.005	<0.005		<0.005
2/15/2017	<0.005							<0.005
2/16/2017				<0.005	<0.005	0.0002 (J)		
5/31/2017		<0.005					<0.005	9E-05 (J)
6/1/2017	<0.005		<0.005					
6/2/2017				<0.005	<0.005	<0.005		
8/2/2017		0.0001 (J)	<0.005				<0.005	
8/15/2017							<0.005	<0.005
8/16/2017	<0.005	<0.005						
8/17/2017			<0.005	<0.005	<0.005	8E-05 (J)		
4/4/2018			<0.005				<0.005	
4/5/2018		<0.005						
5/8/2018			<0.005				<0.005	
5/9/2018		<0.005						
6/19/2018	<0.005	<0.005					<0.005	<0.005
6/20/2018			<0.005	<0.005	<0.005			
6/21/2018						<0.005		
9/25/2018							<0.005	<0.005
9/26/2018	0.00027	0.00027						
9/27/2018			<0.005	<0.005	<0.005	<0.005		
11/6/2018			<0.005			<0.005	<0.005	
11/7/2018	<0.005	<0.005		<0.005	<0.005			<0.005
3/6/2019					<0.005			
3/25/2019							<0.005	
8/27/2019	<0.005		<0.005					0.00022 (J)
8/28/2019		<0.005		<0.005	<0.005	0.0001 (J)	<0.005	
10/15/2019			<0.005					5.6E-05 (J)
10/16/2019	<0.005	<0.005		<0.005			<0.005	
10/17/2019					0.00012 (J)	<0.005		
3/26/2020	<0.005							
3/27/2020		<0.005					<0.005	<0.005
3/28/2020			<0.005	<0.005	<0.005	<0.005		

Time Series

Constituent: Lithium (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.03							0.0102 (J)
8/31/2016				0.0219 (J)	0.0389 (J)	0.0122 (J)		
11/30/2016	<0.03			0.0333 (J)	0.0303 (J)	0.011 (J)		0.0106 (J)
2/15/2017	<0.03							0.0115 (J)
2/16/2017				0.0376 (J)	0.05 (J)	0.0142 (J)		
5/31/2017		<0.03					0.0047 (J)	0.011 (J)
6/1/2017	<0.03		<0.03					
6/2/2017				0.0346 (J)	0.0477 (J)	0.0229 (J)		
8/2/2017		<0.03	<0.03				0.0036 (J)	
8/15/2017							<0.03	0.0123 (J)
8/16/2017	<0.03	<0.03						
8/17/2017			<0.03	0.0367 (J)	0.0645	0.0241 (J)		
4/4/2018			0.0013 (J)				0.0041 (J)	
4/5/2018		<0.03						
5/8/2018			0.0012 (J)				0.0052 (J)	
5/9/2018		<0.03						
6/19/2018	<0.03	<0.03					0.0017 (J)	0.012 (J)
6/20/2018			0.0015 (J)	0.034 (J)	0.066 (J)			
6/21/2018						0.03 (J)		
9/25/2018							0.0018 (J)	0.011 (J)
9/26/2018	0.00097	0.00097						
9/27/2018			0.0021 (J)	0.023 (J)	0.045 (J)	0.034 (J)		
11/6/2018			0.0038 (J)			0.037 (J)	<0.03	
11/7/2018	<0.03	<0.03		0.022 (J)	0.11			0.013 (J)
3/6/2019					0.12			
8/27/2019	<0.03		0.002 (J)					0.012 (J)
8/28/2019		<0.03		0.023 (J)	0.13	0.12	0.00082 (J)	
10/15/2019			0.0019 (J)					0.012 (J)
10/16/2019	<0.03	<0.03		0.021 (J)			<0.03	
10/17/2019					0.12	0.096		
11/20/2019						0.12		
3/26/2020	<0.03							
3/27/2020		<0.03					<0.03	<0.03
3/28/2020			<0.03	0.014 (J)	0.064	0.027 (J)		

Time Series

Constituent: Lithium (mg/L) Analysis Run 5/13/2020 2:55 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	0.0112 (J)		<0.03				
10/25/2016				0.007 (J)			
11/30/2016	<0.03		<0.03	0.0086 (J)			
2/15/2017	0.0105 (J)		<0.03	0.0149 (J)			
5/31/2017	0.0106 (J)			0.019 (J)			
6/1/2017			<0.03				
6/2/2017		<0.03					
8/2/2017		<0.03					
8/15/2017				0.016 (J)			
8/16/2017	0.0145 (J)						
8/17/2017		<0.03	<0.03				
4/4/2018		0.0015 (J)					
5/8/2018		0.0014 (J)					
6/19/2018	0.044 (J)	0.0016 (J)		0.021 (J)			
6/20/2018			<0.03				
9/25/2018	0.041 (J)						
9/26/2018		0.0018 (J)	0.00097	0.02 (J)			
11/6/2018	0.047 (J)			0.017 (J)			
11/7/2018		<0.03	<0.03				
8/26/2019	0.059						
8/27/2019		0.002 (J)	<0.03	0.023 (J)			
10/15/2019	0.056 (J)	0.0016 (J)					
10/16/2019			<0.03	0.024 (J)			
11/7/2019					0.0055 (J)	0.015 (J)	0.026 (J)
11/18/2019					<0.1 (o)		
11/19/2019						0.02 (J)	0.023 (J)
11/21/2019	0.052						
12/4/2019						0.016 (J)	0.019 (J)
12/5/2019					0.0042 (J)		
12/17/2019						0.018 (J)	
12/18/2019					0.0045 (J)		0.02 (J)
1/8/2020						0.022 (J)	0.024 (J)
1/9/2020					0.0041 (J)		
1/21/2020					<0.15 (o)	0.018 (J)	0.022 (J)
2/4/2020					<0.3 (o)	0.02 (J)	0.024 (J)
2/13/2020					0.004 (J)	0.018 (J)	0.021 (J)
3/27/2020	0.052	<0.03	<0.03	0.033 (J)	<0.03	0.018 (J)	0.024 (J)

Time Series

Constituent: Mercury (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.0005							<0.0005
8/31/2016				<0.0005	<0.0005	<0.0005		
11/30/2016	<0.0005			<0.0005	<0.0005	<0.0005		<0.0005
2/15/2017	<0.0005							<0.0005
2/16/2017				<0.0005	<0.0005	<0.0005		
5/31/2017		<0.0005					<0.0005	<0.0005
6/1/2017	<0.0005		<0.0005					
6/2/2017				4.2E-05 (J)	<0.0005	<0.0005		
8/2/2017		<0.0005	<0.0005				<0.0005	
8/15/2017							<0.0005	<0.0005
8/16/2017	<0.0005	<0.0005						
8/17/2017			<0.0005	<0.0005	<0.0005	<0.0005		
4/4/2018			<0.0005				<0.0005	
4/5/2018		<0.0005						
5/8/2018			<0.0005				<0.0005	
5/9/2018		<0.0005						
6/19/2018	<0.0005	<0.0005					<0.0005	<0.0005
6/20/2018			<0.0005	<0.0005	<0.0005			
6/21/2018						<0.0005		
9/25/2018							<0.0005	<0.0005
9/26/2018	3.6E-05	3.6E-05						
9/27/2018			<0.0005	<0.0005	<0.0005	<0.0005		
11/6/2018			0.00071			0.00067	0.0007	
11/7/2018	<0.0005	<0.0005		<0.0005	<0.0005			<0.0005
3/6/2019					<0.0005			
8/27/2019	<0.0005		<0.0005					<0.0005
8/28/2019		<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	
3/26/2020	<0.0005							
3/27/2020		<0.0005					<0.0005	<0.0005
3/28/2020			<0.0005	<0.0005	<0.0005	<0.0005		

Time Series

Constituent: Molybdenum (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.01							<0.01
8/31/2016				<0.01	<0.01	<0.01		
11/30/2016	<0.01			<0.01	<0.01	<0.01		<0.01
2/15/2017	<0.01							<0.01
2/16/2017				<0.01	<0.01	<0.01		
5/31/2017		<0.01					<0.01	<0.01
6/1/2017	<0.01		<0.01					
6/2/2017				<0.01	<0.01	<0.01		
8/2/2017		<0.01	<0.01				<0.01	
8/15/2017							<0.01	<0.01
8/16/2017	<0.01	<0.01						
8/17/2017			<0.01	0.0012 (J)	0.0025 (J)	<0.01		
4/4/2018			<0.01				<0.01	
4/5/2018		<0.01						
5/8/2018			<0.01				<0.01	
5/9/2018		<0.01						
6/19/2018	<0.01	<0.01					<0.01	<0.01
6/20/2018			<0.01	<0.01	<0.01			
6/21/2018						<0.01		
9/25/2018							<0.01	<0.01
9/26/2018	0.0019	0.0019						
9/27/2018			<0.01	<0.01	<0.01	<0.01		
11/6/2018			<0.01			<0.01	<0.01	
11/7/2018	<0.01	<0.01		<0.01	0.0024 (J)			<0.01 (D)
3/6/2019					<0.01			
8/27/2019	<0.01		<0.01					<0.01
8/28/2019		<0.01		<0.01	0.0017 (J)	<0.01	<0.01	
10/15/2019			<0.01					<0.01
10/16/2019	<0.01	<0.01		<0.01			<0.01	
10/17/2019					0.0017 (J)	<0.01		
3/26/2020	<0.01							
3/27/2020		<0.01					<0.01	<0.01
3/28/2020			<0.01	<0.01	<0.01	<0.01		

Time Series

Constituent: pH (S.U.) Analysis Run 5/13/2020 2:55 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	5.66							6.49
8/31/2016				6.93	7.21	6.66		
11/30/2016	5.36			6.77	7.23	6.69		6.5
2/15/2017	5.25							6.51
2/16/2017				6.89	7.27	6.72		
5/31/2017		5.06					5.29	6.45
6/1/2017	5.59		5.68					
6/2/2017				6.83	7.18	6.53		
8/2/2017		5	5.2				5.19	
8/15/2017							5.19	6.41
8/16/2017	5.58	4.98						
8/17/2017			5.31	6.76	7.15	6.28		
4/4/2018			4.74				5.19	
4/5/2018		5.02						
5/8/2018			4.78				5.3	
5/9/2018		4.96						
6/19/2018	5.51	5.02					5.15	6.32
6/20/2018			4.79	6.83	7.19			
6/21/2018						6.45		
9/25/2018							5.13	6.31
9/26/2018	5.32	5.06						
9/27/2018			5.14	6.64	7.21	6.48		
11/6/2018			4.9			6.18	5.08	
11/7/2018	5.72	5.03		6.6	6.91			6.3
3/24/2019				6.1	6.98	6.38		6.4
3/25/2019	5.75	5.08	4.93				5.05	
8/27/2019	5.58		5.05					6.24
8/28/2019		4.99		6.69	6.87	6.35	4.87	
10/15/2019			4.89					6.19
10/16/2019	5.72	4.98		6.64			5.05	
10/17/2019					6.86	6.4		
11/19/2019		5.11						
11/20/2019	5.77		5.03	6.58		6.27		
3/26/2020	5.45							
3/27/2020		5.12					5.09	6.33
3/28/2020			5.27	6.6	6.8	6.35		

Time Series

Constituent: pH (S.U.) Analysis Run 5/13/2020 2:55 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	7.04		5.18				
10/25/2016				6.95			
11/30/2016	7.13		4.96	6.95			
2/15/2017	7.02		5.13	6.85			
5/31/2017	7			6.96			
6/1/2017			4.99				
6/2/2017		5.31					
8/2/2017		5.05					
8/15/2017				6.99			
8/16/2017	6.88						
8/17/2017		5.52	4.68				
4/4/2018		5.45					
5/8/2018		5.54					
6/19/2018	6.78	5.6		6.91			
6/20/2018			4.77				
9/25/2018	6.75						
9/26/2018		5.17	4.65	6.81			
11/6/2018	6.92			5.99			
11/7/2018		5.47	4.99				
3/24/2019	6.59	5.4		6.62			
3/25/2019			5.13				
8/26/2019	6.62						
8/27/2019		5.35	4.88	6.23			
10/15/2019	6.58	5.32					
10/16/2019			4.89	6.54			
11/7/2019					4.25	5.21	3.79
11/18/2019					4.12		
11/19/2019						5.15	3.78
11/21/2019	6.67			6.44			
12/4/2019						5.28 (D)	3.87 (D)
12/5/2019					4.17 (D)		
1/8/2020						5.04	3.77
1/9/2020					4.19		
1/21/2020					4.28	5.1	3.73
2/4/2020					4.26	5.15	3.72
2/13/2020					4.2	5.07	3.75
3/27/2020	6.59	5.3	5.12	6.93	4.34	5.14	3.81

Time Series

Constituent: Selenium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.01							0.0011 (J)
8/31/2016				0.002 (J)	0.0015 (J)	0.0021 (J)		
11/30/2016	0.0011 (J)			0.0023 (J)	0.0054 (J)	<0.01		0.0023 (J)
2/15/2017	<0.01							0.0021 (J)
2/16/2017				0.002 (J)	0.0022 (J)	0.0025 (J)		
5/31/2017		<0.01					<0.01	<0.01
6/1/2017	<0.01		<0.01					
6/2/2017				<0.01	<0.01	<0.01		
8/2/2017		<0.01	<0.01				<0.01	
8/15/2017							<0.01	0.0021 (J)
8/16/2017	<0.01	<0.01						
8/17/2017			<0.01	<0.01	0.002 (J)	0.0033 (J)		
4/4/2018			<0.01				<0.01	
4/5/2018		<0.01						
5/8/2018			<0.01				<0.01	
5/9/2018		<0.01						
6/19/2018	<0.01	<0.01					<0.01	0.0017 (J)
6/20/2018			<0.01	<0.01	<0.01			
6/21/2018						<0.01		
9/25/2018							<0.01	0.002 (J)
9/26/2018	0.0014	0.0014						
9/27/2018			<0.01	<0.01	<0.01	0.0023 (J)		
11/6/2018			0.0025 (J)			0.0048 (J)	<0.01	
11/7/2018	<0.01	<0.01		<0.01	0.0075 (J)			<0.01
3/6/2019					0.0024 (J)			
3/25/2019							<0.01	
8/27/2019	<0.01		<0.01					0.0019 (J)
8/28/2019		<0.01		<0.01	0.0014 (J)	0.0019 (J)	<0.01	
10/15/2019			<0.01					<0.01
10/16/2019	<0.01	<0.01		<0.01			<0.01	
10/17/2019					0.0066 (J)	0.0049 (J)		
3/26/2020	<0.01							
3/27/2020		<0.01					<0.01	<0.01
3/28/2020			<0.01	<0.01	<0.01	<0.01		

Time Series

Constituent: Selenium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	<0.01		<0.01				
10/25/2016				0.003 (J)			
11/30/2016	<0.01		0.0011 (J)	0.0087 (J)			
2/15/2017	0.0014 (J)		<0.01	0.0067 (J)			
5/31/2017	<0.01			0.0018 (J)			
6/1/2017			<0.01				
6/2/2017		<0.01					
8/2/2017		<0.01					
8/15/2017				0.0025 (J)			
8/16/2017	0.0018 (J)						
8/17/2017		<0.01	<0.01				
4/4/2018		<0.01					
5/8/2018		0.0016 (J)					
6/19/2018	<0.01	0.0022 (J)		<0.01			
6/20/2018			<0.01				
9/25/2018	0.0019 (J)						
9/26/2018		0.0015 (J)	0.0014	0.0016 (J)			
11/6/2018	0.0057 (J)			<0.01			
11/7/2018		<0.01	<0.01				
8/26/2019	0.0025 (J)						
8/27/2019		0.0018 (J)	<0.01	0.0018 (J)			
10/15/2019	0.003 (J)	<0.01					
10/16/2019			<0.01	<0.01			
11/7/2019					0.036	0.063	0.12
11/18/2019					<0.01		
11/19/2019						0.039 (J)	0.047 (J)
12/4/2019						0.12	0.11
12/5/2019					0.032		
12/17/2019						0.031 (J)	
12/18/2019					0.01		0.032 (J)
1/8/2020						0.066	0.044 (J)
1/9/2020					0.01		
1/21/2020					0.023 (J)	0.13	0.089
2/4/2020					0.017 (J)	0.065 (J)	0.049 (J)
2/13/2020					0.015	0.15	0.11
3/27/2020	<0.01	<0.01	<0.01	<0.01	0.0034 (J)	0.013	0.012

Time Series

Constituent: Sulfate (mg/L) Analysis Run 5/13/2020 2:55 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	17							4.3
8/31/2016				37	21	290		
11/30/2016	33			63	19	240		7.6
2/15/2017	83							3
2/16/2017				90	22	220		
5/31/2017		46					40	2.5
6/1/2017	51		42					
6/2/2017				210	28	500		
8/2/2017		43	120				34	
8/15/2017							24	3.2
8/16/2017	36	41						
8/17/2017			110	80	69	510		
4/4/2018			70.6				33.9	
4/5/2018		33.4						
5/8/2018			61.4				35.7	
5/9/2018		36						
6/19/2018	50.3	35.5					23.7	1.6
6/20/2018			25.3	46 (J)	33			
6/21/2018						481		
9/25/2018							25.6	1
9/26/2018	54.1	39.6						
9/27/2018			63.4	58.5 (J)	29.4 (D)	777 (D)		
11/6/2018			136			926	25.2	
11/7/2018	45.6	35.8		41.3 (J)	734			0.41 (J)
3/6/2019					1220 (J)			
3/24/2019				131	413	1070		1.5
3/25/2019	43	34.2	137				24.9	
10/15/2019			105					0.54 (J)
10/16/2019	31.9	24.4		122.5 (D)			17.4	
10/17/2019					507	1230		
11/20/2019				132		1550		
3/26/2020	36.2							
3/27/2020		28.6					23.4	<1
3/28/2020			86.6	63.8	701	1090		

Time Series

Constituent: Sulfate (mg/L) Analysis Run 5/13/2020 2:55 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	6.4		24				
10/25/2016				84			
11/30/2016	4.5		26	52			
2/15/2017	37		30	190			
5/31/2017	61			260			
6/1/2017			24				
6/2/2017		13					
8/2/2017		14					
8/15/2017				210			
8/16/2017	130						
8/17/2017		14	26				
4/4/2018		13.4					
5/8/2018		14.8					
6/19/2018	498	15.5		218			
6/20/2018			31.2				
9/25/2018	790						
9/26/2018		23	36.8	333 (D)			
11/6/2018	875			182			
11/7/2018		22.2	35				
3/24/2019	1170			413			
3/25/2019		22.4	40.1				
10/15/2019	<1	17.9					
10/16/2019			28.5	312.5 (D)			
11/7/2019					379	832	1010
11/18/2019					737		
11/19/2019						795	1140
11/21/2019	1070			428			
12/4/2019						810	1020
12/5/2019					351		
12/17/2019						535	
12/18/2019							8.1
1/8/2020						603	747
1/9/2020					254		
1/21/2020					254	611	798
2/4/2020					432	599	1120
2/13/2020					300	761	833
3/27/2020	899	14.6	31.2	504	219	836	700

Time Series

Constituent: Thallium (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	<0.001							<0.001
8/31/2016				<0.001	<0.001	<0.001		
11/30/2016	<0.001			<0.001	<0.001	<0.001		<0.001
2/15/2017	<0.001							<0.001
2/16/2017				<0.001	<0.001	<0.001		
5/31/2017		<0.001					<0.001	<0.001
6/1/2017	<0.001		<0.001					
6/2/2017				<0.001	<0.001	<0.001		
8/2/2017		<0.001	<0.001				<0.001	
8/15/2017							<0.001	<0.001
8/16/2017	<0.001	<0.001						
8/17/2017			<0.001	<0.001	<0.001	<0.001		
4/4/2018			<0.001				<0.001	
4/5/2018		<0.001						
5/8/2018			<0.001				<0.001	
5/9/2018		<0.001						
6/19/2018	<0.001	<0.001					<0.001	<0.001
6/20/2018			<0.001	<0.001	<0.001			
6/21/2018						<0.001		
9/25/2018							<0.001	<0.001
9/26/2018	0.00014	0.00014						
9/27/2018			<0.001	<0.001	<0.001	<0.001		
11/6/2018			<0.001			<0.001	<0.001	
11/7/2018	<0.001	<0.001		<0.001	<0.001			<0.001
3/6/2019					<0.001			
8/27/2019	<0.001		<0.001					<0.001
8/28/2019		<0.001		<0.001	<0.001	<0.001	<0.001	
10/15/2019			<0.001					<0.001
10/16/2019	<0.001	<0.001		<0.001			<0.001	
10/17/2019					7.6E-05 (J)	<0.001		
3/26/2020	<0.001							
3/27/2020		<0.001					<0.001	<0.001
3/28/2020			<0.001	<0.001	<0.001	<0.001		

Time Series

Constituent: Total Dissolved Solids [TDS] (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-02 (bg)	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11 (bg)	MCM-12
8/30/2016	86							1910
8/31/2016				3620	4160	5100		
11/30/2016	131			4030	3950	4680		1910
2/15/2017	212							1870
2/16/2017				4080	4600	5080		
5/31/2017		123					257	1920
6/1/2017	103		97					
6/2/2017				5560	4470	8000		
8/2/2017		136	538				183	
8/15/2017							90	1840
8/16/2017	65	124						
8/17/2017			445	4620	5450	8320		
4/4/2018			365				197	
4/5/2018		128						
5/8/2018			304				225	
5/9/2018		127						
6/19/2018	142	143					112	1820
6/20/2018			114	3370	4940			
6/21/2018						7500		
9/25/2018							137	1760
9/26/2018	133	132						
9/27/2018			255	2360	4480	10200		
11/6/2018			388			11000	89	
11/7/2018	121	134		2230	15100			1800
3/6/2019					19000			
3/24/2019				1450	13700	13700		1770
3/25/2019	116	111	327				74	
10/15/2019			237					1730
10/16/2019	104	96		2860			82	
10/17/2019					16100	13200		
11/20/2019				2640		16700		
3/26/2020	114							
3/27/2020		119					87	1970
3/28/2020			284	1470	18800	18300		

Time Series

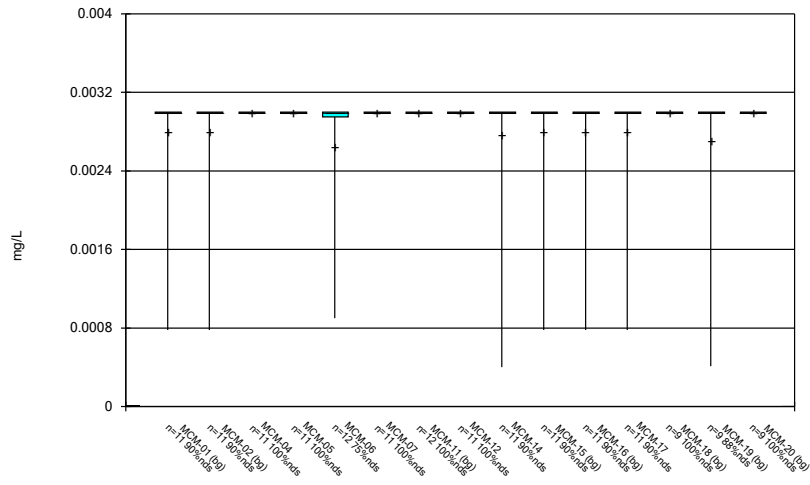
Constituent: Total Dissolved Solids [TDS] (mg/L) Analysis Run 5/13/2020 2:55 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-14	MCM-15 (bg)	MCM-16 (bg)	MCM-17	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016	1310		99				
10/25/2016				2900			
11/30/2016	1050		111	3970			
2/15/2017	1440		170	3820			
5/31/2017	1740			5050			
6/1/2017			98				
6/2/2017		69					
8/2/2017		35					
8/15/2017				4820			
8/16/2017	3010						
8/17/2017		51	84				
4/4/2018		90					
5/8/2018		89					
6/19/2018	8630	110		5640			
6/20/2018			123				
9/25/2018	10700						
9/26/2018		124	117	6770 (D)			
11/6/2018	11100			4160			
11/7/2018		125	120				
3/24/2019	14200			6840			
3/25/2019		98	101				
10/15/2019	15400	107					
10/16/2019			95	7740			
11/7/2019					4140	10900	13500
11/18/2019					4030		
11/19/2019						10000	13300
11/21/2019	15800			7720			
12/4/2019						11000	13200
12/5/2019					3840		
12/17/2019						9860	
12/18/2019					3880		12500
1/8/2020						9760	12300
1/9/2020					3520		
1/21/2020					3280	10100	12000
2/4/2020					3220	10600	12300
2/13/2020					3580	10900	12400
3/27/2020	16400	110	110	10200	3090	14300	14600

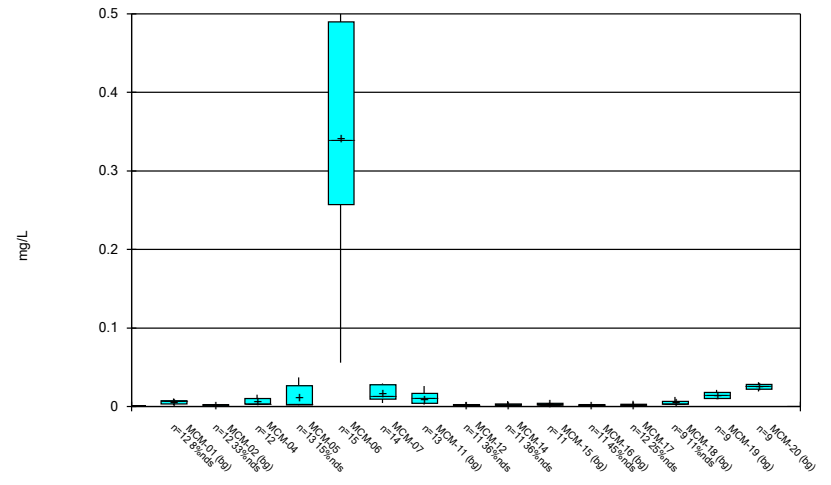
FIGURE B.

Box & Whiskers Plot



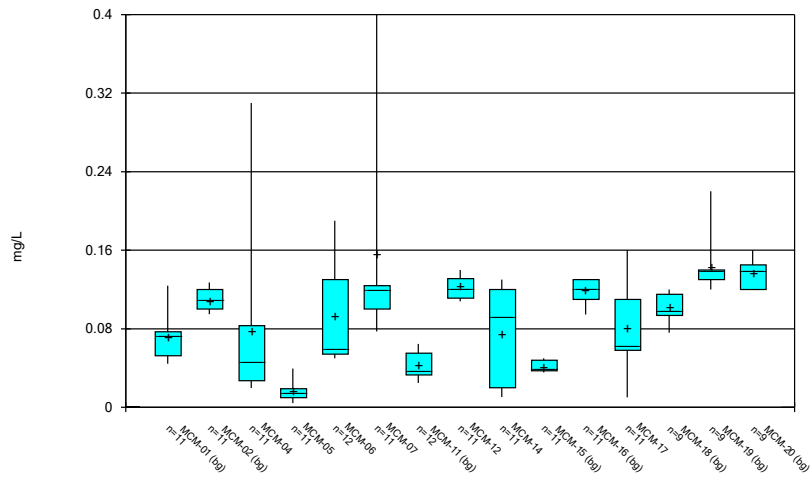
Constituent: Antimony Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



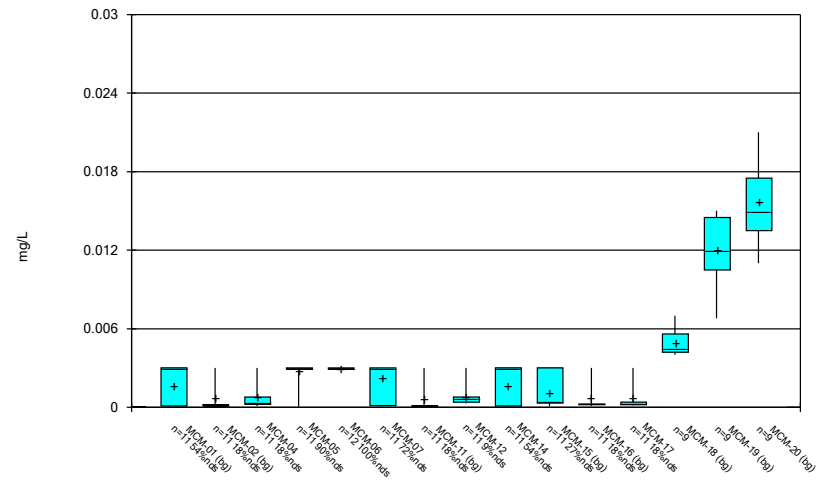
Constituent: Arsenic Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



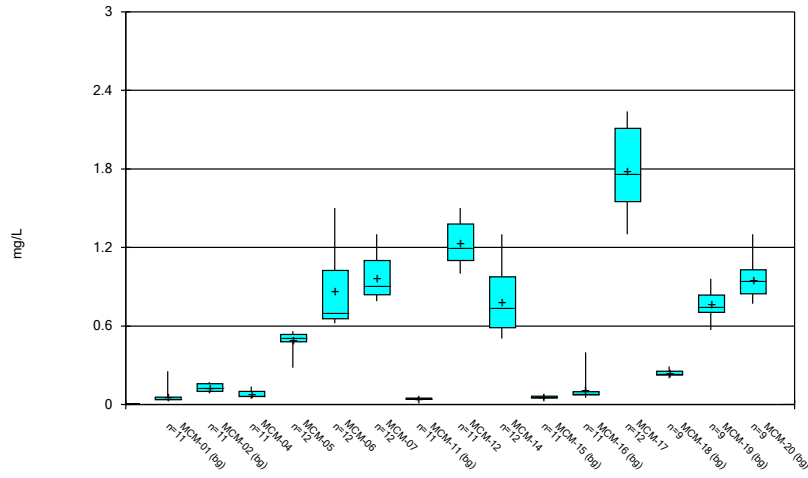
Constituent: Barium Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



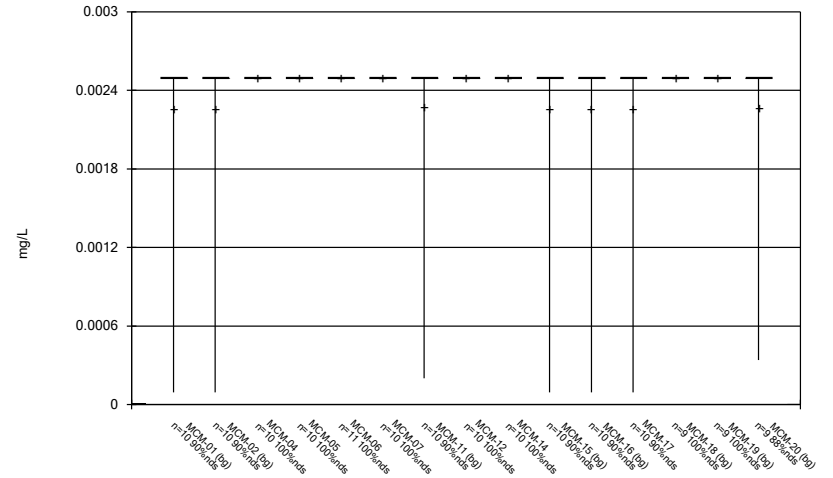
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 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



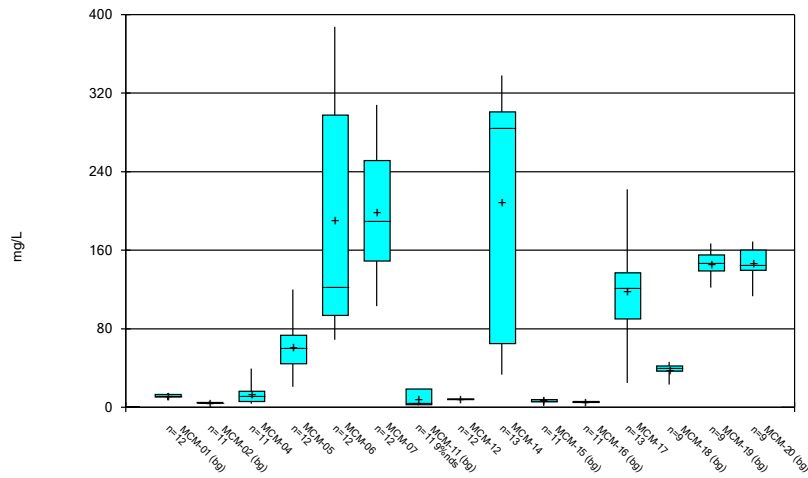
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Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



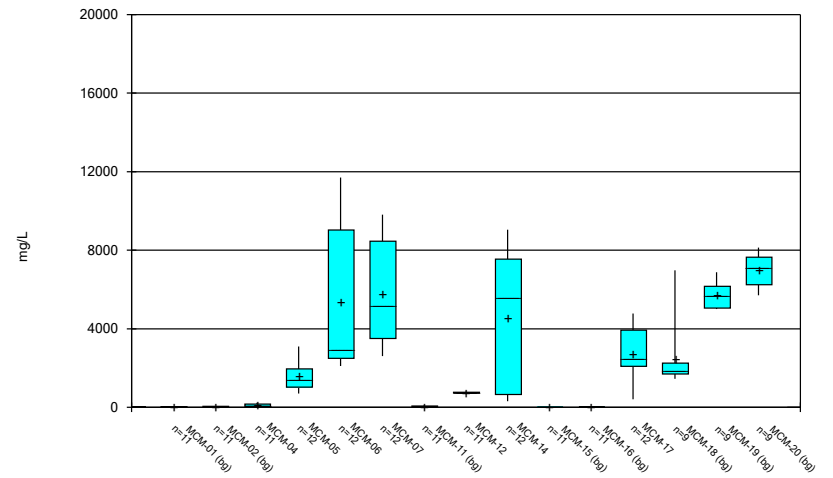
Constituent: Cadmium Analysis Run 5/13/2020 3:01 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



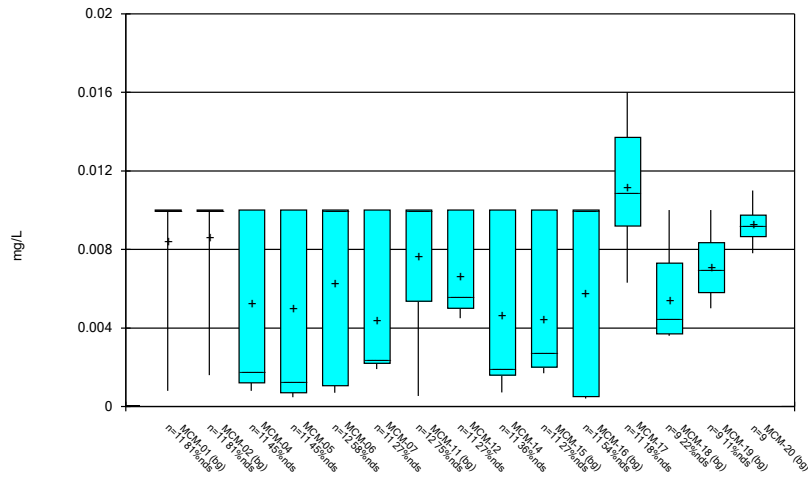
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Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



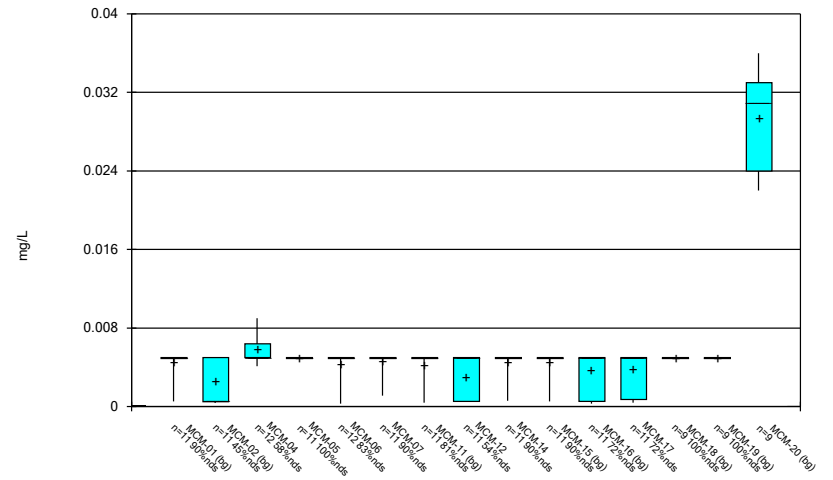
Constituent: Chloride Analysis Run 5/13/2020 3:01 PM
Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



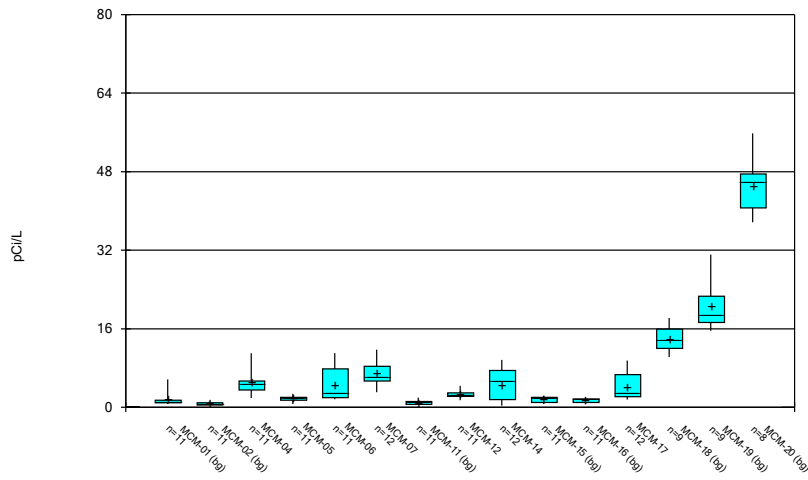
Constituent: Chromium Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



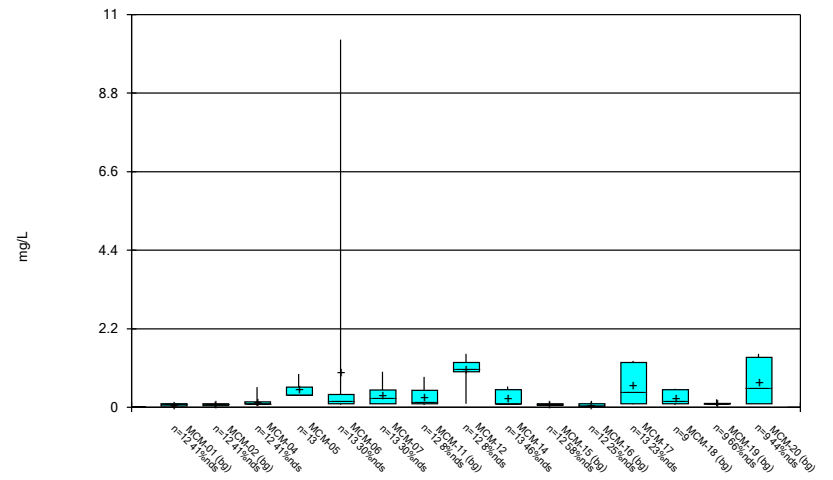
Constituent: Cobalt Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



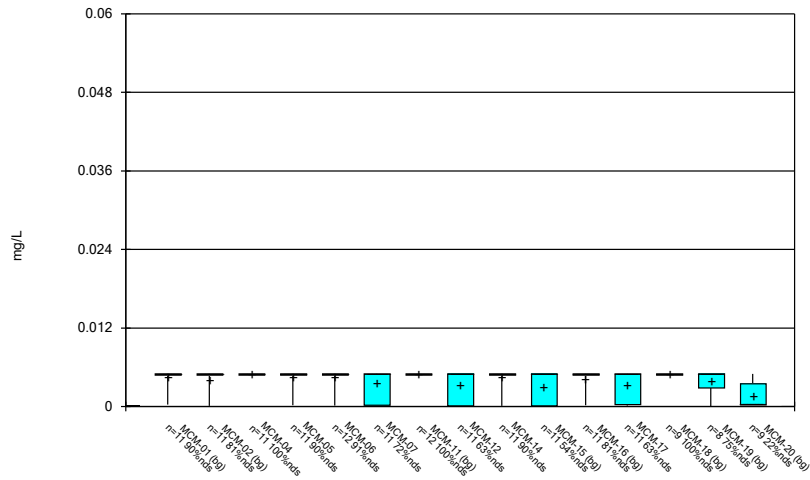
Constituent: Combined Radium 226 + 228 Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



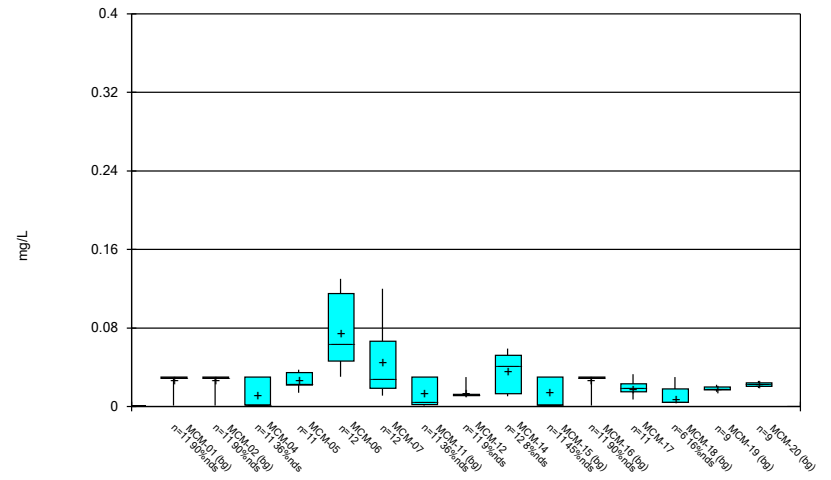
Constituent: Fluoride Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



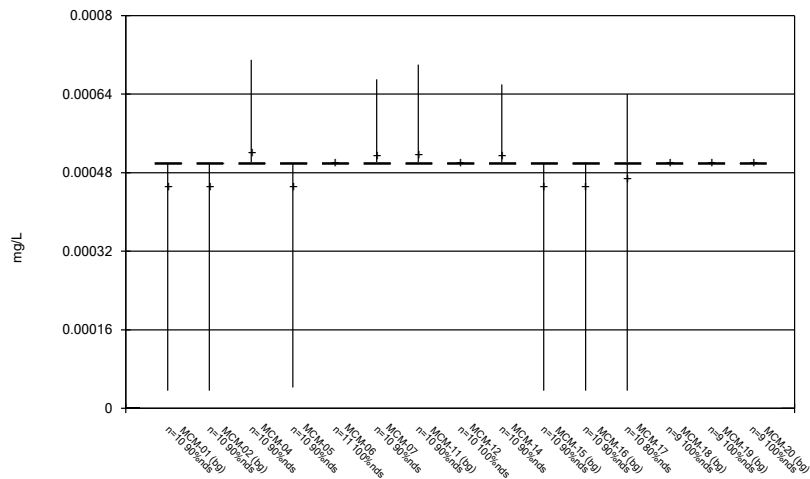
Constituent: Lead Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



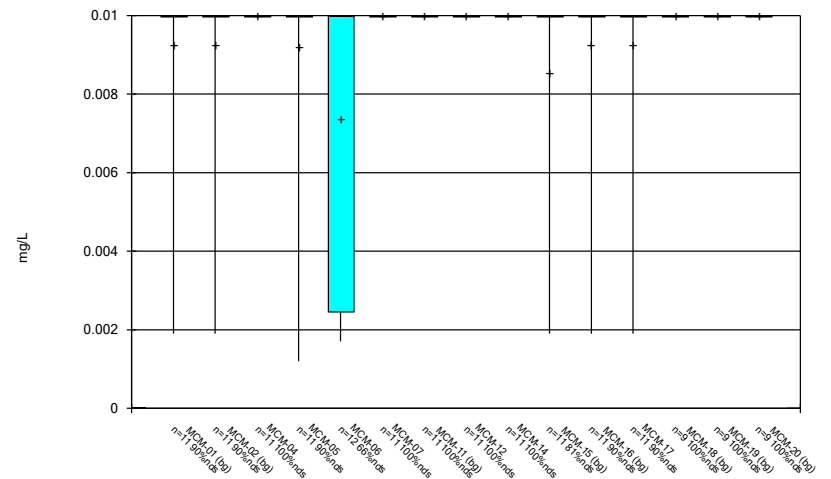
Constituent: Lithium Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



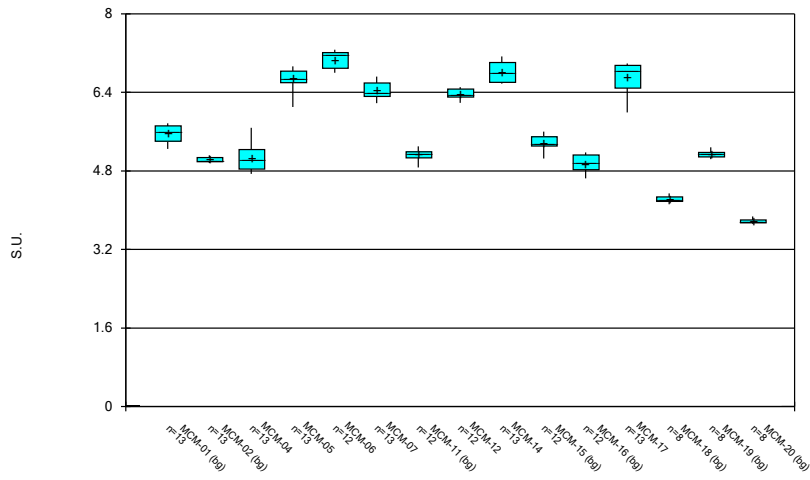
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 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



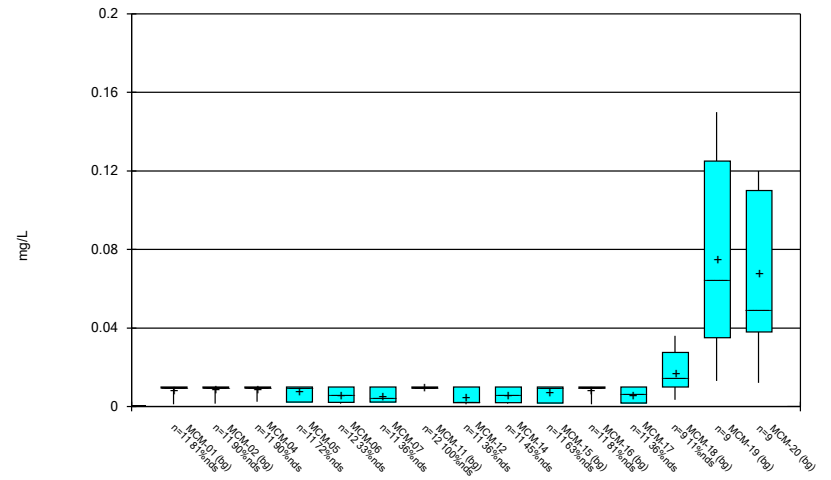
Constituent: Molybdenum Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



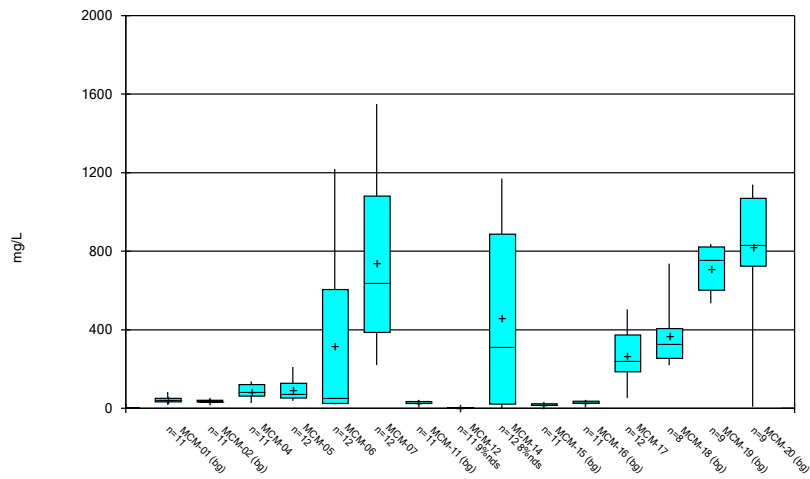
Constituent: pH Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



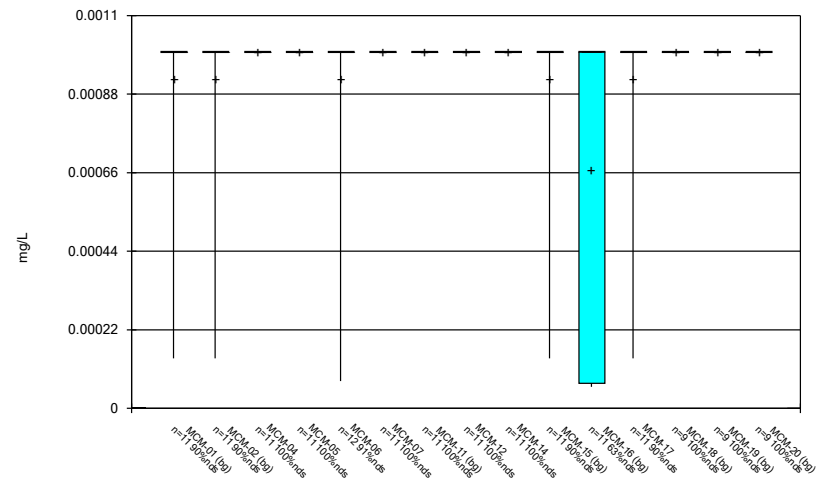
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 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



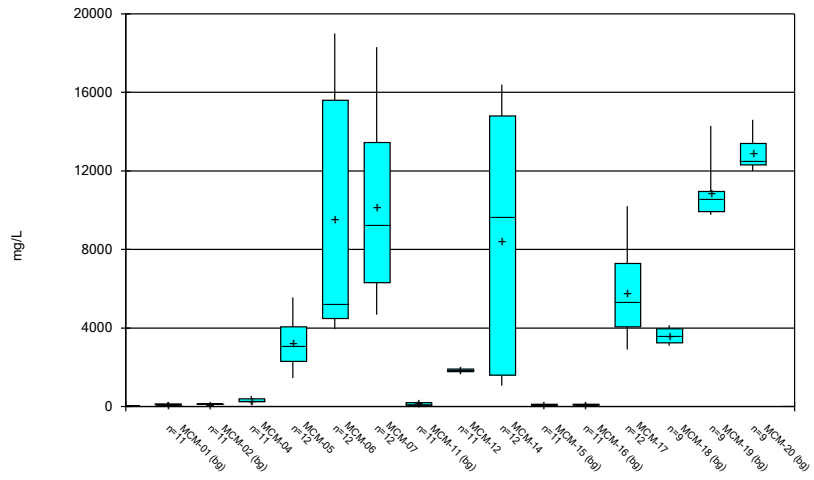
Constituent: Sulfate Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



Constituent: Thallium Analysis Run 5/13/2020 3:01 PM
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 3:01 PM

Plant McManus Client: Southern Company Data: McManus Ash Pond

FIGURE C.

Outlier Summary

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 2:52 PM

	MCM-20 Combined Radium 226 + 228 (pCi/L)	MCM-19 Lead (mg/L)	MCM-18 Lithium (mg/L)
11/18/2019		<0.1 (o)	
1/21/2020		<0.15 (o)	
2/4/2020		<0.3 (o)	
2/13/2020	76.3 (o)	<0.025 (o)	

FIGURE D.

Appendix III Interwell Prediction Limits Summary Table - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 11:55 AM

Constituent	Well	Upper Lim.	Lower Lim	Date	Observ.	Sig.	Bg	NBq	Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-12	1.3	n/a	3/27/2020	1.5	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-17	1.3	n/a	3/27/2020	1.8	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Calcium (mg/L)	MCM-06	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-07	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-14	169	n/a	3/27/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-17	169	n/a	3/27/2020	222	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Chloride (mg/L)	MCM-06	8130	n/a	3/28/2020	9190	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-07	8130	n/a	3/28/2020	9070	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
pH (S.U.)	MCM-05	5.77	3.72	3/28/2020	6.6	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-06	5.77	3.72	3/28/2020	6.8	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-07	5.77	3.72	3/28/2020	6.35	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-12	5.77	3.72	3/27/2020	6.33	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-14	5.77	3.72	3/27/2020	6.59	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-17	5.77	3.72	3/27/2020	6.93	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-06	14600	n/a	3/28/2020	18800	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-07	14600	n/a	3/28/2020	18300	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-14	14600	n/a	3/27/2020	16400	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)

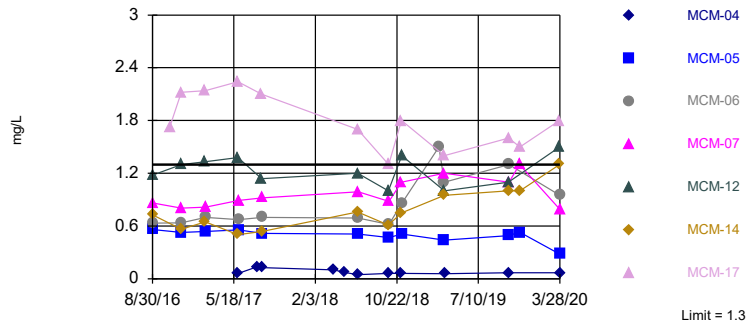
Appendix III Interwell Prediction Limits Summary Table - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 11:55 AM

Constituent	Well	Upper Lim.	Lower Lim	Date	Observ.	Sig.	Bg	NBq	Mean	Std. Dev.	%NDs	ND Adj.	Alpha	Method
Boron (mg/L)	MCM-04	1.3	n/a	3/28/2020	0.067	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-05	1.3	n/a	3/28/2020	0.28	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-06	1.3	n/a	3/28/2020	0.95	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-07	1.3	n/a	3/28/2020	0.79	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-12	1.3	n/a	3/27/2020	1.5	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-14	1.3	n/a	3/27/2020	1.3	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Boron (mg/L)	MCM-17	1.3	n/a	3/27/2020	1.8	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Calcium (mg/L)	MCM-04	169	n/a	3/28/2020	15.5	No	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-05	169	n/a	3/28/2020	25.8	No	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-06	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-07	169	n/a	3/28/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-12	169	n/a	3/27/2020	8.3	No	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-14	169	n/a	3/27/2020	286	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Calcium (mg/L)	MCM-17	169	n/a	3/27/2020	222	Yes	83	n/a	n/a	n/a	1.205	n/a	0.0115	NP Inter (normality)
Chloride (mg/L)	MCM-04	8130	n/a	3/28/2020	71.4	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-05	8130	n/a	3/28/2020	693	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-06	8130	n/a	3/28/2020	9190	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-07	8130	n/a	3/28/2020	9070	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-12	8130	n/a	3/27/2020	675	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-14	8130	n/a	3/27/2020	7680	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Chloride (mg/L)	MCM-17	8130	n/a	3/27/2020	4770	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Fluoride (mg/L)	MCM-04	1.5	n/a	3/28/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-05	1.5	n/a	3/28/2020	0.34	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-06	1.5	n/a	3/28/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-07	1.5	n/a	3/28/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-12	1.5	n/a	3/27/2020	1.1	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-14	1.5	n/a	3/27/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
Fluoride (mg/L)	MCM-17	1.5	n/a	3/27/2020	0.1ND	No	87	n/a	n/a	n/a	35.63	n/a	0.01099	NP Inter (normality)
pH (S.U.)	MCM-04	5.77	3.72	3/28/2020	5.27	No	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-05	5.77	3.72	3/28/2020	6.6	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-06	5.77	3.72	3/28/2020	6.8	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-07	5.77	3.72	3/28/2020	6.35	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-12	5.77	3.72	3/27/2020	6.33	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-14	5.77	3.72	3/27/2020	6.59	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
pH (S.U.)	MCM-17	5.77	3.72	3/27/2020	6.93	Yes	86	n/a	n/a	n/a	0	n/a	0.02223	NP Inter (normality)
Sulfate (mg/L)	MCM-04	1140	n/a	3/28/2020	86.6	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-05	1140	n/a	3/28/2020	63.8	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-06	1140	n/a	3/28/2020	701	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-07	1140	n/a	3/28/2020	1090	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-12	1140	n/a	3/27/2020	0.5ND	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-14	1140	n/a	3/27/2020	899	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Sulfate (mg/L)	MCM-17	1140	n/a	3/27/2020	504	No	81	n/a	n/a	n/a	0	n/a	0.01177	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-04	14600	n/a	3/28/2020	284	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-05	14600	n/a	3/28/2020	1470	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-06	14600	n/a	3/28/2020	18800	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-07	14600	n/a	3/28/2020	18300	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-12	14600	n/a	3/27/2020	1970	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-14	14600	n/a	3/27/2020	16400	Yes	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)
Total Dissolved Solids [TDS] (mg/L)	MCM-17	14600	n/a	3/27/2020	10200	No	82	n/a	n/a	n/a	0	n/a	0.01163	NP Inter (normality)

Exceeds Limit: MCM-12, MCM-17

Prediction Limit
Interwell Non-parametric

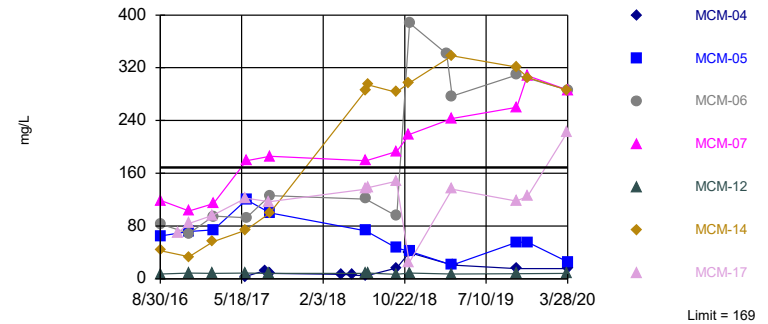


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 82 background values. Report alpha = 0.07865. Individual comparison alpha = 0.01163. Most recent point for each compliance well compared to limit.

Constituent: Boron Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limit: MCM-06, MCM-07, MCM-14, MCM-17

Prediction Limit
Interwell Non-parametric

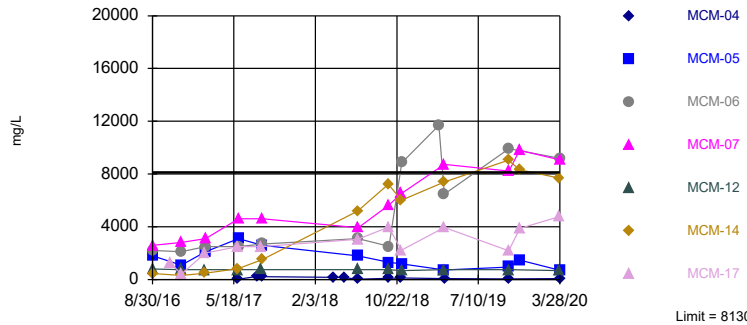


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 83 background values. 1.205% NDs. Report alpha = 0.07778. Individual comparison alpha = 0.0115. Most recent point for each compliance well compared to limit.

Constituent: Calcium Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limit: MCM-06, MCM-07

Prediction Limit
Interwell Non-parametric

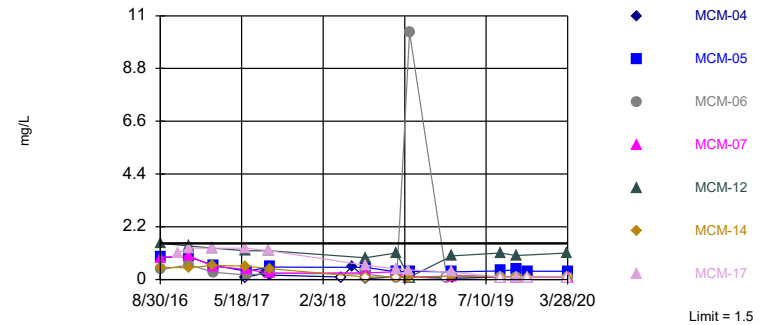


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 82 background values. Report alpha = 0.07865. Individual comparison alpha = 0.01163. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Within Limit

Prediction Limit
Interwell Non-parametric

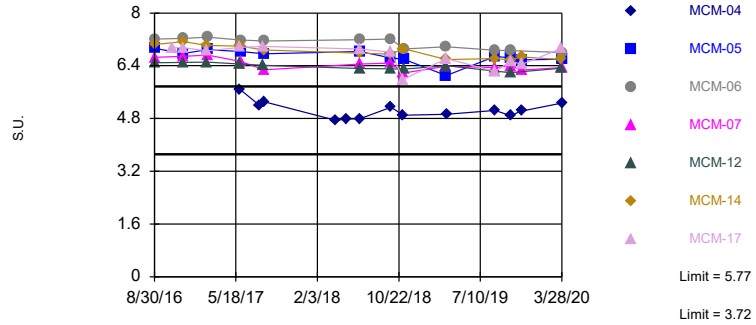


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 87 background values. 35.63% NDs. Report alpha = 0.07447. Individual comparison alpha = 0.01099. Most recent point for each compliance well compared to limit.

Constituent: Fluoride Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limits: MCM-05, MCM-06, MCM-07, MCM-12, MCM-14, MCM-17

Prediction Limit
Interwell Non-parametric



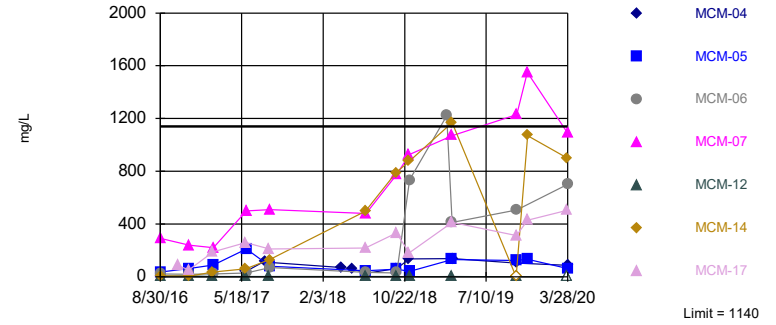
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limits are highest and lowest of 86 background values. Report alpha = 0.1505. Individual comparison alpha = 0.02223. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Within Limit

Hollow symbols indicate censored values.

Prediction Limit
Interwell Non-parametric

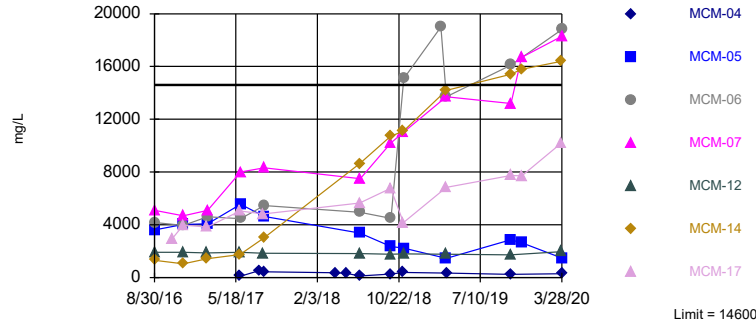


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 81 background values. Report alpha = 0.07955. Individual comparison alpha = 0.01177. Most recent point for each compliance well compared to limit.

Constituent: Sulfate Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Exceeds Limit: MCM-06, MCM-07, MCM-14

Prediction Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 82 background values. Report alpha = 0.07865. Individual comparison alpha = 0.01163. Most recent point for each compliance well compared to limit.

Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:54 AM View: Appendix III
Plant McManus Client: Southern Company Data: McManus Ash Pond

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-16 (bg)	MCM-14	MCM-12	MCM-07	MCM-06	MCM-05	MCM-17	MCM-02 (bg)
8/30/2016	0.0325 (J)	0.0972 (J)	0.726	1.18					
8/31/2016					0.863	0.632	0.56		
10/25/2016								1.73	
11/30/2016	0.0334 (J)	0.0964	0.565	1.3	0.804	0.637	0.529	2.12	
2/15/2017	0.254	0.398	0.647	1.33				2.14	
2/16/2017					0.815	0.698	0.539		
5/31/2017			0.503	1.38				2.24	0.161
6/1/2017	0.0564	0.0776							
6/2/2017					0.891	0.674	0.555		
8/2/2017									0.158
8/15/2017				1.14				2.1	
8/16/2017	0.0435		0.539						0.148
8/17/2017		0.0853			0.922	0.7	0.516		
4/4/2018									
4/5/2018									0.13
5/8/2018									
5/9/2018									0.12
6/19/2018	0.04 (J)		0.76	1.2				1.7	0.13
6/20/2018		0.079				0.69	0.51		
6/21/2018					0.99				
9/25/2018			0.61	1					
9/26/2018	0.038 (J)	0.072						1.3	0.1
9/27/2018					0.88	0.62	0.47		
11/6/2018			0.75		1.1			1.8	
11/7/2018	0.037 (J)	0.074		1.4		0.86	0.51		0.1
3/6/2019						1.5			
3/24/2019			0.95	1	1.2	1.1	0.44	1.4	
3/25/2019	0.038 (J)	0.067							0.091
10/15/2019			1	1.1					
10/16/2019	0.036 (J)	0.051					0.49	1.6	0.085
10/17/2019					1.1	1.3			
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019					1.3		0.53		
11/21/2019			1					1.5	
12/4/2019									
12/5/2019									
12/17/2019									
12/18/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	0.064 (J)								
3/27/2020		0.088 (J)	1.3	1.5				1.8	0.17 (J)
3/28/2020					0.79	0.95	0.28 (J)		

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-11 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	0.0521					
6/1/2017		0.0608				
6/2/2017			0.0495			
8/2/2017	0.0392 (J)	0.137	0.0333 (J)			
8/15/2017	0.0448					
8/16/2017						
8/17/2017		0.128	0.0593			
4/4/2018	0.046	0.1	0.065			
4/5/2018						
5/8/2018	0.048	0.074	0.062			
5/9/2018						
6/19/2018	0.04		0.064			
6/20/2018		0.045				
6/21/2018						
9/25/2018	0.043					
9/26/2018			0.06			
9/27/2018		0.06				
11/6/2018	0.046	0.06				
11/7/2018			0.062 (J)			
3/6/2019						
3/24/2019						
3/25/2019	0.03 (J)	0.058	0.057			
10/15/2019		0.068	0.046			
10/16/2019	0.032 (J)					
10/17/2019						
11/7/2019				0.84	1.1	0.27
11/18/2019						0.29 (J)
11/19/2019				0.83	1.3	
11/20/2019						
11/21/2019						
12/4/2019				0.68	0.81	
12/5/2019						0.23
12/17/2019				0.57		
12/18/2019					0.77	0.23
1/8/2020				0.73	0.9	
1/9/2020						0.2
1/21/2020				0.75	0.94	0.24 (J)
2/4/2020				0.79 (J)	0.96 (J)	0.24 (J)
2/13/2020				0.74	0.88	0.22
3/26/2020						
3/27/2020	0.058 (J)		0.076 (J)	0.96	0.94	0.24 (J)
3/28/2020		0.067 (J)				

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-12	MCM-14	MCM-16 (bg)	MCM-06	MCM-07	MCM-05	MCM-17	MCM-11 (bg)
8/30/2016	7.3	7.05	42.8	4.02					
8/31/2016					82.8	119	65		
10/25/2016								69.4	
11/30/2016	10.8	8.69	33.2	4.87	68.7	103	71.7	83.9	
2/15/2017	14.3	8.34	56.1	6.61				96.3	
2/16/2017					94.8	114	74		
5/31/2017		8.85	73.6					122	18.6
6/1/2017	12.7 (J)			6.42					
6/2/2017					92.5	179	120		
8/2/2017									18.5
8/15/2017		8.05						117	4.09
8/16/2017	8.7		99.6						
8/17/2017				5.62	126	186	100		
4/4/2018									<25
4/5/2018									
5/8/2018									18.4 (J)
5/9/2018									
6/19/2018	11.6 (J)	8.3	285					136	4.3
6/20/2018				5.7	121		72.8		
6/21/2018						179			
6/28/2018	13	8.9	294					138	
9/25/2018		6.8	283						6.2 (D)
9/26/2018	12.8 (J)			5.3				148	
9/27/2018					95.1	193	46.6		
11/6/2018			297			219		24.7	1.8
11/7/2018	11.9	8.5		5.3	387.5 (D)		41.8		
3/6/2019					341				
3/24/2019		7.4	338		277	243	20.9 (J)	136	
3/25/2019	12.6 (J)			5.7					2.5 (D)
10/15/2019		7.9	321						
10/16/2019	13.6			4.8			55.2	118	2.2
10/17/2019					309	260			
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019						308	55.8		
11/21/2019			305					125	
12/4/2019									
12/5/2019									
12/17/2019									
12/18/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	10.1								
3/27/2020		8.3	286	5.4				222	3.3
3/28/2020					286	286	25.8		

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-20 (bg)	MCM-18 (bg)	MCM-19 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	5.9					
6/1/2017		3.65				
6/2/2017			2.77			
8/2/2017	4.69	12.4	1.27			
8/15/2017						
8/16/2017	5.25					
8/17/2017		8.17	5.53			
4/4/2018		6.8	6.5			
4/5/2018	5					
5/8/2018		5.7	6.7			
5/9/2018	4.7					
6/19/2018	4.8		7.4			
6/20/2018		4.3				
6/21/2018						
6/28/2018						
9/25/2018						
9/26/2018	4.6		8.5 (J)			
9/27/2018		16.4 (J)				
11/6/2018		39.5				
11/7/2018	4.6		9.8			
3/6/2019						
3/24/2019						
3/25/2019	4.7	20.8 (J)	7.8			
10/15/2019		15.5	6.7			
10/16/2019	4.9					
10/17/2019						
11/7/2019				163	46.2	158
11/18/2019					41.8	
11/19/2019				169		152
11/20/2019						
11/21/2019						
12/4/2019				140		142
12/5/2019					40.5	
12/17/2019						136
12/18/2019				145	42	
1/8/2020				157		147
1/9/2020					37.1	
1/21/2020				152	40.1	167
2/4/2020				139	36.2	142
2/13/2020				146	38.9	148
3/26/2020						
3/27/2020	4.9		5.9	113	23.2	122
3/28/2020		15.5				

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-16 (bg)	MCM-14	MCM-12	MCM-07	MCM-06	MCM-05	MCM-17	MCM-02 (bg)
8/30/2016	9.7	26	450	800					
8/31/2016					2600	2200	1800		
10/25/2016								1300	
11/30/2016	19	27	310	760	2800	2100	1100	400	
2/15/2017	21	30	490	740				2000	
2/16/2017					3100	2500	2100		
5/31/2017			820	740				2500	39
6/1/2017	12	27							
6/2/2017					4600	2500	3100		
8/2/2017									42
8/15/2017				750				2500	
8/16/2017	14		1500						41
8/17/2017		32			4600	2700	2600		
4/4/2018									
4/5/2018									40.2
5/8/2018									
5/9/2018									40.6
6/19/2018	24.4		5180	760				3050	37.7
6/20/2018		30				3100	1800		
6/21/2018					3920				
9/25/2018			7220	752 (D)					
9/26/2018	23.4	28.4						3965 (D)	33.4
9/27/2018					5660 (D)	2510 (D)	1300		
11/6/2018			6020		6520			2230	
11/7/2018	21.8	25.1		665		8860	1180		30.7
3/6/2019						11700			
3/24/2019			7400	744	8720	6470	717	3960	
3/25/2019	19.4	21.8							33.5
10/15/2019			9050	744					
10/16/2019	21.4	20					941 (D)	2181.5 (D)	33.1
10/17/2019					8210	9930			
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019					9810		1480		
11/21/2019			8330					3890	
12/4/2019									
12/5/2019									
12/17/2019									
12/18/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	23								
3/27/2020		23.6	7680	675				4770	32.9
3/28/2020					9070	9190	693		

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-11 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	98					
6/1/2017		22				
6/2/2017			11			
8/2/2017	57	230	3.2			
8/15/2017	15					
8/16/2017						
8/17/2017		210	12			
4/4/2018	69	156	13.4			
4/5/2018						
5/8/2018	72.3	140	13.2			
5/9/2018						
6/19/2018	17.3		13.7			
6/20/2018		27.5				
6/21/2018						
9/25/2018	31.3					
9/26/2018			18.5			
9/27/2018		101				
11/6/2018	9.8	107				
11/7/2018			20.2			
3/6/2019						
3/24/2019						
3/25/2019	12.9	78.5	19.7			
10/15/2019		46	17.1			
10/16/2019	12.2					
10/17/2019						
11/7/2019				6170	7880	2360
11/18/2019						6970
11/19/2019				5650	8130	
11/20/2019						
11/21/2019						
12/4/2019				6100	7410	
12/5/2019						2130
12/17/2019				5660		
12/18/2019					7170	2090
1/8/2020				5070	6480	
1/9/2020						1750
1/21/2020				5010	6000	1630
2/4/2020				5030	5700	1760
2/13/2020				6140	7060	1850
3/26/2020						
3/27/2020	14.5		14.1	6870	7110	1450
3/28/2020		71.4				

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-16 (bg)	MCM-14	MCM-12	MCM-06	MCM-05	MCM-07	MCM-17	MCM-11 (bg)
8/30/2016	0.03 (J)	0.04 (J)	0.5	1.5					
8/31/2016					0.41	0.93	0.92		
10/25/2016								1.1	
11/30/2016	0.04 (J)	0.18 (J)	0.49	1.4	0.61	0.93	0.99	1.3	
2/15/2017	0.007 (J)	0.02 (J)	0.58	1.3				1.3	
2/16/2017					0.3 (J)	0.6	0.54		
5/31/2017			0.56	1.2				1.3	0.85
6/1/2017	<0.1	0.005 (J)							
6/2/2017					0.19 (J)	0.34	0.42		
8/2/2017									0.69
8/15/2017				1.2				1.2	0.29 (J)
8/16/2017	0.03 (J)		0.45						
8/17/2017		0.04 (J)			0.26 (J)	0.52	0.27 (J)		
4/4/2018									0.32
4/5/2018									
5/8/2018									0.63
5/9/2018									
6/19/2018	<0.1		<0.1	0.91				0.6	0.17 (J)
6/20/2018		0.038 (J)			0.22 (J)	0.5			
6/21/2018							0.28 (J)		
9/25/2018			<0.1	1.1					0.15 (J)
9/26/2018	0.12 (J)	0.029						0.44 (D)	
9/27/2018					0.068 (J)	0.32	0.32 (D)		
11/6/2018			0.084 (J)				0.086 (J)	0.4	<0.1
11/7/2018	<0.1	<0.1		<0.1	10.3	0.35			
3/6/2019					<0.1				
3/24/2019			0.14 (J)	0.99	0.19 (J)	0.32	0.14 (J)	0.31	
3/25/2019	0.038 (J)	0.041 (J)							0.12 (J)
8/26/2019			<0.1						
8/27/2019	<0.1	<0.1		1.1				<0.1	
8/28/2019					<0.1	0.36	<0.1		0.068 (J)
10/15/2019			<0.1	1					
10/16/2019	0.046 (JD)	0.044 (J)				0.41		0.083 (J)	0.1 (J)
10/17/2019					<0.1		<0.1		
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019						0.34	<0.1		
11/21/2019			<0.1					<0.1	
12/4/2019									
12/5/2019									
12/17/2019									
12/18/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	<0.1								
3/27/2020		<0.1	<0.1	1.1				<0.1	0.066 (J)
3/28/2020					<0.1	0.34	<0.1		

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-18 (bg)	MCM-20 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	0.01 (J)					
6/1/2017		<0.1				
6/2/2017			<0.1			
8/2/2017	0.14 (J)	0.27 (J)	0.05 (J)			
8/15/2017						
8/16/2017	0.13 (J)					
8/17/2017		0.18 (J)	<0.1			
4/4/2018		<0.1	<0.1			
4/5/2018	<0.1					
5/8/2018		0.56	<0.1			
5/9/2018	<0.1					
6/19/2018	0.065 (J)		0.057 (J)			
6/20/2018		0.033 (J)				
6/21/2018						
9/25/2018						
9/26/2018	0.029		0.029			
9/27/2018		0.12 (J)				
11/6/2018		<0.1				
11/7/2018	<0.1		<0.1			
3/6/2019						
3/24/2019						
3/25/2019	0.039 (J)	0.055 (J)	0.036 (J)			
8/26/2019						
8/27/2019		<0.1	<0.1			
8/28/2019	<0.1					
10/15/2019		0.095 (J)	0.14 (J)			
10/16/2019	0.044 (JD)					
10/17/2019						
11/7/2019				<0.1	0.49	1.4
11/18/2019					0.52	
11/19/2019				0.033 (J)		1.2
11/20/2019						
11/21/2019						
12/4/2019				0.22 (J)		1.4
12/5/2019					0.5	
12/17/2019				<0.1		
12/18/2019					0.33	1.5
1/8/2020				<0.1		<0.1
1/9/2020					0.12 (J)	
1/21/2020				0.11 (J)	0.13 (J)	0.53
2/4/2020				<0.1	0.18 (J)	<0.1
2/13/2020				<0.1	0.077 (J)	<0.1
3/26/2020						
3/27/2020	<0.1		<0.1	<0.1	0.06 (J)	<0.1
3/28/2020		<0.1				

Prediction Limit

Constituent: pH (S.U.) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-14	MCM-12	MCM-16 (bg)	MCM-07	MCM-05	MCM-06	MCM-17	MCM-11 (bg)
8/30/2016	5.66	7.04	6.49	5.18					
8/31/2016					6.66	6.93	7.21		
10/25/2016								6.95	
11/30/2016	5.36	7.13	6.5	4.96	6.69	6.77	7.23	6.95	
2/15/2017	5.25	7.02	6.51	5.13				6.85	
2/16/2017					6.72	6.89	7.27		
5/31/2017		7	6.45					6.96	5.29
6/1/2017	5.59			4.99					
6/2/2017					6.53	6.83	7.18		
8/2/2017									5.19
8/15/2017			6.41					6.99	5.19
8/16/2017	5.58	6.88							
8/17/2017				4.68	6.28	6.76	7.15		
4/4/2018									5.19
4/5/2018									
5/8/2018									5.3
5/9/2018									
6/19/2018	5.51	6.78	6.32					6.91	5.15
6/20/2018				4.77		6.83	7.19		
6/21/2018					6.45				
9/25/2018		6.75	6.31						5.13
9/26/2018	5.32			4.65				6.81	
9/27/2018					6.48	6.64	7.21		
11/6/2018		6.92			6.18			5.99	5.08
11/7/2018	5.72		6.3	4.99		6.6	6.91		
3/24/2019		6.59	6.4		6.38	6.1	6.98	6.62	
3/25/2019	5.75			5.13					5.05
8/26/2019		6.62							
8/27/2019	5.58		6.24	4.88				6.23	
8/28/2019					6.35	6.69	6.87		4.87
10/15/2019		6.58	6.19						
10/16/2019	5.72			4.89		6.64		6.54	5.05
10/17/2019					6.4		6.86		
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019	5.77				6.27	6.58			
11/21/2019		6.67						6.44	
12/4/2019									
12/5/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	5.45								
3/27/2020		6.59	6.33	5.12				6.93	5.09
3/28/2020					6.35	6.6	6.8		

Prediction Limit

Constituent: pH (S.U.) Analysis Run 5/13/2020 11:55 AM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	5.06					
6/1/2017		5.68				
6/2/2017			5.31			
8/2/2017	5	5.2	5.05			
8/15/2017						
8/16/2017	4.98					
8/17/2017		5.31	5.52			
4/4/2018		4.74	5.45			
4/5/2018	5.02					
5/8/2018		4.78	5.54			
5/9/2018	4.96					
6/19/2018	5.02		5.6			
6/20/2018		4.79				
6/21/2018						
9/25/2018						
9/26/2018	5.06		5.17			
9/27/2018		5.14				
11/6/2018		4.9				
11/7/2018	5.03		5.47			
3/24/2019			5.4			
3/25/2019	5.08	4.93				
8/26/2019						
8/27/2019		5.05	5.35			
8/28/2019	4.99					
10/15/2019		4.89	5.32			
10/16/2019	4.98					
10/17/2019						
11/7/2019				4.25	5.21	3.79
11/18/2019				4.12		
11/19/2019	5.11				5.15	3.78
11/20/2019		5.03				
11/21/2019						
12/4/2019					5.28 (D)	3.87 (D)
12/5/2019				4.17 (D)		
1/8/2020					5.04	3.77
1/9/2020				4.19		
1/21/2020				4.28	5.1	3.73
2/4/2020				4.26	5.15	3.72
2/13/2020				4.2	5.07	3.75
3/26/2020						
3/27/2020	5.12		5.3	4.34	5.14	3.81
3/28/2020		5.27				

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-16 (bg)	MCM-14	MCM-12	MCM-07	MCM-06	MCM-05	MCM-17	MCM-11 (bg)
8/30/2016	17	24	6.4	4.3					
8/31/2016					290	21	37		
10/25/2016								84	
11/30/2016	33	26	4.5	7.6	240	19	63	52	
2/15/2017	83	30	37	3				190	
2/16/2017					220	22	90		
5/31/2017			61	2.5				260	40
6/1/2017	51	24							
6/2/2017					500	28	210		
8/2/2017									34
8/15/2017				3.2				210	24
8/16/2017	36		130						
8/17/2017		26			510	69	80		
4/4/2018									33.9
4/5/2018									
5/8/2018									35.7
5/9/2018									
6/19/2018	50.3		498	1.6				218	23.7
6/20/2018		31.2				33	46 (J)		
6/21/2018					481				
9/25/2018			790	1					25.6
9/26/2018	54.1	36.8						333 (D)	
9/27/2018					777 (D)	29.4 (D)	58.5 (J)		
11/6/2018			875		926			182	25.2
11/7/2018	45.6	35		0.41 (J)		734	41.3 (J)		
3/6/2019						1220 (J)			
3/24/2019			1170	1.5	1070	413	131	413	
3/25/2019	43	40.1							24.9
10/15/2019			<1	0.54 (J)					
10/16/2019	31.9	28.5					122.5 (D)	312.5 (D)	17.4
10/17/2019					1230	507			
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019					1550		132		
11/21/2019			1070					428	
12/4/2019									
12/5/2019									
12/17/2019									
12/18/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	36.2								
3/27/2020		31.2	899	<1				504	23.4
3/28/2020					1090	701	63.8		

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-02 (bg)	MCM-04	MCM-15 (bg)	MCM-18 (bg)	MCM-19 (bg)	MCM-20 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	46					
6/1/2017		42				
6/2/2017			13			
8/2/2017	43	120	14			
8/15/2017						
8/16/2017	41					
8/17/2017		110	14			
4/4/2018		70.6	13.4			
4/5/2018	33.4					
5/8/2018		61.4	14.8			
5/9/2018	36					
6/19/2018	35.5		15.5			
6/20/2018		25.3				
6/21/2018						
9/25/2018						
9/26/2018	39.6		23			
9/27/2018		63.4				
11/6/2018		136				
11/7/2018	35.8		22.2			
3/6/2019						
3/24/2019						
3/25/2019	34.2	137	22.4			
10/15/2019		105	17.9			
10/16/2019	24.4					
10/17/2019						
11/7/2019				379	832	1010
11/18/2019				737		
11/19/2019					795	1140
11/20/2019						
11/21/2019						
12/4/2019					810	1020
12/5/2019				351		
12/17/2019					535	
12/18/2019						8.1
1/8/2020					603	747
1/9/2020				254		
1/21/2020				254	611	798
2/4/2020				432	599	1120
2/13/2020				300	761	833
3/26/2020						
3/27/2020	28.6		14.6	219	836	700
3/28/2020		86.6				

Prediction Limit

Constituent: Total Dissolved Solids [TDS] (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III

Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-01 (bg)	MCM-16 (bg)	MCM-14	MCM-12	MCM-07	MCM-06	MCM-05	MCM-17	MCM-02 (bg)
8/30/2016	86	99	1310	1910					
8/31/2016					5100	4160	3620		
10/25/2016								2900	
11/30/2016	131	111	1050	1910	4680	3950	4030	3970	
2/15/2017	212	170	1440	1870				3820	
2/16/2017					5080	4600	4080		
5/31/2017			1740	1920				5050	123
6/1/2017	103	98							
6/2/2017					8000	4470	5560		
8/2/2017									136
8/15/2017				1840				4820	
8/16/2017	65		3010						124
8/17/2017		84			8320	5450	4620		
4/4/2018									
4/5/2018									128
5/8/2018									
5/9/2018									127
6/19/2018	142		8630	1820				5640	143
6/20/2018		123				4940	3370		
6/21/2018					7500				
9/25/2018			10700	1760					
9/26/2018	133	117						6770 (D)	132
9/27/2018					10200	4480	2360		
11/6/2018			11100		11000			4160	
11/7/2018	121	120		1800		15100	2230		134
3/6/2019						19000			
3/24/2019			14200	1770	13700	13700	1450	6840	
3/25/2019	116	101							111
10/15/2019			15400	1730					
10/16/2019	104	95					2860	7740	96
10/17/2019					13200	16100			
11/7/2019									
11/18/2019									
11/19/2019									
11/20/2019					16700		2640		
11/21/2019			15800					7720	
12/4/2019									
12/5/2019									
12/17/2019									
12/18/2019									
1/8/2020									
1/9/2020									
1/21/2020									
2/4/2020									
2/13/2020									
3/26/2020	114								
3/27/2020		110	16400	1970				10200	119
3/28/2020					18300	18800	1470		

Prediction Limit

Constituent: Total Dissolved Solids [TDS] (mg/L) Analysis Run 5/13/2020 11:55 AM View: Appendix III
 Plant McManus Client: Southern Company Data: McManus Ash Pond

	MCM-11 (bg)	MCM-04	MCM-15 (bg)	MCM-19 (bg)	MCM-20 (bg)	MCM-18 (bg)
8/30/2016						
8/31/2016						
10/25/2016						
11/30/2016						
2/15/2017						
2/16/2017						
5/31/2017	257					
6/1/2017		97				
6/2/2017			69			
8/2/2017	183	538	35			
8/15/2017	90					
8/16/2017						
8/17/2017		445	51			
4/4/2018	197	365	90			
4/5/2018						
5/8/2018	225	304	89			
5/9/2018						
6/19/2018	112		110			
6/20/2018		114				
6/21/2018						
9/25/2018	137					
9/26/2018			124			
9/27/2018		255				
11/6/2018	89	388				
11/7/2018			125			
3/6/2019						
3/24/2019						
3/25/2019	74	327	98			
10/15/2019		237	107			
10/16/2019	82					
10/17/2019						
11/7/2019				10900	13500	4140
11/18/2019						4030
11/19/2019				10000	13300	
11/20/2019						
11/21/2019						
12/4/2019				11000	13200	
12/5/2019						3840
12/17/2019				9860		
12/18/2019					12500	3880
1/8/2020				9760	12300	
1/9/2020						3520
1/21/2020				10100	12000	3280
2/4/2020				10600	12300	3220
2/13/2020				10900	12400	3580
3/26/2020						
3/27/2020	87		110	14300	14600	3090
3/28/2020		284				

FIGURE E.

Appendix III Trend Tests - Prediction Limit Exceedances - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 12:00 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Calcium (mg/L)	MCM-06	70.43	40	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.12	57	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	90.35	56	43	Yes	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-18 (bg)	-31.34	-26	-25	Yes	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-02 (bg)	-3.69	-37	-34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	2141	49	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	1921	57	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	2.863	35	34	Yes	11	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.09253	-51	-43	Yes	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1303	-47	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.08836	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.08685	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1429	-59	-43	Yes	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4325	46	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3625	56	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	4975	64	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-18 (bg)	-3110	-28	-25	Yes	9	0	n/a	n/a	0.01	NP

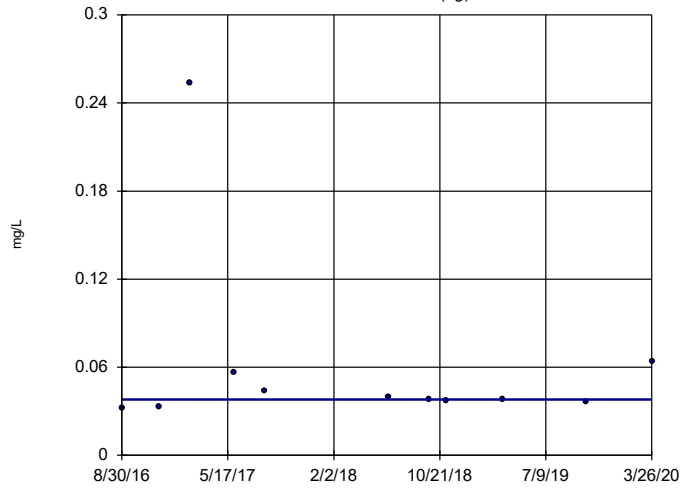
Appendix III Trend Tests - Prediction Limit Exceedances - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 12:00 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	MCM-01 (bg)	0	0	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-02 (bg)	-0.03308	-31	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-11 (bg)	-0.004011	-6	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-12	0	0	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-15 (bg)	0.005553	10	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-16 (bg)	-0.01176	-31	-34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-17	-0.1481	-23	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-18 (bg)	-0.07085	-8	-25	No	9	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-19 (bg)	0.3095	4	25	No	9	0	n/a	n/a	0.01	NP
Boron (mg/L)	MCM-20 (bg)	-0.1716	-3	-25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-01 (bg)	0.552	12	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-02 (bg)	-0.1308	-12	-34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-06	70.43	40	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-07	53.12	57	38	Yes	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-11 (bg)	-6.518	-33	-34	No	11	9.091	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-14	90.35	56	43	Yes	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-15 (bg)	2.147	26	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-16 (bg)	-0.02433	-3	-34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-17	25.9	37	43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-18 (bg)	-31.34	-26	-25	Yes	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-19 (bg)	-57.31	-11	-25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	MCM-20 (bg)	-98.02	-18	-25	No	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-01 (bg)	3.053	23	34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-02 (bg)	-3.69	-37	-34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-06	2141	49	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-07	1921	57	38	Yes	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-11 (bg)	-26.83	-29	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-15 (bg)	2.863	35	34	Yes	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-16 (bg)	-1.918	-21	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-18 (bg)	-2432	-24	-25	No	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-19 (bg)	-326.2	-2	-25	No	9	0	n/a	n/a	0.01	NP
Chloride (mg/L)	MCM-20 (bg)	-6337	-20	-25	No	9	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-01 (bg)	0.0568	20	43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-02 (bg)	0.02709	23	43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-05	-0.09253	-51	-43	Yes	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-06	-0.1303	-47	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-07	-0.1015	-41	-43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-11 (bg)	-0.08836	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-12	-0.08685	-44	-38	Yes	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-14	-0.1429	-59	-43	Yes	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-15 (bg)	-0.06156	-8	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-16 (bg)	-0.01813	-8	-38	No	12	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-17	-0.1398	-33	-43	No	13	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-18 (bg)	0.3337	14	21	No	8	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-19 (bg)	-0.2679	-9	-21	No	8	0	n/a	n/a	0.01	NP
pH (S.U.)	MCM-20 (bg)	-0.1705	-8	-21	No	8	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-01 (bg)	-5.12	-5	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-02 (bg)	-4.55	-11	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-06	4325	46	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-07	3625	56	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-11 (bg)	-55.53	-33	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-14	4975	64	38	Yes	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-15 (bg)	25.05	32	34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-16 (bg)	-1.278	-5	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-18 (bg)	-3110	-28	-25	Yes	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-19 (bg)	3332	9	25	No	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MCM-20 (bg)	-3938	-11	-25	No	9	0	n/a	n/a	0.01	NP

Sen's Slope Estimator

MCM-01 (bg)

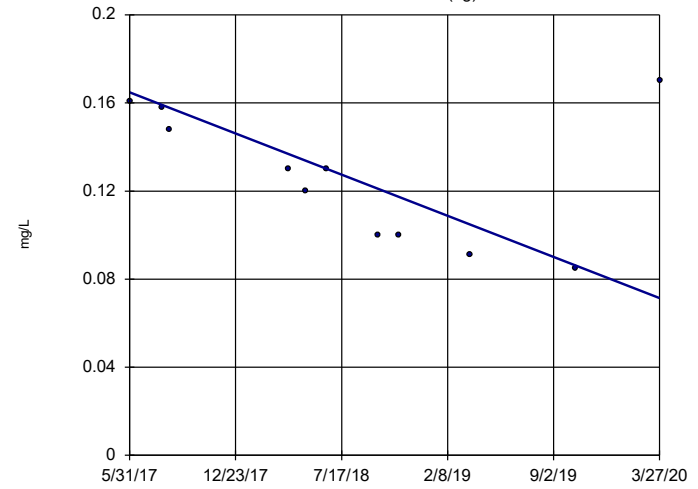


n = 11
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 0
 critical = 34
 Trend not sig-
 nificant at 99%
 confidence level
 ($\alpha = 0.005$ per
 tail).

Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-02 (bg)

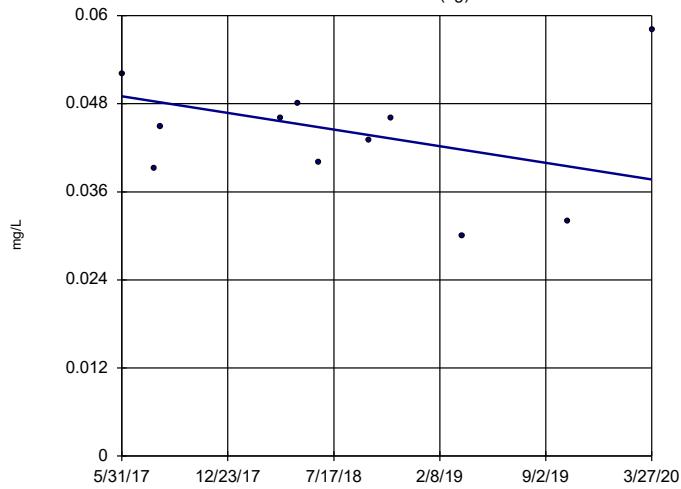


n = 11
 Slope = -0.03308
 units per year.
 Mann-Kendall
 statistic = -31
 critical = -34
 Trend not sig-
 nificant at 99%
 confidence level
 ($\alpha = 0.005$ per
 tail).

Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-11 (bg)

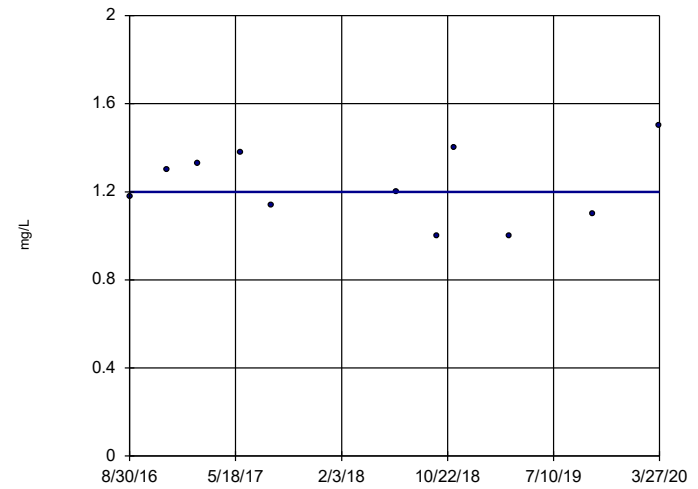


n = 11
 Slope = -0.004011
 units per year.
 Mann-Kendall
 statistic = -6
 critical = -34
 Trend not sig-
 nificant at 99%
 confidence level
 ($\alpha = 0.005$ per
 tail).

Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

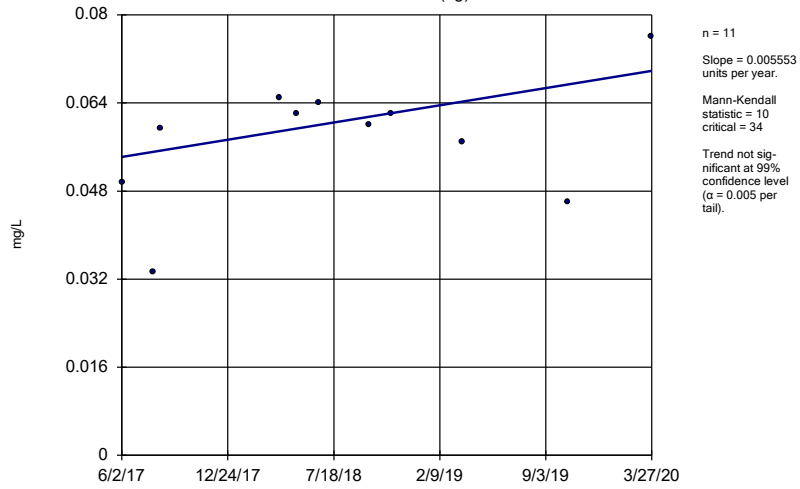
MCM-12



n = 11
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 0
 critical = 34
 Trend not sig-
 nificant at 99%
 confidence level
 ($\alpha = 0.005$ per
 tail).

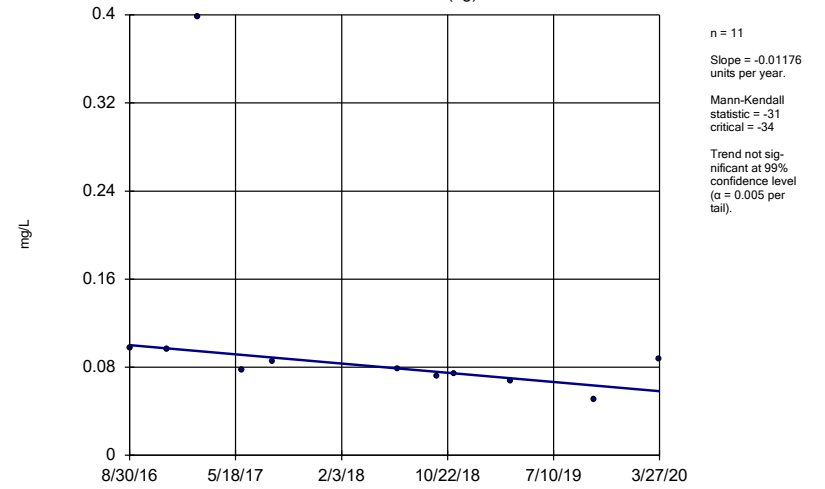
Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator MCM-15 (bg)



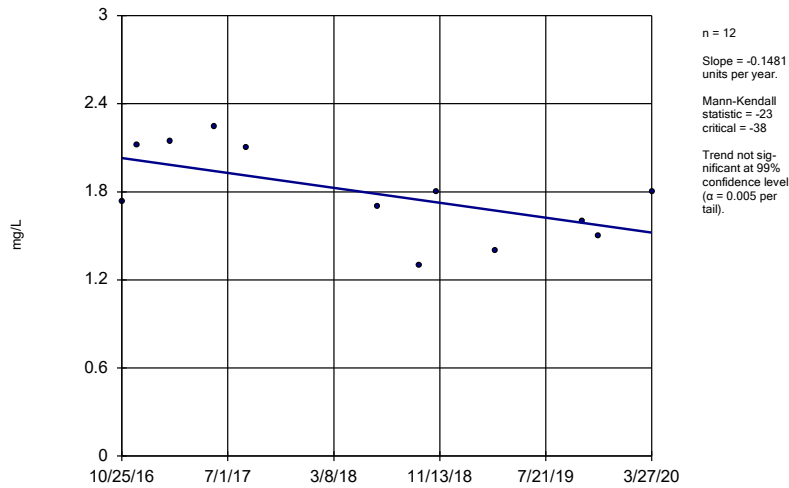
Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator MCM-16 (bg)



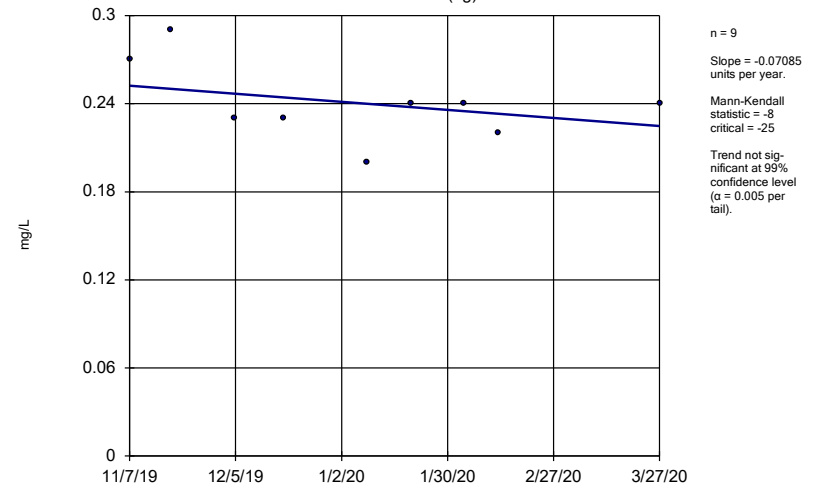
Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator MCM-17



Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

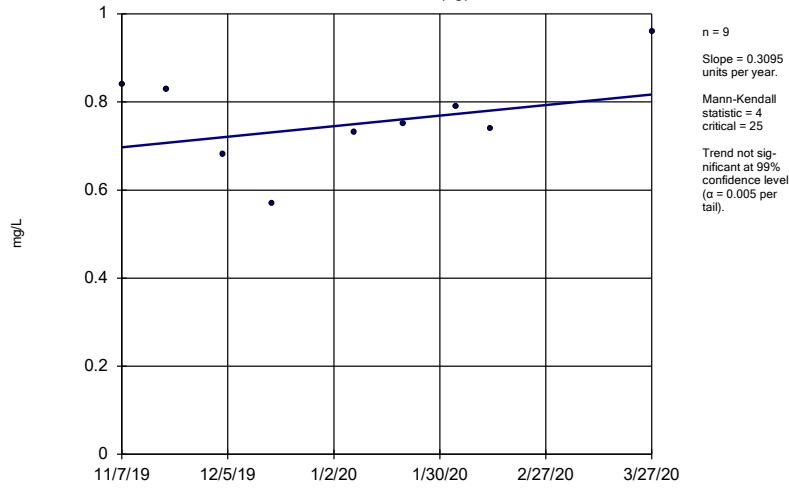
Sen's Slope Estimator MCM-18 (bg)



Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

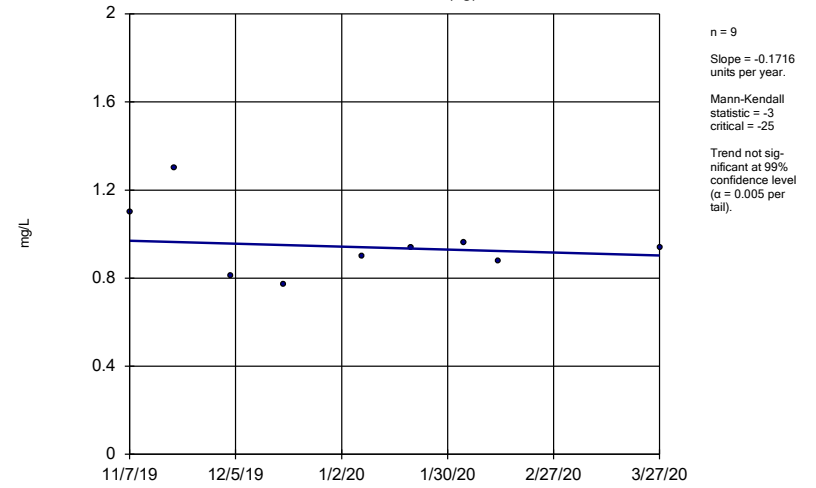
MCM-19 (bg)



Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

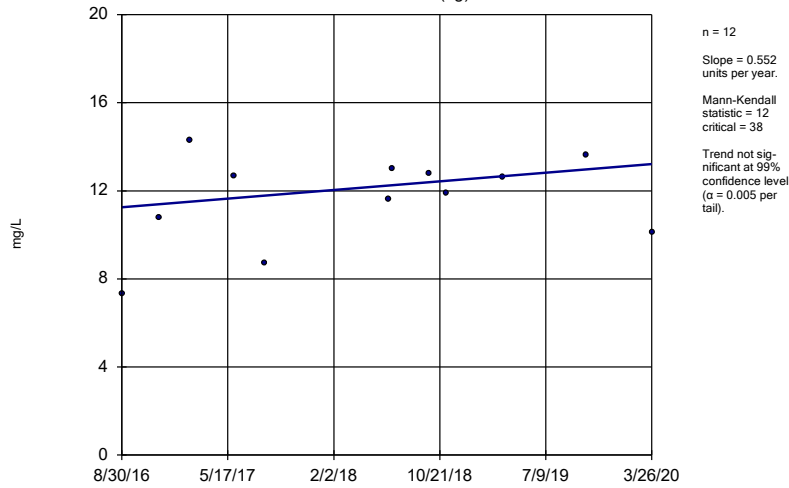
MCM-20 (bg)



Constituent: Boron Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

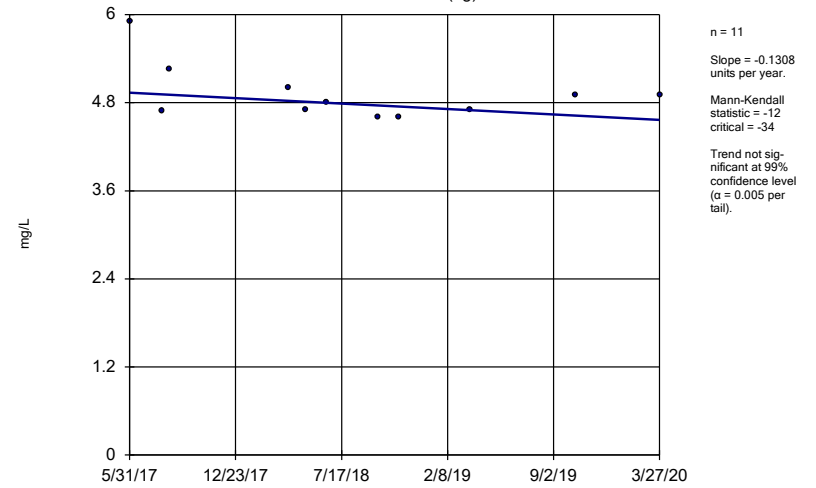
MCM-01 (bg)



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

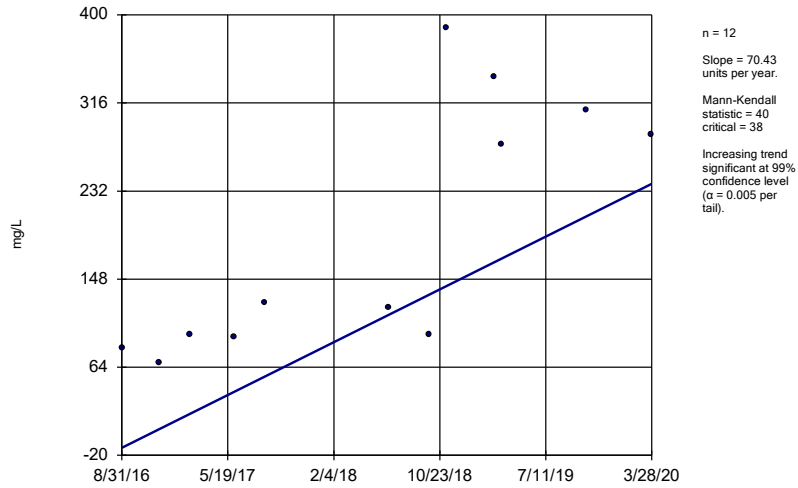
MCM-02 (bg)



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

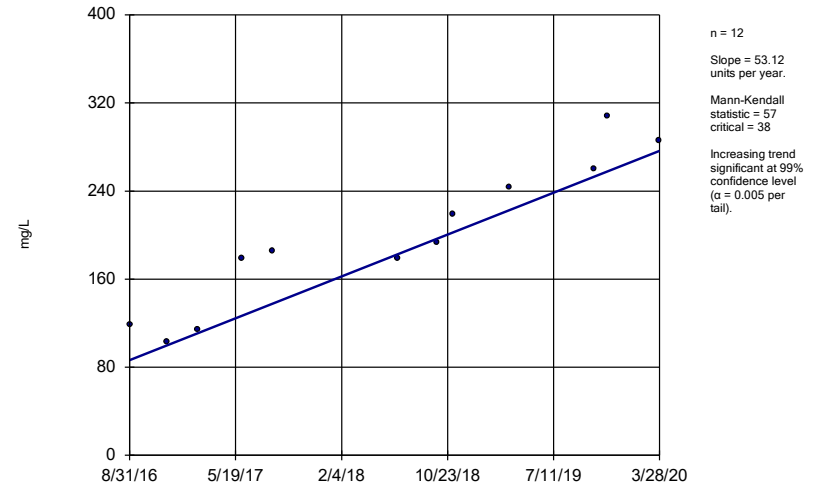
MCM-06



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

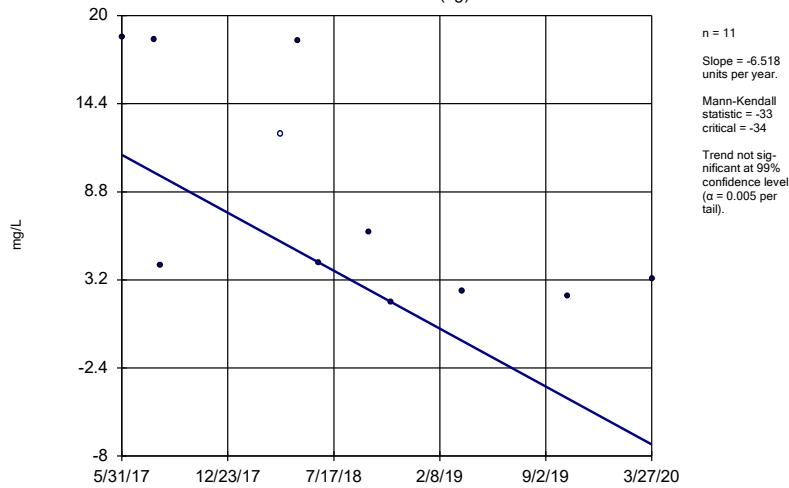
MCM-07



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

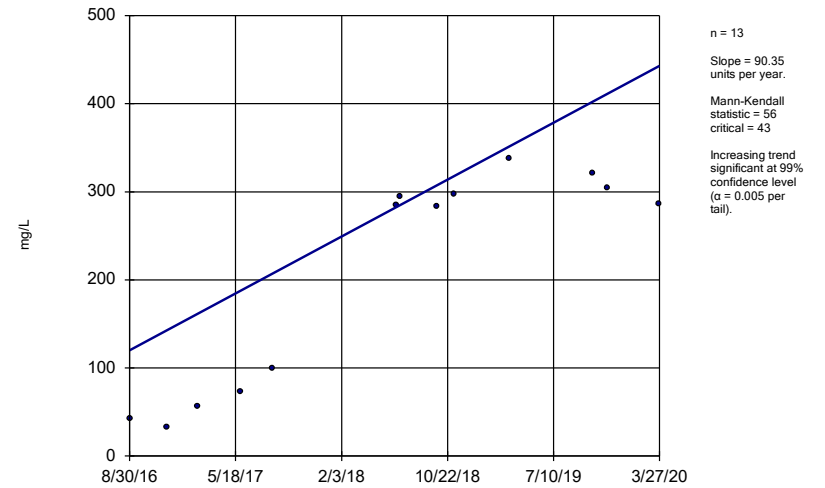
MCM-11 (bg)



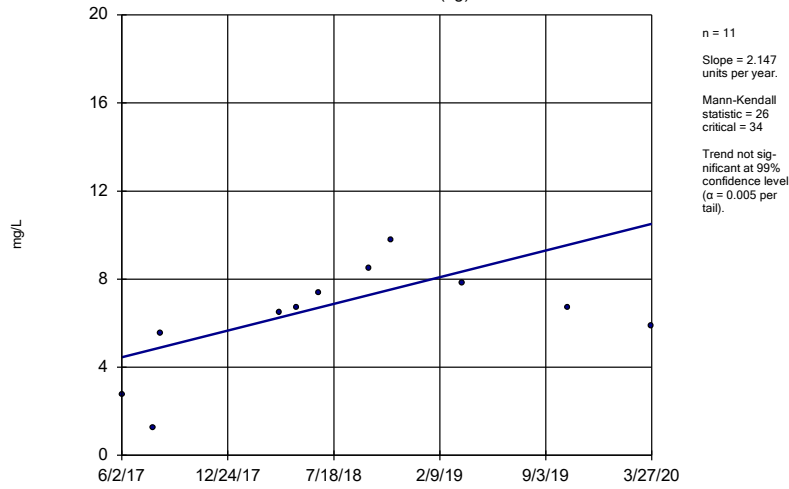
Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-14

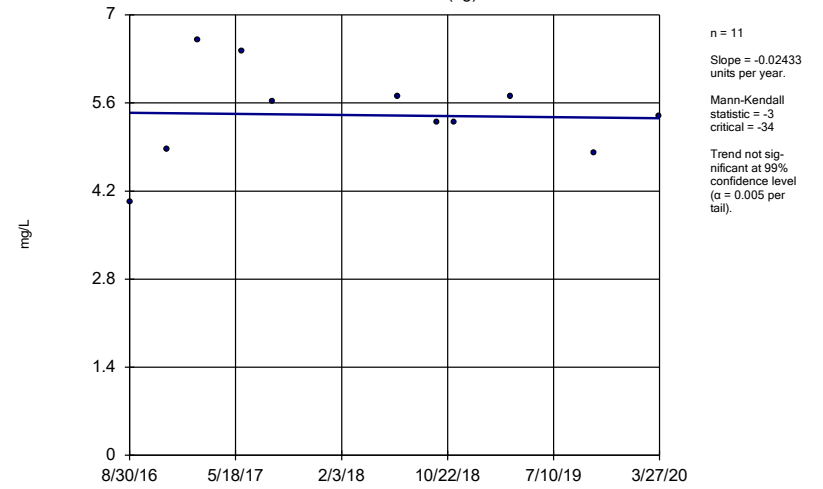


Sen's Slope Estimator
MCM-15 (bg)



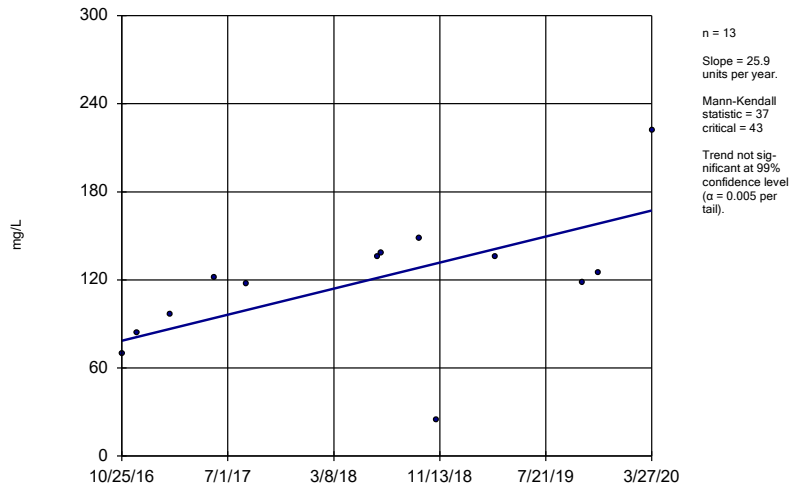
Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-16 (bg)



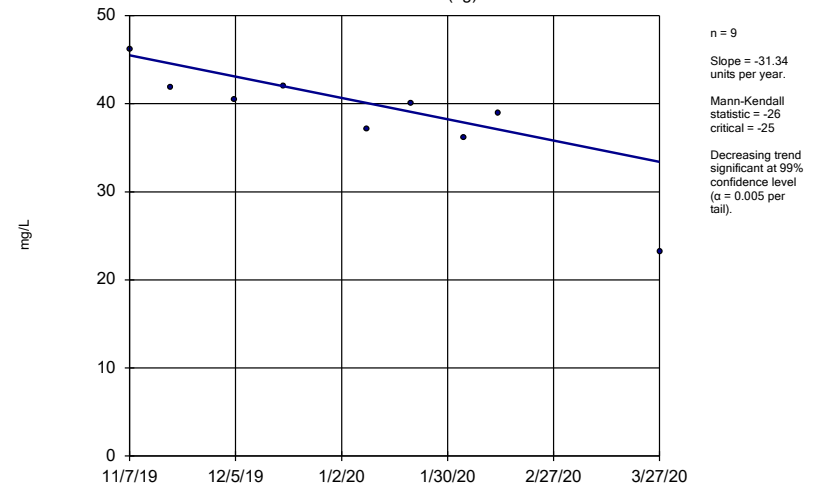
Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-17



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

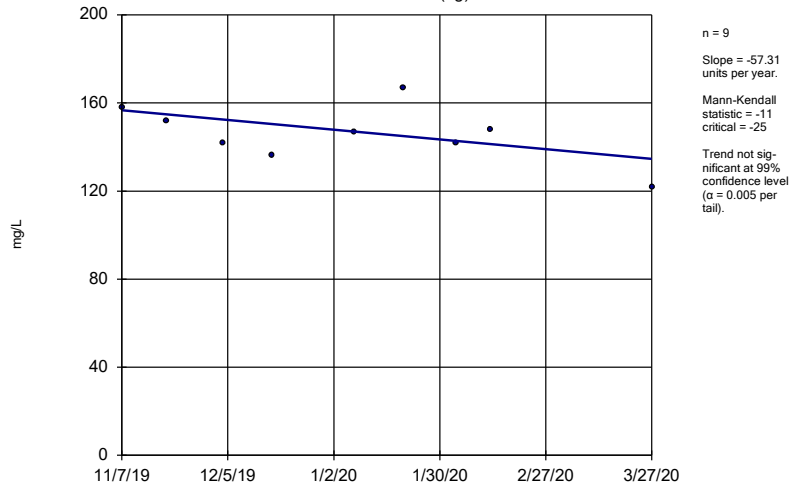
Sen's Slope Estimator
MCM-18 (bg)



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

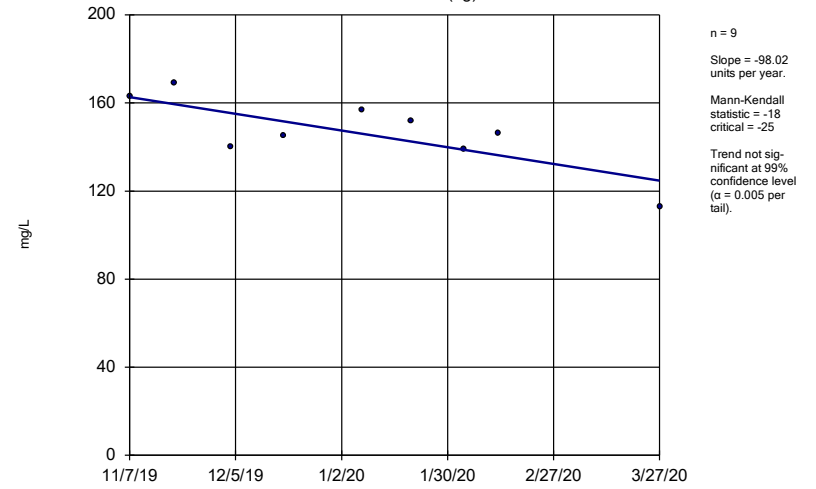
MCM-19 (bg)



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

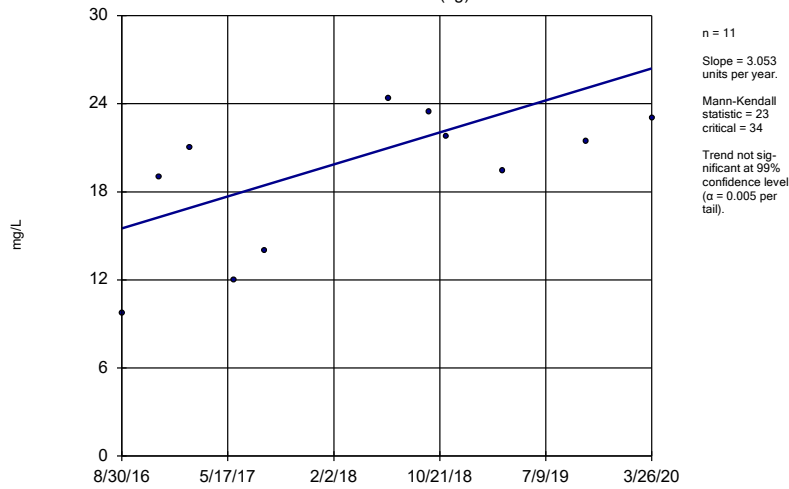
MCM-20 (bg)



Constituent: Calcium Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

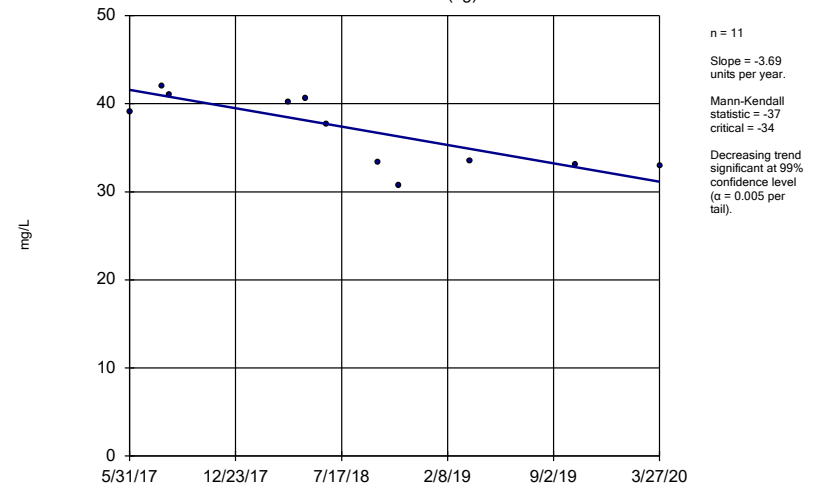
MCM-01 (bg)



Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

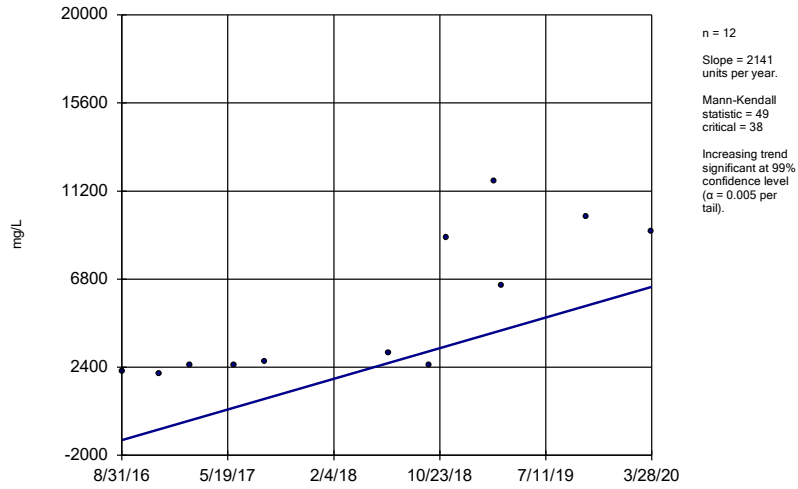
Sen's Slope Estimator

MCM-02 (bg)



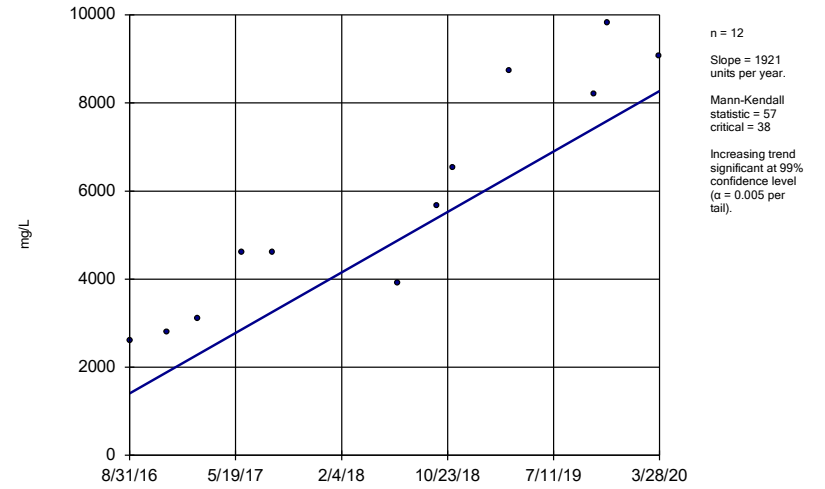
Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-06



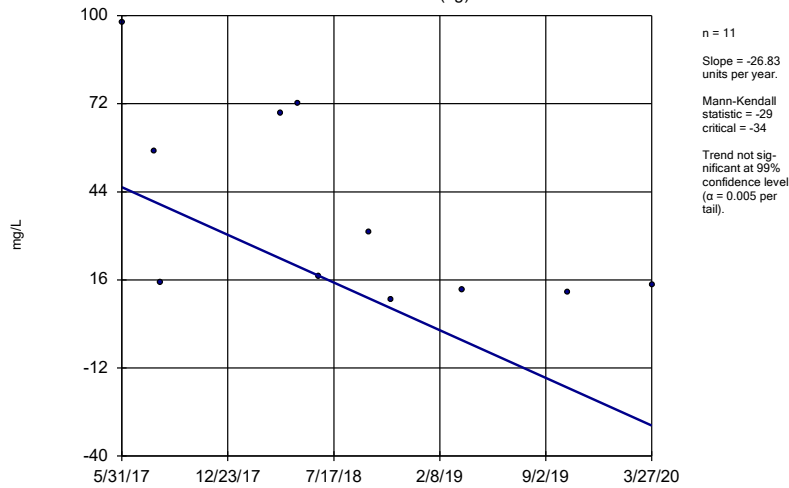
Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-07



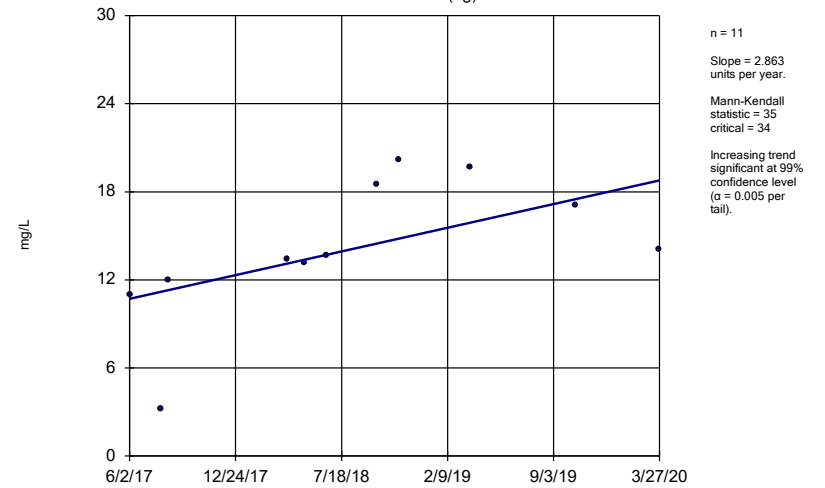
Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-11 (bg)



Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

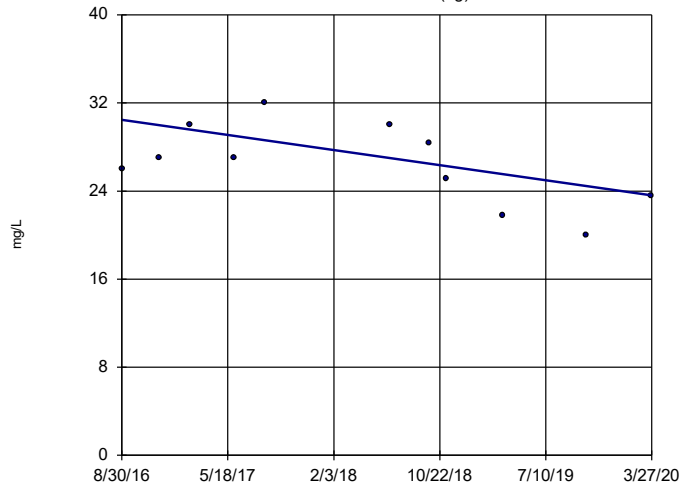
Sen's Slope Estimator
MCM-15 (bg)



Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-16 (bg)

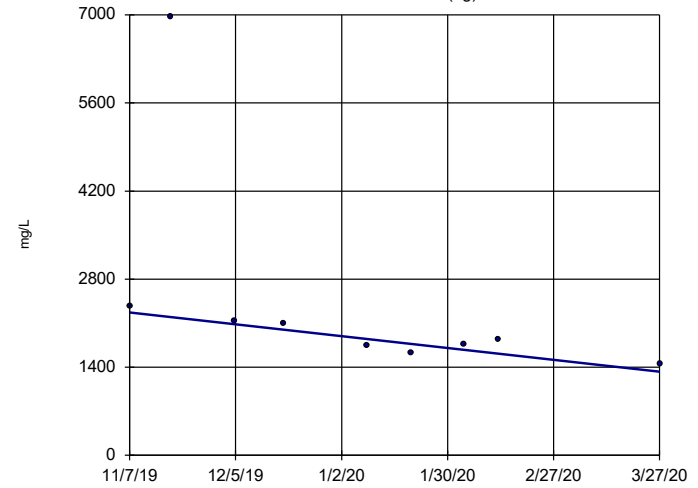


n = 11
 Slope = -1.918 units per year.
 Mann-Kendall statistic = -21
 critical = -34
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-18 (bg)

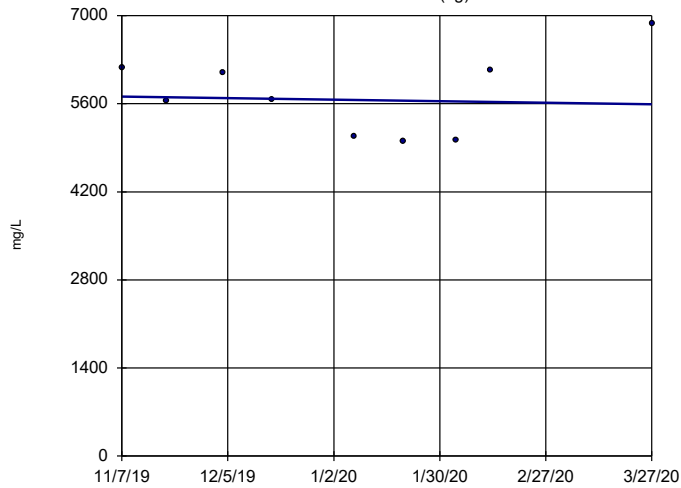


n = 9
 Slope = -2432 units per year.
 Mann-Kendall statistic = -24
 critical = -25
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-19 (bg)

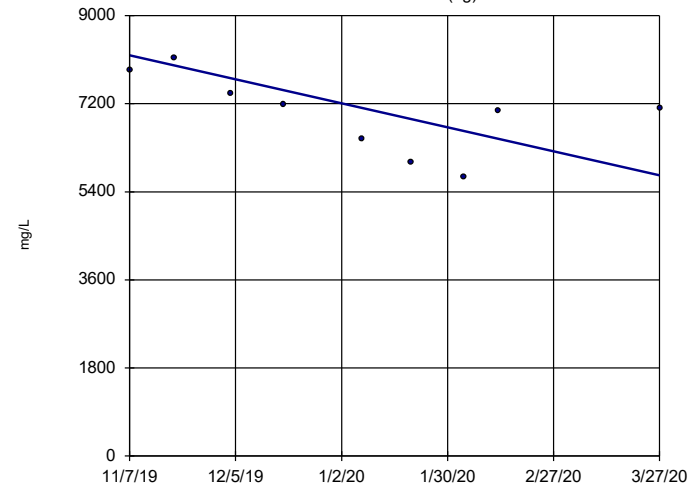


n = 9
 Slope = -326.2 units per year.
 Mann-Kendall statistic = -2
 critical = -25
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-20 (bg)

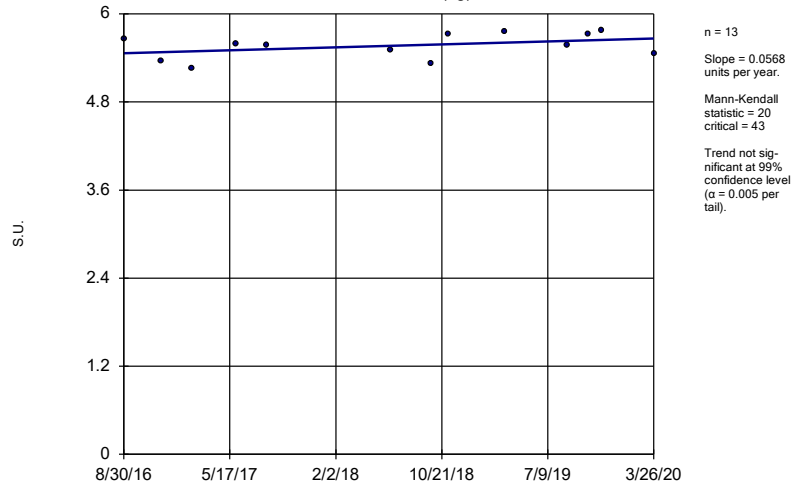


n = 9
 Slope = -6337 units per year.
 Mann-Kendall statistic = -20
 critical = -25
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

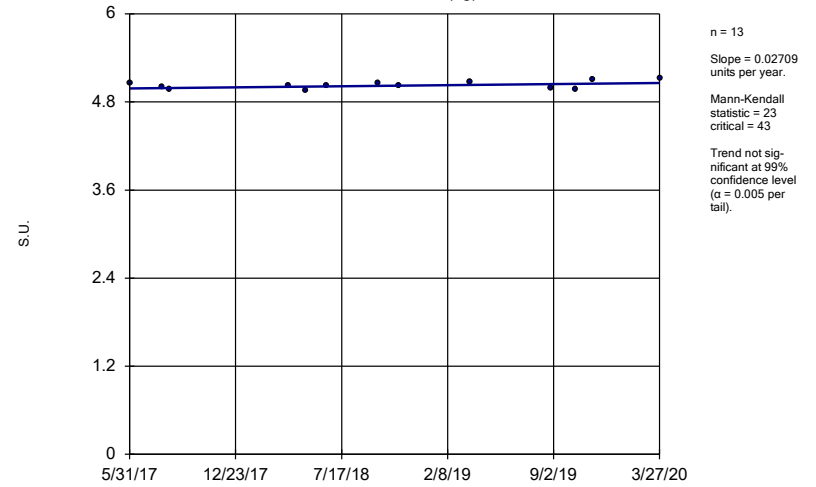
MCM-01 (bg)



Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

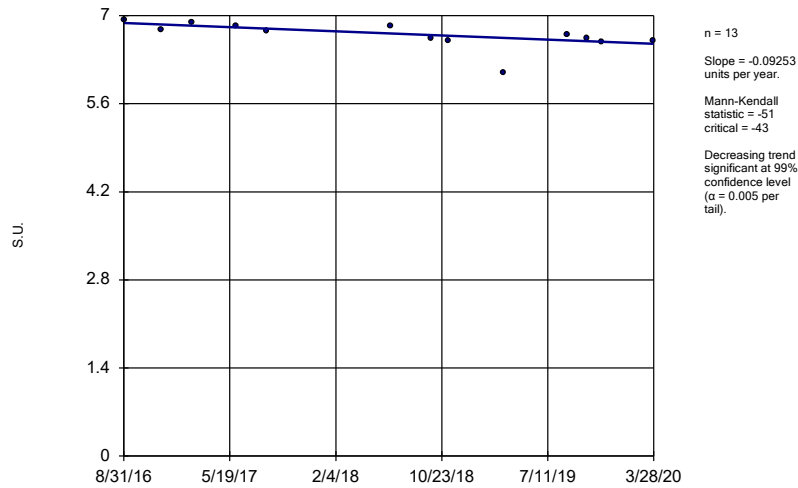
MCM-02 (bg)



Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

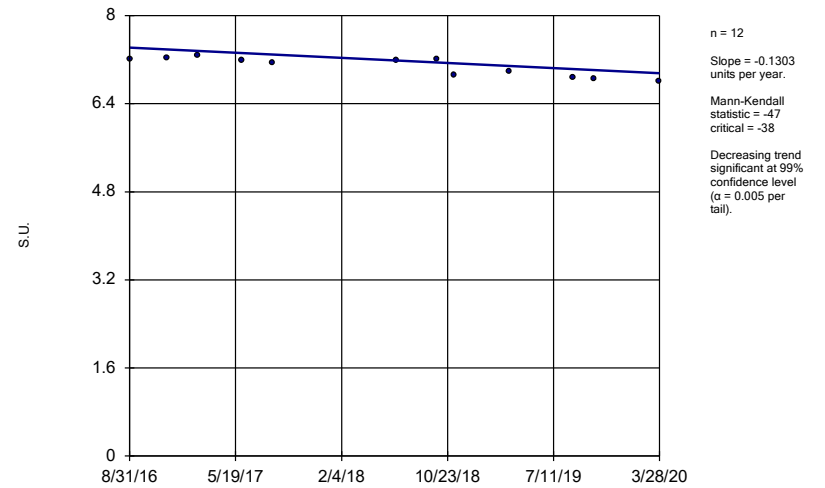
MCM-05



Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

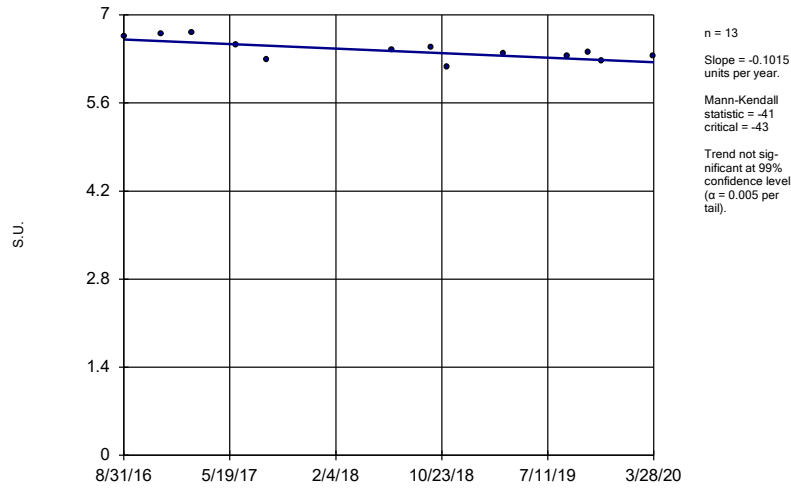
Sen's Slope Estimator

MCM-06



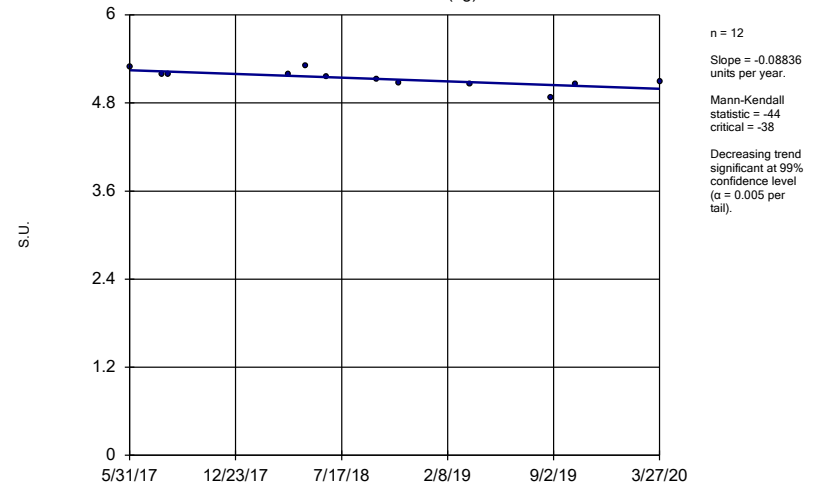
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-07



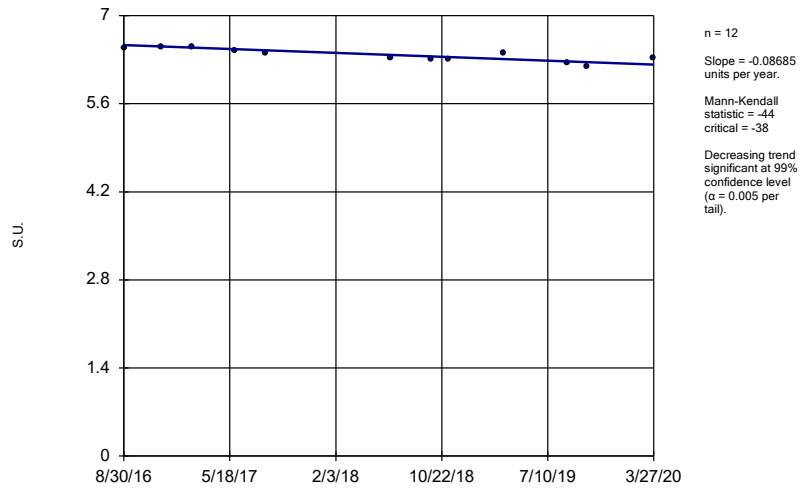
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-11 (bg)



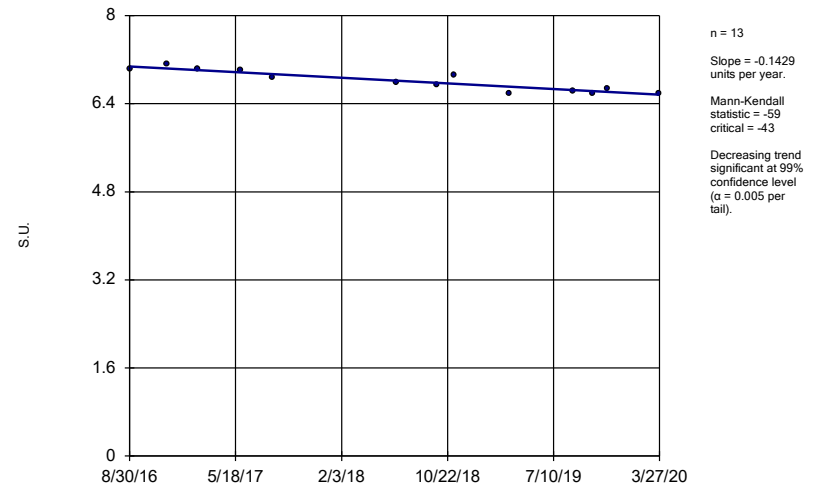
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-12



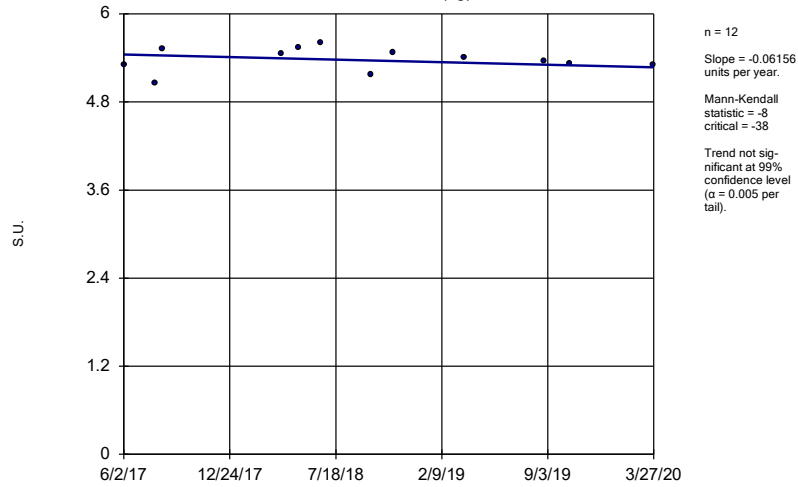
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-14



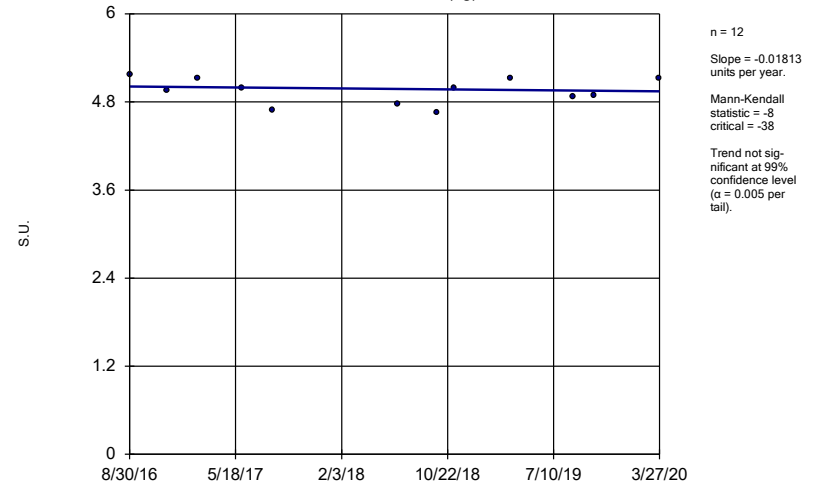
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-15 (bg)



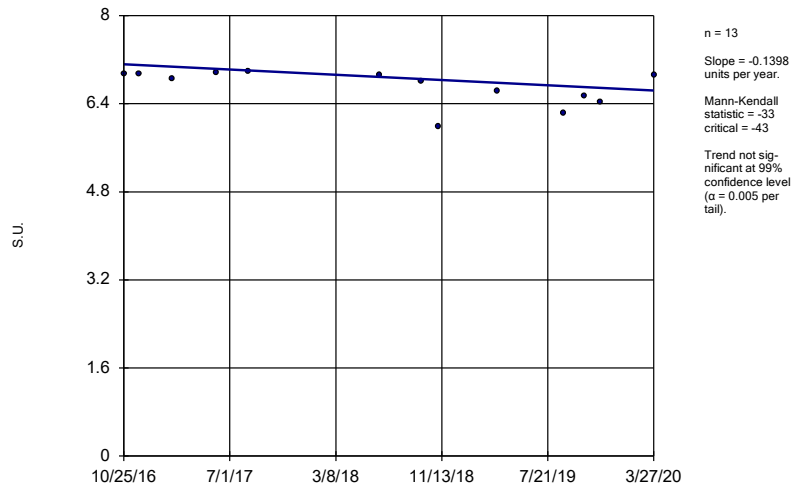
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-16 (bg)



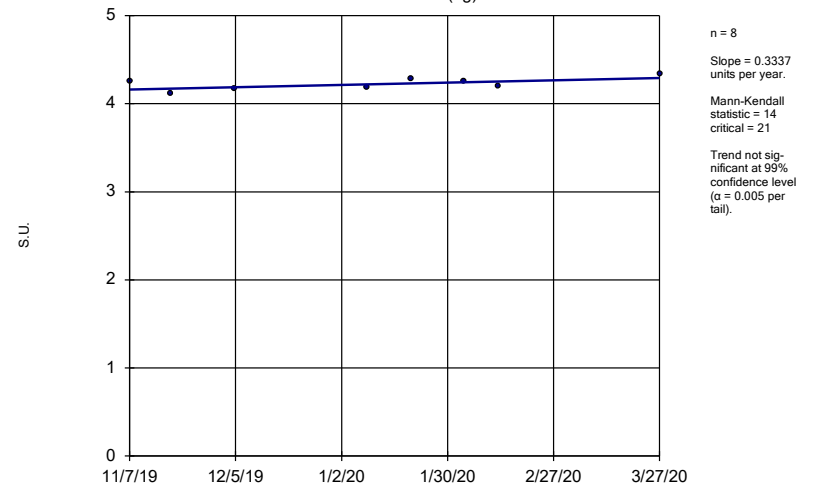
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-17



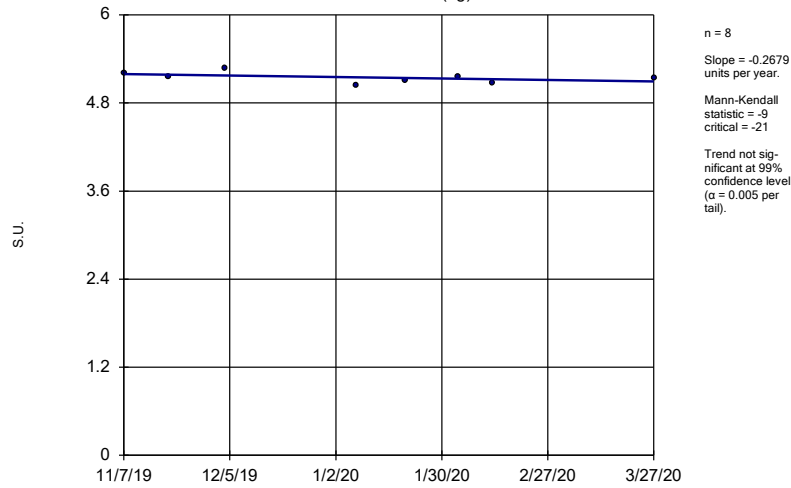
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-18 (bg)



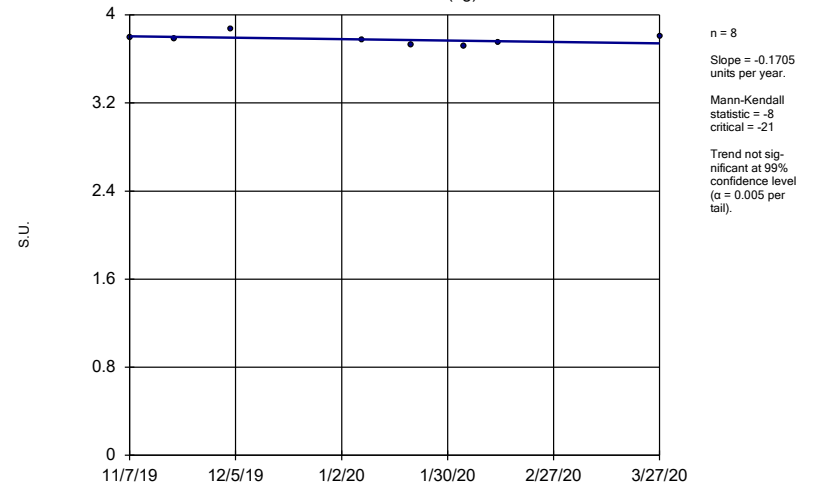
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-19 (bg)



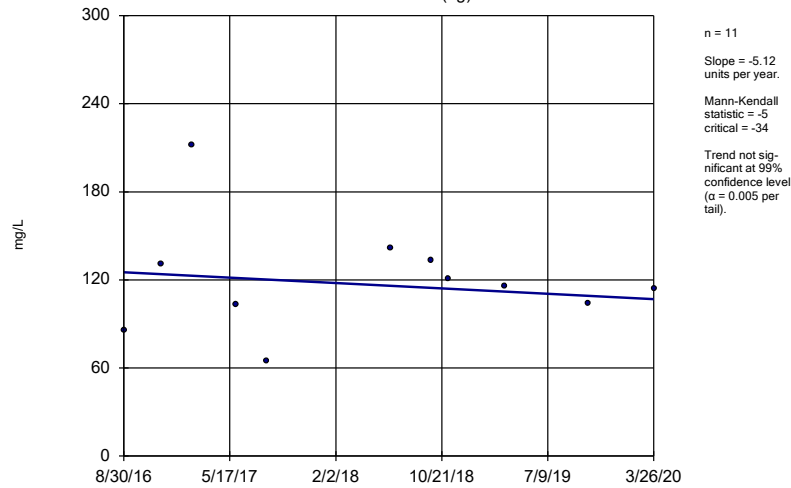
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-20 (bg)



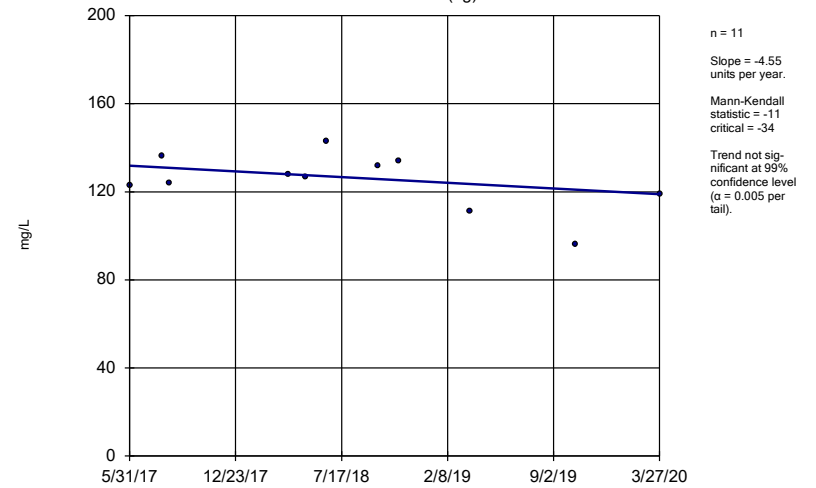
Constituent: pH Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tests
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-01 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

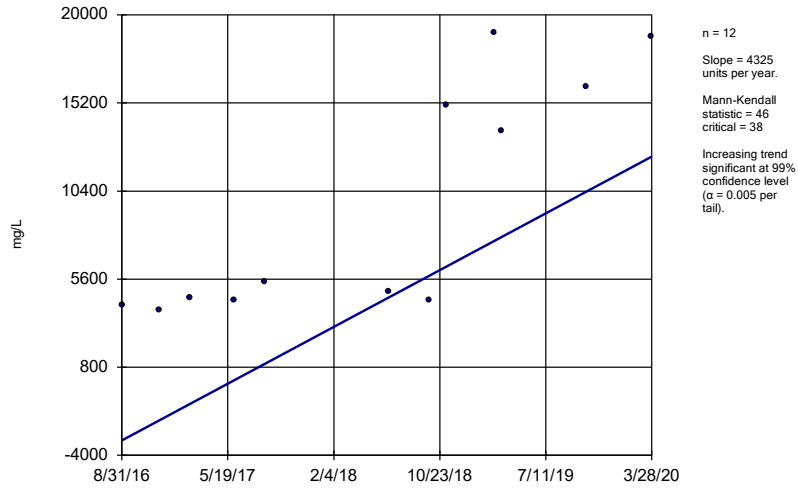
Sen's Slope Estimator
MCM-02 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

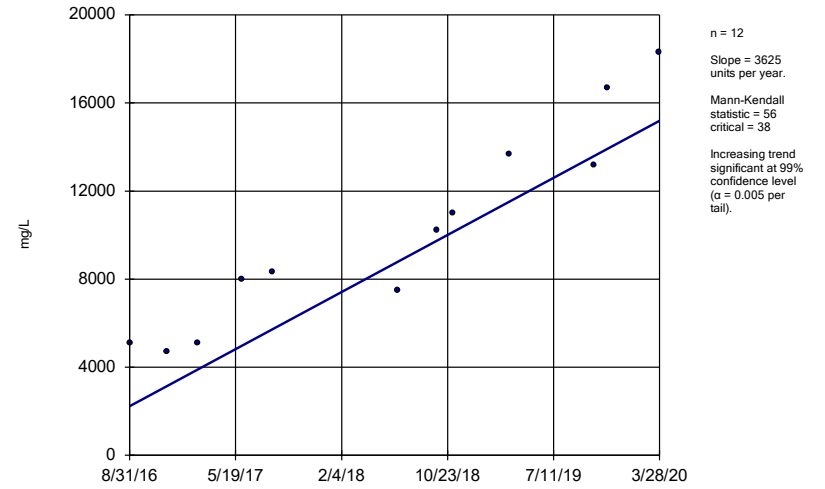
MCM-06



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

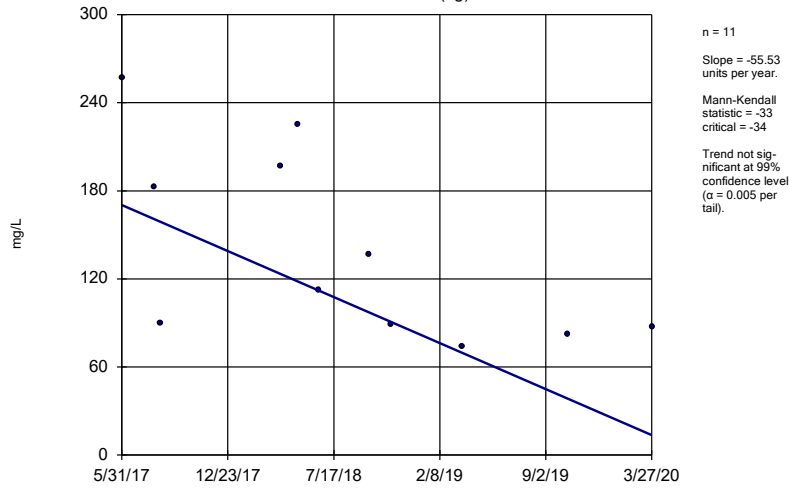
MCM-07



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

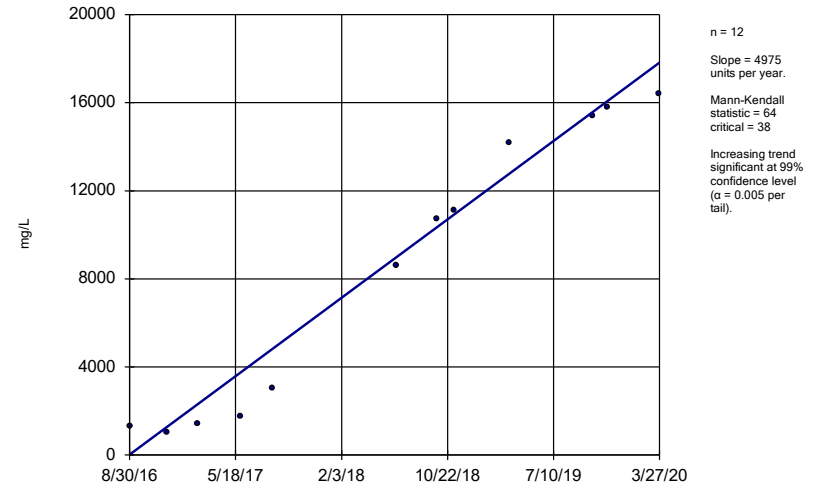
MCM-11 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

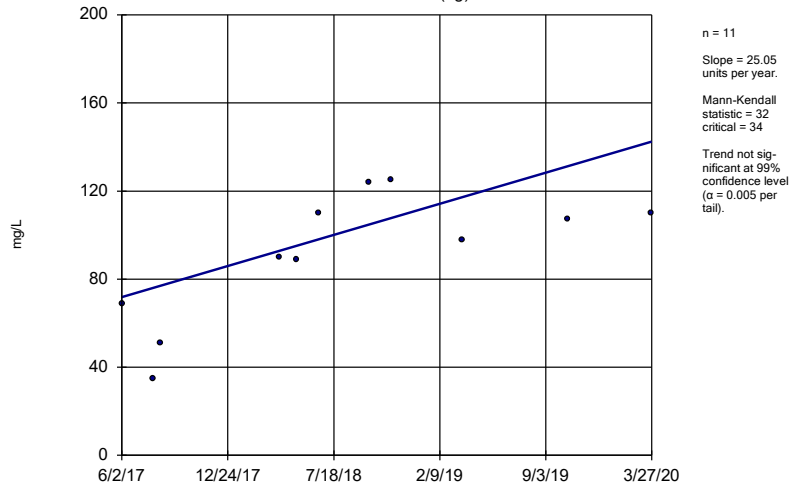
Sen's Slope Estimator

MCM-14



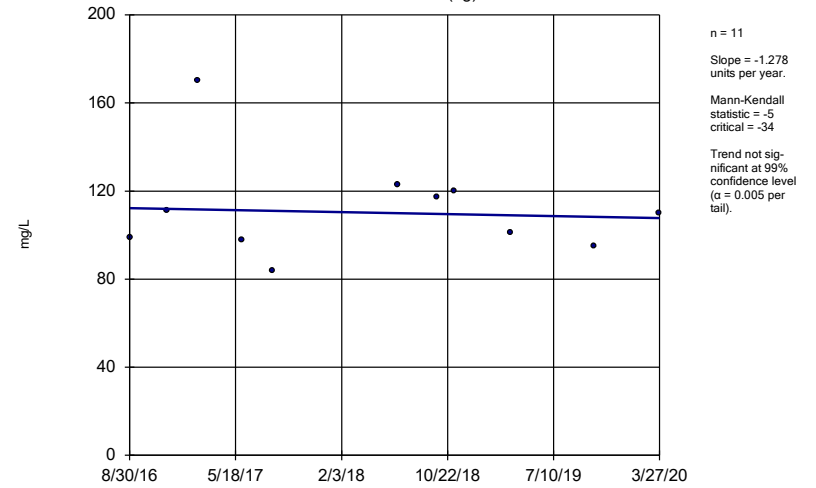
Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-15 (bg)



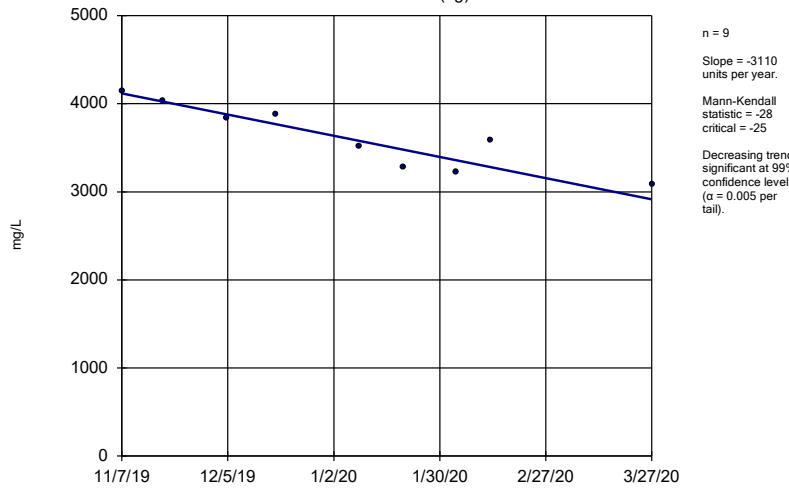
Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-16 (bg)



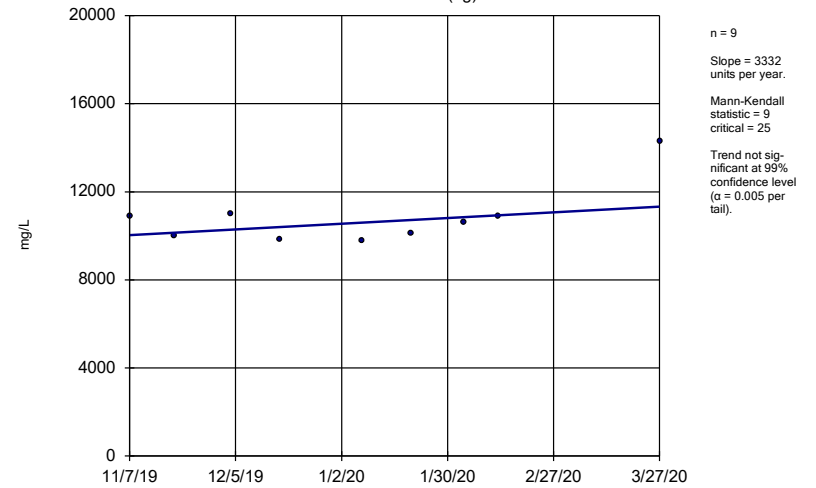
Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator
MCM-18 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

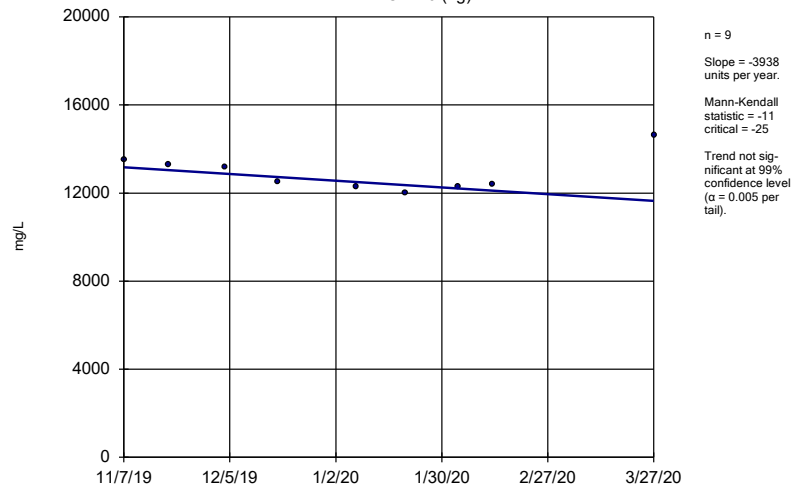
Sen's Slope Estimator
MCM-19 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

Sen's Slope Estimator

MCM-20 (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 5/13/2020 11:58 AM View: Appendix III Trend Tes
Plant McManus Client: Southern Company Data: McManus Ash Pond

FIGURE F.

Tolerance Limit Summary Table

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/14/2020, 11:06 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	n/a	83	n/a	n/a	93.98	n/a	n/a	0.01416	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.031	n/a	n/a	n/a	n/a	86	n/a	n/a	12.79	n/a	n/a	0.01214	NP Inter(normality)
Barium (mg/L)	n/a	0.22	n/a	n/a	n/a	n/a	83	n/a	n/a	0	n/a	n/a	0.01416	NP Inter(normality)
Beryllium (mg/L)	n/a	0.021	n/a	n/a	n/a	n/a	82	n/a	n/a	18.29	n/a	n/a	0.01491	NP Inter(normality)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	n/a	77	n/a	n/a	92.21	n/a	n/a	0.01926	NP Inter(NDs)
Chromium (mg/L)	n/a	0.011	n/a	n/a	n/a	n/a	83	n/a	n/a	46.99	n/a	n/a	0.01416	NP Inter(normality)
Cobalt (mg/L)	n/a	0.036	n/a	n/a	n/a	n/a	82	n/a	n/a	73.17	n/a	n/a	0.01491	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	55.8	n/a	n/a	n/a	n/a	81	n/a	n/a	0	n/a	n/a	0.01569	NP Inter(normality)
Fluoride (mg/L)	n/a	1.5	n/a	n/a	n/a	n/a	87	n/a	n/a	35.63	n/a	n/a	0.01153	NP Inter(normality)
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	n/a	82	n/a	n/a	76.83	n/a	n/a	0.01491	NP Inter(NDs)
Lithium (mg/L)	n/a	0.03	n/a	n/a	n/a	n/a	79	n/a	n/a	50.63	n/a	n/a	0.01738	NP Inter(NDs)
Mercury (mg/L)	n/a	0.0007	n/a	n/a	n/a	n/a	77	n/a	n/a	93.51	n/a	n/a	0.01926	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	n/a	82	n/a	n/a	93.9	n/a	n/a	0.01491	NP Inter(NDs)
Selenium (mg/L)	n/a	0.15	n/a	n/a	n/a	n/a	83	n/a	n/a	57.83	n/a	n/a	0.01416	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	n/a	82	n/a	n/a	91.46	n/a	n/a	0.01491	NP Inter(NDs)

FIGURE G.

MCMANUS ASH POND GWPS - FEDERAL				
Constituent Name	MCL	CCR-Rule Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.003	0.006
Arsenic, Total (mg/L)	0.01		0.031	0.031
Barium, Total (mg/L)	2		0.22	2
Beryllium, Total (mg/L)	0.004		0.021	0.021
Cadmium, Total (mg/L)	0.005		0.0025	0.005
Chromium, Total (mg/L)	0.1		0.011	0.1
Cobalt, Total (mg/L)		0.006	0.036	0.036
Combined Radium, Total (pCi/L)	5		55.8	55.8
Fluoride, Total (mg/L)	4		1.5	4
Lead, Total (mg/L)		0.015	0.005	0.015
Lithium, Total (mg/L)		0.04	0.03	0.04
Mercury, Total (mg/L)	0.002		0.0007	0.002
Molybdenum, Total (mg/L)		0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.15	0.15
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indicates Background Limit is higher than MCL or CCR-Rule Specified Level*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

**GWPS = Groundwater Protection Standard*

FIGURE H.

MCMANUS ASH POND GWPS - STATE				
Constituent Name	MCL	CCR-Rule Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.003	0.006
Arsenic, Total (mg/L)	0.01		0.031	0.031
Barium, Total (mg/L)	2		0.22	2
Beryllium, Total (mg/L)	0.004		0.021	0.021
Cadmium, Total (mg/L)	0.005		0.0025	0.005
Chromium, Total (mg/L)	0.1		0.011	0.1
Cobalt, Total (mg/L)		0.006	0.036	0.036
Combined Radium, Total (pCi/L)	5		55.8	55.8
Fluoride, Total (mg/L)	4		1.5	4
Lead, Total (mg/L)		0.015	0.005	0.005
Lithium, Total (mg/L)		0.04	0.03	0.03
Mercury, Total (mg/L)	0.002		0.0007	0.002
Molybdenum, Total (mg/L)		0.1	0.01	0.01
Selenium, Total (mg/L)	0.05		0.15	0.15
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indicates Background Limit is higher than MCL or CCR-Rule Specified Level*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

**GWPS = Groundwater Protection Standard*

FIGURE I.

Federal Confidence Intervals - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:40 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes 15	0.3415	0.1416	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.04	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.

Federal Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:40 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	MCM-06	0.003	0.00098	0.006	No 12	0.002648	0.0007987	75	None	No	0.01	NP (NDs)
Antimony (mg/L)	MCM-14	0.003	0.003	0.006	No 11	0.002764	0.0007839	90.91	None	No	0.006	NP (NDs)
Antimony (mg/L)	MCM-17	0.003	0.003	0.006	No 11	0.002798	0.0006694	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MCM-04	0.009998	0.003052	0.031	No 12	0.006525	0.004426	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-05	0.0336	0.0018	0.031	No 13	0.01208	0.01395	15.38	None	No	0.01	NP (normality)
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes 15	0.3415	0.1416	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-07	0.02318	0.01058	0.031	No 14	0.01688	0.008893	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-12	0.002332	0.0005617	0.031	No 11	0.002055	0.001452	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-14	0.003866	0.0009459	0.031	No 11	0.002827	0.001948	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-17	0.003726	0.001681	0.031	No 12	0.002825	0.001588	25	Kaplan-Meier	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-04	0.1202	0.02581	2	No 11	0.07845	0.08441	0	None	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-05	0.02461	0.007951	2	No 11	0.01628	0.009997	0	None	No	0.01	Param.
Barium (mg/L)	MCM-06	0.16	0.0508	2	No 12	0.09321	0.04984	0	None	No	0.01	NP (normality)
Barium (mg/L)	MCM-07	0.35	0.0865	2	No 11	0.1556	0.1101	0	None	No	0.006	NP (normality)
Barium (mg/L)	MCM-12	0.1327	0.114	2	No 11	0.1234	0.01122	0	None	No	0.01	Param.
Barium (mg/L)	MCM-14	0.1126	0.03563	2	No 11	0.0741	0.04617	0	None	No	0.01	Param.
Barium (mg/L)	MCM-17	0.1168	0.04538	2	No 11	0.08108	0.04284	0	None	No	0.01	Param.
Beryllium (mg/L)	MCM-04	0.003	0.0002	0.021	No 11	0.0008009	0.0011	18.18	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-05	0.003	0.003	0.021	No 11	0.002732	0.0008883	90.91	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-07	0.003	0.000078	0.021	No 11	0.002207	0.001359	72.73	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-12	0.0009	0.0004	0.021	No 11	0.0007891	0.0007543	9.091	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-14	0.003	0.000097	0.021	No 11	0.001686	0.00151	54.55	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-17	0.003	0.00018	0.021	No 11	0.0007491	0.001115	18.18	None	No	0.006	NP (normality)
Cadmium (mg/L)	MCM-17	0.0025	0.0025	0.005	No 10	0.002259	0.0007612	90	None	No	0.011	NP (NDs)
Chromium (mg/L)	MCM-04	0.01	0.0012	0.1	No 11	0.005273	0.004533	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-05	0.01	0.00057	0.1	No 11	0.00504	0.004756	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-06	0.01	0.00085	0.1	No 12	0.006262	0.004623	58.33	None	No	0.01	NP (NDs)
Chromium (mg/L)	MCM-07	0.01	0.002	0.1	No 11	0.004382	0.003616	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-12	0.01	0.0047	0.1	No 11	0.006673	0.002256	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-14	0.01	0.00076	0.1	No 11	0.004661	0.004265	36.36	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-17	0.01349	0.007828	0.1	No 11	0.01114	0.003164	18.18	Kaplan-Meier	No	0.01	Param.
Cobalt (mg/L)	MCM-04	0.0085	0.0048	0.036	No 12	0.005767	0.001648	58.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-06	0.005	0.0009	0.036	No 12	0.004267	0.001717	83.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-07	0.005	0.005	0.036	No 11	0.004645	0.001176	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-12	0.005	0.0005	0.036	No 11	0.002979	0.002322	54.55	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-14	0.005	0.005	0.036	No 11	0.0046	0.001327	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-17	0.005	0.00052	0.036	No 11	0.003784	0.002084	72.73	None	No	0.006	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	MCM-04	7.035	3.081	55.8	No 11	5.058	2.372	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-05	2.237	1.333	55.8	No 11	1.785	0.5423	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-06	6.992	2.001	55.8	No 11	4.614	3.318	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-07	8.767	4.768	55.8	No 12	6.768	2.548	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-12	3.285	2.014	55.8	No 11	2.649	0.7627	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-14	7.325	2.078	55.8	No 12	4.702	3.343	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-17	6.006	2.094	55.8	No 12	4.238	2.899	0	None	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-04	0.2062	0.05552	4	No 12	0.1511	0.1422	41.67	Kaplan-Meier	ln(x)	0.01	Param.
Fluoride (mg/L)	MCM-05	0.6	0.32	4	No 13	0.4815	0.2175	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-06	0.61	0.1	4	No 13	0.996	2.8	30.77	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-07	0.4966	0.1423	4	No 13	0.3358	0.3094	30.77	Kaplan-Meier	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-12	1.311	0.9049	4	No 12	1.075	0.3517	8.333	None	x^2	0.01	Param.
Fluoride (mg/L)	MCM-14	0.56	0.084	4	No 13	0.2618	0.2117	46.15	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-17	1.3	0.1	4	No 13	0.641	0.5184	23.08	None	No	0.01	NP (normality)
Lead (mg/L)	MCM-05	0.005	0.005	0.015	No 11	0.004564	0.001447	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-06	0.005	0.00012	0.015	No 12	0.004593	0.001409	91.67	None	No	0.01	NP (NDs)
Lead (mg/L)	MCM-07	0.005	0.0001	0.015	No 11	0.003671	0.002277	72.73	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-12	0.005	0.00009	0.015	No 11	0.003224	0.002464	63.64	None	No	0.006	NP (NDs)

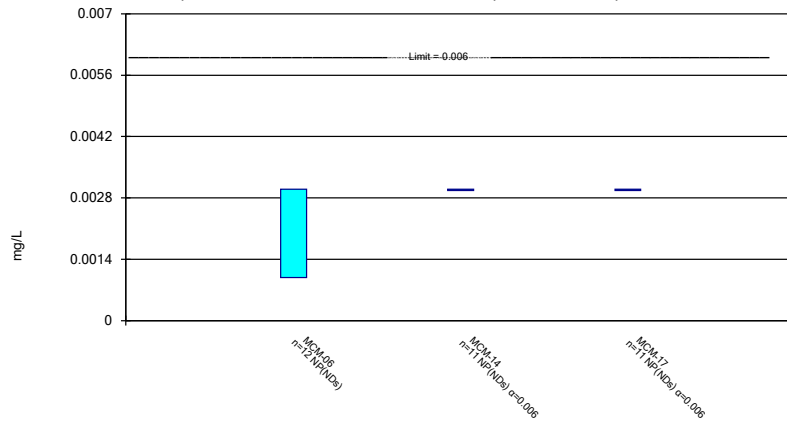
Federal Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:40 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Lead (mg/L)	MCM-14	0.005	0.005	0.015	No 11	0.004553	0.001483	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-17	0.005	0.0002	0.015	No 11	0.003268	0.002403	63.64	None	No	0.006	NP (NDs)
Lithium (mg/L)	MCM-04	0.015	0.0013	0.04	No 11	0.006709	0.006608	36.36	None	No	0.006	NP (normality)
Lithium (mg/L)	MCM-05	0.03404	0.02071	0.04	No 11	0.02737	0.007996	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.04	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-07	0.06293	0.01697	0.04	No 12	0.0457	0.04121	0	None	ln(x)	0.01	Param.
Lithium (mg/L)	MCM-12	0.01297	0.01077	0.04	No 11	0.01187	0.001318	9.091	None	No	0.01	Param.
Lithium (mg/L)	MCM-14	0.05155	0.02622	0.04	No 12	0.0344	0.02008	8.333	None	x^3	0.01	Param.
Lithium (mg/L)	MCM-17	0.02452	0.01248	0.04	No 11	0.0185	0.00722	0	None	No	0.01	Param.
Mercury (mg/L)	MCM-04	0.0005	0.0005	0.002	No 10	0.000521	0.00006641	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-05	0.0005	0.0005	0.002	No 10	0.0004542	0.0001448	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-07	0.0005	0.0005	0.002	No 10	0.000517	0.00005376	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-14	0.0005	0.0005	0.002	No 10	0.000516	0.0000506	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-17	0.0005	0.0005	0.002	No 10	0.0004676	0.0001579	80	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	MCM-05	0.01	0.01	0.1	No 11	0.0092	0.002653	90.91	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MCM-06	0.01	0.0017	0.1	No 12	0.007358	0.003909	66.67	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	MCM-17	0.01	0.01	0.1	No 11	0.009264	0.002442	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-04	0.01	0.01	0.15	No 11	0.009318	0.002261	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-05	0.01	0.002	0.15	No 11	0.007845	0.003691	72.73	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-06	0.01	0.0015	0.15	No 12	0.00575	0.003705	33.33	None	No	0.01	NP (normality)
Selenium (mg/L)	MCM-07	0.01	0.0021	0.15	No 11	0.005618	0.00361	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-12	0.01	0.0017	0.15	No 11	0.004836	0.004105	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-14	0.01	0.0018	0.15	No 11	0.006027	0.003962	45.45	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-17	0.01	0.0018	0.15	No 11	0.006009	0.003843	36.36	None	No	0.006	NP (normality)
Thallium (mg/L)	MCM-06	0.001	0.000076	0.002	No 12	0.000923	0.0002667	91.67	None	No	0.01	NP (NDs)
Thallium (mg/L)	MCM-17	0.001	0.001	0.002	No 11	0.0009218	0.0002593	90.91	None	No	0.006	NP (NDs)

Non-Parametric Confidence Interval

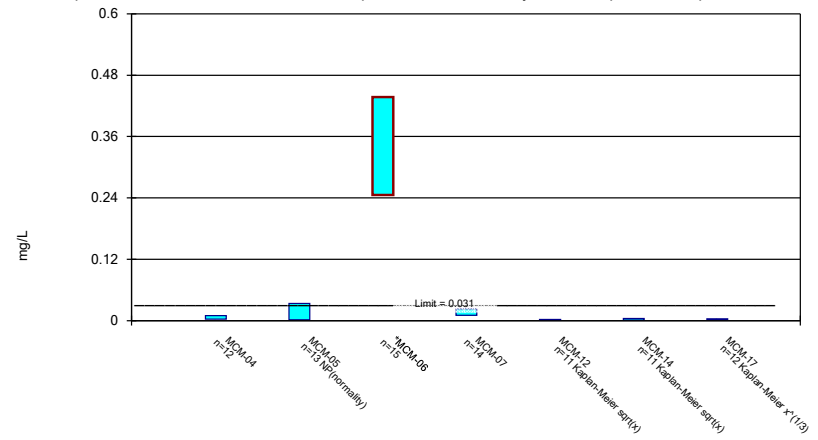
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Antimony Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

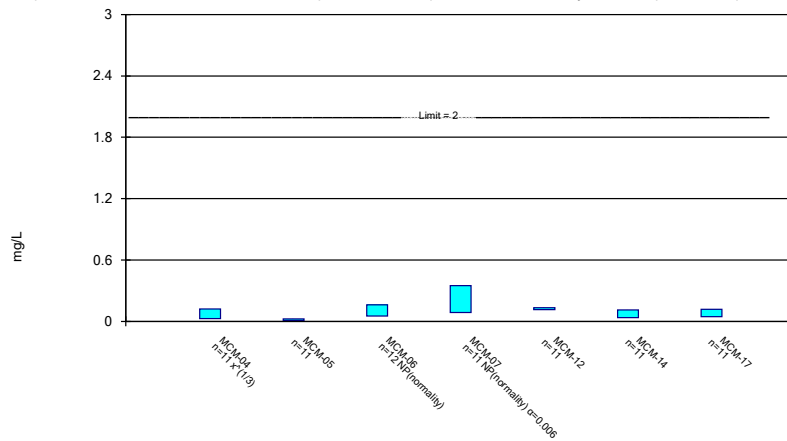
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Constituent: Arsenic Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

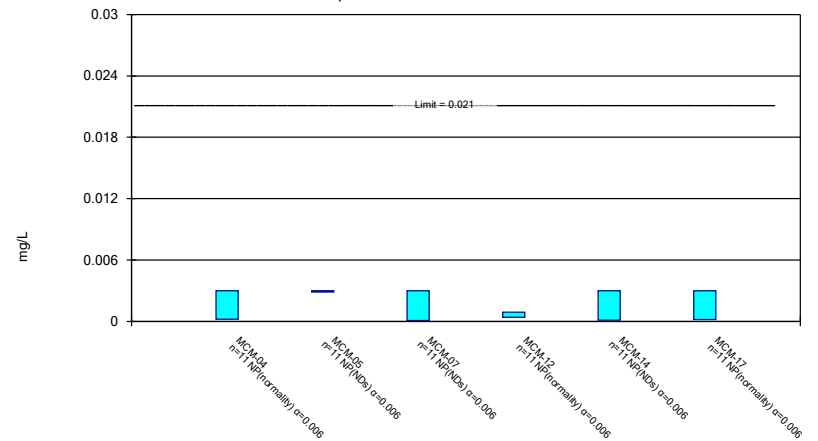
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Constituent: Barium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

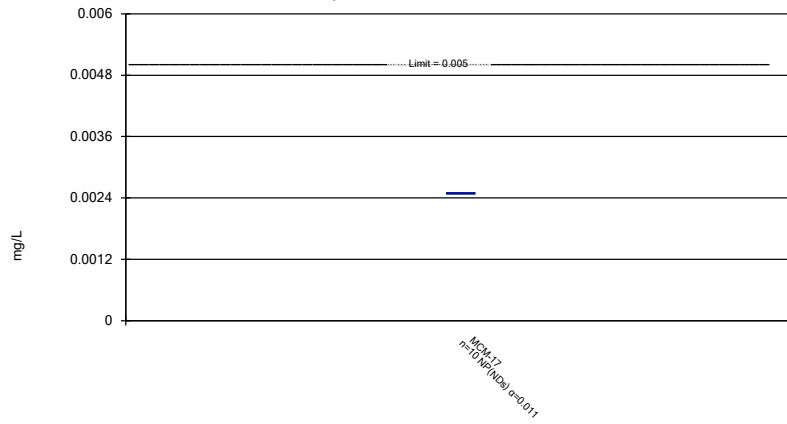
Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

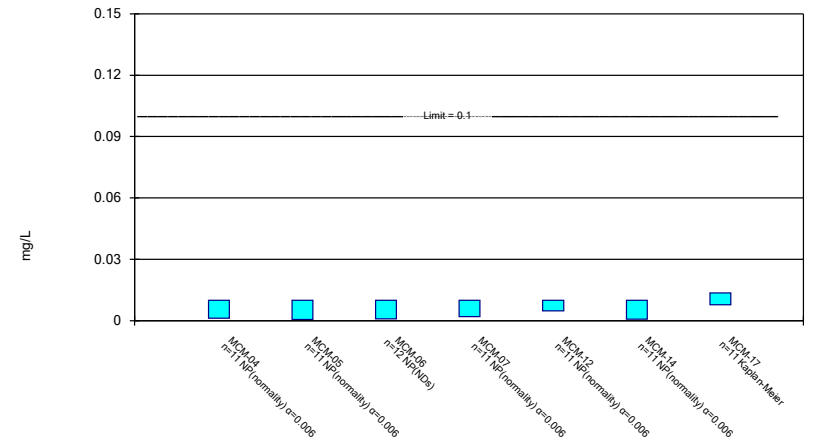
Compliance Limit is not exceeded.



Constituent: Cadmium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

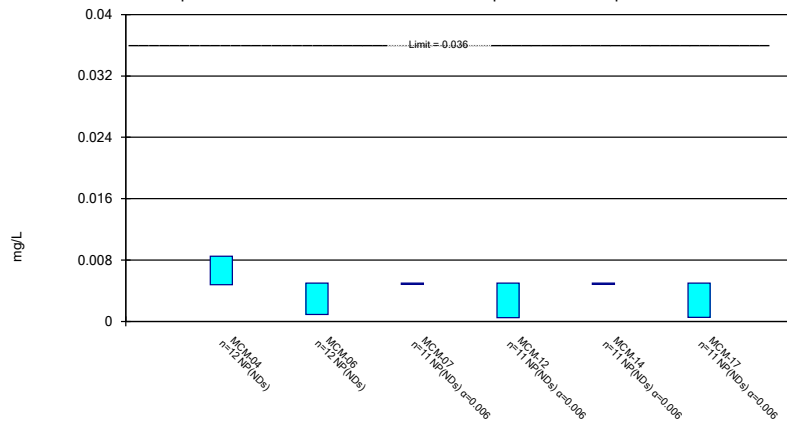
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

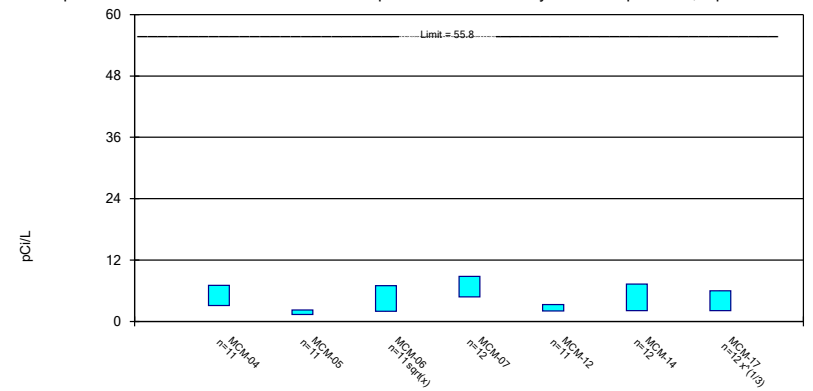
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Cobalt Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric Confidence Interval

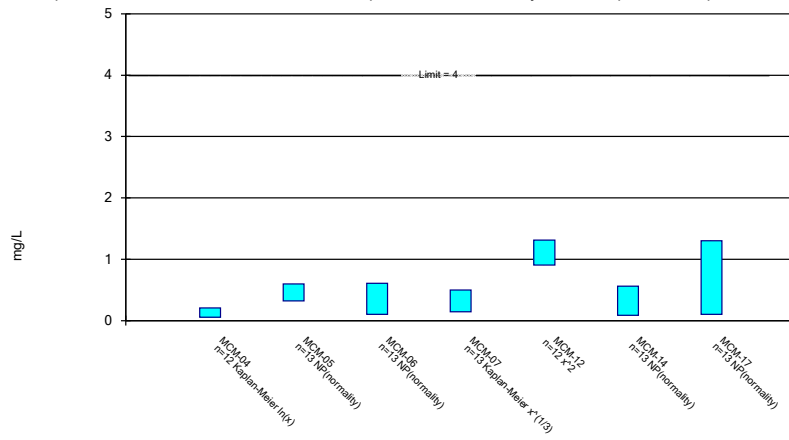
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

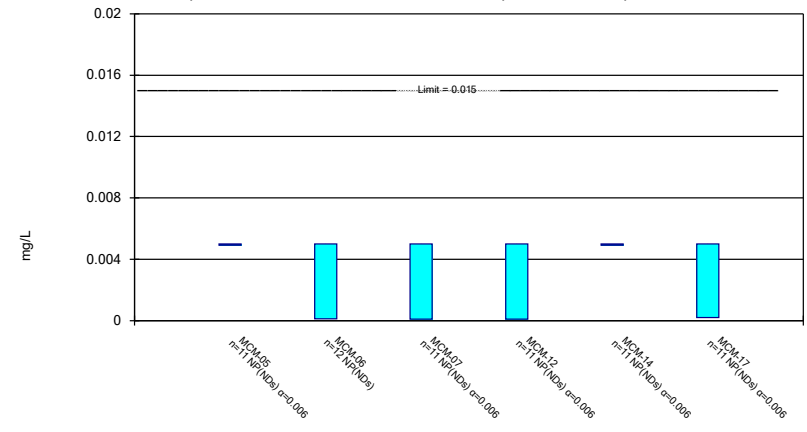
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Constituent: Fluoride Analysis Run 5/13/2020 1:39 PM View: Appendix IV
Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

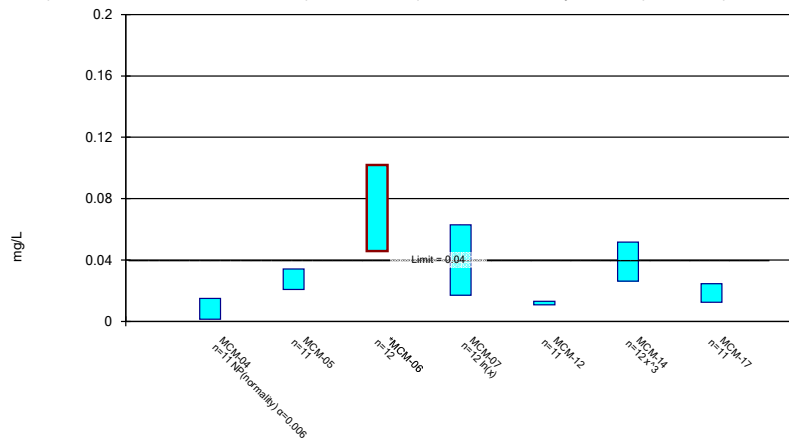
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Lead Analysis Run 5/13/2020 1:39 PM View: Appendix IV
Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

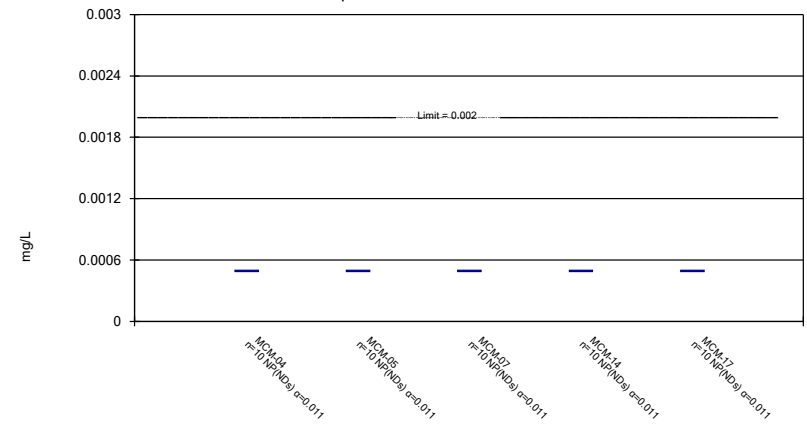
Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

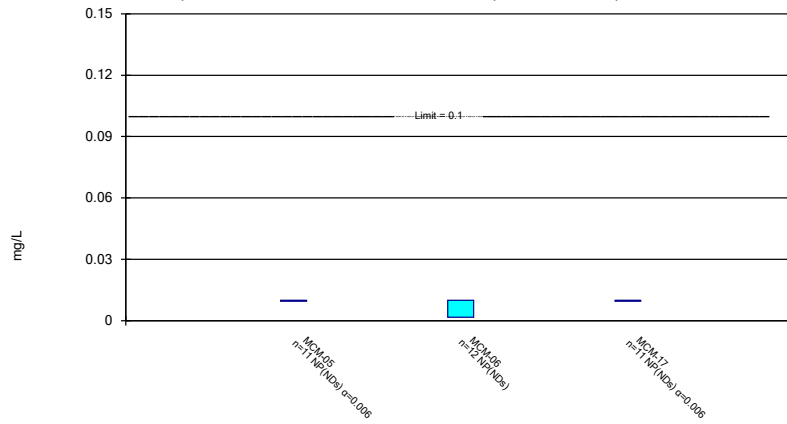
Compliance Limit is not exceeded.



Constituent: Mercury Analysis Run 5/13/2020 1:39 PM View: Appendix IV
Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

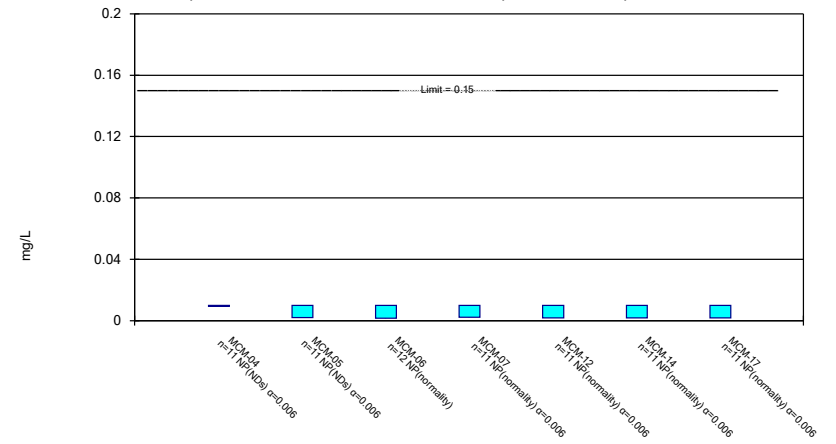
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Molybdenum Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

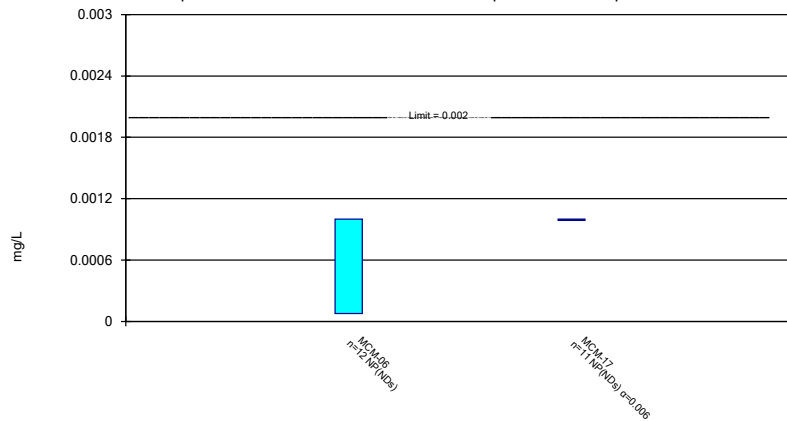
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Selenium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Thallium Analysis Run 5/13/2020 1:39 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

FIGURE J.

State Confidence Intervals - Significant Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:44 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes 15	0.3415	0.1416	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.03	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.

State Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:44 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	MCM-06	0.003	0.00098	0.006	No 12	0.002648	0.0007987	75	None	No	0.01	NP (NDs)
Antimony (mg/L)	MCM-14	0.003	0.003	0.006	No 11	0.002764	0.0007839	90.91	None	No	0.006	NP (NDs)
Antimony (mg/L)	MCM-17	0.003	0.003	0.006	No 11	0.002798	0.0006694	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	MCM-04	0.009998	0.003052	0.031	No 12	0.006525	0.004426	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-05	0.0336	0.0018	0.031	No 13	0.01208	0.01395	15.38	None	No	0.01	NP (normality)
Arsenic (mg/L)	MCM-06	0.4374	0.2455	0.031	Yes 15	0.3415	0.1416	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-07	0.02318	0.01058	0.031	No 14	0.01688	0.008893	0	None	No	0.01	Param.
Arsenic (mg/L)	MCM-12	0.002332	0.0005617	0.031	No 11	0.002055	0.001452	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-14	0.003866	0.0009459	0.031	No 11	0.002827	0.001948	36.36	Kaplan-Meier	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MCM-17	0.003726	0.001681	0.031	No 12	0.002825	0.001588	25	Kaplan-Meier	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-04	0.1202	0.02581	2	No 11	0.07845	0.08441	0	None	x^(1/3)	0.01	Param.
Barium (mg/L)	MCM-05	0.02461	0.007951	2	No 11	0.01628	0.009997	0	None	No	0.01	Param.
Barium (mg/L)	MCM-06	0.16	0.0508	2	No 12	0.09321	0.04984	0	None	No	0.01	NP (normality)
Barium (mg/L)	MCM-07	0.35	0.0865	2	No 11	0.1556	0.1101	0	None	No	0.006	NP (normality)
Barium (mg/L)	MCM-12	0.1327	0.114	2	No 11	0.1234	0.01122	0	None	No	0.01	Param.
Barium (mg/L)	MCM-14	0.1126	0.03563	2	No 11	0.0741	0.04617	0	None	No	0.01	Param.
Barium (mg/L)	MCM-17	0.1168	0.04538	2	No 11	0.08108	0.04284	0	None	No	0.01	Param.
Beryllium (mg/L)	MCM-04	0.003	0.0002	0.021	No 11	0.0008009	0.0011	18.18	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-05	0.003	0.003	0.021	No 11	0.002732	0.0008883	90.91	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-07	0.003	0.000078	0.021	No 11	0.002207	0.001359	72.73	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-12	0.0009	0.0004	0.021	No 11	0.0007891	0.0007543	9.091	None	No	0.006	NP (normality)
Beryllium (mg/L)	MCM-14	0.003	0.000097	0.021	No 11	0.001686	0.00151	54.55	None	No	0.006	NP (NDs)
Beryllium (mg/L)	MCM-17	0.003	0.00018	0.021	No 11	0.0007491	0.001115	18.18	None	No	0.006	NP (normality)
Cadmium (mg/L)	MCM-17	0.0025	0.0025	0.005	No 10	0.002259	0.0007612	90	None	No	0.011	NP (NDs)
Chromium (mg/L)	MCM-04	0.01	0.0012	0.1	No 11	0.005273	0.004533	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-05	0.01	0.00057	0.1	No 11	0.00504	0.004756	45.45	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-06	0.01	0.00085	0.1	No 12	0.006262	0.004623	58.33	None	No	0.01	NP (NDs)
Chromium (mg/L)	MCM-07	0.01	0.002	0.1	No 11	0.004382	0.003616	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-12	0.01	0.0047	0.1	No 11	0.006673	0.002256	27.27	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-14	0.01	0.00076	0.1	No 11	0.004661	0.004265	36.36	None	No	0.006	NP (normality)
Chromium (mg/L)	MCM-17	0.01349	0.007828	0.1	No 11	0.01114	0.003164	18.18	Kaplan-Meier	No	0.01	Param.
Cobalt (mg/L)	MCM-04	0.0085	0.0048	0.036	No 12	0.005767	0.001648	58.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-06	0.005	0.0009	0.036	No 12	0.004267	0.001717	83.33	None	No	0.01	NP (NDs)
Cobalt (mg/L)	MCM-07	0.005	0.005	0.036	No 11	0.004645	0.001176	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-12	0.005	0.0005	0.036	No 11	0.002979	0.002322	54.55	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-14	0.005	0.005	0.036	No 11	0.0046	0.001327	90.91	None	No	0.006	NP (NDs)
Cobalt (mg/L)	MCM-17	0.005	0.00052	0.036	No 11	0.003784	0.002084	72.73	None	No	0.006	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	MCM-04	7.035	3.081	55.8	No 11	5.058	2.372	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-05	2.237	1.333	55.8	No 11	1.785	0.5423	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-06	6.992	2.001	55.8	No 11	4.614	3.318	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-07	8.767	4.768	55.8	No 12	6.768	2.548	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-12	3.285	2.014	55.8	No 11	2.649	0.7627	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-14	7.325	2.078	55.8	No 12	4.702	3.343	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MCM-17	6.006	2.094	55.8	No 12	4.238	2.899	0	None	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-04	0.2062	0.05552	4	No 12	0.1511	0.1422	41.67	Kaplan-Meier	ln(x)	0.01	Param.
Fluoride (mg/L)	MCM-05	0.6	0.32	4	No 13	0.4815	0.2175	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-06	0.61	0.1	4	No 13	0.996	2.8	30.77	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-07	0.4966	0.1423	4	No 13	0.3358	0.3094	30.77	Kaplan-Meier	x^(1/3)	0.01	Param.
Fluoride (mg/L)	MCM-12	1.311	0.9049	4	No 12	1.075	0.3517	8.333	None	x^2	0.01	Param.
Fluoride (mg/L)	MCM-14	0.56	0.084	4	No 13	0.2618	0.2117	46.15	None	No	0.01	NP (normality)
Fluoride (mg/L)	MCM-17	1.3	0.1	4	No 13	0.641	0.5184	23.08	None	No	0.01	NP (normality)
Lead (mg/L)	MCM-05	0.005	0.005	0.005	No 11	0.004564	0.001447	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-06	0.005	0.00012	0.005	No 12	0.004593	0.001409	91.67	None	No	0.01	NP (NDs)
Lead (mg/L)	MCM-07	0.005	0.0001	0.005	No 11	0.003671	0.002277	72.73	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-12	0.005	0.00009	0.005	No 11	0.003224	0.002464	63.64	None	No	0.006	NP (NDs)

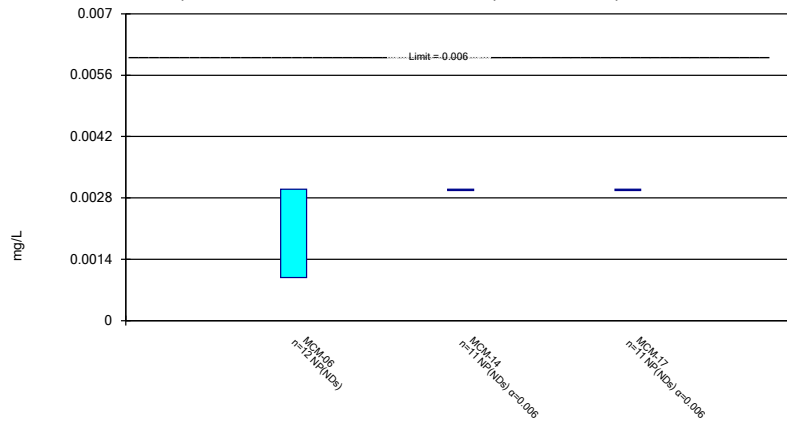
State Confidence Intervals - All Results

Plant McManus Client: Southern Company Data: McManus Ash Pond Printed 5/13/2020, 1:44 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Lead (mg/L)	MCM-14	0.005	0.005	0.005	No 11	0.004553	0.001483	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	MCM-17	0.005	0.0002	0.005	No 11	0.003268	0.002403	63.64	None	No	0.006	NP (NDs)
Lithium (mg/L)	MCM-04	0.015	0.0013	0.03	No 11	0.006709	0.006608	36.36	None	No	0.006	NP (normality)
Lithium (mg/L)	MCM-05	0.03404	0.02071	0.03	No 11	0.02737	0.007996	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-06	0.102	0.04571	0.03	Yes 12	0.07387	0.03589	0	None	No	0.01	Param.
Lithium (mg/L)	MCM-07	0.06293	0.01697	0.03	No 12	0.0457	0.04121	0	None	ln(x)	0.01	Param.
Lithium (mg/L)	MCM-12	0.01297	0.01077	0.03	No 11	0.01187	0.001318	9.091	None	No	0.01	Param.
Lithium (mg/L)	MCM-14	0.05155	0.02622	0.03	No 12	0.0344	0.02008	8.333	None	x^3	0.01	Param.
Lithium (mg/L)	MCM-17	0.02452	0.01248	0.03	No 11	0.0185	0.00722	0	None	No	0.01	Param.
Mercury (mg/L)	MCM-04	0.0005	0.0005	0.002	No 10	0.000521	0.00006641	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-05	0.0005	0.0005	0.002	No 10	0.0004542	0.0001448	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-07	0.0005	0.0005	0.002	No 10	0.000517	0.00005376	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-14	0.0005	0.0005	0.002	No 10	0.000516	0.0000506	90	None	No	0.011	NP (NDs)
Mercury (mg/L)	MCM-17	0.0005	0.0005	0.002	No 10	0.0004676	0.0001579	80	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	MCM-05	0.01	0.01	0.01	No 11	0.0092	0.002653	90.91	None	No	0.006	NP (NDs)
Molybdenum (mg/L)	MCM-06	0.01	0.0017	0.01	No 12	0.007358	0.003909	66.67	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	MCM-17	0.01	0.01	0.01	No 11	0.009264	0.002442	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-04	0.01	0.01	0.15	No 11	0.009318	0.002261	90.91	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-05	0.01	0.002	0.15	No 11	0.007845	0.003691	72.73	None	No	0.006	NP (NDs)
Selenium (mg/L)	MCM-06	0.01	0.0015	0.15	No 12	0.00575	0.003705	33.33	None	No	0.01	NP (normality)
Selenium (mg/L)	MCM-07	0.01	0.0021	0.15	No 11	0.005618	0.00361	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-12	0.01	0.0017	0.15	No 11	0.004836	0.004105	36.36	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-14	0.01	0.0018	0.15	No 11	0.006027	0.003962	45.45	None	No	0.006	NP (normality)
Selenium (mg/L)	MCM-17	0.01	0.0018	0.15	No 11	0.006009	0.003843	36.36	None	No	0.006	NP (normality)
Thallium (mg/L)	MCM-06	0.001	0.000076	0.002	No 12	0.000923	0.0002667	91.67	None	No	0.01	NP (NDs)
Thallium (mg/L)	MCM-17	0.001	0.001	0.002	No 11	0.0009218	0.0002593	90.91	None	No	0.006	NP (NDs)

Non-Parametric Confidence Interval

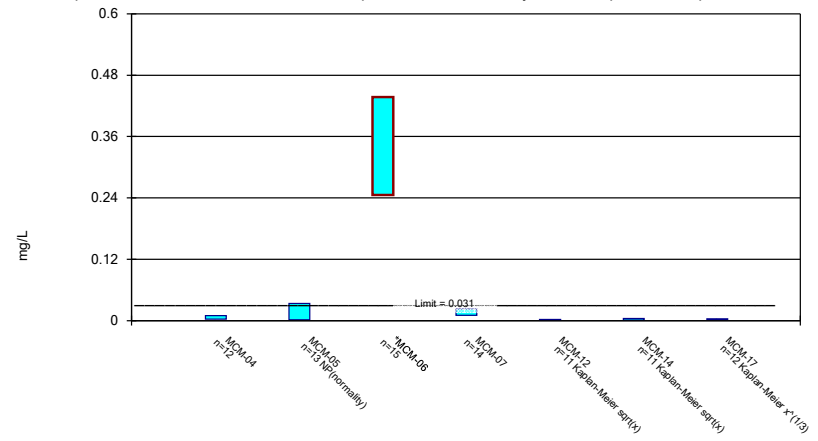
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Antimony Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

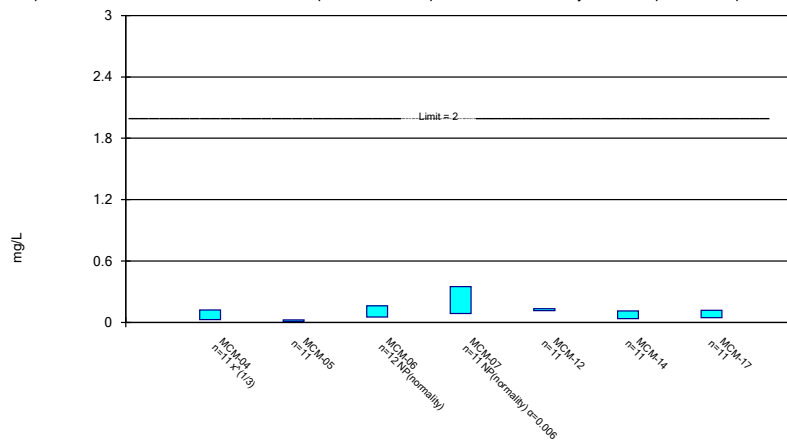
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

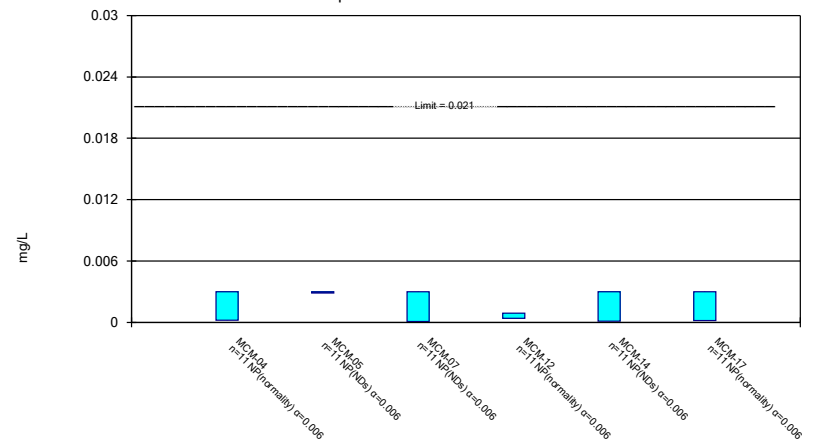
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

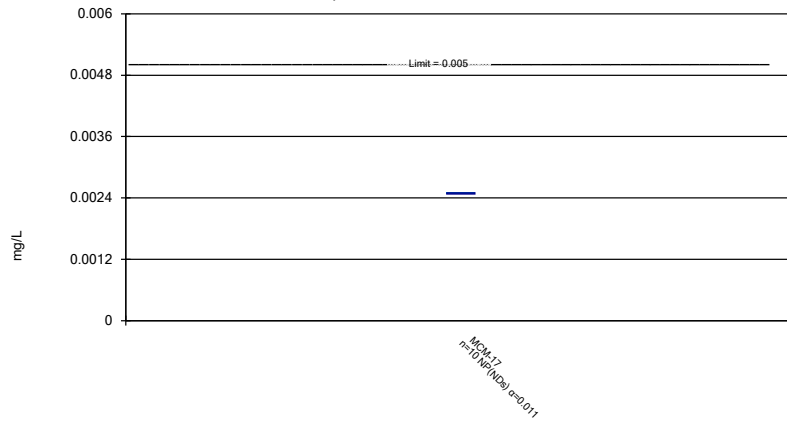
Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

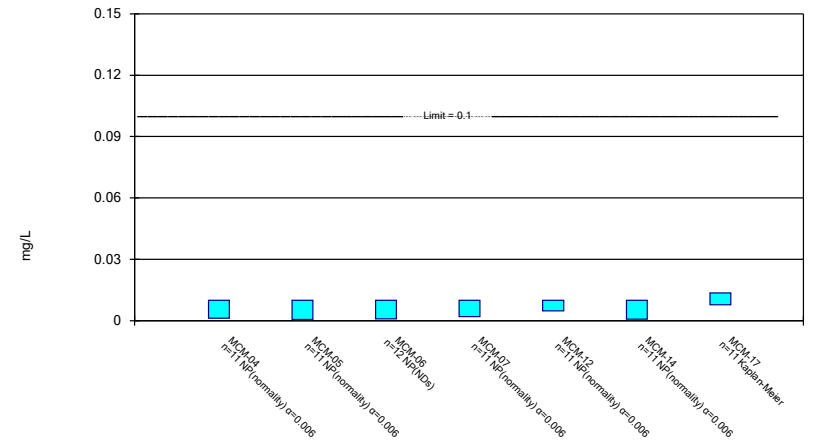
Compliance Limit is not exceeded.



Constituent: Cadmium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

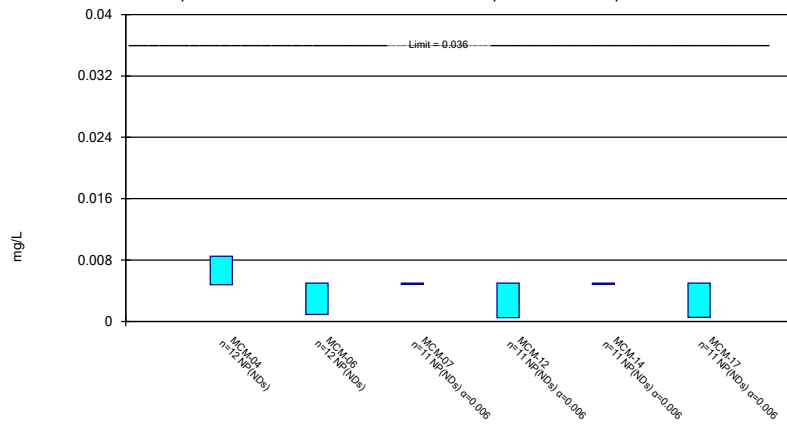
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

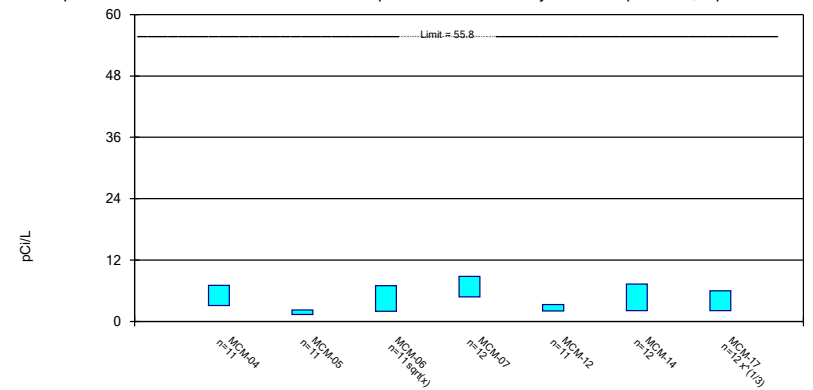
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Cobalt Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric Confidence Interval

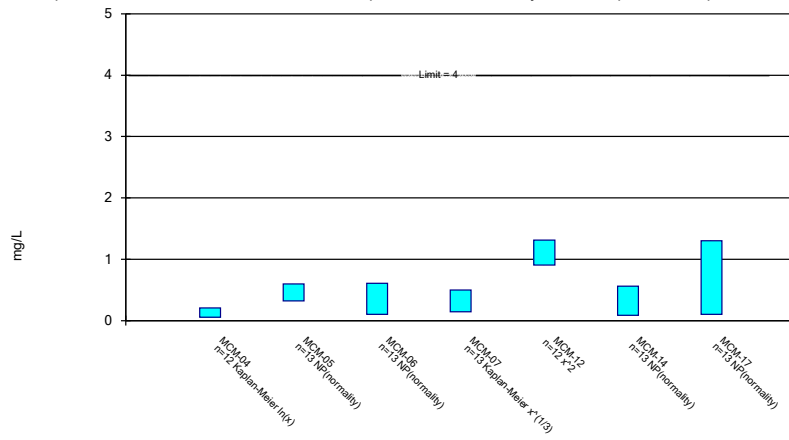
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

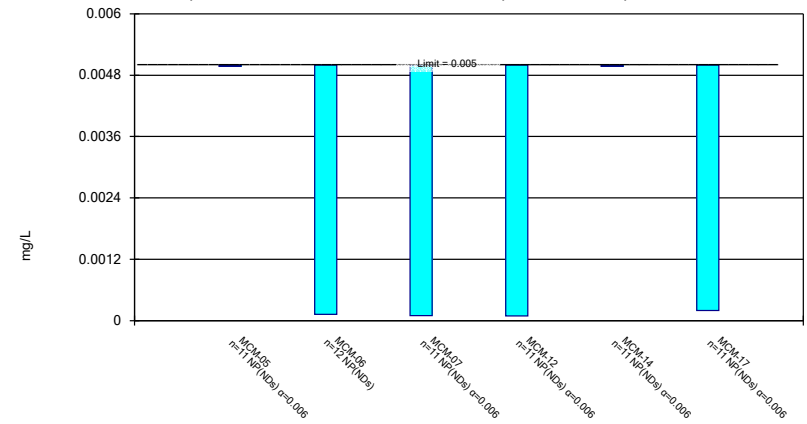
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

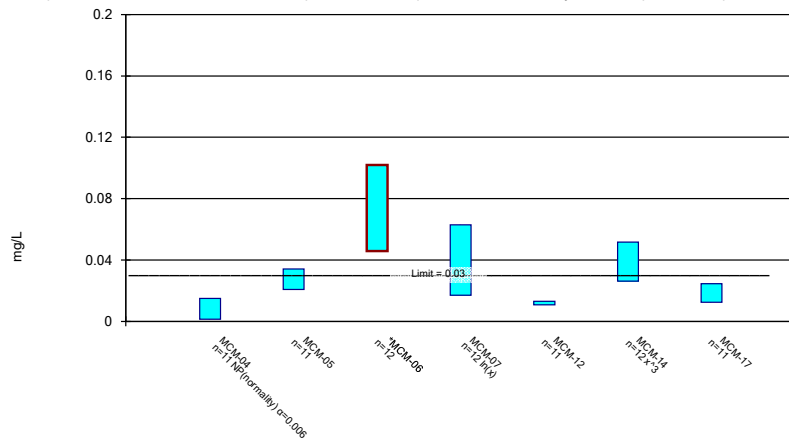
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Lead Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Parametric and Non-Parametric (NP) Confidence Interval

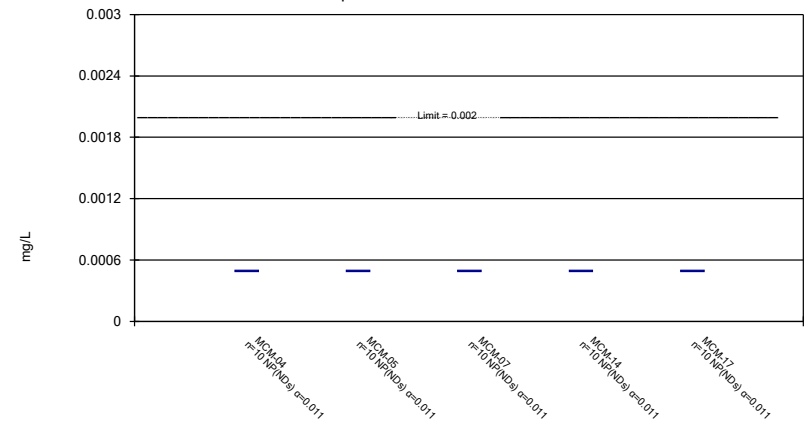
Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

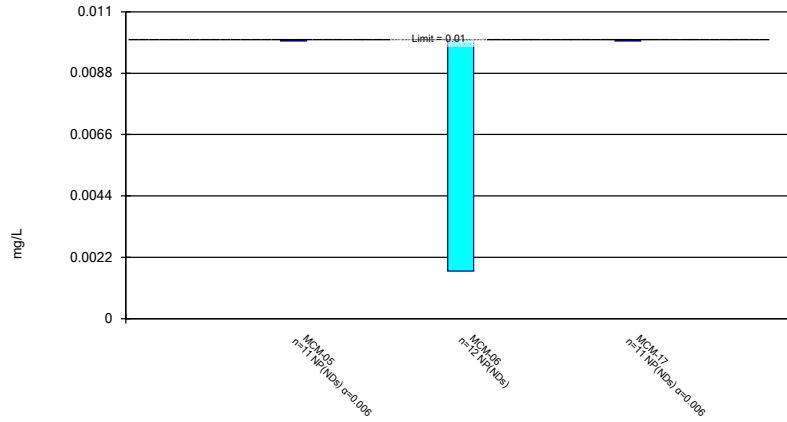
Compliance Limit is not exceeded.



Constituent: Mercury Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

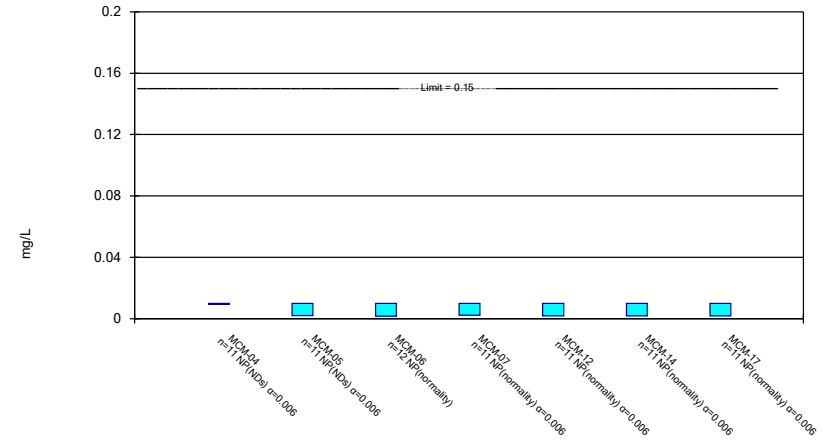
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Molybdenum Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

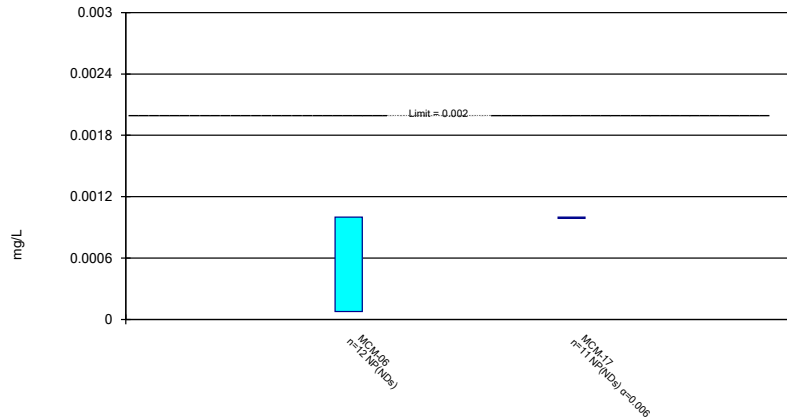
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Selenium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Thallium Analysis Run 5/13/2020 1:43 PM View: Appendix IV
 Plant McManus Client: Southern Company Data: McManus Ash Pond